Australian Commission on **Safety and Quality** in Health Care

Australian Guidelines for the Prevention and Control of Infection in Healthcare

3rd edition

Technical report: Systematic review of the effectiveness of transmission-based precautions

August 2026

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Published by the Australian Commission on Safety and Quality in Health Care

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Website: safetyandquality.gov.au
ISBN: 978-1-923353-58-9

The Commission's preference is that you attribute this publication (and any material sourced from it) using the following citation:

Australian Commission on Safety and Quality in Health Care. Australian Guidelines for the Prevention and Control of Infections in Healthcare, third edition:Technical report of the Effectiveness of Transmission-based Precautions. Sydney: ACSQHC; 2026.

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Contents

Background

The Australian Guidelines for the Prevention and Control of Infection in Healthcare (AICGs) are a key reference resource for healthcare services that implement the infection prevention and control actions of the National Safety and Quality Health Service Standards and Primary and community Healthcare standards and provides a basis to develop detailed protocols and processes for infection prevention and control specific to local settings.

These guidelines provide a nationally accepted approach to infection prevention and control, focusing on core principles and priority areas for action, and are underpinned by a risk-based approach which recognises that the level of infection risk may differ in different clinical settings, and for different patient populations. The recommendations in the AICGs provide the **minimum** standard for infection prevention and control interventions that should be used by healthcare workers and healthcare services

This revision of the AICGs addresses changes in evidence about the effectiveness of transmission-based precautions against multi-resistant organisms and respiratory viruses. To support this work, the Australian Commission on Safety and Quality in Health Care (the Commission) commissioned a third party, the Australian Centre for Health Services Innovation, School of Public health and Social work, Queensland University of Technology to undertake a systematic literature review on the effectiveness of transmission-based precautions. Evidence from the systematic review will support the revision of the clinical practice statements for transmission-based precautions in the AICGs.

Rationale for review

The National Health and Medical research Council (NHMRC) recommend that clinical practice guidelines be reviewed and updated at least every five years. The AICGs were last reviewed and updated in 2019. In recognition of the growth of infection prevention and control evidence in recent years, changes to the National Safety and Quality Health Service Standards, and the lessons learnt from the COVID-19 pandemic, an update of the AICGs is needed to ensure that this resource remains contemporaneous and applicable across the various settings that health care is provided in Australia.

Objectives of the review

A systematic review on the effectiveness of transmission-based precautions against multi-resistant organisms and respiratory viruses in healthcare settings was completed to support the revision of the clinical practice recommendations for transmission-based precautions. The systematic review was completed in two stages; Stage one was a rapid review of the literature to determine if there was sufficient evidence to support a full systematic review, Stage two was the full systematic review. Both stage one and two followed the same study methodology.

The systematic review evaluated the evidence for five review questions and two narrative questions:

Systematic review questions

1. Are transmission-based precautions more effective in preventing the transmission of infection in healthcare, compared to standard precautions alone?
2. How effective are each of the transmission-based precautions bundles (contact, droplet, airborne) against the transmission of:

i. Respiratory infections (viral and bacterial).
ii. Multidrug-resistant organisms.

3. How effective are the individual elements of transmission-based precautions (surgical masks, particulate filter respirators, apron/gown, gloves, protective eyewear, single room placement, negative pressure room placement) against the transmission of:
    i. Respiratory infections (viral and bacterial).
    ii. Multidrug-resistant organisms.
4. Is the respiratory precautions bundle more effective in preventing the transmission of respiratory infections (viral and bacterial), compared to:
    i. Droplet precautions, in addition to standard precautions.
    ii. Airborne precautions, in addition to standard precautions.
    iii. Combined droplet and airborne precautions, in addition to standard precautions.
5. Do contact precautions confer more protection than standard precautions against the transmission of infection, particularly infection caused by multidrug-resistant organisms?

Narrative review questions

6. What evidence is available to support using a risk assessment to inform on the choice of transmission-based precautions?
7. What evidence is available to support an environmentally sustainable approach to transmission-based precautions?

Systematic review methodology

The systematic review on the effectiveness of transmission-based precautions was completed in two stages; stage one - rapid review and stage two - full systematic review.

Stage 1 rapid review

The purpose of the stage one rapid review was to determine if there was sufficient evidence to complete a full systematic literature review on this topic, including risk of bias assessment and GRADE recommendations for all or selected review questions.

Stage one involved a rapid review of the research evidence from 1 January 2020 to 28 February 2025, excluding conference abstracts without public links to full conference proceedings, study protocols, letters to the editor, and commentaries; studies not conducted in a human population, and studies not publicly available in English or where no abstract was available.

Eligibility for the five systematic review questions was defined using Population-Intervention-Comparator-Outcome (PICO) criteria:

- **Population:** Healthcare workers or patients in healthcare settings.
- **Interventions:** Contact, droplet, airborne or respiratory precautions, or specified components of these precautions.
- **Comparators:** Depending on the review question, standard precautions, no precautions or another type of transmission-based precautions.
- **Outcomes:** Confirmed infection or colonisation in healthcare workers or patients, including multidrug-resistant organism or respiratory infection. Influenza-like illness (self-reported or positive laboratory test) could be used as a proxy when respiratory infection data was not reported.

The two narrative review questions, concerning risk assessment and environmental sustainability, were not subject to PICO definitions for final eligibility.

For the stage one rapid review, evidence was sought to determine if:

i. Clinical practice recommendations 20, 21, 23-28, and 32 in the AICGs, aligned with the current research evidence or required amendment, and
ii. To summarise evidence on respiratory precautions bundle (i.e., use of a particulate filter respirator, apron/gown and protective eyewear, and patient placement in a negative pressure room) and assess whether an additional recommendation on using respiratory precautions was needed.

The stage one rapid review concluded that there was sufficient evidence to conduct a full systematic review for the listed review questions. The stage one report recommended broader eligibility criteria for stage two, including an expanded publication period, comparator definitions, outcomes and publication types. These recommendations are summarised below:

- The comparator definition for review questions two and three be expanded to include standard precautions, no precautions, or another type of transmission-based precautions.
- The outcome definition for review questions one to five be expanded to include multi-drug-resistant colonisation and infection
- The scope of the narrative questions to be revised to include:
  - the role of transmission-based precautions on transmission risk in healthcare settings when implemented alongside other system-level infection prevention and control strategies, and
  - the role of surveillance in informing the use of transmission-based precautions, and
  - extended use of personal protective equipment (PPE) as part of transmission-based precautions beyond usual indicators (e.g., gloves, surgical masks), such as experience during the COVID-19 pandemic.

Stage two-full systematic review

The stage two systematic review incorporated the recommendations from the stage one report, expanding the eligibility criteria to:

- **Publication period:** 1 January 2015 to 31 August 2025.
- **Language:** Evidence written in English or with a publicly available English translation.
- **Population:** Human populations comprising healthcare workers or patients in healthcare settings.
- **Healthcare settings:** Hospitals, primary care settings, long-term care facilities and aged care facilities.
- **Information sources:** Biomedical literature databases, grey literature and clinical trial registries.
- **Included evidence types:** Peer-reviewed original research articles, review articles, letters to the editor, conference proceedings, policy documents, published guidelines and position statements.
- **Excluded evidence types:** Conference abstracts without publicly accessible full proceedings or a subsequent peer-reviewed publication, study protocols, invited or expert commentaries, preprints, articles subject to an expression of concern and retracted articles.
- **Accessibility:** Evidence had to be available through a working web address or digital object identifier.

- **Other exclusions:** Publications outside the review period, publications unavailable in English, records that could not be retrieved and research involving non-human populations.

Eligibility for the five systematic review questions for the stage two review was defined using Population-Intervention-Comparator-Outcome (PICO) criteria:

Population: Healthcare workers (HCW) and patients in any healthcare setting. A healthcare setting was defined as a facility that delivers healthcare services, including hospitals, primary care settings and long-term care facilities, including aged care facilities. If evidence was available for different healthcare settings, included evidence sources were reported by healthcare setting.

Intervention: Definitions for each type of transmission-based precautions aligned with the AICGs (2019). All transmission-based precautions must be used in addition to standard precautions. Evidence sources where this requirement was not stated in the title or abstract proceeded to full-text review if the remaining PICO element and other inclusion criteria were met. After reading the full-text, records that described transmission-based precautions without compliance with standard precautions were excluded.

The transmission-based precautions and sections numbers from the AICGs (2019) are:

- Contact precautions (Section 3.2.2): Appropriate PPE use (aprons/gowns, gloves), patient placement (e.g., single room, cohorting), and minimising patient movement.
- Droplet precautions (Section 3.2.3): Appropriate PPE use (surgical mask, protective eyewear/face shield), patient placement (single room, cohorting), and minimising transfer or transport.
- Airborne precautions (Section 3.2.4): Appropriate PPE use (correctly fitted particulate filter respirator e.g., P2, N95, protective eyewear), patient placement (negative pressure room).
- Respiratory precautions: There was no consistent definition for respiratory precautions, based on published literature. The working definition for respiratory precautions used in the review included use of a mask (either a surgical mask or particulate filter respirator [P2, N95], apron/gown, protective eyewear and patient placement (negative pressure room), in conjunction with standard precautions. Evidence sources that mention respiratory precautions without a description of key elements in the abstract proceeded to full-text review, provided that the remaining PICO elements and other inclusion criteria were met.

Comparator:

- For systematic review questions one and five and narrative review questions six and seven, the comparator definition was standard precautions alone.
- For review questions two and three, the comparator definition was standard precautions, no precautions or another type of transmission-based precautions.
- For review question four, the comparator definition was no precautions or standard precautions, combined with droplet and/or airborne precautions.

Standard precautions were defined per the AICGs (2019) (Section 3.1): hand hygiene, appropriate PPE use (i.e.: PPE may include aprons, gowns, gloves, surgical masks, protective eyewear and face shields or a combination of several of these items used to protect the wearer from exposure (handling, spray) to blood (including dried blood); all other body fluids (excluding sweat), regardless of whether they contain visible blood; non-intact skin; and mucous membranes), the safe use and disposal of sharps, routine environmental cleaning, reprocessing of reusable medical equipment and instruments, respiratory hygiene and cough etiquette, aseptic technique, waste management and appropriate linen handling.

Other types of transmission-based precautions included contact precautions, airborne precautions, droplet precautions or a combination of these (contact and droplet, contact and airborne or droplet and airborne) in addition to standard precautions.

Outcome: Confirmed infection or colonisation in the HCW and patient population. Evidence reporting on single or multiple infections was included. Composite infection outcomes that combined two or more outcomes were included. The primary reported outcome included point prevalence, period prevalence or incidence per population denominator if point prevalence was not reported. Influenza-like illnesses (ILIs) were used as a proxy marker if infection was not confirmed by positive laboratory results. MDRO colonisation was considered for review questions one to five.

The final report combined the findings from both stages and established the final eligibility criteria for the review of the effectiveness of transmission-based precautions. The stage 2 report on the systematic review on the effectiveness of transmission-based precautions is included in **Appendix 1.**

Literature search strategies

Systematic literature searches were completed in September 2025, using the following electronic databases:

The Stage 2 report searched:

- PubMed
- EMBASE
- CINAHL
- Cochrane.

Grey literature searches covered:

- Australian Government domains
- Australasian College for Infection Prevention and Control
- Australian Centre for Disease Control
- Commonwealth Scientific and Industrial Research Organisation
- Infection Prevention Society
- European Centre for Disease Prevention and Control
- World Health Organization
- European Society of Clinical Microbiology and Infectious Diseases
- United Kingdom National Health Service.

ClinicalTrials.gov and the Australian New Zealand Clinical Trials Registry were also searched for publications reporting trial results. Snowballing, reference-list searching and records provided by the Commission were additional sources.

A single search framework covered all seven review questions. Biomedical database searches combined indexed terms and keywords by Population-Intervention-Comparator-Outcome element. Grey literature searches used keywords with site-domain and document-type filters. The full database filters are contained in **Appendix 2** of this report.

Two independent reviewers screened titles and abstracts. Conflicts were resolved through consensus. Full-text eligibility was determined against the complete eligibility criteria, and eligible records were assigned to relevant review questions. The same record could address more than one review question.

Data extraction and synthesis methods

Data were extracted from each eligible full-text record using the PICO framework.

Evidence addressing review questions 1 to 5 was grouped and synthesised by the type of transmission-based precautions to be evaluated. Evidence addressing narrative review questions 6 and 7 was synthesised thematically.

For review questions 1 to 5, a random-effects meta-analysis was conducted by target organism when at least three records reported sufficient comparable data. Sufficient data comprised of incidence rate ratios and 95% confidence intervals comparing the intervention and comparator conditions. Where a 95% confidence interval was not reported, a standard error was calculated from the reported sample size when the necessary information was available. Meta-analyses were conducted using the *metafor package in R* and presented as forest plots.

Where quantitative synthesis was not possible, the evidence was synthesised narratively and presented in supporting evidence tables. The systematic report identified variation in comparator definitions and outcome measures as reasons why some evidence could not be combined in a meta-analysis.

Results of the search for evidence (PRISMA)

The search and selection results were reported separately for biomedical literature databases and for grey literature and other sources. The search results are listed below.

Biomedical literature databases searches identified a total of 34,501 records:

- EMBASE*: n* = 22,344
- PubMed*: n* = 9,477
- CINAHL: *n* = 2,213
- Cochrane: *n* = 467.

After removing 6,855 duplicates, 27,646 records remained. A further 496 records were removed before title and abstract screening:

- 317 were published outside the review period
- 5 did not have an English-language abstract
- 174 did not report an abstract or digital object identifier.

27,150 records underwent title and abstract screening. 26,747 records were excluded at title and abstract screening:

- population: *n* = 9,684
- intervention: *n* = 13,904
- comparator: *n* = 5
- outcome: *n* = 2,726
- other reasons: *n* = 428.

403 full-text records were assessed for eligibility, with 317 full-text records were excluded:

- population: *n* = 9
- intervention: *n* = 47
- comparator: *n* = 74
- outcome: *n* = 25
- other reasons, including ineligible publication types: *n* = 162.

A total of 86 records identified through the biomedical literature database searches met the eligibility criteria.

A search of grey literature and other sources identified an additional 457 records. **Appendix 3** includes the search criteria for grey literature and other sources used for this review.

A total of 441 records were excluded:

- outcome: *n* = 3
- other reasons, principally lack of relevance to the review questions: *n* = 438.

A total of 13 additional unique records were included from grey literature and other sources.

Across all sources, 99 unique eligible evidence sources were identified for inclusion in the systematic review (*n* = 86 records from biomedical literature databases and *n* = 13 additional records from grey literature and other sources). Because one record could address more than one review question, the numbers assigned to individual review questions exceed the number of unique included records.

The included records were assigned to the review questions as follows:

- Review Question 1: 17 records
- Review Question 2: 43 records
- Review Question 3: 11 records
- Review Question 4: 1 record
- Review Question 5: 15 records
- Review Question 6: 38 records
- Review Question 7: 7 records.

Risk of bias assessments

The stage two systematic review included a risk-of-bias assessment for studies addressing any of the five review questions. Risk-of-bias was assessed using tools appropriate to the study design:

- Risk Of Bias In Non-randomized Studies of Interventions (ROBINS-I) was used for non-randomised studies.
  ROBINS-I evaluated the following domains:
  - Bias due to confounding
  - Bias due to selection of participants
  - Bias in classification of interventions
  - Bias due to deviations from intended interventions
  - Bias due to missing data
  - Bias in measurement of outcomes
  - Bias in selection of reported result.
- Risk of Bias 2 (RoB 2) was used for randomised studies.
  RoB 2 evaluated the following domains:
  - Bias arising from the randomisation process
  - Bias due to deviations from intended intervention
  - Bias due to missing outcome data
  - Bias in measurement of the outcome
  - Bias in selection of the reported result.
- The results were presented visually using the robvis tool.

The assessment considered four potential sources of confounding identified during stage one:

- **Time-based confounding:** Most non-randomised evidence used retrospective or quasi-experimental designs to evaluate the introduction or discontinuation of transmission-based precautions in healthcare settings. Changes in outcomes over time could therefore have resulted from factors unrelated to the intervention. The potential for confounding increased with longer intervention and comparator periods.
- **Adherence to other infection prevention and control strategies:** Changes in adherence to concurrent measures, such as hand hygiene, could have affected outcomes independently of the transmission-based precautions. Reporting adherence during both intervention and comparator periods was therefore required to support interpretation of the findings.

- **Changes in screening practices:** Differences in active screening between intervention and comparator periods could have affected the detection of colonisation and infection and influenced decisions about the use of transmission-based precautions.
- **Pandemic and endemic settings:** Evidence generated during the coronavirus disease 2019 pandemic may have limited applicability to routine, non-pandemic healthcare settings.

Risk-of-bias findings were reported separately for:

- randomised studies evaluating contact precautions
- non-randomised studies evaluating contact precautions
- studies evaluating droplet, airborne or respiratory precautions
- randomised studies evaluating components of transmission-based precautions
- non-randomised studies evaluating components of transmission-based precautions.

Randomised studies generally had fewer risk-of-bias concerns than non-randomised studies. The principal concerns in non-randomised studies related to time-based confounding, participant selection, outcome measurement and incomplete reporting of adherence to concurrent infection prevention and control measures. Many studies relied on unadjusted comparisons or did not adequately account for temporal changes, concurrent interventions or differences in patients' time at risk, which in turn also limited the ability to attribute reported outcomes solely to the transmission-based precautions being evaluated. The risk-of-bias for non-randomised studies ranged from moderate to critical.

Study characteristics

The evidence base for transmission-based precautions was heterogeneous in terms of healthcare settings, target organisms, intervention components and study designs. Most evidence evaluated contact precautions for multidrug-resistant organisms, particularly methicillin-resistant *Staphylococcus aureus* (MRSA), vancomycin-resistant *enterococci* (VRE) and extended-spectrum beta-lactamase-producing (ESBL) organisms (*n* = 38). Original research studies (*n* = 33) were further categorised into introducing contact precautions in addition to standard precautions (*n* = 13) or discontinuing contact precautions (*n* = 20). Comparatively little evidence evaluated droplet, airborne or respiratory precautions (*n* = 5), and only a small number of studies directly assessed individual components of transmission-based precautions, such as patient placement, gloves and gown use, or respiratory protective equipment.

The evidence was predominantly derived from observational studies conducted in acute-care hospital settings. Randomised studies were uncommon and were largely limited to selected transmission-based precaution components. Most evaluations occurred in intensive care units, haematology and oncology wards, or hospital-wide programs addressing multidrug-resistant organism transmission. Evidence from primary and community care settings (*n* = 1), and residential aged care settings (*n* = 3) was limited.

Across the review questions, interventions were frequently implemented alongside other infection prevention and control measures, including active surveillance, hand hygiene programs, environmental cleaning initiatives, patient cohorting and antimicrobial stewardship programs. Consequently, the independent contribution of transmission-based precautions to observed outcomes was often difficult to determine. This limitation was consistently reflected in the certainty of evidence assessments.

Appendix 4 includes a detailed list of all studies included in the stage two systematic review.

Levels of evidence

The stage two systematic review used the Grading of Recommendations Assessment, Development and Evaluation (GRADE) approach to assess the level of evidence for review questions 1 to 5. Level of evidence ratings ranged from very low to moderate. The quality of evidence was downgraded because of a high risk-of-bias, inconsistency, indirectness and imprecision, reflecting the predominance of non-randomised study designs, heterogeneous interventions and variable outcome reporting.

Contact precautions for multidrug-resistant organisms

The systematic review evaluated the introduction, continuation and discontinuation of contact precautions for a range of multidrug-resistant organisms.

The level of evidence addressing the effectiveness of contact precautions for MRSA, VRE and ESBL organisms was generally assessed as low to moderate. Much of the evidence was derived from observational studies in which contact precautions were implemented or discontinued alongside other infection prevention and control measures, including hand hygiene programs, environmental cleaning, active surveillance and chlorhexidine bathing. Meta-analysis was not possible for all studies included in the systematic review.

Table 1 Studies examining discontinuation of contact precautions

Outcome (colonisation/clinical infection)	Relative effect	Level of evidence
Methicillin-resistant *Staphylococcus aureus*	Incidence rate ratio 0.85 (95% CI 0.76 to 0.96)	Low to moderate
Vancomycin-resistant *enterococci*	Incidence rate ratio 0.98 (95% CI 0.81 to 1.18)	Low to moderate
Extended-spectrum beta-lactamase-producing organisms	Incidence rate ratio 0.89 (95% CI 0.74 to 1.06)	Low to moderate

For carbapenem-resistant *Acinetobacter baumannii*, contact precaution were associated with reduced transmission in intensive care settings. The pooled incidence rate ratio was 0.27 (95% CI 0.09 to 0.81); however, there were insufficient studies to conduct a meta-analysis of the data. The overall level of evidence remained low because of reliance on non-randomised studies and substantial heterogeneity between studies.

Droplet, airborne and respiratory precautions

Five studies evaluated droplet, airborne or respiratory precautions. Interventions, comparator conditions and outcome measures differed substantially across studies, and no pooled quantitative synthesis was undertaken.

The level of evidence addressing the effectiveness of transmission-based precautions to reduce the risk of respiratory viral infections transmission, including coronavirus disease 2019, was assessed as very low to low. The level of evidence ratings reflected observational study designs, indirectness and methodological limitations.

Components of transmission-based precautions

The systematic review examined the individual components of transmission-based precautions, against the transmission of respiratory infections and multi-drug-resistant organisms, including:

- patient placement
- gloves and gown use
- surgical masks
- particulate filter respirators.

The level of evidence for patient placement strategies, including single-room isolation and cohorting, was assessed as low to moderate. The available studies had heterogeneous interventions, organisms and outcome measures, preventing meta-analysis.

Evidence for gloves and gowns was assessed as moderate certainty, although the number of studies was limited. Evidence comparing medical masks and particulate filter respirators for respiratory infection prevention was also assessed as moderate certainty, with few risk-of-bias concerns identified in the randomised evidence.

Table 2 Overall certainty of evidence across the review questions

Evidence category	Overall quality of evidence
Transmission-based precaution bundles for respiratory infections	Very low to low
Transmission-based precaution bundles for multidrug-resistant organisms	Low to moderate
Patient placement strategies	Low to moderate
Gloves and gowns	Moderate
Medical masks and particulate filter respirators	Moderate

Developing recommendations

The Commission convened a Guideline Development Group to assess the evidence from the systematic review and development the clinical practice recommendations as per the Procedures and requirements for meeting the NHMRC's Standards for Clinical Practice Guidelines.

The Guideline Development Group (GDG) consisted of multidisciplinary Members, including representatives of relevant clinical disciplines, clinical experts, end users, and consumers. The GDG was representative of different geographic areas, professions and genders. A list of GDG membership is included in **Appendix 5**.

The GDG was responsible for reviewing the findings of the systematic review on the effectiveness of transmission-based precautions in healthcare. This was to determine if the clinical practice recommendations in the AICGs needed to be updated or if new recommendations are required to inform clinical practice.

All evidence was assessed against GRADE criteria. The GDG voted on the criteria that should be considered for the development of the clinical practice recommendations, using a Microsoft Teams polling tool.

Assessment of the evidence – use of the GRADE process

The NHMRC recommends the use of the Grading of Recommendations Assessment, Development and Evaluation (GRADE)Grading of Recommendations Assessment, Development and Evaluation (GRADE)approach to ascertain the certainty of evidence from systematic reviews and inform the development of guideline recommendations. GRADE considers the following factors:

- the risk of bias
- the precision of the effect estimates
- the consistency of the individual study results
- how directly the evidence answers the questions of interest
- the risk of publication biases
- a large effect size
- a dose-response relationship
- plausible confounders affecting the result.

The GRADE categorises the certainty of the research evidence as described in **Table 3**.

Table 3: Interpretation of the four levels of evidence used in the GRADE profile (GRADE Working Group 2013)

GRADE	Definition
High	We are very confident that the true effect lies close to that of the estimate of the effect
Moderate	We are moderately confident in the effect estimate: the true effect is likely to be close to the estimate of the effect, but there is a possibility that it is substantially different
Low	Our confidence in the effect estimate is limited: the true effect may be substantially different from the estimate of the effect
Very low	We have very little confidence in the effect estimate: the true effect is likely to be substantially different from the estimate of effect

An evidence quality appraisal and GRADE analysis was undertaken by the GDG to determine the certainty of evidence for the systematic review. The summary is provided in **Table 4**

Table 4: Summary of review questions and appraisal by the GDG

Review questions	Certainty of evidence
1. Are transmission-based precautions more effective in preventing the transmission of infection in healthcare, compared to standard precautions alone? *Studies included: n = 17* • *Contact precautions: n = 15* • *Droplet precautions: n = 1* • *Airborne precautions: n = 1*	Contact precautions: **Low to moderate** Droplet precautions: **Low** Airborne precautions: **Very low**
2. How effective are each of the transmission-based precautions bundles (contact, droplet, airborne) against the transmission of: i. Respiratory infections (viral and bacterial) ii. Multidrug-resistant organisms. *Studies included: n = 43* • *Respiratory infections: n = 5* • *Multidrug-resistant organisms: n = 38*	Respiratory infections: **Low** Multidrug resistant organisms**: Low to moderate**
3. How effective are the individual elements of transmission-based precautions (surgical masks, particulate filter respirators, apron/gown, gloves, protective eyewear, single room placement, negative pressure room placement) against the transmission of: i. Respiratory infections (viral and bacterial) ii. Multidrug-resistant organisms. *Studies included: n = 11* • *Respiratory infections: n = 3* • *Multi-resistant organisms n = 8*	Respiratory infections: •Masks/respirators: **Moderate** •Patient placement: **Low** Multidrug resistant organisms: •Gloves/gowns **Moderate** Patient placement: **Low to Moderate**
4. Is the respiratory precautions bundle more effective in preventing the transmission of respiratory infections (viral and bacterial), compared to: i. Droplet precautions, in addition to standard precautions ii. Airborne precautions, in addition to standard precautions iii. Combined droplet and airborne precautions, in addition to standard precautions.	Respiratory precautions: **Very Low**

Studies included: n = 1	

Table 4 Summary of review questions and appraisal by GDG (cont)

Review questions	Certainty of evidence
5. Do contact precautions confer more protection than standard precautions against the transmission of infection, particularly infection caused by multidrug-resistant organisms? *Studies included: n = 21*	Multidrug-resistant organisms: **Low to Moderate**
6. (narrative review question) What evidence is available to support using risk assessment to inform on the choice of transmission-based precautions? *Studies included: n = 38*	The review found there was support from patients and healthcare workers for the use of a risk assessment approach to the implementation of transmission-based precautions, however a successful risk-based approach needs to be supported by other infection prevention and control strategies.
7. (narrative review question) What evidence is available to support an environmentally sustainable approach to transmission-based precautions? *Studies included: n = 7*	All evidence focused on reducing unnecessary personal protective equipment (PPE). The review found a reduction in PPE use does have a positive impact on environmental sustainability.

Development of evidence summaries

Development of the clinical practice recommendations for transmission-based precautions was undertaken using the GRADE Evidence to Decision (EtD) framework. The GDG systematically reviewed the evidence from the stage two systematic review and considered the balance of benefits and harms, certainty of evidence, values and preferences, acceptability, feasibility, resource implications, economic considerations and environmental sustainability considerations.

The process was undertaken in multiple stages between March and July 2026 and incorporated evidence review, structured EtD assessment, two rounds of polling, deliberative discussion, revision of EtD frameworks, and development of draft recommendations and good practice statements. The GDG endorsed the draft revised recommendations and new good practice statement for public consultation.

Development of draft Evidence to Decision frameworks

At Meeting 2 of the GDG on 30 March 2026, Members were formally introduced to the EtD methodology that would be used for the recommendation development. The Commission presented a two-part process consisting of review of evidence from the systematic reviews followed by structured consideration of key EtD criteria. Microsoft teams polling was used to understand the group's assessment of the evidence across EtD domains, identify areas of agreement and uncertainty, and inform future discussion rather than determine final recommendation wording. Reflective questions from Meeting 2 are included in **Appendix 6**.

The GDG reviewed evidence summaries and proposed revisions to existing recommendations relating to contact precautions, droplet precautions, airborne precautions, the use of particulate filter respirators and transmission of multidrug-resistant organisms.

Members also considered a proposal to develop a new good practice statement regarding respiratory precautions.

Initial Evidence to Decision assessment

Following Meeting 2 of the GDG, Members completed an anonymous out-of-session polling process. The polling process used reflective questions developed around key EtD domains to support the EtD framework including:

- Benefits and harms
- Certainty of evidence
- Generalisability and applicability
- Values and preferences
- Acceptability
- Resource implications
- Economic sustainability
- Environmental sustainability.

Members were encouraged to identify any uncertainty where appropriate and provide explanatory comments regarding concerns for implementation challenges, unintended consequences and other contextual considerations. Polling responses were collated by the Commission and used to identify domains requiring further deliberation. Results of reflective questions for Transmission-based precautions are included in **Appendix 7.**

Review of the polling outcomes demonstrated agreement across the majority of EtD domains but also identified several concerns requiring further discussion before the revised recommendations could be drafted. Uncertainty related primarily to:

- Appropriate application of risk-based glove use for contact precautions;
- Circumstances in which routine glove use could be reduced without compromising safety of HCW or patients;
- Interpretation and implementation of standard precautions versus contact precautions;
- Selection of masks and respirators across different clinical situations;
- Management of novel respiratory infections where transmission routes may be uncertain;
- Implementation requirements for transmission-based precautions across different healthcare settings; and
- Economic and environmental implications associated with PPE use.

Members repeatedly highlighted the importance of clinical context, local risk assessment and implementation practicality. Members emphasised that the recommendations should support decision-making across diverse healthcare environments and be accompanied by explanatory text where necessary.

Deliberation and repeated polling

The Commission synthesised the polling results and prepared discussion papers identifying EtD domains in which uncertainty remained. These papers were presented at Meeting 3 of the GDG in May 2026 and formed the basis of targeted discussion by the GDG. Results of reflective questions for Transmission-based precautions are included in **Appendix 7**

The purpose of Meeting 3 was to consider how evidence should be translated into practical guidance and to determine whether the identified concerns could be addressed through refinement of narrative text or good practice statements.

Key discussion points for Meeting 3 focused on:

- The relationship between standard precautions and contact precautions
- Appropriate and sustainable glove use
- Minimum requirements for all transmission-based precautions
- Use of masks and respirators

- Respiratory precautions and implementation challenges across different settings.

Members discussed concerns regarding overuse of gloves, potential impacts on hand hygiene compliance and the need for clear guidance describing when gloves should and should not be used. Members also supported a risk-based approach to respiratory precautions and recognised the need for flexibility when responding to novel respiratory pathogens.

Following discussion, Members participated in a second round of anonymous polling focused on the unresolved EtD criteria. The co-Chairs emphasised that polling was intended to test alignment on concepts and identify direction rather than finalise wording. Polling demonstrated increased alignment across the group and strong support for incorporation of clinical context, local risk assessment, implementation guidance, resource considerations, economic considerations and environmental sustainability considerations within the revised recommendations, new good practice statement and EtD frameworks. Meeting 3 notes are included in **Appendix 8.**

Development of revised transmission-based precautions recommendations

The systematic review findings, EtD assessments, Member deliberations and polling outcomes informed development of revised transmission-based precaution recommendations. Throughout the process, Members emphasised that recommendations should be practical, implementable and supported by clear narrative explanation to facilitate consistent application across healthcare settings.

Draft revisions were developed for:

- Conditional Recommendation 21 (contact precautions)
- Conditional Recommendation 24 (droplet precautions)
- Recommendation 26 (airborne precautions).

Collectively, the draft revisions reflected a stronger emphasis on risk assessment, context-specific decision-making and proportional use of PPE. The revised recommendations incorporated key themes that emerged throughout the EtD process, including reinforcement of standard precautions in addition to transmission-based precautions, consideration of the local clinical context when implementing transmission-based precautions, outlining the minimum requirements of transmission-based precaution, and how they can be escalated or de-escalated when necessary.

The review process also identified duplication and inconsistency with the existing recommendations. As a result, draft proposals were developed to remove two recommendations:

- Conditional Recommendation 27 was considered duplicative of the revised Recommendation 26 which adopts a risk-based approach to airborne precautions and does not specify particular respirator types (N95 or P2). Retaining a separate recommendation that specifically referenced P2 or N95 respirators would result in inconsistency within the updated recommendations.
- Conditional Recommendation 32 was considered duplicative of content incorporated within the revised conditional recommendation 21- the principles relating to contact precautions for multidrug-resistant organisms were addressed within the broader recommendation. Removal was intended to improve consistency and reduce duplication within the guideline.

These proposed removals were documented to support transparency in the guideline update process and were presented alongside the revised recommendations and good practice statement for consideration by the GDG.

Development of a new good practice statement

The GDG identified a need for practical guidance regarding implementation of respiratory precautions. Although evidence supporting respiratory precaution bundles was assessed as very low, Members agreed that guidance was required to support decision-making regarding when to implement respiratory precautions, particularly where uncertainty exists regarding transmission routes. The resulting draft good practice statement adopted a risk-based approach informed by local epidemiology, clinical context and patient factors.

Based on the findings from the systematic review, Members agreed that Recommended Action 26 – Airborne precautions should be downgraded to a good practice statement. The systematic review found the evidence the effectiveness of airborne precautions to be very low to low but agree that healthcare workers would prefer to continue to use airborne precautions over droplet precautions for a number of infectious diseases, such as measles and tuberculosis.

Consideration of evidence limitations and implementation issues

Throughout recommendation and god practice statement development, Members considered the strengths and limitations of the available evidence, with the potential impact of the recommendations on clinical practice. Common limitations included low-certainty evidence, reliance on observational study designs, limited generalisability across healthcare settings, heterogeneity of interventions and uncertainty regarding economic and environmental outcomes.

The GDG consistently recognised that implementation would depend not only on evidence of effectiveness but also on practicality, workforce behaviour, infrastructure constraints, local resources and healthcare context. Consequently, explanatory narrative text, implementation guidance and risk-based approaches were considered important complementary elements of the revised recommendations and good practice statements.

Endorsement process

The draft wording of the revised clinical practice recommendations, new good practice statement, downgrading of recommendation 26 and revision of the EtD frameworks were presented to the GDG at Meeting 4 on 28 July 2026. Members were asked to review the wording of the revised recommendations, and the supporting EtD frameworks, consider the rationale supporting each recommendation and determine whether the materials should proceed to public consultation. Members were also asked to consider the proposed removal of Conditional Recommendations 27 and 32.

Members discussed the proposed wording of the revised recommendations and good practice statement and provided feedback. Amendments to the wording of the revised recommendations and new good practice statement were made, re circulated to the members and final feedback on the EtD was provided out of session.

Public and independent expert consultation

Public and independent expert consultation is planned for 31 August to 29 September 2026.

The final drafts of the clinical practice recommendations and new good practice statements for transmission-based precautions will be available on the Commission's website for public consultation. The commission will also collect general feedback on the current edition of the AICGs to inform ongoing maintenance of the guideline. The Commission will collate feedback from the consultation and present the outcomes of the public consultation to the GDG at Meeting 5, to be held in November 2026 prior to submitting the third edition of the AICGs to the NHMRC for endorsement.

Appendices

Appendix 1: Stage 2 report -Systematic review on the effectiveness of transmission-based precautions

Australian Commission on Safety and Quality in Healthcare: Literature Review and GRADE assessment

Stage 2 report

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December 2025

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Keywords:

Health Care, Clinical Care, Infection control, Transmission-based precautions, Healthcare-associated infections, Multidrug-resistant organisms, Respiratory infections.

Contents

Summary of changes

Date	Version	Summary of changes
11 November 2025	1	Draft prepared
18 November 2025	1.1	Revised draft
26 November 2025	2.0	Final draft pending Client feedback
8 December 2025	2.1	Corrections to Tables 9, 15 and corresponding narrative text on p. 48.
11 December 2025	3.0	Client feedback addressed

List of acronyms

Acronym	Definition
ACSQHC	Australian Commission on Safety and Quality in Health Care
CDC	Centers for Disease Control
CDI	*Clostridioides difficile* infection
CLABSI	Central line-associated bloodstream infections
CRAB	Carbapenem-resistant *Acinetobacter baumannii*
CRE	Carbapenem-resistant *Enterobacterales*
DDD	Daily defined dose
DOI	Digital Object Identifier
ESBL	Extended-Spectrum Beta-Lactamase
HAI	Healthcare-associated infection
HCW	Healthcare worker
ICU	Intensive care unit
MDRO	Multidrug-resistant organism
MRSA	Methicillin-resistant *Staphylococcus aureus*
NHS	National Health Service
PICO	Population-Intervention-Comparator-Outcome
PPE	Personal protective equipment
VRE	Vancomycin-resistant *enterococci*

List of Tables

List of Figures

Appendices

Executive Summary

The Australian Centre for Health Services Innovation (AusHSI) conducted a rapid evidence review for the Australian Commission on Safety and Quality in Health Care (ACSQHC) to examine the effectiveness of transmission-based precautions in healthcare settings. In addition, a narrative review synthesised evidence on the use of risk assessment to guide the choice of transmission-based precautions and on environmentally sustainable approaches to these precautions.

The review covered evidence published between January 2015 and August 2025. Eligible sources included biomedical literature databases and grey literature. Evidence addressing the effectiveness of transmission-based precautions underwent risk-of-bias assessment to inform GRADE recommendations.

The search strategy retrieved 34,501 records from biomedical databases, reduced to 27,150 after removing duplicates and applying initial exclusions. Grey literature searches and snowballing identified an additional 457 records. Double-blinded screening and full-text assessment yielded 99 eligible records: 86 relevant to one or more systematic review questions and 44 relevant to one or both narrative review questions.

Evidence on effectiveness focused primarily on contact precautions (n = 38) compared with standard precautions or no contact precautions. Of these, 13 studies (including 3 cluster-randomised trials) evaluated the introduction of contact precautions for various multidrug-resistant organisms. Twenty records reported outcomes following discontinuation of contact precautions, with 17 specifically addressing Methicillin resistant Staphylococcus aureus (MRSA) and/or vancomycin-resistant enterococci (VRE). Evaluations of individual components of transmission-based precautions most often described patient placement as part of contact precautions (n = 9).

Findings on contact precautions were mixed. A meta-analysis of Acinetobacter baumannii in ICU settings suggested a benefit (pooled incidence rate ratio = 0.27; 95% CI: 0.09–0.81). Discontinuation studies generally reported no significant increase in MRSA, VRE, or ESBL infections (pooled incidence risk ratios: MRSA = 0.85; 95% CI: 0.76–0.96; VRE = 0.98; 95% CI: 0.81–1.18; ESBL = 0.89; 95% CI: 0.74–1.06). These findings occurred in contexts where contact precautions were discontinued alongside other infection prevention measures, such as hand hygiene, active surveillance, and daily chlorhexidine bathing.

Five records reported on the effectiveness of other types of transmission-based precautions (droplet, airborne, respiratory), including two records that evaluated their effectiveness during the COVID-19 pandemic. These low record numbers resulted from excluding peer-reviewed literature describing the use of these transmission-based precautions in outbreak responses, with no reported Comparator. Outcomes reported by eligible records indicated that droplet, airborne and respiratory precautions reduced infections relative to the reported comparator; however, meta-analysis was not possible due to inconsistent Comparator definitions and reported outcome measures.

Available evidence on components of transmission-based precautions considered patient placement for multidrug-resistant organisms (MDRO; n = 8) and respiratory infections (n = 1), the targeted use of gloves and gowns for managing MRSA transmission risk (n = 1) and the effectiveness of surgical masks versus particulate filter respirators on the transmission of respiratory viral infections (n = 1). Patient placement studies indicated similar MDRO incidence rates between patients subject to single-room versus ward-based cohorting, including evidence from one cluster-randomised trial. Meta-analysis was not conducted due to between-study heterogeneity in the comparator definition, the target organism(s) subject to patient placement, and reported outcome measures.

GRADE assessment concluded that certainty of evidence is Very Low to Low for the transmission-based precautions bundles against respiratory infections and Low to Moderate for multidrug-resistant organisms.

These ratings reflect reliance on non-randomised studies in varied patient populations, often from single healthcare sites.

Evidence on risk assessment highlighted factors influencing healthcare workers' and patients' perspectives, emphasising the need for clear communication on the rationale for precautions and balancing infection control with patient well-being. Strategies such as active screening and decision-making aids were reported as beneficial. As a key horizontal infection prevention measure, the effectiveness of transmission-based precautions—including discontinuation—should be interpreted alongside broader organisational strategies to reduce transmission risk.

Evidence on environmental sustainability focused on the impact of increased PPE use during the COVID-19 pandemic and the need for sustainable approaches to reduce carbon emissions. Available evidence supported reducing unnecessary glove use and exploring reuse strategies, with positive environmental and financial implications; however, evaluations remain limited, and downstream impacts on transmission risk are unclear.

Background

This report presents the full results of a literature review completed by the Australian Centre for Health Services Innovation, on behalf of the Australian Commission on Safety and Quality in Health Care. The purpose of the literature review was to identify and critically appraise available evidence on the use of transmission-based precautions in healthcare settings to prevent the transmission of multidrug-resistant organisms and respiratory infections.

The literature review was completed over two stages. In Stage 1, AusHSI conducted a rapid literature review published since 2020 to determine whether sufficient evidence exists to conduct a full systematic review for one or more review questions. Stage 1 findings were further used to recommend refinements to the review search strategy and the review inclusion and exclusion criteria. Recommendations were reviewed and approved before commencing Stage 2. This report presents combined findings from Stages 1 and 2.

Review questions

Available evidence sought to address five systematic review questions and two narrative review questions:

Systematic review questions

1. Are transmission-based precautions more effective in preventing the transmission of infection in healthcare, compared to standard precautions alone?
2. How effective are each of the transmission-based precautions bundles (contact, droplet, airborne) against the transmission of:
    i. Respiratory infections (viral and bacterial).
    ii. Multidrug-resistant organisms.
3. How effective are the individual elements of transmission-based precautions (surgical masks, particulate filter respirators, apron/gown, gloves, protective eyewear, single room placement, negative pressure room placement) against the transmission of:
    i. Respiratory infections (viral and bacterial).
    ii. Multidrug-resistant organisms.
4. Is the respiratory precautions bundle more effective in preventing the transmission of respiratory infections (viral and bacterial), compared to:
    i. Droplet precautions, in addition to standard precautions.
    ii. Airborne precautions, in addition to standard precautions.
    iii. Combined droplet and airborne precautions, in addition to standard precautions.
5. Do contact precautions confer more protection than standard precautions against the transmission of infection, particularly infection caused by multidrug-resistant organisms?

Narrative review questions

6. What evidence is available to support using risk assessment to inform on the choice of transmission-based precautions?
7. What evidence is available to support an environmentally sustainable approach to transmission-based precautions?

Search strategy

Full details of the search strategy are provided in the Stage 2 Project Plan.

Eligibility criteria

Eligible evidence sources were biomedical literature databases, grey literature, and clinical trials registries. Eligible evidence types across sources were peer-reviewed original research articles, review articles, letters to the editor, conference proceedings, policy documents, published guidelines, and position statements. The following evidence types were excluded: conference abstracts without public links to complete conference proceedings or subsequent peer-reviewed publication, study protocols, invited/expert commentaries, preprints, articles with a published expression of concern and retracted articles.

A systematic search strategy was developed to find evidence published between 1 January 2015 and 31 August 2025. To be eligible for one or more review questions, evidence had to be accessible online via a working web address or a digital object identifier (DOI) and written in English or have a publicly available English translation. For evidence reporting on original research studies, studies were eligible if conducted in a human population. Evidence was excluded if it was published online before 1 January 2015 or after 31 August 2025, was not available in English, could not be retrieved due to a broken web address or absence of a DOI, or described a research study conducted in a non-human population.

Information sources

The final list of information sources is provided in Table 1.

Table 1: Information sources searched

Biomedical literature databases	Grey literature
PubMed EMBASE CINAHL Cochrane Scope: All records screened for eligibility	Google Advanced search by site domain • gov.au • acipc.org.au • cdc.org.au • csiro.au • ips.uk.net • ecdc.europa.eu • who.int • escmid.org • nhs.uk Scope: Up to 100 records screened for eligibility, ordered by relevance Clinical trial registries • clintrials.gov • anzctr.org.au Scope: Listed publications in the registry record with reported trial results screened for eligibility

Search filter

An overall search filter was developed using the Population-Intervention-Comparator-Outcome (PICO) framework to identify evidence for the seven review questions (Table 2).

PICO definitions

Population: Healthcare workers (HCW) and patients in any healthcare setting. A healthcare setting was defined as a facility that delivers healthcare services, including hospitals, primary care settings and long-term care facilities, including aged care facilities.

Intervention: Eligible interventions varied by review question (Table 2). Definitions for different types of transmission-based precautions are aligned with the 2019 Australian Guidelines for the Prevention and Control of Infection in Healthcare.

The transmission-based precautions and section numbers from the 2019 guidelines are:

- Contact precautions (Section 3.2.2): Appropriate PPE use (aprons/gowns, gloves), patient placement (e.g., single room, cohorting), and minimising patient movement, in conjunction with standard precautions.
- Droplet precautions (Section 3.2.3): Appropriate PPE use (surgical mask, protective eyewear/face shield), patient placement (single room, cohorting), and minimising transfer or transport, in conjunction with standard precautions.
- Airborne precautions (Section 3.2.4): Appropriate PPE use (correctly fitted particulate filter respirator e.g., P2, N95, protective eyewear), patient placement (negative pressure room), in conjunction with standard precautions.
- Respiratory precautions: There is currently no consistent definition for respiratory precautions, based on published literature. The working definition for respiratory precautions used in this review was the use of a particulate filter respirator (P2, N95), apron/gown, protective eyewear and patient placement (negative pressure room), as per the Aged Care Infection Prevention and Control Guide (ACSQHC, 2025), in conjunction with standard precautions.

Comparator: Eligible comparators also varied by review question (Table 2). For systematic review questions one and five and narrative review questions six and seven, the comparator definition was standard precautions. For review questions two and three, the comparator definition was standard precautions, no precautions or another type of transmission-based precautions. For review question four, the comparator definition was no precautions or standard precautions, combined with Droplet and/or Airborne precautions.

Standard precautions were defined per the 2019 Australian Guidelines for the Prevention and Control of Infection in Healthcare (Section 3.1): hand hygiene, appropriate personal protective equipment (PPE) use (i.e.: PPE may include aprons, gowns, gloves, surgical masks, protective eyewear and face shields or a combination of several of these items used to protect the wearer from exposure (handling, spray) to blood (including dried blood); all other body fluids (excluding sweat), regardless of whether they contain visible blood; non-intact skin; and mucous membranes), the safe use and disposal of sharps, routine environmental cleaning, reusable medical equipment and instrument processing, aseptic technique, waste management and appropriate linen handling).

Other types of transmission-based precautions included contact precautions, airborne precautions, droplet precautions, or a combination of these (contact and droplet, contact and airborne, or droplet and airborne), in addition to standard precautions. For evidence where the reported comparator was standard precautions, the reported intervention(s) must be used in addition to standard precautions.

Outcome: Confirmed infection or colonisation in the HCW and patient population, for single or multiple infections including composite infection outcomes. The primary outcome was reported as point prevalence, period prevalence, or incidence per population denominator if point prevalence is not reported.

For biomedical literature databases, the search filter combined indexed terms and keywords by PICO element using the AND operator. Keywords were retained for grey literature searches, combined with filters for site domain (e.g., site: who.int) and document type (e.g., .pdf). Final search filters by evidence source are provided in Appendix 1.

Selection of evidence sources

Records returned by all evidence sources were combined and de-duplicated. Two independent reviewers screened titles and abstracts to assess initial eligibility. All conflicts were resolved by consensus discussion.

Final eligibility was determined by AusHSI personnel through a review of full-text articles against the full inclusion/exclusion criteria. Included studies were tagged by relevance to each review question, noting that the same record could be eligible for more than one review question (RQ1 – RQ7). Full references for included studies were saved as a single EndNote library.

Data extraction

Data were collected by PICO element based on information reported in each eligible full-text record.

Population: Healthcare setting, total sites, patient inclusion/exclusion, population subject to transmission-based precautions, organisms targeted by transmission-based precautions, direction of transmission.

Intervention: Transmission-based precautions evaluated, elements of transmission-based precautions evaluated, delivery as a single or bundled intervention, transmission-based precautions evaluated in addition to standard precautions, concurrent infection prevention strategies.

Comparator: Standard precautions description, comparator if not standard precautions.

Outcomes: Outcome definition, sample size, statistical method(s) used in analysis, reported outcome estimates for Comparator and Intervention conditions, reported change in outcome(s) between Comparator and Intervention conditions.

Evidence synthesis

Evidence for all review questions was summarised thematically with supporting data from relevant studies.

For review questions 1 to 5, evidence was summarised by the type of transmission-based precautions evaluated, as the same record could contribute to multiple review questions. For each type of transmission-based precautions, a random-effects meta-analysis was conducted by target organism when sufficient data were reported in the full-text or supplementary material by three or more records. Sufficient data included incidence rate ratios with 95% confidence intervals (CI) as a measure of comparative effectiveness between Intervention and Comparator conditions. When 95% CIs were not reported, standard errors were calculated from reported sample sizes where available. Meta-analyses were completed using the R package *metafor*[1].

Results were reported as forest plots.

Risk of bias assessment was completed using the ROBINS-I tool for non-randomised studies and the Risk of Bias 2 (RoB-2) tool for randomised studies*. Results were summarised visually using the *robvis* tool[2].

* https://methods.cochrane.org/bias/risk-bias-non-randomized-studies-interventions;

https://methods.cochrane.org/bias/resources/rob-2-revised-cochrane-risk-bias-tool-randomized-trials

Based on Stage 1 findings, the following factors were defined as important confounders that should be addressed by evidence reporting on the effectiveness of transmission-based precautions as part of risk of bias assessment:

- Time-based confounding: Most evidence identified in Stage 1 reported on the effectiveness of transmission-based precautions based on retrospective data collected under quasi-experimental study designs. This finding reflected the implementation (or discontinuation) of transmission-based precautions in routine hospital settings, alongside existing infection prevention measures. The influence of time-based confounding was therefore considered important to account for potential changes in outcomes that were likely unrelated to the intervention(s) of interest and/or from changes in patient volume over time. The risk of this type of confounder was higher for studies that evaluated intervention(s) over a longer timeframe (e.g., 3 months versus 12 months).

- Reported adherence with other infection prevention strategies during Comparator and Intervention conditions: Routine monitoring of HCW adherence with existing infection prevention measures such as hand hygiene is common in healthcare settings. Reporting changes in adherence between the Comparator and Intervention conditions for the stated strategies was therefore deemed important to support the interpretation of the primary outcome findings.

- Changes in screening practices that may influence decisions about transmission-based precautions: Increases or decreases in active screening rates between Comparator and Intervention conditions may influence reported colonisation and/or infection rates as the primary outcome being evaluated.

- Outcome assessment in pandemic versus endemic settings: Eligible evidence based on COVID-19 or similar pandemic populations, compared with business-as-usual settings, was likely to have limited generalisability in non-pandemic settings.

Overall evidence quality for each systematic review questions was assessed using the Grading of Recommendations, Assessment, Development and Evaluation (GRADE) framework†. The GRADE framework summarises the certainty of systematic review evidence as Very Low, Low, Moderate or High based on factors influencing the quality of included evidence. Further details about GRADE are presented in Appendix 2.

† GRADE Working Group guidelinedevelopment.org/handbook, Section 5

Table 2: PICO element definitions by review question (RQ).

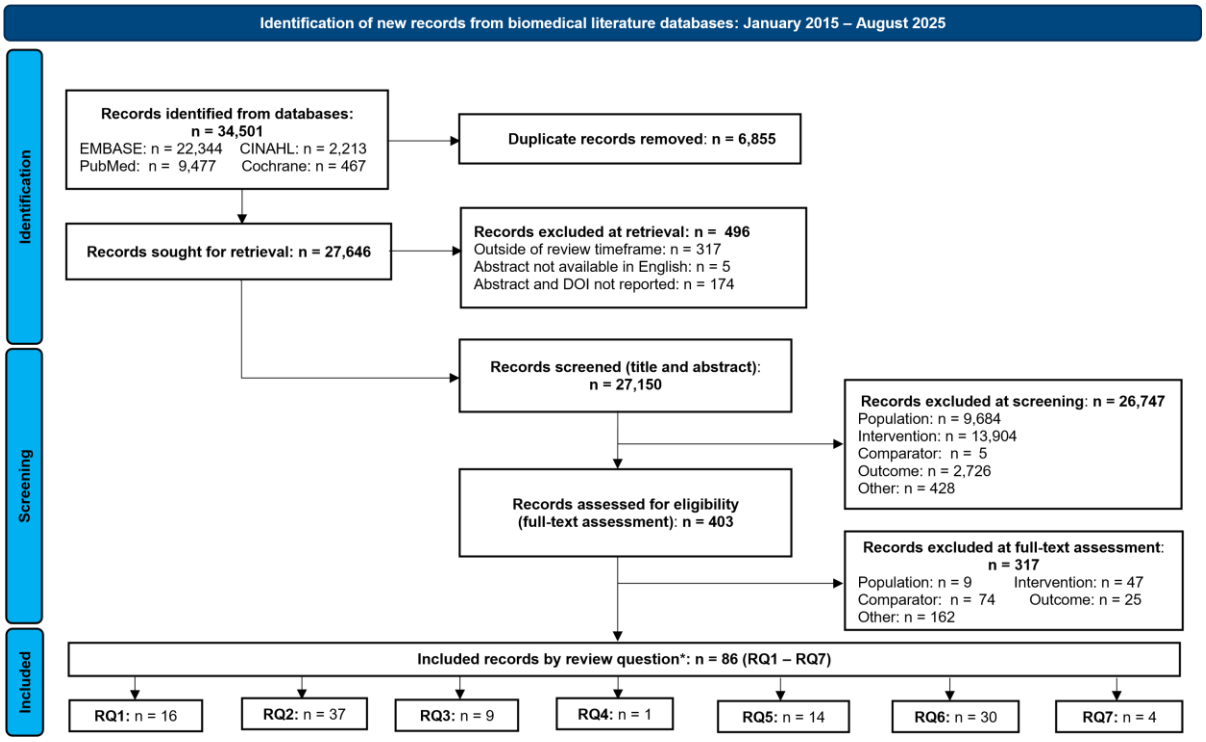
Review question (RQ)	Population (P)	Intervention (I)	Comparator (C)	Outcome (O)
RQ1: Are transmission-based precautions more effective in preventing the transmission of infection in healthcare, compared to standard precautions alone?	Healthcare workers or patients in any healthcare setting. "Healthcare setting" is defined as a facility that delivers healthcare services, including hospitals, primary care settings and long-term care facilities.	Transmission-based precautions (Contact, droplet and/or airborne).	Standard precautions.	Respiratory infections (viral and bacterial) or ILI† and/or MDRO colonisation or infection.
RQ2: How effective are each of the transmission-based precautions bundles (contact, droplet, airborne) against the transmission of (i) Respiratory infections (viral and bacterial), (ii) Multidrug-resistant organisms?		One of: contact, droplet or airborne precautions.	Standard precautions, no precautions or another type of transmission-based precautions, e.g., combination of these including contact and droplet, contact and airborne or droplet and airborne.	(i) Respiratory infections (viral and bacterial) or ILI†. (ii) MDRO colonisation or infection.
RQ3: How effective are the individual elements of transmission-based precautions (surgical masks, particulate filter respirators, apron/gown, gloves, protective eyewear, single room placement, negative pressure room placement) against the transmission of (i) Respiratory infections (viral and bacterial), (ii) Multidrug resistant organisms?		Surgical masks, Particulate filter respirator, apron/gown, gloves or protective eyewear, patient placement.		(i) Respiratory infections (viral and bacterial) or ILI† (ii) MDRO colonisation or infection.
RQ4: Is the respiratory precautions bundle more effective in preventing the transmission of respiratory infections (viral and bacterial) compared to: (i) Droplet precautions, (ii) Airborne precautions, and (iii) Combined droplet and airborne precautions? (i)-(iii) in addition to standard precautions?		Standard + Respiratory precautions.	No precautions or standard precautions and (i) droplet (ii) airborne (iii) droplet and airborne.	Respiratory infections (viral and bacterial) or ILI†.
RQ5: Do contact precautions confer more protection than standard precautions against the transmission of infection, particularly infection caused by multidrug resistant organisms?		Contact precautions.	Standard precautions.	MDRO colonisation or infection.

Table 2 continued: PICO element definitions by review question (RQ).

Review question (RQ)	Population (P)	Intervention (I)	Comparator (C)	Outcome (O)
RQ6: What evidence is available to support using risk assessment to inform on the choice of transmission-based precautions?*	Not applicable.	Not applicable.	Not applicable.	Not applicable.
RQ7: What evidence is available to support an environmentally sustainable approach to transmission-based precautions?*				

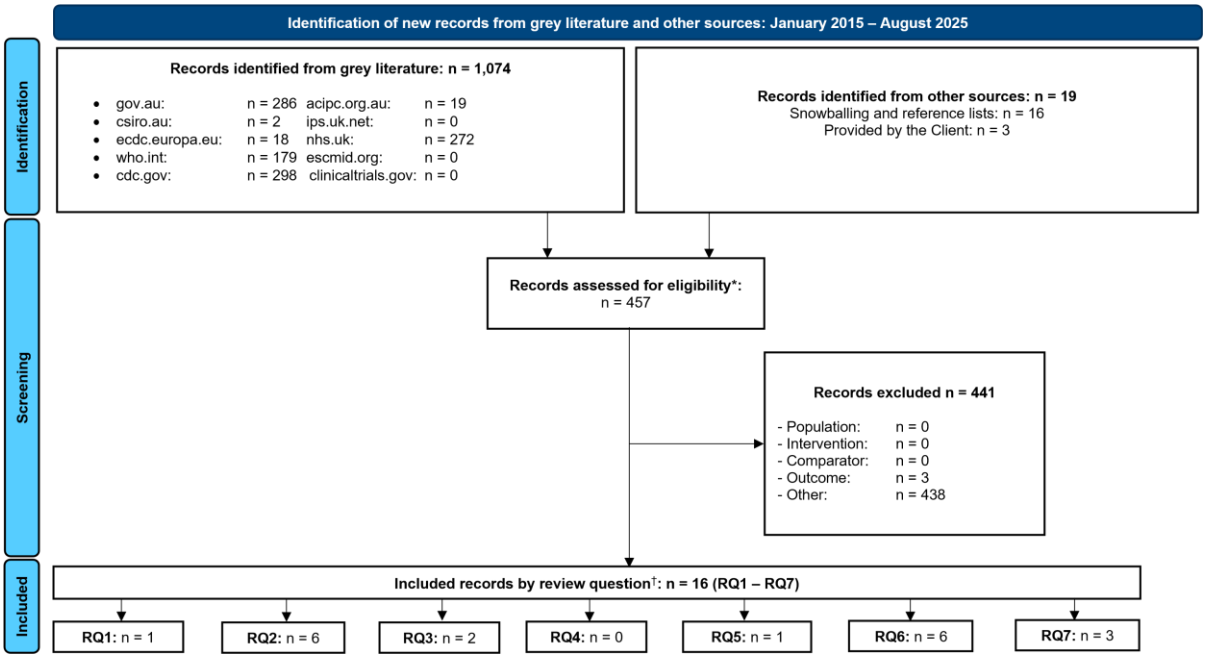
*PICO format not required for review questions six and seven to determine final eligibility.
†ILI was used as a proxy measure when data on respiratory infections were not reported.

Figure 1: Review flowchart for searches of biomedical literature databases.



*The same record can address more than one review question (RQ1 – RQ7).

Figure 2: Review flowchart for grey literature searches and snowballing. Records numbers represent additional sources not found in biomedical literature database searches.



*For grey literature searches that returned more than 100 records, the first 100 ordered by relevance were screened. †The same record can address more than one review question (RQ1 – RQ7).

Search results

Biomedical literature databases

The final search strategy across Stages 1 and 2 combined retrieved 34,501 records from the four databases, which were reduced to 27,646 after duplicates were removed (Figure 1). An additional 496 records were excluded from title and abstract screening due to publication outside the review timeframe (n = 317), non-English abstracts (n = 5), and missing abstract and DOI information required for record retrieval (n = 174).

Title and abstract screening was completed for 27,150 records, of which 26,747 were excluded. The main reasons for exclusion at the time of screening were ineligible Populations (n = 9,684) and ineligible Interventions (n = 13,904). Full-text assessment was completed for the remaining 403 records across all seven review questions (RQ1–RQ7), noting that the same record could be eligible for more than one review question. Exclusion reasons were assigned using a tiered decision process outlined in the Project Plan, in which a record was excluded based on the first PICO element that was not met. Full-text records excluded for other reasons (n = 162) were due to ineligible publication types. The full-text assessment identified 86 records across all seven review questions.

Other sources

An additional 457 records from grey literature searches and snowballing were assessed for eligibility (Figure 2). Most records were excluded for other reasons (n = 438) due to their irrelevance to the review questions.

This process identified a further 13 records for inclusion across the seven research questions.

Combined, the search strategy identified 99 eligible evidence sources for inclusion. A breakdown of eligible record numbers by review question is provided in Table 3.

Table 3: Breakdown of included evidence sources by review questions for reporting the total records available (also see Figures 1 and 2).

Review question	Total included records	Records available by category, if applicable
RQ1: Are transmission-based precautions more effective in preventing the transmission of infection in healthcare, compared to standard precautions alone?	17	Type of transmission-based precautions: • Contact: n = 15 • Droplet: n = 1 • Airborne: n = 1
RQ2: How effective are each of the transmission-based precautions bundles (contact, droplet, airborne) against the transmission of (i) Respiratory infections (viral and bacterial), (ii) Multidrug-resistant organisms?	43	Type of transmission-based precautions: • Contact: n = 0 (respiratory); n = 38 (multidrug resistant organisms). • Droplet: n = 3 (respiratory); n = 0 (multidrug resistant organisms). • Airborne: n = 2 (respiratory); n = 0 (multidrug resistant organisms).
RQ3: How effective are the individual elements of transmission-based precautions (surgical masks, particulate filter respirators, apron/gown, gloves, protective eyewear, single room placement, negative pressure room placement) against the transmission of (i) Respiratory infections (viral and bacterial), (ii) Multidrug-resistant organisms?	11*	Individual elements of transmission-based precautions evaluated: • Surgical mask: n = 1 (respiratory); n = 0 (multidrug-resistant organisms). • Particulate filter respirator: n = 1 (respiratory); n = 0 (multidrug-resistant organisms). • Apron/gowns and gloves: n = 0 (respiratory); n = 1 (multidrug-resistant organisms). • Protective eyewear: n = 0 (respiratory); n = 0 (multidrug-resistant organisms). • Patient placement: n = 1 (respiratory); n = 8 (multidrug-resistant organisms).
RQ4: Is the respiratory precautions bundle more effective in preventing the transmission of respiratory infections (viral and bacterial) compared to:(i) droplet precautions, (ii) airborne precautions, and (iii) combined droplet and airborne precautions? (i)-(iii) in addition to standard precautions?	1	Type of transmission-based precautions compared with respiratory precautions: • Droplet & standard precautions: n = 1 • Airborne & standard precautions: n = 0 • Combined droplet-airborne & standard precautions: n = 0 • Combined droplet-contact & standard: n = 0 • Combined contact-airborne & standard: n = 0
RQ5: Do contact precautions confer more protection than standard precautions against the transmission of infection, particularly infection caused by multidrug resistant organisms?	15	No further categories required.
RQ6: What evidence is available to support using risk assessment to inform on the choice of transmission-based precautions?	38	No further categories required.
RQ7: What evidence is available to support an environmentally sustainable approach to transmission-based precautions?	7	No further categories required.

* n = 1 record evaluated the effectiveness of masks and particulate filter respirators as components of transmission-based precautions (see Table 10).

Evidence synthesis: Systematic review questions

A total of 54 records provided evidence to address systematic review questions regarding the effectiveness of transmission-based precautions (RQ1 – RQ5). Eligible evidence predominantly described the effectiveness of contact precautions for the transmission of multidrug-resistant organisms (n = 38, Table 4), particularly methicillin-resistant Staphylococcus aureus (MRSA), vancomycin-resistant enterococci (VRE) and Extended-Spectrum Beta-Lactamase (ESBL). Original research studies (n = 33) were further categorised into introducing contact precautions in addition to standard precautions (n = 13; Table 5, Table 6) or discontinuing contact precautions (n = 20; Table 7).

Five records reported on the effectiveness of droplet, airborne and respiratory precautions (Table 8, Table 9). As noted in the Stage 1 report, low record numbers for these types of transmission-based precautions resulted from evidence describing their use in response to outbreaks and the absence of a Comparator.

Table 4: Summary of included records on the effectiveness of contact precautions. For eligible reviews, the number of eligible studies based on the search strategy timeframe (1 January 2015 to 31 August 2025) is listed in brackets under 'Healthcare setting'.

Author (Year); Country if applicable	Title	Study design	Healthcare setting (Total sites)	Infection(s) evaluated
Almyroudis (2016)[3]; US	Discontinuation of Systematic Surveillance and Contact Precautions for Vancomycin-Resistant *Enterococcus* (VRE) and Its Impact on the Incidence of VRE faecium Bacteremia in Patients with Hematologic Malignancies	Observational	Hospital (1)	VRE
An (2017)[4], Republic of Korea	Active surveillance for carbapenem-resistant *Acinetobacter baumannii* in a medical intensive care unit: Can it predict and reduce subsequent infections and the use of colistin?	Observational	ICU (1)	Carbapenem-resistant *Acinetobacter baumannii* (CRAB)
Bardossy (2017)[5]; USA	Evaluation of contact precautions for methicillin resistant *Staphylococcus aureus* and vancomycin-resistant *Enterococcus*	Observational	Hospital (1)	MRSA, VRE
Bearman (2018)[6]; USA	Impact of Discontinuing Contact Precautions for Methicillin-Resistant *Staphylococcus aureus* and Vancomycin-Resistant *Enterococcus*: An Interrupted Time Series Analysis	Observational	Hospital (1)	Device-related MRSA, VRE, HAI
Biehl (2019)[7], Germany	Impact of single-room contact precautions on hospital-acquisition and transmission of multidrug-resistant *Escherichia coli*: a prospective multicentre cohort study in haematological and oncological wards	Observational	Hospital (4)	BSI with third-generation cephalosporin-resistant *Escherichia coli* (3GCR-EC) that are non-susceptible to fluoroquinolones
Biehl (2022)[8], Germany	Impact of single-room contact precautions on acquisition and transmission of vancomycin resistant *enterococci* on haematological and oncological wards, multicentre cohort-study, Germany, January-December 2016	Observational	Hospital (4)	VRE
Carey (2020)[9], USA	The impact of discontinuing contact precautions for multidrug-resistant organisms at a less than 400-bed level II teaching hospital and a community hospital: A 3-month pilot study	Observational	Hospital (2)	MRSA, VRE

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Table 4 continued: Summary of included records on the effectiveness of contact precautions. For eligible reviews, the number of eligible studies based on the search strategy timeframe (1 January 2015 to 31 August 2025) is listed in brackets under 'Healthcare setting'.

Author (Year); Country if applicable	Title	Study design	Healthcare setting (Total sites)	Infection(s) evaluated
Kawamura (2016)[17]; Japan	A bundle that includes active surveillance, contact precaution for carriers, and cefazolin-based antimicrobial prophylaxis prevents methicillin resistant *Staphylococcus aureus* infections in clean orthopedic surgery	Observational	Hospital (1)	MRSA
Kelly (2024)[18]; USA	Discontinuation of contact precautions in patients with hospital-acquired MRSA and VRE infections during the COVID-19 pandemic: A multi-center experience	Observational	Hospital (1)	MRSA, VRE
Khader (2021)[19]; USA	Effectiveness of Contact Precautions to Prevent Transmission of Methicillin-Resistant *Staphylococcus aureus* and ancomycin-Resistant *Enterococci* in Intensive Care Units	Randomised trial (secondary analysis)	ICU (18)	MRSA, VRE
Khader (2021)[20]; USA	Association Between Contact Precautions and Transmission of Methicillin-Resistant *Staphylococcus aureus* in Veterans Affairs Hospitals	Observational	Hospital (108)	MRSA
Kleyman (2021)[21]	Does the removal of contact precautions for MRSA and VRE infected patients change health care associated infection rate? A systematic review and meta-analysis	Review	Hospital (10 studies)	MRSA, VRE
Lemieux (2017)[22]; Canada	Longitudinal Multicenter Analysis of Outcomes After Cessation of Control Measures for Vancomycin Resistant *Enterococci*	Observational	Hospital (4)	VRE
MacDougall (2020)[23]	Economic evaluation of vancomycin-resistant *enterococci* (VRE) control practices: a systematic review	Review	Hospital (1 study)	VRE
Maechler (2020)[24]; Germany, the Netherlands, Spain, Switzerland	Contact isolation versus standard precautions to decrease acquisition of extended-spectrum betalactamase-producing Enterobacterales in noncritical care wards: a cluster-randomised crossover trial	Randomised trial	Hospital (4)	ESBL

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Table 4 continued: Summary of included records on the effectiveness of contact precautions. For eligible reviews, the number of eligible studies based on the search strategy timeframe (1 January 2015 to 31 August 2025) is listed in brackets under 'Healthcare setting'.

Author (Year); Country if applicable	Title	Study design	Healthcare setting (Total sites)	Infection(s) evaluated
Marra (2018)[25]	Discontinuing contact precautions for multidrug resistant organisms: A systematic literature review and meta-analysis	Review	Hospital (8 studies)	MRSA, VRE
Martin (2016)[26]; USA	Elimination of Routine Contact Precautions for Endemic Methicillin-Resistant *Staphylococcus aureus* and Vancomycin-Resistant *Enterococcus*: A Retrospective Quasi-Experimental Study	Observational	Hospital (2)	MRSA, VRE
Martin (2022)[27]; USA	Discontinuing MRSA and VRE contact precautions: Defining hospital characteristics and infection prevention practices predicting safe de-escalation	Observational	Hospital (15)	MRSA, VRE
McCarthy (2024)[28]	Prevention in adults of transmission of infection with multidrug-resistant organisms: An updated systematic review from Making Healthcare Safer IV	Review	Hospital (4 studies)	MDRO
Metan (2017)[29]; Türkiye	Cessation of Contact Precautions for Extended Spectrum Beta-Lactamase (ESBL)-Producing *Escherichia coli* Seems to be Safe in a Nonepidemic Setting	Observational	Hospital (1)	ESBL
Morgan (2020)[30]; US	The Effectiveness of Contact Precautions on Methicillin-Resistant *Staphylococcus aureus* in Long-term Care Across the United States	Observational	Long-term care (74)	MRSA
Most (2024)[31]; US	Discontinuation of Contact Precautions for Methicillin-resistant *Staphylococcus aureus* in a Paediatric Healthcare System	Observational	Hospital (3)	MRSA
Renaudin (2017)[32]; France	Impact of Discontinuing Contact Precautions for MRSA and ESBLE in an Intensive Care Unit: A Prospective Noninferiority before and after Study	Observational	ICU (1)	MRSA, ESBL

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Table 4 continued: Summary of included records on the effectiveness of contact precautions. For eligible reviews, the number of eligible studies based on the search strategy timeframe (1 January 2015 to 31 August 2025) is listed in brackets under 'Healthcare setting'.

Author (Year); Country if applicable	Title	Study design	Healthcare setting (Total sites)	Infection(s) evaluated
Rupp (2017)[33]; US	Effect of Cessation of Contact Isolation for Endemic Methicillin-Resistant *Staphylococcus aureus* and Vancomycin-Resistant *Enterococci*	Observational	Hospital (1)	MRSA, VRE
Savage (2021)[34]	Clostridioides difficile Infection in Children: The Role of Infection Prevention and Antimicrobial Stewardship	Review	Hospital (0 studies)	CDI
Schrank (2020)[35]; US	The discontinuation of contact precautions for methicillin-resistant *Staphylococcus aureus* and vancomycin-resistant *Enterococcus*: Impact upon patient adverse events and hospital operations	Observational	Hospital (1)	MRSA, VRE
Slekovec (2021)[36]; France	Do Contact Precautions Reduce the Incidence of Intensive Care Unit-Acquired *Pseudomonas aeruginosa* Infections? The DPCPYO (Detection and Contact Precautions for Patients with P. aeruginosa) Cluster-Randomised Crossover Trial	Randomised trial	ICU (10)	Pseudomonas aeruginosa
Tawney (2015)[37]; USA	Impact of contact isolation precautions on multidrug-resistant *Acinetobacter baumannii* in the paediatric intensive care unit	Observational	ICU (1)	Multidrug-resistant *Acinetobacter baumannii*
Thompson (2020)[38]; USA	Incidence of healthcare-associated extended spectrum beta-lactamase-positive patients before and after discontinuation of contact precautions	Observational	Hospital (1)	ESBL
Toth (2019)[39]; USA	Model-based Assessment of the Effect of Contact Precautions Applied to Surveillance-detected Carriers of Carbapenemase-producing Enterobacteriaceae in Longterm Acute Care Hospitals	Randomised trial (secondary analysis)	Hospital (4)	*Klebsiella pneumoniae* CPE
Xiao (2024)[40]	Effect of contact precautions on preventing methicillin-resistant *Staphylococcus aureus* transmission in intensive care units: a review and modelling study of field trials	Review	ICU (3 studies)	MRSA
Zahar (2015)[41]; France	About the usefulness of contact precautions for carriers of extended-spectrum beta-lactamase producing *Escherichia coli*	Observational	Hospital (2)	ESBL

Effectiveness of contact precautions

Introduction of contact precautions in addition to standard precautions

Evidence on the effectiveness of contact precautions as the defined Intervention was available from cluster randomised trials (n = 3)15,24,36, cohort studies with concurrent controls (n = 4)7,8,20,30, retrospective before-and-after or quasi-experimental studies (n = 4)4,10,17,37 and secondary analyses of randomised trials (n = 2)19,39 (Table 5, Table 6).

Long-term care facilities, including residential aged care

Morgan (2020) conducted a five-year retrospective cohort study comparing the use of contact precautions versus standard precautions across 74 long-term care facilities in the United States30. The study defined Intervention and Comparator conditions based on the use of contact precautions for all or part of the five-year study timeframe (46 facilities). The remaining 28 facilities served as concurrent controls, defined as standard precautions. Unadjusted outcomes between the Intervention and Comparator conditions showed similar rates of MRSA acquisition during facility admission among patients who initially screened negative for MRSA (23.7% versus 21.7%, p-value = 0.86). Following adjustment for patient-level risk factors, including age and length of admission, the study reported a non-statistically significant association between contact precautions and MRSA acquisition (adjusted odds ratio: 0.97; 95% CI: 0.85–1.12; p-value = 0.71).

Hospital settings

In general wards, Maechler (2020) reported findings from a cluster-randomised crossover trial on the effectiveness of contact precautions in addition to standard precautions, compared with standard precautions alone, for hospital-acquired extended-spectrum beta-lactamase-producing Enterobacterales (ESBL-E)24. Cluster randomisation was conducted at the ward level, with blocks of two wards randomly assigned to receive standard precautions with or without contact precautions for the first 12 months of the trial; following a one-month washout period, assigned blocks switched to the alternate strategy for another 12 months. Primary outcome assessment under intention-to-treat reported similar incidence rates for ESBL-E clinical isolates between the contact precautions (6.0 cases per 1,000 patient days at risk; 95% CI: 5.4 – 6.7) and standard precautions (6.1 per 1,000 patient days at risk; 95% CI: 5.5 – 6.7). The difference associated with contact precautions was not statistically significant in both unadjusted analysis (Relative risk (RR): 1.00; 95% CI: 0.90 – 1.1; p-value = 0.971) and adjusted analysis (RR: 1.00; 95% CI: 0.86 – 1.15; p-value = 0.893). Hand hygiene compliance was reported as similar between trial arms (Contact: 62.1%; Standard: 61.3%; pvalue = 0.841), as was median antibiotic consumption (Contact: 535 DDD per 1,000 patient days; Standard: 507 DDD per 1,000 patient days; p-value = 0.829).

A second cluster-randomised crossover trial evaluated active surveillance with contact precautions for Pseudomonas aeruginosa, for patients admitted to the ICU across six hospitals (10 ICUs in total)36. Randomisation was completed at the ICU level, with each ICU initially assigned to implement either contact or standard precautions for colonised patients, followed by a 3-month washout period before crossover. Clusters were exposed to each trial condition for six months. Routine clinical surveillance was conducted throughout the trial, with confirmed infections placed under contact precautions irrespective of an ICU's

treatment sequence. The use of contact precautions in addition to standard precautions was not associated with a statistically significant difference in the cumulative incidence of ICU-acquired Pseudomonas aeruginosa infections (Contact: 3.38%; Standard: 3.44%; Hazard ratio (HR): 0.91; 95% CI: 0.49 – 1.67; pvalue = 0.76) or rates per 1,000 patient days at-risk (Contact: 3.31; Standard: 3.52; HR: 1.36; 95% CI: 0.71 – 2.63; p-value = 0.36), following adjustment for patient-level factors. Compliance with components of contact precautions during the trial ranged from 70% to 96%.

The implementation of contact precautions combined with active surveillance was also evaluated by Hayden (2015)15 for its effectiveness in reducing Klebsiella pneumoniae Carbapenemase–producing Enterobacteriaceae (CPE) colonisation and infection. The study reported findings from a stepped-wedge cluster-randomised trial of an intervention bundle tested across four long-term care hospitals. Clusters were defined at the hospital level, with intervention exposure ranging between 12 and 19 months. Patient placement as part of contact precautions was defined as single-room isolation or ward-based cohorting for positive patients or universal contact isolation for all patients in high-acuity units. Intervention exposure was associated with a statistically significant change in Klebsiella pneumoniae CPE bloodstream infections from 0.9 (95% CI: 0.8 – 1.1) to 0.4 (95% CI: 0.3 – 0.5) cases per 1,000 patient days (p-value = 0.008; incidence rate ratio not reported). Additional bundle components comprised daily chlorhexidine bathing, HCW education and hand hygiene audits. Reported adherence to these components was 70% or higher, except for hand hygiene upon patient room entry (24%). As an intervention bundle, secondary data analysis by Toth (2019) 9 aimed to estimate the direct effect of contact precautions on the rate of progression from colonisation to infection. Mathematical modelling similar to other included studies19,20 was used and estimated a 47% relative reduction in onset rates (95% CI: 18% to 60%) associated with contact precautions.

Two studies evaluated the effectiveness of single room contact precautions using a prospective cohort study design with concurrent controls7,8 . Both studies assessed the intervention at two hospitals, with two additional hospitals serving as concurrent comparator sites. The intervention consisted of single-room patient isolation and the use of gloves and gowns. Comparator sites were defined as no specific contact precautions. All sites implemented the World Health Organisation's “Save Lives – Clean Your Hands” multimodal hand hygiene strategy3, as part of usual care. In Biehl (2019)7, single-room contact precautions were associated with a decrease in the primary outcome (Hospital-acquired colonisation or BSI with F3GCREC) from 1.59% to 1.01% which was not statistically significant (p = 0.191). A statistically significant association was reported between no single-room contact precautions and hospital-acquired VRE colonisation or infection in Biehl (2022)8 (IRR: 1.74 (1.35–2.23); p-value < 0.001). The study noted that the absolute difference in infections (7.4% versus 12.2%) was within the prespecified 5% noninferiority margin.

All studies evaluating the effectiveness of contact precautions for Acinetobacter baumannii were conducted in ICU settings ,10,37. Among observational studies, An (2017)4 conducted a prospective cohort study to evaluate the effectiveness of active surveillance for Carbapenem-resistant Acinetobacter baumannii (CRAB) to determine the need for patient isolation (single room, cohorting) and enhanced contact precautions during ICU admission. Enhanced contact precautions were defined as the use of gloves and gowns by HCWs and

visitors, combined with cleaning of patient-care devices and twice-daily environmental cleaning with sodium hypochlorite solution. Patient assignment to enhanced contact precautions was based on positive screening cultures taken at ICU admission, 48 hours after admission, or weekly until ICU discharge. The study analysed changes in CRAB infection incidence per 1,000 patient days before and after the intervention. Among patients admitted to the ICU during the 12-month Intervention period (n = 1,115), the study reported a statistically significant association between the use of isolation and enhanced barrier precautions and the risk of CRAB infection (IRR: 0.18; 95% confidence interval: 0.09 – 0.34; p-value < 0.001). Retrospective before-and-after studies by Cheon (2016)10 and Tawney (2015)37 reported mixed findings for the impact of contact precautions on Acinetobacter baumannii colonisations and infections per 1,000 patient days (Table 6); however, studies were characterised by high incidence rates under standard precautions (Cheon (2016): 22.82 cases per 1,000 patient days; Tawney (2015): 1.1 cases per 1,000 patient days). Based on available data, meta-analysis was performed to estimate the pooled incidence rate ratio associated with the effectiveness of contact precautions for Acinetobacter baumannii in ICU settings (Figure 3). The pooled incidence rate ratio across studies was 0.27 (95% CI: 0.09 – 0.81; I2: 79%).

Khader (2021)19 reported results from a secondary analysis of the STAR*ICU cluster randomised trial on the effectiveness of contact precautions compared with standard precautions across 18 intensive care units4. The original trial defined the intervention as initiating contact precautions at ICU admission for patients previously infected or colonised with MRSA or VRE, or who returned a positive surveillance culture during their current ICU admission. Secondary analysis developed a Bayesian transmission model to estimate the pooled effectiveness of contact precautions on transmission risk, reporting a relative rate of infection of 1.11 (95% credible interval 0.93–1.32). A second study by the same authors used retrospective, administrative data across 108 US hospitals to estimate the effectiveness of contact precautions for MRSA-positive cultures20. The study reported a 47% reduction in transmission risk in favour of contact precautions (relative rate: 0.50; 95% credible interval: 0.45 – 0.54).

[1] https://iris.who.int/server/api/core/bitstreams/3056b988-44f9-490a-a0af-c77360544ffe/content

[1] Huskins et. al (2011) https://www.nejm.org/doi/full/10.1056/NEJMoa1000373; outside of review timeframe

Figure 3: Meta-analysis of incidence rate ratios for the effectiveness of contact versus standard precautions targeting Acinetobacter baumannii (3 studies; see Table 6).

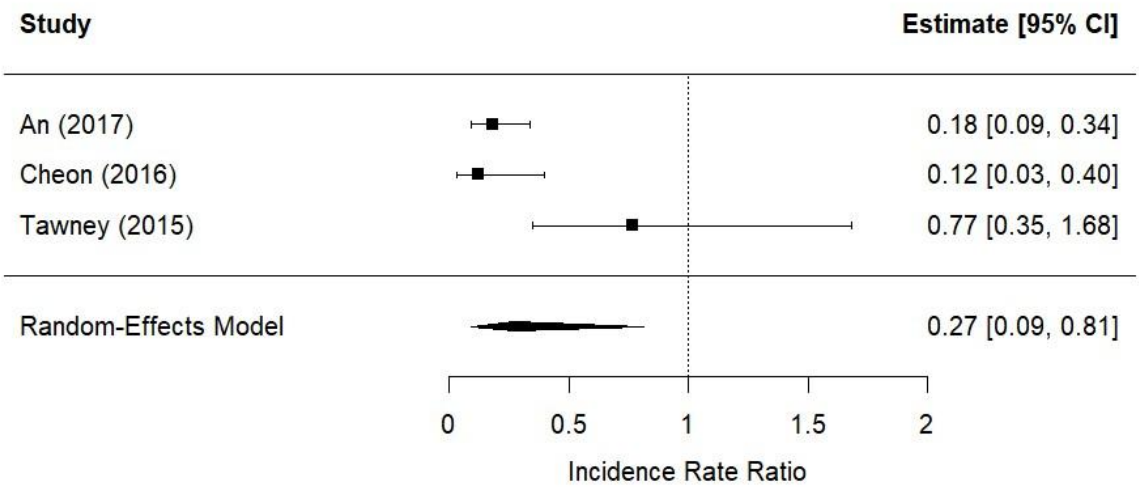

Table 5: Evidence on the effectiveness of contact precautions as the defined Intervention – randomised controlled trials

Author (Year)	Intervention	Comparator	Additional measures	Outcome(s)	Reported outcomes		
					Intervention	Comparator	Difference
Hayden (2015)[15]	Contact precautions	Standard precautions	Active surveillance, daily chlorhexidine bathing, hand hygiene	Klebsiella pneumoniae carbapenemase–producing Entero bacteriaceae (CPE) infection	0.4 per 1,000 patient days (95% CI: 0.3 – 0.5)	0.9 per 1,000 patient days (95% CI: 0.8 – 1.1)	Change: -0.5 per 1,000 patient days p-value = 0.008
Maechler (2020)[24]	Contact precautions	Standard precautions	Hand hygiene, Active surveillance	ESBL-E colonisation or infection	6.0 per 1,000 patient days at-risk (95% CI: 5.4 – 6.7)	6.1 per 1,000 patient days at-risk (95% CI: 5.5 – 6.7)	IRR (95% CI): 1.00 (0.90 – 1.1) p-value =0.971
Slekovec (2021)[36]	Contact precautions	Standard precautions	Hand hygiene, Active surveillance	ICU-acquired *Pseudomonas aeruginosa* infection	57/1,658 (3.44%) 3.52 per 1,000 patient days at-risk	55/1,625 (3.38%) 3.31 per 1,000 patient days at-risk	Cumulative incidence: aHR (95% CI): 0.91 (0.49 – 1.67) p-value = 0.76 Cause-specific aHR (95% CI): 1.36 (0.71– 2.63) p-value = 0.36

aHR: adjusted hazard ratio CI: Confidence interval; IRR: Incidence rate ratio

Table 6: Evidence on the effectiveness of contact precautions as the defined Intervention – observational studies

Author (Year)	Intervention	Comparator	Additional measures	Outcome(s)	Reported outcomes		
					Intervention	Comparator	Difference
Before and after/quasi-experimental designs							
An (2017)[4]	Patient isolation (single room or cohorting), gloves and gowns	No contact precautions or active surveillance	Hand hygiene	Carbapenem-resistant *Acinetobacter baumannii* infection	2.6 per 1,000 patient days (95% CI: 1.4 to 4.6)	14.7 per 1,000 patient days (95% CI: 11.1 to 18.9)	IRR (95% CI): 0.18 (0.09 – 0.34) p-value < 0.001
Cheon (2016)[10]	Patient cohorting, gloves and gowns, dedicated medical equipment	Standard precautions	Antimicrobial stewardship, HCW education, active surveillance, hand hygiene promotion	Hospital-onset multidrug resistant *Acinetobacter baumannii*	3.9 per 1,000 patient-days	22.82 per 1,000 patient-days	IRR (95% CI): 0.12 (0.03 – 0.40) p-value < 0.001
Tawney (2015)[37]	Single-room or cohorting with gloves and gowns	Standard precautions	Not stated	hospital acquired multidrug resistant *Acinetobacter baumannii*	9/14 (64%) 0.85 per 1,000 patient days	20/21 (95%) 1.1 per 1,000 patient days	OR (95% CI)*: 0.09 (0.009 – 0.86); p-value = 0.03 IRR (95% CI): 0.77 (0.35 – 1.69)
Kawamura (2016)[17]	Contact precautions, cefazolin-based antimicrobial stewardship	No contact precautions or cefazolin-based antimicrobial stewardship	Active surveillance, decolonisation	hospital acquired MRSA SSI	0.97%	3.38%	p-value = 0.07

Confidence interval; IRR: Incidence rate ratio; OR: Odds ratio; RR: Relative risk. *calculated from reported Intervention and Comparator outcomes (%) as not reported in record text

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Table 6 continued: Evidence on the effectiveness of contact precautions as the defined Intervention – observational studies

Author (Year)	Intervention	Comparator	Additional measures	Outcome(s)	Reported outcomes		
					Intervention	Comparator	Difference
Cohort study with concurrent controls							
Biehl (2019)[7]	Single room isolation, gloves and gowns	No contact precautions	Hand hygiene	Hospital-acquired colonisation or BSI with F3GCR-EC	16/1,582 (1.01%)	22/1,386 (1.59%)	RR (95% CI): 1.58 (0.82 – 3.02)*; p-value = 0.191
Biehl (2022)[8]	Single room isolation, gloves and gowns	No contact precautions	Hand hygiene	Hospital-acquired VRE colonisation or BSI	113/1,531 (7.4%)	170/1,397 (12.2%)	RR (95%CI): 1.74 (1.35–2.23)*; p-value < 0.001
Khader (2021)[20]	Contact precautions	No contact precautions	Active surveillance	MRSA-positive clinical cultures	Not reported	Not reported	Relative rate of transmissibility (95% CI): 0.50 (0.45 – 0.54) 47% reduction in transmission
Morgan (2020)[30]	Contact precautions	Standard precautions	Admission screening	MRSA acquisition among patients with negative admission cultures	23.7% 2.55 per 1,000 patient days	21.7% 2.54 per 1,000 patient days	aOR (95% CI): 0.97 (0.85–1.12) p-value =0.71 RR (95% CI): 1.13 (0.74–1.72); p-value = 0.58

aOR: Adjusted odds ratio; CI: Confidence interval; OR: Odds ratio; RR: Relative risk.
*reported effect size was defined as no contact precautions versus contact precautions

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Table 6 continued: Evidence on the effectiveness of contact precautions as the defined Intervention – observational studies.

Author (Year)	Intervention	Comparator	Additional measures	Outcome(s)	Reported outcomes		
					Intervention	Comparator	Difference
Secondary analysis of randomised controlled trials							
Khader (2021)[19]	Contact precautions	Standard precautions	Active surveillance	MRSA and VRE transmissibility	Not reported	Not reported	Relative rate (95% credible interval) 1.11 (0.93–1.32)
Toth (2019)[39]	Contact precautions	No contact precautions	Hand hygiene, daily chlorhexidine bathing, active surveillance	*Klebsiella pneumoniae* CPE bacteraemia onset	0.001 per day (95% CI: 0.0015 – 0.0021)	0.0018 per day (95% CI: 0.0015 – 0.0021)	42% relative reduction (95% CI: 18% to 60%)

Discontinuation of contact precautions

Twenty-one original research studies evaluated the discontinuation of contact precautions. Seventeen studies targeted methicillin-resistant Staphylococcus aureus (MRSA)[3,,6,9,11,13,14,16,18,26,31-33,35] and/or vancomycin-resistant enterococci (VRE)[3,5,6,9,11-14,18,22,26,33,35] and five studies on extended-spectrum beta-lactamase (ESBL)[24,29,32,38,41]. Across studies, the reported rationale for discontinuing contact precautions included reducing costs associated with PPE and single-room patient isolation, and evidence from previous studies of isolation-related patient harms. One study evaluated the discontinuation of contact precautions for MRSA and VRE infections during the COVID-19 pandemic to conserve PPE supplies[18], in line with the US Centres for Disease Control (CDC) crisis guidelines[5]. Details on Intervention and Comparator definitions, and reported outcomes, for eligible original research articles are summarised in Table 7.

All but one study evaluated outcomes using observational study designs, with most studies based on data from a single hospital or ICU[12,32]. The remaining study by Maechler (2020) was a cluster randomised crossover trial that tested the non-inferiority of contact versus standard precautions[24]. All multisite observational studies (n = 5) evaluated the discontinuation of contact precautions in hospital settings [9,22,26,31,41]. Statistical methods for evaluating changes in infection outcomes varied over the study timeframe, from between-group hypothesis testing [9,11,13,29,32,41,42,] to regression-based methods [5,18,22,26,33,] including interrupted time series [3,6,12,14,16,31,35,38] to account for time-based confounding.

Reported effectiveness associated with the discontinuation of contact precautions varied by organism.

Evidence from observational studies targeting ESBL-producing Escherichia coli [24,29,38,41] and Enterobacteriaceae [32,38] indicated that discontinuing contact precautions did not result in statistically significant differences in colonisation or infection rates, however studies varied in terms of baseline infection rates (0.075 to 2.06 cases per 1,000 patient days). Of these studies, one was designed as a non-inferiority study to compare differences in infection rates under contact versus standard precautions, assuming a noninferiority margin of 1 case

per 1,000 patient days [32]; the estimated difference associated with discontinuing contact precautions was -0.64 cases per 1,000 patient days (90% CI: -1.7 – 0.4). For all healthcare associated ESBL-producing organisms, Thompson (2020) reported a statistically significant change from 3.71 to 3.0 cases per 10,000 patient days following the discontinuation of contact precautions (IRR: 1.23; 95% CI: 1.01 – 1.51; p-value = 0.022); when analysed by organism, changes in ESBL-producing Escherichia coli were not statistically significant (2.1 to 1.7 cases per 10,000 patient days; p-value = 0.13)[38].

Twelve studies evaluated the impact of discontinuing contact precautions for both MRSA and VRE, for colonised patients only [26,35], and for both colonised and infected patients [5,6,9,11,13,14,18,31-33]. Outcomes assessed before and after discontinuation comprised healthcare-associated infections [3,5,9,12,16,18,22,31,33], device-related infections [5,6,11,13,14] and clinical isolates [22,26,35].

All studies that discontinued contact precautions for MRSA and VRE reported non-statistically significant changes in device-related infections. However, the interpretation of these findings was limited due to the reporting of p-values only without corresponding effect sizes. Of these studies, the discontinuation of contact precautions was often accompanied by the continuation or introduction of additional infection prevention measures, including hand hygiene audits [5,6,11,13,14], daily chlorhexidine bathing [6,11,13,14] and “bare below the elbows” protocols [6,11,13].

Four studies evaluated the discontinuation of contact precautions for VRE colonisation and infection [12,22,33] or VRE colonisation only[3]. In hospital wards with historically high VRE colonisation rates, Almyroudis (2016) evaluated the cessation of both contact precautions and active surveillance for VRE colonisation on the incidence of VRE bacteraemia (2.32 to 1.87 cases per 1,000 patient days; p-value > 0.05)[3]. MRSA bacteraemia (0.45 to 0.35 cases per 1,000 patient days; p-value > 0.05) and Clostridioides difficile infections (2.20 to 1.97 cases per 1,000 patient days; p-value > 0.05) were unaffected by the policy change. Similar results were observed for VRE bacteraemia following the discontinuation of contact precautions for both VRE colonisation and infection across four Canadian hospitals (IRR 0.54; 95% CI: 0.17 – 1.77; p-value =0.38); however, concurrent infection prevention measures, including the definition of standard precautions, were not reported. In a single hospital with a low VRE burden, Rupp (2017) reported conflicting findings depending on the definition of infection[33]. Based on the CDC definition for VRE clinical cultures, the study reported a slight increase in hospital-onset VRE bacteraemia following the discontinuation of contact precautions for all colonised or infected patients (0.07 to 0.08 cases per 1,000 patient days; IRR: 1.06; 95% CI: 0.44 – 2.51; p-value = 0.90). Following a review of all clinical cultures by an infection preventionist to determine the timing of infection, the study reported a decrease in VRE from 0.45 to 0.32 infections per 1,000 patient days (IRR: 0.71; 0.48 – 1.03; p-value = 0.07).

Two studies on the discontinuation of contact precautions for MRSA provided some evidence for reduced infection rates, when combined with hand hygiene compliance and chlorhexidine bathing. In a hospital setting with high infection burden, Karunakaran (2024) reported a reduction in healthcare-associated MRSA from 4.22 to 2.98 infections per 10,000 patient days (IRR: 0.71; 95% CI: 0.56 – 0.89; p-value = 0.001).

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[1] https://www.cdc.gov/coronavirus/2019-ncov/hcp/ppe-strategy/gloves.html#crisis-capacity; https://www.cdc.gov/coronavirus/2019-ncov/hcp/ppe-strategy/isolation-gowns.htmlhttps://www.cdc.gov/coronavirus/2019-ncov/hcp/ppe-strategy/gloves.html#crisis-capacity; https://www.cdc.gov/coronavirus/2019-ncov/hcp/ppe-strategy/isolation-gowns.html

In low burden settings, Martin (2016) reported a small reduction in MRSA clinical isolates from 0.40 to 0.32 cases per 10,000 patient days, after contact precautions for both colonised and infection patients were replaced with hospital-wide chlorhexidine bathing (IRR: 0.80; 95% CI: 0.62 – 1.04; p-value = 0.09). A similar effect size was reported by Rupp (2017) based on expert review of clinical cultures (IRR: 0.88; 95% CI: 0.64 – 1.22; p-value = 0.44)[33].

Pooled estimates on the effect of discontinuing contact precautions for MRSA and VRE were reported by two systematic reviews[21,25]. All eligible studies included in both reviews evaluated changes in infection rates before and after the discontinuation of contact precautions using observational, quasi-experimental designs.

Marra (2018) reported pooled reductions in MRSA (8 studies. Pooled risk ratio: 0.84; 95% CI: 0.70-1.02; p-value = 0.07) and VRE (6 studies. Pooled risk ratio: 0.82; 95% CI: 0.72 – 0.94; p-value = 0.005), based on studies published between 2012 and 2016[25]. Review findings were interpreted as evidence that discontinuing contact precautions was not associated with increased infection rates in hospitals with established horizontal infection prevention strategies, including high hand hygiene compliance.

Review findings were supported by an updated review by Kleyman (2021), which included an additional four studies published in 2017[21] (MRSA: 11 studies. Pooled risk ratio: 0.87; 95% CI: 0.71 – 1.01; p-value = 0.06; VRE: 7 studies. Pooled risk ratio: 0.82; 95% CI: 0.72 – 0.94; p-value = 0.005). In MRSA infections, subgroup analysis stratified by chlorhexidine bathing as an additional measure did not show statistically significant associations with discontinuation of contact precautions (Chlorhexidine bathing: 6 studies. Pooled risk ratio: 0.83; 95% CI: 0.69 – 1.00; p-value = 0.05. No chlorhexidine bathing: 5 studies. Pooled risk ratio: 1.02; 95% CI: 0.55 – 1.88; p-value = 0.95).

Pooled estimates from both reviews included eligible records in Table 8 that reported measures of comparative effectiveness [16,18,22,26,31,35,] however reported estimates were based on reported risk ratios that did not account for total patient days at risk or could not be verified based on data reported by the original study publication. Based on data reported by eligible studies, a meta-analysis was performed to estimate pooled incidence rate ratios associated with the discontinuation of contact precautions for ESBL (4 studies. Pooled IRR: 0.89; 95% CI: 0.74 – 1.06; I2: 45%; Figure 4), MRSA (8 studies. Pooled IRR: 0.85; 95% CI: 0.76 – 0.96; I2: 5.5%; Figure 5) and VRE (6 studies. Pooled IRR: 0.98; 95% CI: 0.81 – 1.18; I2: 39%; Figure 6).

Table 7: Evidence on the effectiveness of discontinuing contact precautions

Author (Year)	Intervention	Comparator	Additional measures	Outcome(s)
Almyroudis https://www.nhmrc.gov.au/guidelinesforguidelines/develop/assessing-certainty-evidence (2016)[3]	No contact precautions or active surveillance	Contact precautions and active surveillance	Environmental cleaning, daily chlorhexidine bathing	VRE bacteraemia
Bardossy (2017)[5]	Standard precautions only	Contact precautions in addition to standard precautions	Hand hygiene	MRSA and VRE device related infections (ICU) hospital acquired MRSA bacteraemia

CI: Confidence interval; IRR: Incidence risk ratio. *calculated from data available in the publication (continued next page)

Table 7 continued: Evidence on the effectiveness of discontinuing contact precautions

Author (Year)	Intervention	Comparator	Additional measures	Outcome(s)	Reported outcomes		
					Intervention	Comparator	Difference
Bearman (2018)[6]	Standard precautions	Contact precautions	Hand hygiene, daily chlorhexidine gluconate bathing, "bare below the elbows", ultraviolet disinfection, urinary catheter stop orders	MRSA and VRE device related infections	MRSA: 2.88 per 100,000 patient days VRE: 5.62 per 100,000 patient days MRSA/VRE: 8.50 per 100,000 patient days	MRSA: 5.19 per 100,000 patient days VRE: 9.82 per 100,000 patient days MRSA/VRE: 15.01 per 100,000 patient days	*Unadjusted:* MRSA: p-value = 0.026 VRE: p-value = 0.003 MRSA/VRE: p-value <0.001 *Adjusted:* MRSA/VRE: 3% decrease; p-value = 0.85
Carey (2020)[9]	Standard precautions	Contact precautions	Hand hygiene	Hospital onset MRSA and VRE bacteraemia	MRSA*: 0.02 VRE*: 0.00	MRSA*: 0.07 VRE*: 0.00	MRSA: 0.29 p-value = 0.65
Edmond (2015)[11]	No contact precautions	Contact precautions	Hand hygiene, "bare below the elbows", daily chlorhexidine bathing	MRSA and VRE device related infections	MRSA: n = 12 VRE: n = 17	MRSA: n = 15 VRE: n = 22	MRSA: p-value = 0.49 VRE: p-value = 0.91

*rate denominator not reported (continued next page)

Table 7 continued: Evidence on the effectiveness of discontinuing contact precautions

Author (Year)	Intervention	Comparator	Additional measures	Outcome(s)	Reported outcomes		
					Intervention	Comparator	Difference
Eichel (2021)[12]	No contact precautions	Contact precautions	Active surveillance, hand hygiene, daily antiseptic body washing	VRE faecium bacteraemia	n = 29; 0.31 per 1,000 patient days	n = 32; 0.26 per 1,000 patient days	IRR (95% CI)*: 1.19 (0.72 – 1.97) p-value reported as not significant
Godbout (2019)[13]	No contact precautions	Contact precautions	Hand hygiene, central-line checklists, "bare below the elbows", daily chlorohexidine bathing	CLABSI	*MRSA/VRE CLABSI:* n = 6; 0.15 per 1,000 central-line days *All CLABSI:* n = 71; 1.37 per 1,000 central-line days	*MRSA/VRE CLABSI:* n = 13; 0.38 per 1,000 central-line days *All CLABSI:* n = 107; 2.62 per 1,000 central-line days	*MRSA/VRE CLABSI:* IRR (95% CI)*: 0.39 (0.15 – 1.03) p-value = 0.24 *All CLABSI*: IRR (95% CI)*: 0.53 (0.39 – 0.71) p-value = 0.03

CI: Confidence interval; IRR: Incidence rate ratio. *calculated from data available in the record. (continued next page)

Table 7 continued: Evidence on the effectiveness of discontinuing contact precautions

Author (Year)	Intervention	Comparator	Additional measures	Outcome(s)	Reported outcomes		
					Intervention	Comparator	Difference
Haessler (2020)[14]	No contact precautions	Contact precautions	Hand hygiene, daily chlorohexidine bathing for ICU patients, environmental disinfection	CLABSI, CAUTI, SSI	*MRSA:* CLABSI: 0.014 – 0.158 per 1,000 central venous catheter days; CAUTI: 0 – 0.028 per 1,000 catheter days; SSI: 0 – 0.119 per 100 cases *VRE*: CLABSI: 0.032 – 0.153 per 1,000 central venous catheter days; CAUTI: 0.029 – 0.142 per 1,000 catheter days	*MRSA:* CLABSI: 0 – 0.995 per 1,000 central venous catheter days; CAUTI: 0 – 0.017 per 1,000 catheter days; SSI: 0.145 – 0.163 per 100 cases *VRE*: CLABSI: 0.063 – 0.366 per 1,000 central venous catheter days; CAUTI: 0.051 – 0.157 per 1,000 catheter days	p-values by hospital (A,B,C) *MRSA:* CLABSI: p-value: 0.05 (B), 0.049 (A), 0.335 (C) CAUTI: 0.336 (B, C) SSI: 0.816 (A), 0.0168 (C) *VRE*: CLABSI: 0.646 (A), 0.287 (B), 0.073 (C) CAUTI: 0.896 (B), 0.533 (C)
Karunakaran (2024)[16]	Standard precautions	Contact precautions	Active surveillance, chlorhexidine skin treatment, decolonisation	Healthcare associated MRSA	2.98 per 10,000 patient days	4.22 per 10,000 patient days	IRR (95% CI): 0.71 (0.56 – 0.89) p-value = 0.001

CI: Confidence interval; IRR: Incidence rate ratio (continued next page)

Table 7 continued: Evidence on the effectiveness of discontinuing contact precautions

Author (Year)	Intervention	Comparator	Additional measures	Outcome(s)	Reported outcomes		
					Intervention	Comparator	Difference
Kelly (2024)[18]	No contact precautions	Contact precautions	Hand hygiene	Hospital acquired MRSA and VRE infections, MRSA bacteraemia	MRSA: 10.64 per 10,000 patient days VRE: 4.44 per 10,000 patient days	MRSA: 12.19 per 10,000 patient days VRE: 3.5 per 10,000 patient days	HA-MRSA: IRR (95% CI): 0.89 (0.70 – 1.12) HA-VRE: IRR (95% CI): 1.28 (95% CI: 0.87 – 1.88) MRSA bacteraemia: IRR (95% CI): 0.84 (0.38, 1.85)
Lemieux (2017)[22]	Routine practices (unspecified)	Contact precautions, admission screening	Not reported	VRE infection, bacteraemia, clinical isolates	VRE infection: n = 84 VRE bacteraemia: n = 50 VRE clinical isolates: n = Not reported	VRE infection: n = 50 VRE bacteraemia: n = 26 VRE clinical isolates: n = Not reported	VRE infection: IRR (95% CI)*: 0.59 (0.24–1.47); p-value = 0.34 VRE bacteraemia: IRR (95% CI)*: 0.54 (0.17 – 1.77); p-value =0.38 VRE clinical isolates: IRR (95% CI)*: 0.78 (0.26 – 2.32); p-value = 0.69

CI: Confidence interval; IRR: Incidence rate ratio; *estimated as the ratio of contact precautions versus no contact precautions (continued next page)

Table 7 continued: Evidence on the effectiveness of discontinuing contact precautions

Author (Year)	Intervention	Comparator	Additional measures	Outcome(s)	Reported outcomes		
					Intervention	Comparator	Difference
Maechler (2020)[24]*	Standard precautions	Contact precautions	Hand hygiene, Active surveillance	ESBL-E colonisation or infection	6.1 per 1,000 patient days at-risk (95% CI: 5.5 – 6.7)	6.0 per 1,000 patient days at-risk (95% CI: 5.4 – 6.7)	IRR (95% CI): 1.00 (0.90 –1.1) p-value = 0.971
Martin (2016)[26]	No contact precautions	Contact precautions	Hand hygiene, Chlorhexidine gluconate bathing	MRSA and VRE clinical cultures	MRSA: 0.32 per 10,000 patient days (95% CI: 0.27–0.38) VRE: 0.40 per 10,000 patient days (95% CI: 0.34–0.47)	MRSA: 0.40 per 10,000 patient days (95% CI: 0.33–0.48) VRE: 0.48 per 10,000 patient days (95% CI: 0.40–0.57)	MRSA: IRR (95% CI): 0.80 (0.62 – 1.04); p-value = 0.09 VRE: IRR (95% CI): 0.83 (0.66 – 1.06); p-value = 0.14
Martin (2022)[27]	No contact precautions	Contact precautions	UV disinfection, hand hygiene	Healthcare associated MRSA, VRE	MRSA: 0.15 per 1,000 patient days (95% CI: 0.1 – 0.2) VRE: 0.05 per 1,000 patient days (95% CI: 0.03 – 0.08)	MRSA: 0.14 per 1,000 patient days (95% CI: 0.09 – 0.19) VRE: 0.05 per 1,000 patient days (95% CI: 0.03 – 0.08)	MRSA: Risk difference (95% CI): 0.01 (-0.03 – 0.04); p-value = 0.74 VRE: Risk difference (95% CI): 0.0 (-0.02 – 0.02)

CI: Confidence interval; IRR: Incidence rate ratio; *cluster randomised crossover trial also included in Table 5; reported outcomes switched to reflect the treatment sequence reflective of discontinuing contact precautions. (continued next)

Table 7 continued: Evidence on the effectiveness of discontinuing contact precautions

Author (Year)	Intervention	Comparator	Additional measures	Outcome(s)	Reported outcomes		
					Intervention	Comparator	Difference
Metan (2017)[29]	No contact precautions	Contact precautions	Hand hygiene	ESBL-producing E. coli isolates	4.8 per 100,000 patient days	7.5 per 100,000 patient days	IRR (95% CI)*: 0.67 (0.27 – 1.49); p-value = 0.357
Most (2024)[31]	Standard precautions	Contact precautions	Active surveillance	Healthcare onset MRSA	Not reported	Not reported	IRR (95% CI): 0.98 (0.74 to 1.28) p-value = 0.87
Renaudin (2017)[32]	Standard precautions	Contact precautions	Hand hygiene, antimicrobial stewardship	ICU acquired MRSA and ESBL-E	MRSA: n = 10; 0.82 per 1,000 patient days (95% CI: 0.31 – 1.33) ESBL-E: 2.06 per 1,000 patient days (95% CI: 1.27 – 2.86)	MRSA: n = 10; 0.79 per 1,000 patient days (95% CI: 0.30 – 0.29) ESBL-E: 2.70 per 1,000 patient days (95% CI: 1.78 – 3.62)	MRSA: Difference (90% CI): -0.03 (0.6 – 0.6); p-value† = 0.002 ESBL-E: Difference (90% CI): -0.64 (-1.7 – 0.4); p-value† = 0.004
Rupp (2017)[33]	Standard precautions	Contact precautions	Hand hygiene, environmental cleaning, chlorhexidine bathing	Healthcare associated MRSA and VRE	MRSA: 0.48 per 1,000 patient days VRE: 0.32 per 1,000 patient days	MRSA: 0.55 per 1,000 patient days VRE: 0.45 per 1,000 patient days	MRSA: IRR (95% CI): 0.88 (0.64 – 1.22); p-value = 0.44 VRE: IRR (95% CI): 0.71 (0.48 – 1.03); p-value = 0.07

CI: Confidence interval; IRR: Incidence rate ratio; *reported in the record as the ratio of contact precautions versus no contact precautions (IRR (95% CI) 1.5 (0.67 – 3.7)) but evaluated the discontinuation of contact precautions; inverted for consistency. †record used Schuirmann's two one-sided test (TOST) to compare Intervention and Comparator outcomes, which assumed a null hypothesis that the difference was greater than 1 case per 1,000 patient days; the difference was reported as (contact precautions – no contact precautions) (continued next page)

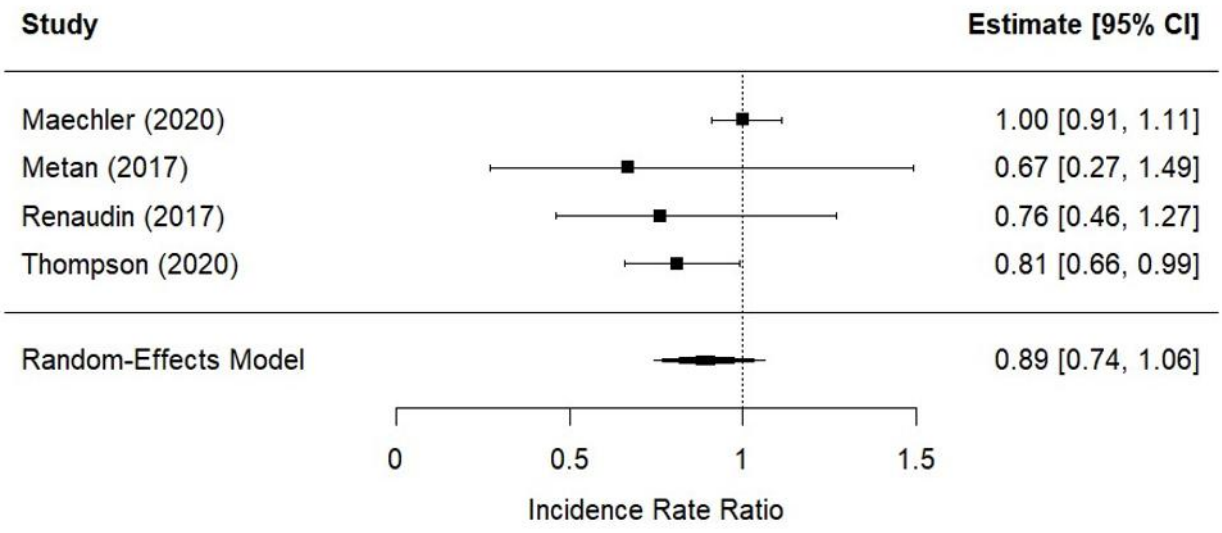
Table 7 continued: Evidence on the effectiveness of discontinuing contact precautions

Author (Year)	Intervention	Comparator	Additional measures	Outcome(s)	Reported outcomes		
					Intervention	Comparator	Difference
Schrank (2020)[35]	Standard precautions	Contact precautions	Hand hygiene, HCW education on standard precautions	MRSA, VRE clinical cultures	Not reported	Not reported	MRSA: IRR (95% CI): 1.58 (0.82 – 3.04) VRE: IRR (95% CI): 1.02 (0.82 – 1.27)
Thompson (2020)[38]	No contact precautions	Contact precautions	Hand hygiene	Healthcare associated ESBL infections	n = 166; 3.0 per 10,000 patient days	n = 221; 3.71 per 10,000 patient days	IRR (95% CI)*: 0.81 (0.66 - 0.99) p-value = 0.022
Zahar (2015)[41]	Hospital A: Contact precautions Hospital B: No contact precautions	Hospital A: Contact precautions Hospital B: Contact precautions	Hand hygiene	Incidence of ESBL-producing *E. coli* isolates	Hospital A: 0.41 per 1,000 patient days; (95% CI: 0.33 – 0.48) Hospital B: 0.40 per 1,000 patient days; (95% CI: 0.32 – 0.48)	Hospital A: 0.14 per 1,000 patient days; (95% CI: 0.08 – 0.21) Hospital B: 0.20 per 1,000 patient days; (95% CI: 0.14 – 0.26)	Hospital B – Hospital A Intervention = –0.009 per 1,000 patientdays; p-value = 0.73

CI: Confidence interval; IRR: Incidence rate ratio. *calculated from data available in the record.

Figure 4: Meta-analysis of incidence rate ratios for the discontinuation of contact precautions in favour of standard precautions targeting Extended-spectrum beta-lactamase, including ESBL-producing

Enterobacteriaceae (Maechler (2020), Renaudin (2017)), Escherichia coli (Metan (2017)) and healthcare associated ESBL infections (Thompson (2020)). All incidence rate ratios reflect the comparison of standard or no contact precautions (numerator) versus contact precautions (denominator).



Note: Macheler (2020) is included in Figure 4 due to it being a cluster randomised crossover design.

Figure 5: Meta-analysis of incidence rate ratios for the discontinuation of contact precautions in favour of standard precautions targeting methicillin-resistant Staphylococcus aureus.

All incidence rate ratios reflect the comparison of standard or no contact precautions (numerator) versus contact precautions (denominator).

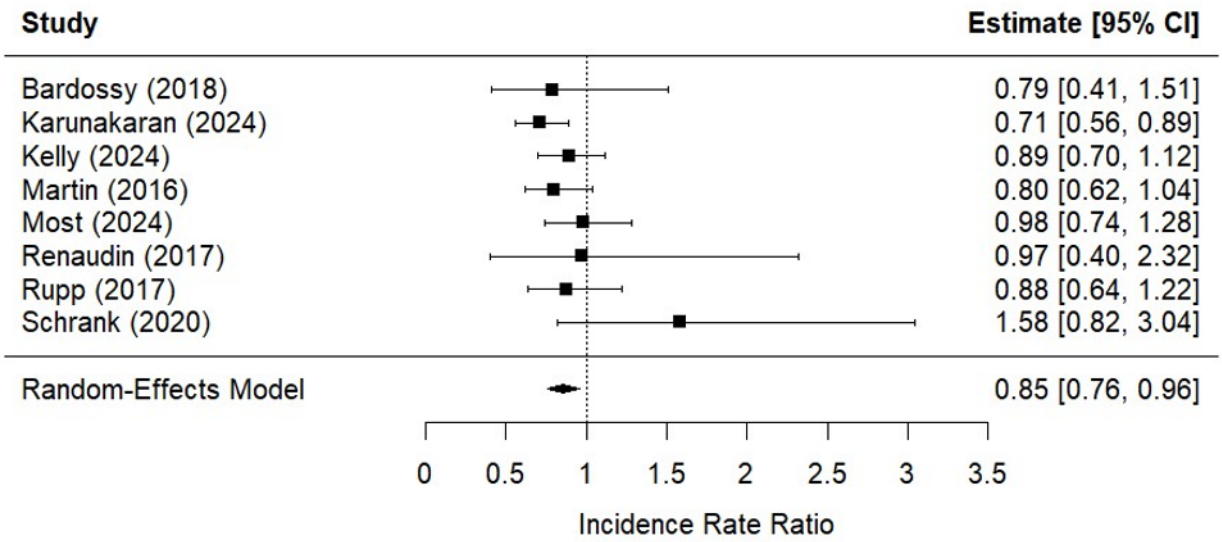
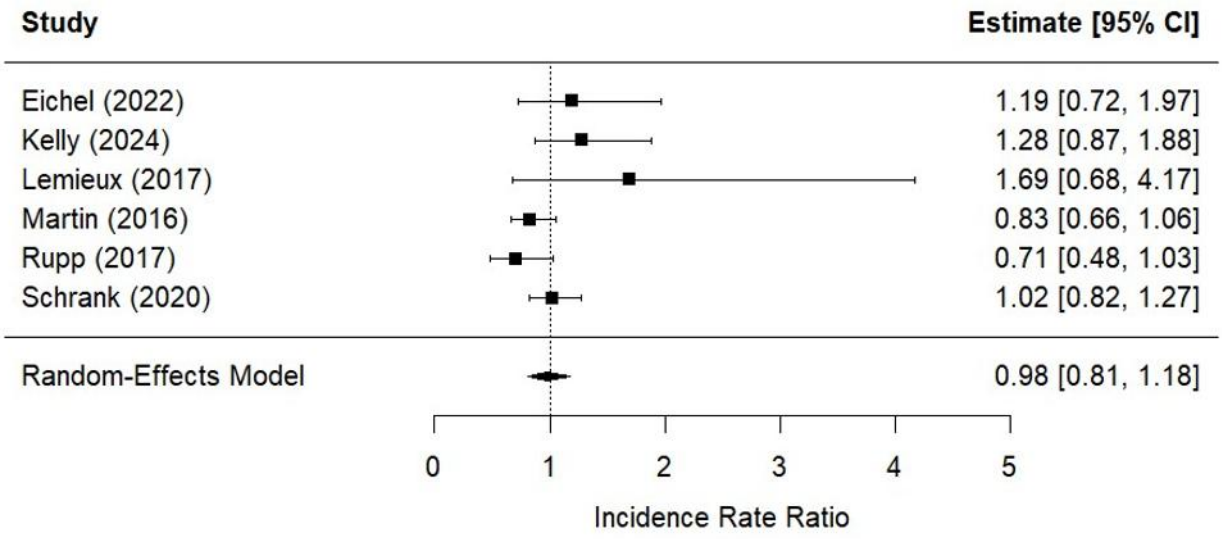
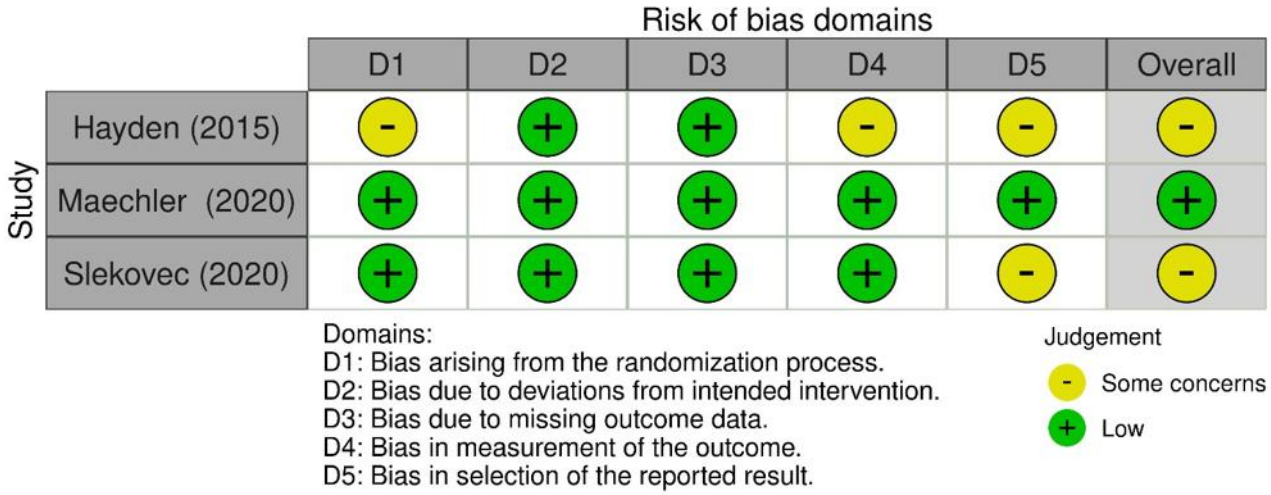


Figure 6: Meta-analysis of incidence rate ratios for the discontinuation of contact precautions in favour of standard precautions targeting vancomycin-resistant enterococci. All incidence rate ratios reflect the comparison of standard or no precautions (numerator) versus contact precautions (denominator).



Three studies were classified as being at critical risk of bias based on preliminary assessment9,11,13. These decisions were due to studies not acknowledging the influence of time-based confounding on changes in outcomes over time and/or on outcome measurement to account for patient-time at risk, and limited reporting on adherence with other stated infection prevention measures. A full risk of bias assessment for studies on the effectiveness of contact precautions is presented in Figure 7 (randomised studies) and Figure 8 (nonrandomised studies).

Figure 7: Risk of bias assessment for studies that evaluated the effectiveness of contact precautions (randomised studies).



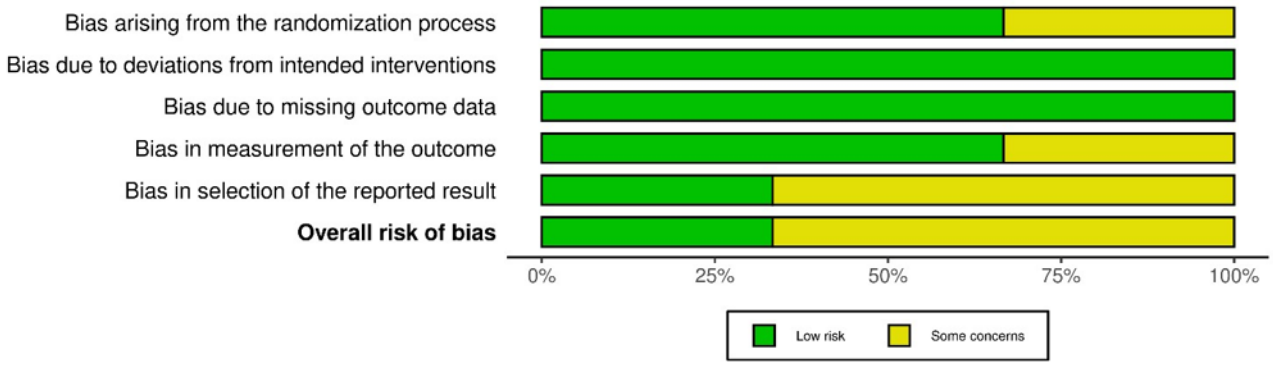


Figure 8: Risk of bias assessment for studies that evaluated the effectiveness of contact precautions (nonrandomised studies).

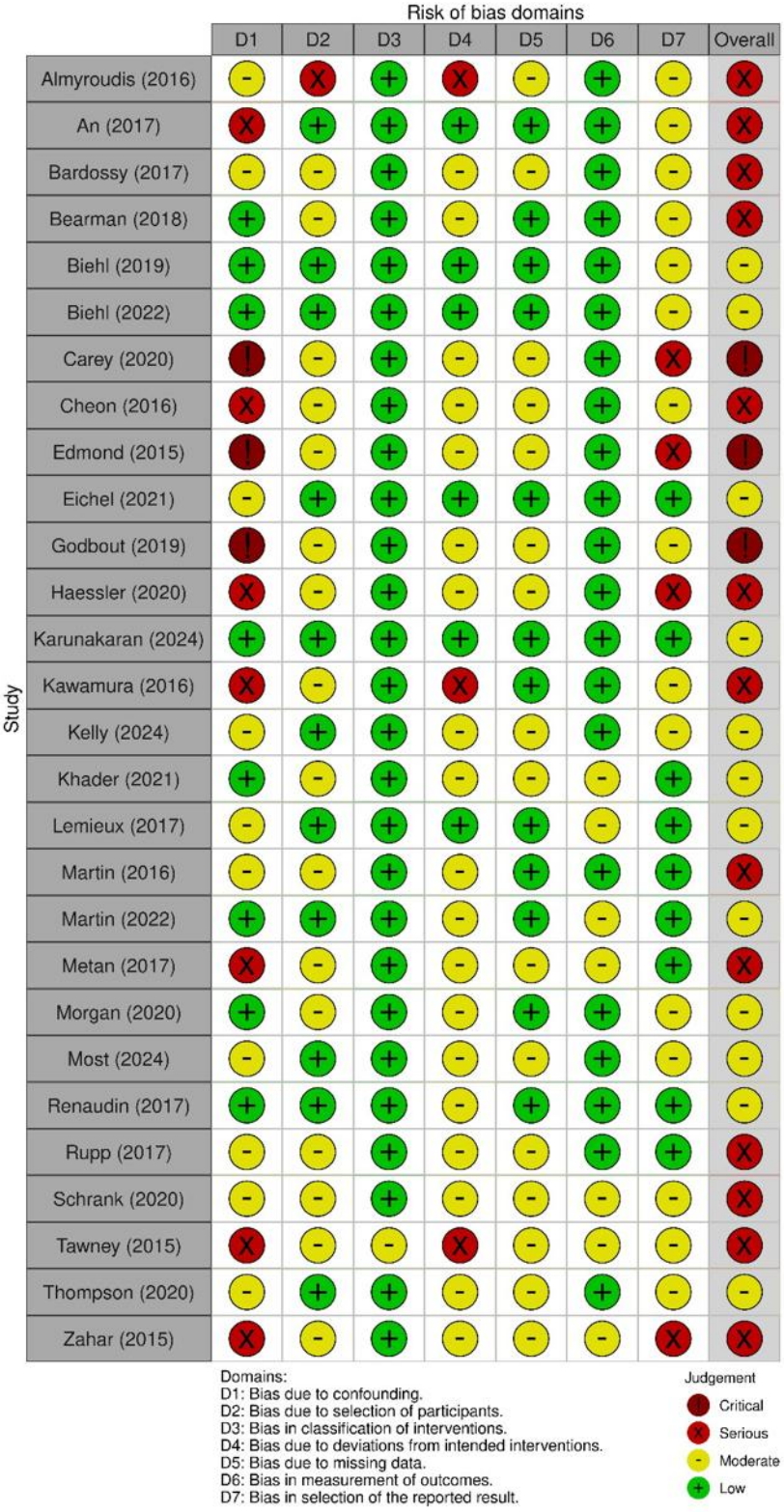


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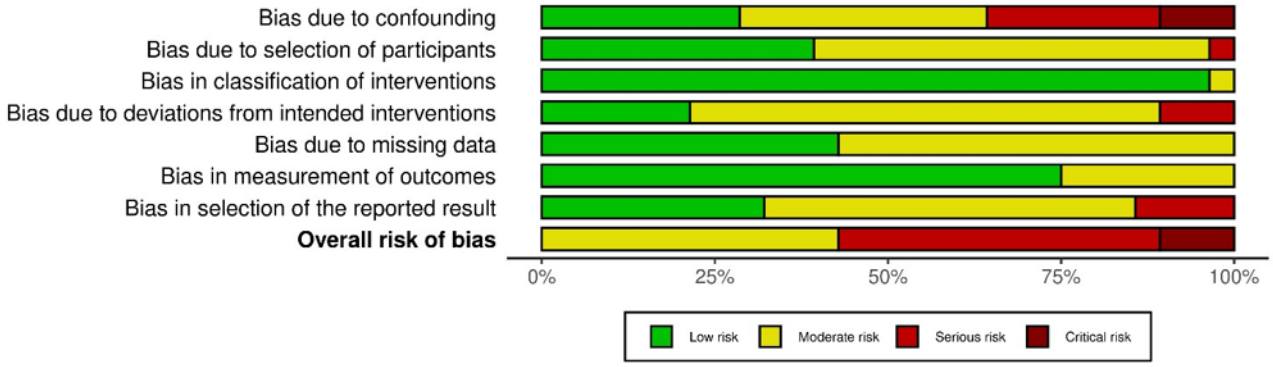
Figure 8 continued: Risk of bias assessment for studies that evaluated the effectiveness of contact precautions (non-randomised studies).



Effectiveness of other transmission-based precautions

Five original research articles were eligible for inclusion for droplet and airborne precautions (Table 8). All evidence came from observational study designs conducted in hospital settings. Three studies evaluated the effectiveness of transmission-based precautions implemented during the COVID-19 pandemic [43-45,] including the downstream impacts on other healthcare-associated infections[44]. Two studies evaluated the effectiveness of droplet in addition to contact precautions compared with contact precautions on respiratory viral infections in a single hospital setting [46,47]. Reported effectiveness by study is reported in Table 9.

Due to the number of eligible studies and heterogeneity in reporting, meta-analysis was not performed. Risk of bias assessment is provided in Figure 9.

Table 8: Summary of included records on the effectiveness of droplet and respiratory precautions

Author (Year); Country if applicable	Title	Study design	Healthcare setting (Total sites)	Infection(s) evaluated
Birrer (2024)[46]; Switzerland	Hospital-acquired respiratory viral infections while applying droplet precautions on-site (DropPS) - prospective observation during the 2019/20 influenza season, Bern, Switzerland	Observational	Hospital (1)	Respiratory viral infections
Lawton (2022)[45]; UK	Airborne protection for staff is associated with reduced hospitalacquired COVID-19 in English NHS trusts	Observational	Hospital (16)	Healthcare associated COVID-19
McMichael (2023)[43]; USA	Use of standard, contact, and droplet precautions with eye protection for the prevention of severe acute respiratory coronavirus virus 2 (SARS-CoV-2) transmission among home healthcare personnel in hospice and home healthcare settingsKing and Snohomish counties, Washington, February-October 2020	Observational	Homebased healthcare	SARS-CoV-2
Rubin (2018)[47]; USA	Reduction in Rate of Nosocomial Respiratory Virus Infections in a Children's Hospital Associated with Enhanced Isolation Precautions	Observational	Hospital (1)	Respiratory viral infections
Wee (2021)[44]; Singapore	Unintended consequences of infection prevention and control measures during COVID-19 pandemic	Observational	Hospital (1)	MDRO, Respiratory viral infections

COVID-19 response

A US-based study by McMichael (2023) evaluated the effectiveness of droplet precautions compared with standard precautions on SARS-CoV-2 infections in home healthcare settings43. Standard precautions were defined as no PPE or glove use, as minimal PPE during the first month of the COVID-19 pandemic (29th February to 20th March 2020). Droplet precautions, in addition to standard precautions, were defined as medical masks, gowns, gloves, and eye protection, based on local policy implemented during the first and second pandemic waves (21st March – 5th October 2020). Reported outcomes indicated a reduction in HCW to-patients SARS-CoV-2 transmission (Standard precautions: 8/14 (57%); Droplet precautions: 22/54 (41%)).

No further statistical analyses were reported.

Two records described components of respiratory precautions implemented during the COVID-19 pandemic.

Lawton (2022) reported a UK-based study that compared hospital-acquired COVID-19 infections between National Health Service trusts that used airborne respiratory protection (Intervention) versus those that mainly used droplet precautions (Comparator)45. Infection outcomes were compared for the Alpha variant (Intervention: 11.8%; Comparator: 14.6%; Absolute reduction: 2.7% (2.4 – 3.1%); p-value < 0.00001) and

Delta variant (Intervention: 3.0%; Comparator: 4.4%; Absolute reduction: 1.4% (1.0 – 1.8%); p-value < 0.00001) waves, based on publicly available, weekly COVID-19 statistics. Wee (2021) evaluated the impact of a series of infection and prevention measures implemented in a single Singapore hospital during the first six months of the COVID-19 pandemic, on healthcare-associated respiratory viral infections, MRSA and CLABSI[48]. Based on the details provided, the introduction of airborne respiratory protection, comprising N95 respirators and airborne infection isolation rooms for confirmed COVID-19 cases, was in addition to droplet precautions. The management of MRDOs under contact precautions remained unchanged over the study period. Study findings reported a decrease in the cumulative incidence of healthcare-associated respiratory viral infections from 9.69 to 0.83 cases per 10,000 patient-days (IRR = 0.08; 95% CI = 0.05 – 0.13, p-value < 0.05). Reductions in MRSA bacteraemia (IRR = 0.31, 95% CI = 0.06-0.97; p-value = 0.04) and CLABSI (IRR: 0.24; 95% CI = 0.07 – 0.57; p-value < 0.05) were also reported.

Other respiratory viral infections

Birrer et. al (2024) evaluated the implementation of ‘on-site’ droplet precautions, which allowed patients with respiratory viral infections to share multi-bed wards with patients without respiratory symptoms[46]. The study was conducted in a single hospital over one influenza season. Reported outcomes were limited to the number of healthcare-associated respiratory viral infections confirmed in patients in the same ward who were not on droplet precautions (3/764; 0.4%).

A four-year study by Rubin (2018) evaluated the effectiveness of droplet combined with contact precautions on respiratory viral infections including human metapneumovirus, parainfluenza, respiratory syncytial virus (RSV), and rhinovirus/enterovirus in a single paediatric hospital[47]. Over two years, the intervention was associated with a decrease in respiratory viral infections of any type from 0.827 cases per 1,000 hospital days to 0.508 per 1,000 hospital days (p-value = 0.0013).

Table 9: Evidence on the effectiveness of other transmission-based precautions.

Author (Year)	Intervention	Comparator	Additional measures	Outcome(s)	Reported outcomes		
					Intervention	Comparator	Difference
Birrer (2024)[46]	Droplet precautions in shared rooms with uninfected patients	Droplet precautions in single rooms	Standard precautions, environmental cleaning	Healthcare associated respiratory viral infections (uninfected patients in shared rooms only)	3/764 (0.4%)	Not applicable	Not applicable
Lawton (2022)[45]	Airborne respiratory protection in addition to droplet precautions	Droplet precautions	Not reported	Hospital-acquired COVID-19	*Alpha wave*: 11.8% *Delta wave*: 3.0%	*Alpha wave*: 14.6% *Delta wave*: 4.4%	*Alpha wave*: Absolute reduction: 2.7% (95% CI 2.4 – 3.1%); p-value < 0.00001 *Delta wave*: Absolute reduction: 1.4% (95% CI: 1.0 – 1.8%); p-value < 0.00001
McMichael (2023)[43]	Droplet precautions with contact and standard precautions	Standard precautions	Not reported	SARS-CoV-2 hospitalisations	22/54 (41%).	8/14 (57%)	Not reported

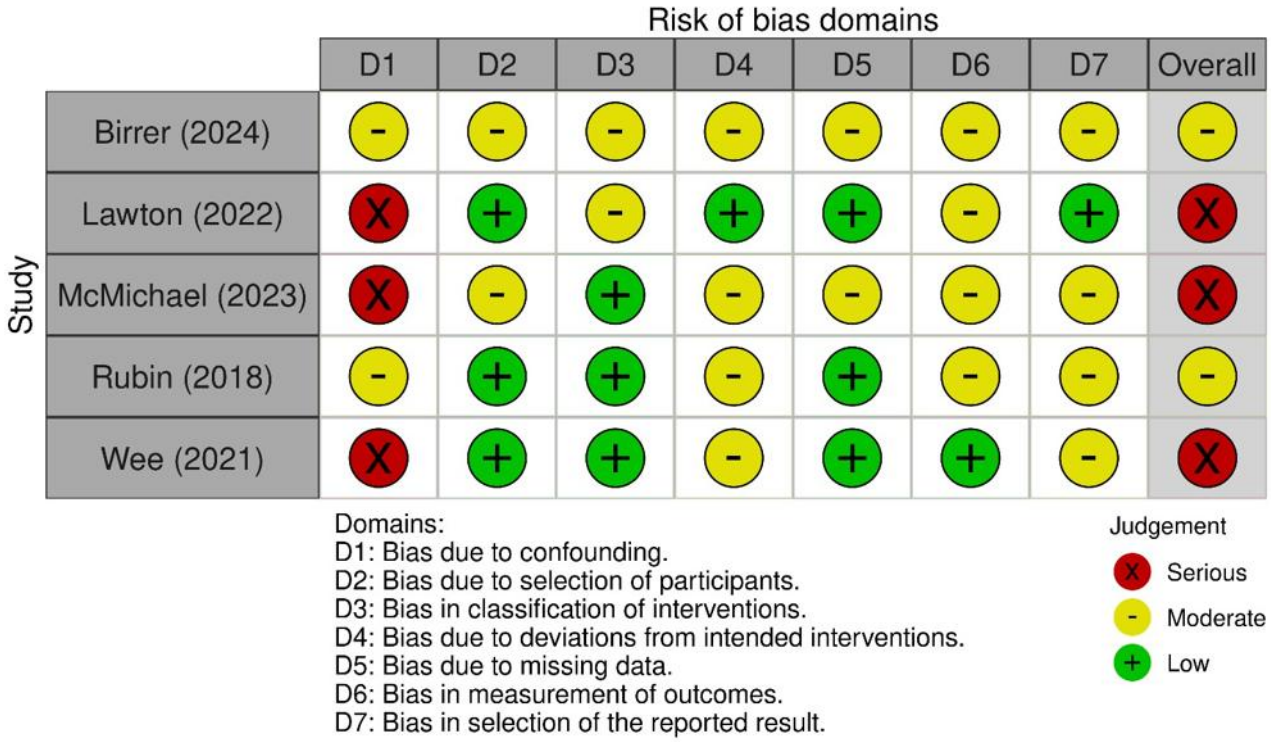
CI: Confidence interval (continued next page)

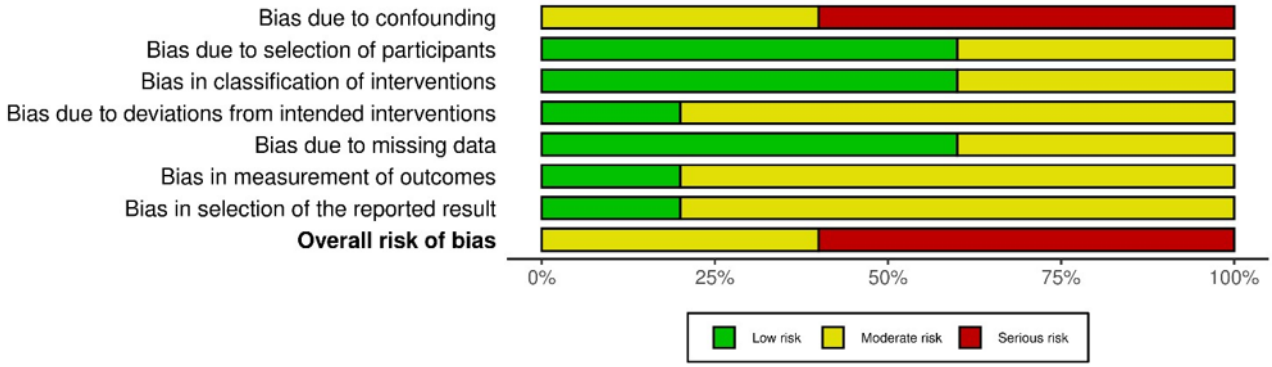
Table 9 continued: Evidence on the effectiveness of other transmission-based precautions.

Author (Year)	Intervention	Comparator	Additional measures	Outcome(s)	Reported outcomes		
					Intervention	Comparator	Difference
Rubin (2018)[47]	Droplet with contact precautions for all respiratory infections	Contact precautions; droplet precautions for influenza	Hand hygiene	Nosocomial Respiratory Virus Infections	0.508 per 1,000 hospital days	0.827 per 1,000 hospital days	p-value = 0.0013
Wee (2021)[44]	Airborne with droplet precautions	Standard or contact precautions	Active surveillance, environmental cleaning, hand hygiene, universal masking	Healthcare associated respiratory viral infections	0.83 cases per 10,000 patientdays	9.69 cases per 10,000 patient-days	IRR: 0.08 (95% CI = 0.05-0.13); p-value < 0.05

CI: Confidence interval; IRR: Incidence rate ratio

Figure 9: Risk of bias assessment for studies that evaluated other types of transmission-based precautions (non-randomised studies)





Components of transmission-based precautions

Eligible evidence on components of transmission-based precautions described the effectiveness of patient placement in single rooms or ward-based cohorting, as a component of contact precautions (n = 9), and the targeted use of personal protective equipment (PPE) (n = 2) (Table 10). Three review articles were found; however, one review on the effectiveness of masks and respirators was excluded due to all included studies being published prior to 2015[49]. The remaining two reviews were excluded due to no studies being identified based on the reported search strategy – one on patient placement for paediatric patients[50], and the other on the effectiveness of gloves, gowns and masks for reducing MRSA transmission in hospital settings[51].

Patient placement

Patient isolation was evaluated as part of contact precautions for Vancomycin-resistant enterococci (VRE)[52,55], extended-spectrum beta-lactamase producing Enterobacteriaceae (ESBL-E)[56], and carbapenem-resistant Acinetobacter baumannii (CRAB)[57], and to reduce the risk of healthcare-associated influenza[58] (Table 11).

Youngs (2019) evaluated the introduction of point-of-care testing initiated in the Emergency Department, combined with ward-based cohorting for admitted patients, which was introduced partway through a single, high-incidence influenza season[58]. The combined use of ED-initiated testing and ward-based cohorting, compared with single-room isolation following laboratory-confirmed influenza during hospital admission, was associated with a statistically significant reduction in healthcare-associated influenza from 0.95 to 0.66 cases per day (p-value < 0.0001). This reduction was accompanied by a statistically significant decrease in blocked hospital bed days due to influenza (5.05 to 2.77 per day; p-value < 0.0001).

One randomised trial was identified for MDROs. Kluytmans-van den Bergh (2019) reported results from a multi-site cluster randomised trial that tested the non-inferiority of single-room isolation versus ward-based cohorting as part of contact precautions for managing ESBL-producing Enterobacteriaceae[56]. Intervention assignment followed a 1:1 crossover design, where hospitals were allocated to initially implement single room or ward-based cohorting for patients who returned a positive culture for rectal carriage of ESBL producing Enterobacteriaceae within 7 days of discharge (index patients). Sixteen hospitals participated in the study, of which thirteen completed both study periods. The primary outcome was ESBL transmission among ward-mates present at the time of index patient screening. Assuming a 10% non-inferiority margin, trial results indicated that ward-based cohorting did not increase ESBL transmission with an estimated risk difference of 3·4% (95% CI: –0·3 to 7·1).

All observational studies targeting VRE (n = 3) reported outcomes from a single hospital before and after the discontinuation of single room isolation in favour of ward-based cohorting[53] or no isolation [52-54]. Studies consistently reported no statistically significant changes in infections. These findings were consistent with pooled estimates reported in a systematic review by Pan (2024), which indicated that the discontinuation of single room isolation did not increase the incidence of healthcare-associated VRE bacteraemia (4 studies. RR: 0.93; 95% CI: 0.68-1.26; p-value = 0.62), or healthcare-associated VRE bloodstream infection (5 studies. RR: 0.68; 95% CI: 95% CI: 0.44 – 1.07; p-value = 0.09)[55].

An observational study by Margalit (2025) evaluated the introduction of ward-based cohorting combined with enhanced environmental cleaning to address increasing CRAB bloodstream infections at a single hospital[57]. Compared with other studies, the Intervention included policy changes related to daily and terminal cleaning of patient rooms, beginning with designated isolation wards before expanding hospital wide. The impact of this concurrent intervention was partly reflected in differences between unadjusted and adjusted analyses (Table 11), with the interrupted time-series analysis reporting that monthly BSI incidence decreased by approximately 9% per month (adjusted IRR: 0.909; 95% CI: 0.834—0.990; p-value = 0.029). After adjusting for background time trends, intervention exposure was associated with similar infection rates (IRR: 0.987; 95% CI: 0.487–1.999; p-value = 0.972).

Grey literature searches further identified an evidence review of infection prevention and control for carbapenem-resistant Enterobacteriaceae in healthcare settings, including the role of patient isolation[59]. Included studies were assessed for inclusion in this review; however, most were excluded because they were published before 2015 or were reports of infection control bundles without a defined comparator. One study was deemed eligible and included in the evidence synthesis on the effectiveness of contact precautions[15].

Meta-analysis of patient placement studies was not conducted due to heterogeneity in Comparator definitions and reported outcomes.

Personal protective equipment

Two US-based studies evaluated glove and gown use in aged care settings for MRSA60, and mask versus respirator use in hospitals for respiratory viral infections.

For glove and gown use, Lydecker (2021) reported changes in MRSA acquisition by short-stay residents during a three-month pilot study across two aged care facilities60. The study evaluated the use of gloves and gowns by HCWs while completing high-risk care activities, compared with standard precautions, and reported a statistically significant change in MRSA acquisition associated with targeted glove and gown use from 11.9% to 3.6% (OR: 0.28; 95% CI: 0.08 – 0.92; p-value = 0.026).

Radonovich (2019) reported findings from a cluster randomised trial that compared medical masks versus N95 respirators in outpatient clinics across four consecutive influenza seasons61. Compared with other randomised trials that were excluded from this review, eligible participants were defined as HCWs who were routinely positioned within 6 feet of patients and were required to change their mask or respirator when they were within 6 feet of patients with suspected or confirmed respiratory illness. Clusters were defined at the clinical level and were randomised to mask or respirator arms at the start of each influenza season. Based on this design, this record was counted as evidence for both the effectiveness of masks and particulate-filter respirators (Table 3; comparator defined as another type of transmission-based precautions). Whilst the study was powered to detect a statistically significant decrease in laboratory-confirmed influenza in favour of N95 respirators, results reported no significant differences in intention-to-treat (IRR: 1.18; 95% CI: 0.95 – 1.45; p-value = 0.18) and per-protocol (1.20; 95% CI: 0.97 – 1.48; no p-value reported) analyses.

GRADE assessment

Summary of evidence tables for review questions 1 to 5 are presented in Tables 12 – 16.

Overall, the certainty of evidence by review question was graded as Very Low to Moderate (see Table 2 in https://www.nhmrc.gov.au/guidelinesforguidelines/develop/assessing-certainty-evidence, or Appendix 2 for definitions). These judgments were primarily based on risk-of-bias assessments presented in previous sections. For review questions 1, 2 and 5, judgments also considered the Inconsistency and Indirectness domains, given that the selected evidence evaluated discontinuation of contact precautions rather than effectiveness.

Table 10: Studies that evaluated components of transmission-based precautions.

Author (Year); Country if applicable	Title	Study design	Healthcare setting (Total sites)	Component(s) evaluated	Infection(s) evaluated
Arruda (2019)[62]; Brazil	Cohorting to prevent acquisition of multidrug-resistant bacteria: An interrupted time series study	Observational	Hospital (1)	Patient placement	MRDO
Chang (2023)[53]; Republic of Korea	Impact of discontinuing isolation in a private room for patients infected or colonized with vancomycin resistant enterococci (VRE) on the incidence of healthcare-associated VRE bacteraemia in a hospital with a predominantly shared room setting	Observational	Hospital (1)	Patient placement	VRE
Kluytmans-van den Bergh (2019)[56]; The Netherlands	Contact precautions in single-bed or multiple-bed rooms for patients with extended-spectrum β-lactamase-producing Enterobacteriaceae in Dutch hospitals: a cluster-randomised, crossover, noninferiority study.	Randomised trial	Hospital (16)	Patient placement	ESBL-E
Kim (2025)[54]; Korea	Effects of Cessation of Single-Room Isolation on Transmission of Vancomycin Resistant Enterococcus in a Hospital	Observational	Hospital (1)	Patient placement	VRE
Lydecker (2021)[60]; USA	Targeted gown and glove use to prevent Staphylococcus aureus acquisition in community-based nursing homes: A pilot study	Observational	Residential aged care (2)	Gloves and gowns	MRSA
Margalit (2025)[57]; Israel	Impact of cohorting carbapenem-resistant Acinetobacter baumannii (CRAB) patients combined with enhanced environmental cleaning on CRAB bloodstream infections: a prospective surveillance-based study	Observational	Hospital (1)	Patient placement	CRAB
Pan (2024)[55]	Does the removal of isolation for VRE infected patients change the incidence of health care-associated VRE? A systematic review and meta-analysis	Review	Hospital (5 studies)	Patient placement	VRE

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Table 10 continued: Studies that evaluated components of transmission-based precautions.

Author (Year); Country if applicable	Title	Study design	Healthcare setting (Total sites)	Component(s) evaluated	Infection(s) evaluated
Park (2024)[52]; Republic of Korea	The impact of discontinuing single room isolation of patients with vancomycin-resistant enterococci: a quasi-experimental single-centre study in South Korea	Observational	Hospital (1)	Patient placement	VRE
Radonovich (2019)[61]; USA	N95 Respirators vs Medical Masks for Preventing Influenza Among Health Care Personnel: A Randomized Clinical Trial	Randomised trial	Outpatient units (137)	Masks, respirators	Laboratoryconfirmed influenza
World Health Organisation (2017)[59]	Guidelines for the prevention and control of carbapenem-resistant Enterobacteriaceae, Acinetobacter baumannii and Pseudomonas aeruginosa in health care facilities	Review	--	Patient placement	CRE
Youngs (2019)[58]; UK	Implementation of influenza point-of care testing and patient cohorting during a high-incidence season: a retrospective analysis of impact on infection prevention and control and clinical outcomes	Observational	Emergency department	Patient placement	Healthcare associated influenza

Table 11: Evidence on the effectiveness of patient placement.

Author (Year)	Intervention	Comparator	Additional measures	Outcome(s)	Reported outcomes		
					Intervention	Comparator	Difference
Arruda (2019)[62]	Cohorting	No cohorting	Hand hygiene	MDRO, MRSA, ESBL, CPE	MDRO: 2.8 cases per 1,000 patient days MRSA: 0.1 cases per 1,000 patient days ESBL: 0.5 cases per 1,000 patient days CPE: 0.1 cases per 1,000 patient days	MDRO: 2.0 cases per 1,000 patient days MRSA: 0.2 cases per 1,000 patient days ESBL: 0.5 cases per 1,000 patient days CPE: 0.1 cases per 1,000 patient days	MDRO: IRR (95% CI):1.35 (1.01-1.81); p-value = 0.04 MRSA: IRR (95% CI): 2.75 (0.79-12.55); p-value = 0.14 ESBL: IRR (95% CI): 1.2 (0.64-2.28); p-value = 0.57 CPE: IRR (95% CI): 0.62 (0.13-2.52); p-value = 0.51
Chang (2023)[53]	a. Cohort isolation b. No isolation	a. Single room isolation b. Cohort isolation	Hand hygiene, contact precautions, environmental cleaning	Healthcare associated VRE bacteraemia	a. Cohort isolation: 10 per 100,000 patient days b. No isolation: 11.5 cases per 100,000 patient days	a. Single room isolation: 8 per 100,000 patient days b. Cohort isolation: 10 per 100,00 patient days	Cohort versus single room isolation: IRR: 1.01 (95% CI: 0.52 – 1.98); p-value = 0.977 Cohort isolation versus no isolation: IRR: 0.99 (95% CI: 0.77 – 1.26); p-value = 0.903

CI: Confidence interval; IRR: Incidence rate ratio (continued next page)

Table 11 continued: Evidence on the effectiveness of patient placement.

Author (Year)	Intervention	Comparator	Additional measures	Outcome(s)	Reported outcomes		
					Intervention	Comparator	Difference
Kluytmansvan den Bergh (2019)[56]	Cohort isolation	Single room isolation	Hand hygiene	ESBL-producing Entero-bacteriaceae	14/188 (7%)	11/275 (4%)	Risk difference (90% CI) 3·4% (–0·3 to 7·1)
Kim (2025)[54]	Single room or no isolation	Single room isolation	Contact precautions, ICU daily chlorhexidine bathing, hand hygiene	New-onset VRE colonisation and infection	Colonisation: n = 126; 0.535 per 1,000 patientdays Infection: n = 13; 0.055 per 1,000 patientdays	Colonisation: n = 106; 0.452 per 1,000 patient-days Infection: n = 14; 0.060 per 1,000 patient-days	Colonisation: IRR (95% CI)*: 1.18 (0.91 – 1.53); p-value = 0.202 Infection: IRR (95% CI)*: 0.92 (0.43 – 1.95) p-value = 0.571
Margalit (2025)[57]	Cohorting with enhanced environmental cleaning	No cohorting or partial cohorting (not defined)	Active surveillance, contact precautions, daily chlorhexidine bathing, hand hygiene	CRAB BSI	n = 56; 0.65 per 10,000 hospitalisation days	n = 82; 1.43 per 10,000 hospitalisation days	IRR (95% CI)*: 0.45 (0.11 – 0.79) aIRR (95% CI): 0.987 (0.487 – 1.999); p = 0.972

aIRR: adjusted incidence rate ratio; CI: Confidence interval; IRR: Incidence rate ratio;

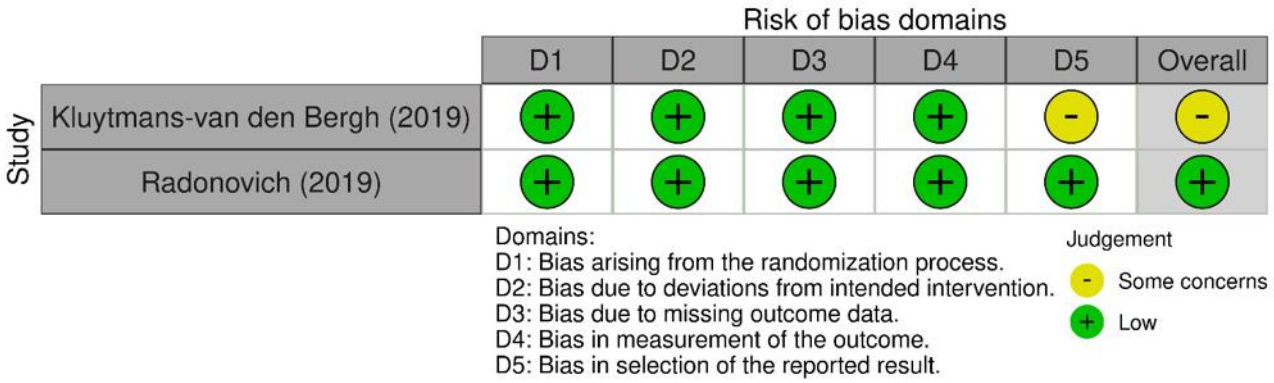
*calculate from data available in record (continued next page)

Table 11 continued: Evidence on the effectiveness of patient placement.

Author (Year)	Intervention	Comparator	Additional measures	Outcome(s)	Reported outcomes		
					Intervention	Comparator	Difference
Park (2024)[52]	No single room isolation	Single room isolation	Contact precautions (PPE), hand hygiene, environmental cleaning	Healthcare associated VRE bloodstream infection	Not reported	Not reported	Difference (95% CI): -0.015 (-0.053 to 0.023)
Youngs (2019)[58]	Cohort isolation	No cohort isolation	Admission screening	hospital acquired influenza	66/431 (15.3%) 0.66 cases per day	77/223 (34.5%) 0.95 cases per day	p-value < 0.0001

CI: Confidence interval

Figure 10: Risk of bias assessment for studies that evaluated the effectiveness of components of transmission-based precautions (randomised studies).



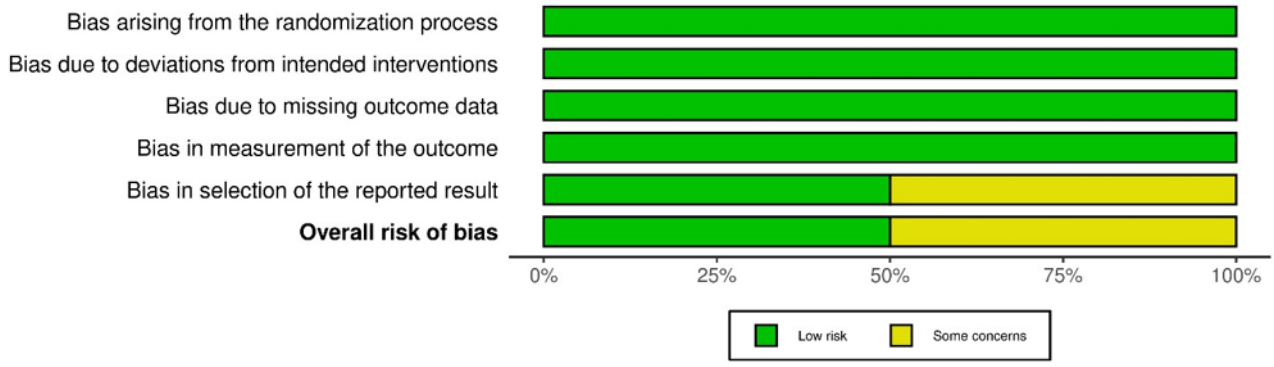
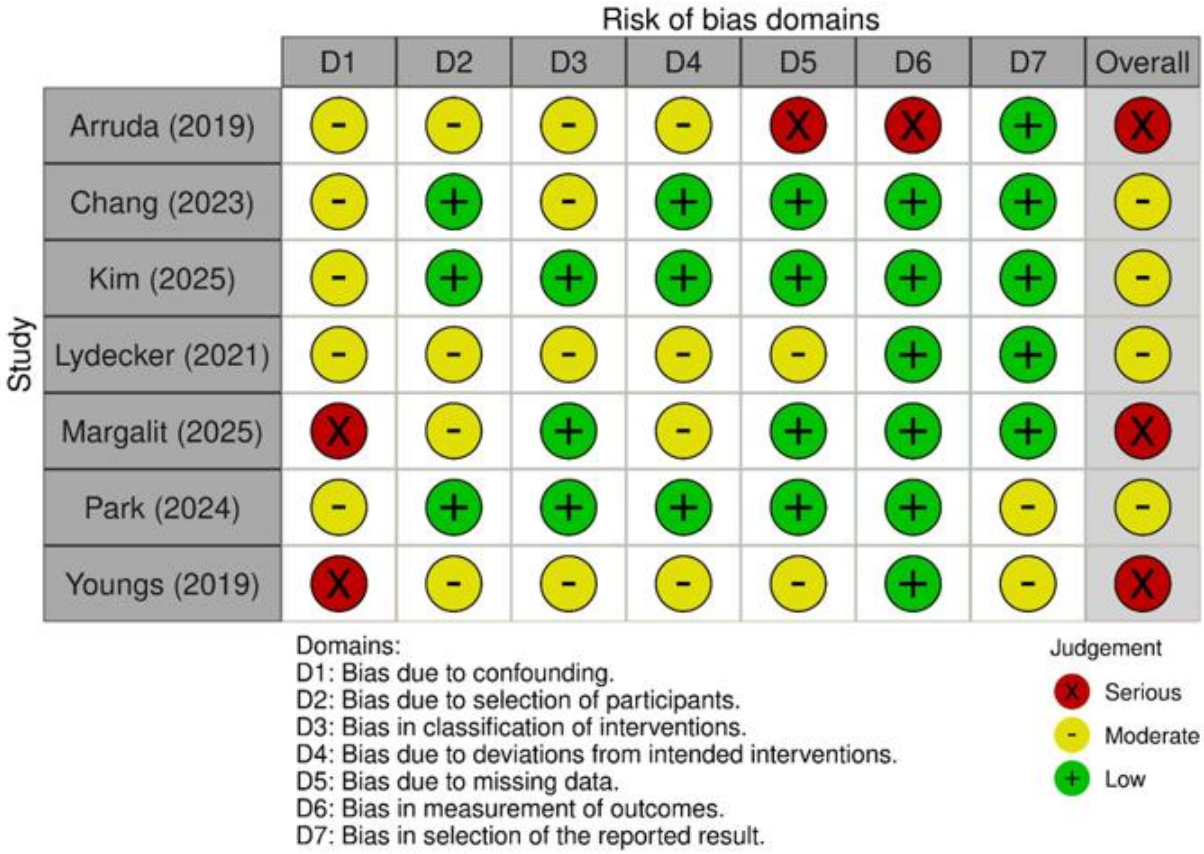


Figure 11: Risk of bias assessment for studies that evaluated the effectiveness of components of transmission-based precautions (non-randomised studies).



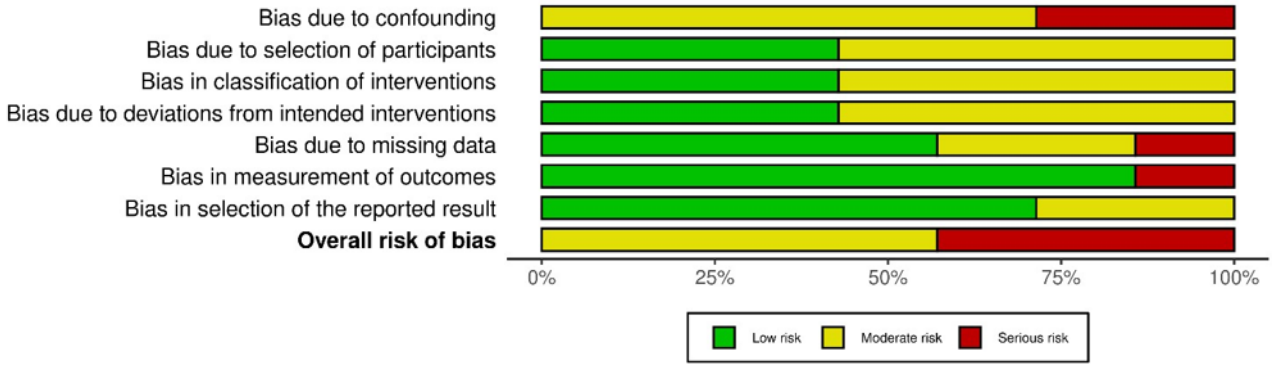


Table 12: Summary of evidence – Review Question 1: Are transmission-based precautions more effective in preventing the transmission of infection in healthcare, compared to standard precautions alone?

Population: Healthcare settings, including hospital (general wards and ICU), long-term care and aged care. Intervention: Contact, Droplet or Airborne precautions.

Comparator: Standard precautions.

Outcome: Colonisation and/or Infection.

Overall certainty of evidence: Very low – Moderate.

†Reported as median and range if more than two studies with sufficient data; otherwise reported by individual study.

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† https://www.nhmrc.gov.au/guidelinesforguidelines/develop/assessing-certainty-evidence (see Table 2); Appendix 2.

Organism	Anticipated rates per 1,000 patient days*		Relative effects (95% CI) IRR unless otherwise stated	Certainty of the evidence (GRADE)†	Comments
	Comparator	Intervention			
Contact precautions					
Methicillin-resistant *Staphylococcus aureus* (MRSA) (10 studies total; 5 studies with sufficient data)	0.49 0.05 – 2.54 (5 studies)	0.39 0.03 – 2.55 (5 studies)	0.88 (0.71 – 1.09) (5 studies)	Low	Included studies that evaluated the introduction and discontinuation of contact precautions compared with standard precautions
Vancomycin-resistant *enterococci* (VRE) (5 studies total; 2 studies with sufficient data)	Study 1: 0.45 Study 2: Not reported	Study 1: 0.32 Study 2: Not reported	Study 1: 0.71 (0.48 – 1.03) Study 2: 1.02 (0.82 – 1.27)	Low	Evaluated the discontinuation of contact precautions compared with standard precautions Insufficient studies to conduct a meta-analysis

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Table 12 continued: Summary of evidence – Review Question 1: Are transmission-based precautions more effective in preventing the transmission of infection in healthcare, compared to standard precautions alone?

Organism	Anticipated rates per 1,000 patient days*		Relative effects (95% CI) IRR unless otherwise stated	Certainty of the evidence (GRADE)†	Comments
	Comparator	Intervention			
Extended-Spectrum Beta-Lactamase (ESBL) (2 studies)	Study 1: 6.1 Study 2: 2.06	Study 1: 6.0 Study 2: 2.7	Study 1: 1.00 (0.90 – 1.1) Study 2: Difference (90% CI): 0.64 (0.4 – 1.7)	Moderate	2 non-inferiority studies, including 1 cluster randomised trial. Insufficient studies to conduct Insufficient studies to conduct a meta analysis
Acinetobacter baumannii (2 studies)	Study 1: 22.8 Study 2: 1.1	Study 1: 3.9 Study 2: 0.85	Study 1: 0.12 (0.03 – 0.40) Study 2: 0.77 (0.35 – 1.69)	Low	Insufficient studies to conduct a meta analysis
Carbapenem–producing *Enterobacteriaceae* (1 study)	0.9	0.4	Absolute change: -0.5 per 1,000 pt-days	Low	1 study with some concerns regarding risk of bias
Pseudomonas aeruginosa (1 study)	3.52	3.31	Adjusted hazard ratio: 0.91 (0.49 – 1.67)	Low	1 study (cluster randomised trial). Low risk of bias.

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Table 12 continued: continued: Summary of evidence – Review Question 1: Are transmission-based precautions more effective in preventing the transmission of infection in healthcare, compared to standard precautions alone?

Organism	Anticipated rates per 1,000 patient days*		Relative effects (95% CI) IRR unless otherwise stated	Certainty of the evidence (GRADE)†	Comments
	Comparator	Intervention			
Droplet precautions					
Respiratory infections (viral) (1 study)	0.97	0.08	0.08 (0.05 – 0.13)	Low	1 study (retrospective quasi-experimental)
Airborne precautions					
Respiratory infections (SARS-CoV-2) (1 study)	Not reported	Not reported	Not reported	Very low	1 study (retrospective quasi-experimental)

Table 13: Summary of evidence – Review question 2: How effective are each of the transmission-based precautions bundles (contact, droplet, airborne) against the transmission of (i) Respiratory infections (viral and bacterial), (ii) Multidrug-resistant organisms?

Population: Hospital (general wards and ICU), long-term care and aged care settings.
Intervention: Contact, Droplet or Airborne precautions.
Comparator: Standard precautions, no precautions or another type of transmission-based precautions.
Outcome: Colonisation and/or Infection.
Overall certainty of evidence: (i) Low (ii) Low to Moderate.

Organism	Anticipated risks per 1,000 patient days*		Relative effects (95% CI) IRR unless otherwise stated	Certainty of the evidence (GRADE)†	Comments
	Comparator	Intervention			
Respiratory infections (viral and bacterial) – droplet or airborne precautions					
Droplet precautions (3 studies)	--	--	--	Low	Mixed reporting across infections; See Table 9.
Airborne precautions (2 studies)	--	--	--	Low	Mixed reporting across infections; See Table 9.

* Reported as median and range if more than two studies with sufficient data; otherwise reported by individual study. (continued next page)

† https://www.nhmrc.gov.au/guidelinesforguidelines/develop/assessing-certainty-evidence (see Table 2); Appendix 2.

Table 13 continued: Summary of evidence – Review question 2: How effective are each of the transmission-based precautions bundles (contact, droplet, airborne) against the transmission of (i) Respiratory infections (viral and bacterial), (ii) Multidrug-resistant organisms

Organism	Anticipated risks per 1,000 patient days*		Relative effects (95% CI) IRR unless otherwise stated	Certainty of the evidence (GRADE)†	Comments
	Comparator	Intervention			
Extended Spectrum Beta Lactamase (ESBL) (4 studies)	11.1 1.1 – 22.82	3.2 0.85 – 3.9	0.89 (0.74 – 1.06)	Low	Included studies that evaluated the introduction and discontinuation of contact precautions compared with standard precautions or no contact precautions
Acinetobacter baumannii (3 studies)	14.7 1.1 – 22.8	2.6 0.08 – 3.9	0.27 (0.09 – 0.81)	Low	Evaluated the introduction of contact precautions compared with standard precautions or no contact precautions
Carbapenem–producing *Enterobacteriaceae* (2 studies; 1 study with sufficient data)	0.9	0.1	Absolute change: -0.5 per 1,000 pt-days	Low	1 study with some concerns regarding risk of bias
Pseudomonas aeruginosa (2 studies; 1 study with sufficient data)	3.52	3.31	Adjusted hazard ratio: 0.91 (0.49 – 1.67)	Low	1 study (cluster randomised trial). Low risk of bias.

* Reported as median and range if more than two studies with sufficient data; otherwise reported by individual study.

† https://www.nhmrc.gov.au/guidelinesforguidelines/develop/assessing-certainty-evidence (see Table 2); Appendix 2.

Table 14: Summary of evidence – Review Question 3: How effective are the individual elements of transmission-based precautions (surgical masks, particulate filter respirators, apron/gown, gloves, protective eyewear, single room placement, negative pressure room placement) against the transmission of (i) Respiratory infections (viral and bacterial), (ii) Multidrug-resistant organisms?
Population: Hospital (general wards and ICU), long-term care and aged care settings.
Intervention: Surgical masks, Particulate filter respirator, apron/gown, gloves or protective eyewear or patient placement.
Comparator: Standard precautions, no precautions or another type of transmission-based precautions.
Outcome: Colonisation and/or Infection.

Overall certainty of evidence: (i) Low – Moderate (ii) Low – Moderate

Organism	Anticipated risks per 1,000 patient days*		Relative effects (95% CI) IRR unless otherwise stated	Certainty of the evidence (GRADE)†	Comments
	Comparator	Intervention			
Respiratory infections (viral and bacterial) – masks, respirators, patient placement					
Masks/respirators (1 study)					
Laboratoryconfirmed influenza	7.2%	8.2%	aOR: 1.18 (95%CI, 0.95-1.45).	Moderate	1 randomised trial judged at low risk of bias
Patient placement (1 study)					
hospital acquired influenza	34.5% or 0.95 cases per day	15.3% or 0.66 cases per day	Not reported	Low	1 non-randomised study judged at moderate risk of bias

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Reported as median and range if more than two studies with sufficient data; otherwise reported by individual study. % reported when risk per 1,000 patient days were not available

† https://www.nhmrc.gov.au/guidelinesforguidelines/develop/assessing-certainty-evidencehttps://www.nhmrc.gov.au/guidelinesforguidelines/develop/assessing-certainty-evidence(see Table 2); Appendix 2.

Table 14 continued: Summary of evidence – Review Question 3: How effective are the individual elements of transmission-based precautions (surgical masks, particulate filter respirators, apron/gown, gloves, protective eyewear, single room placement, negative pressure room placement) against the transmission of (i) Respiratory infections (viral and bacterial), (ii) Multidrug-resistant organisms?

Organism	Anticipated risks per 1,000 patient days*		Relative effects (95% CI) IRR unless otherwise stated	Certainty of the evidence (GRADE)†	Comments
	Comparator	Intervention			
ii. Multidrug-resistant organisms					
Gloves and gowns (1 study)					
MRSA	11.9%	3.6%	OR: 0.41 (0.12–1.42)	Moderate	1 non-randomised study judged at low risk of bias
Patient placement (8 studies)					
Mixed	Infection rates ranged between 0.01 and 2 cases per 1,000 patient days	Infection rates ranged between 0.065 and 2.8 cases per 1,000 patient days	--	Low to Moderate	Unable to combined data across studies due to evidence on different organisms, comparator definitions and reporting; 1 randomised cluster trial for non-inferiority – see Table 11.

* Reported as median and range if more than two studies with sufficient data; otherwise reported by individual study. % reported when risk per 1,000 patient days were not available.

† https://www.nhmrc.gov.au/guidelinesforguidelines/develop/assessing-certainty-evidence (see Table 2); Appendix 2.

Table 15: Summary of evidence – Review Question 4: Is the respiratory precautions bundle more effective in preventing the transmission of respiratory infections (viral and bacterial) compared to: (i) Droplet precautions, (ii) Airborne precautions, and (iii) Combined droplet and airborne precautions? (i)-(iii) in addition to standard precautions?

Population: Healthcare settings, including hospital (general wards and ICU), long-term care and aged care.
Intervention: Respiratory precautions.
Comparator: No precautions or standard precautions and droplet and/or airborne precautions
Outcome: Colonisation and/or Infection.

Overall certainty of evidence: Very Low

Organism	Anticipated rates per 1,000 patient days*		Relative effects (95% CI) IRR unless otherwise stated	Certainty of the evidence (GRADE)†	Comments
	Comparator	Intervention			
Hospital-acquired COVID-19 infection (1 study)	Alpha variant: 14.6% Delta variant: 4.4%	Alpha variant: 11.8% Delta variant: 3.0%	Absolute reduction Alpha: 2.7% (2.4 – 3.0%) Delta: 1.4% (1.0 to 1.8%)	Very low	1 retrospective observational study based on national reported COVID-19 statistics across hospitals.

* Reported as median and range if more than two studies with sufficient data; otherwise reported by individual study. % reported when risk per 1,000 patient days were not available

† https://www.nhmrc.gov.au/guidelinesforguidelines/develop/assessing-certainty-evidence (see Table 2); Appendix 2.

Table 16: Summary of evidence – Review Question 5: Do contact precautions confer more protection than standard precautions against the transmission of infection, particularly infection caused by multidrug-resistant organisms?

Population: Healthcare settings, including hospital (general wards and ICU), long-term care and aged care. Intervention: Contact precautions.
Comparator: Standard precautions.
Outcome: Colonisation and/or Infection.

Overall certainty of Evidence: Low – Moderate.

Organism	Anticipated rates per 1,000 patient days*		Relative effects (95% CI) IRR unless otherwise stated	Certainty of the evidence (GRADE)†	Comments
	Comparator	Intervention			
Methicillin-resistant *Staphylococcus aureus* (MRSA) (10 studies; 5 studies with sufficient data)	0.49 0.05 – 2.54	0.39 0.03 – 2.55	0.88 (0.71 – 1.09) I^2: 41.9% (5 studies)	Low	Included studies that evaluated the introduction and discontinuation of contact precautions compared with standard precautions
Vancomycin-resistant *enterococci* (VRE) (5 studies; 2 studies with sufficient data)	Study 1: 0.45 Study 2: 0.05	Study 1: 0.32 Study 2: 0.10	Study 1: 0.71 (0.48 – 1.03) Study 2: 1.02 (0.82 – 1.27)	Low	Evaluated the discontinuation of contact precautions compared with standard precautions. Insufficient studies to conduct a meta-analysis
Extended-Spectrum Beta-Lactamase (ESBL) (2 studies)	Study 1: 6.1 Study 2: 2.06	Study 1: 6.0 Study 2: 2.7	Study 1: 1.00 (0.90 – 1.1) Study 2: Difference (90% CI): 0.64 (0.4 – 1.7)	Moderate	2 non-inferiority studies, including 1 cluster randomised trial. Insufficient studies to conduct. Insufficient studies to conduct a meta-analysis

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* Reported as median and range if more than two studies with sufficient data; otherwise reported by individual study.

† https://www.nhmrc.gov.au/guidelinesforguidelines/develop/assessing-certainty-evidence (see Table 2); Appendix 2.

Table 16 continued: Summary of evidence – Review Question 5: Do contact precautions confer more protection than standard precautions against the transmission of infection, particularly infection caused by multidrug-resistant organisms?

Organism	Anticipated rates per 1,000 patient days*		Relative effects (95% CI) IRR unless otherwise stated	Certainty of the evidence (GRADE)†	Comments
	Comparator	Intervention			
Acinetobacter baumannii (2 studies)	Study 1: 22.8 Study 2: 1.1	Study 1: 3.9 Study 2: 0.85	Study 1: 0.12 (0.03 – 0.40) Study 2: 0.77 (0.35 – 1.69)	Low	Insufficient studies to conduct a meta-analysis
Carbapenem–producing Enterobacteriaceae (1 study)	0.9	0.1	Absolute change: -0.5 per 1,000 pt-days	Low	1 study with some concerns regarding risk of bias
Pseudomonas aeruginosa (1 study)	3.52	3.31	Adjusted hazard ratio: 0.91 (0.49 – 1.67)	Low	1 study (cluster randomised trial). Low risk of bias.

* Reported as median and range if more than two studies with sufficient data; otherwise reported by individual study.

† https://www.nhmrc.gov.au/guidelinesforguidelines/develop/assessing-certainty-evidencehttps://www.nhmrc.gov.au/guidelinesforguidelines/develop/assessing-certainty-evidence(see Table 2); Appendix 2.

Evidence synthesis: Narrative review questions

Review Question 6: What evidence is available to support using risk assessment to inform on the choice of transmission-based precautions?

A total of 38 records were deemed eligible for narrative review (Table 17). Eligible evidence covered personal and organisational factors that may influence decision-making about the use of different transmission-based precautions, and approaches to support risk assessment. Personal factors considered HCW [63-69] and patient [70,71] perspectives on the role of transmission-based precautions in reducing risk, including the complexities associated with balancing expected benefits with potential adverse health and quality of life impacts[72-74]. Organisational factors considered the feasibility of implementing risk-based approaches with available resources [63,67,75] and the relative contribution of personal protective equipment in reducing transmission risk. Approaches to support risk assessment predominantly focused on the use of universal or risk-based screening to inform the choice of transmission-based precautions in hospital [58,76-78], intensive care [79-81] and long-term care settings[82].

Healthcare worker perspective

Transmission risk based on target organism(s) was consistently viewed by HCWs as a key factor when deciding on the use of transmission-based precautions [67,69,75]. However,

conflicting views across different HCW roles and variation in the awareness and interpretation of local policies led to the inconsistent use of transmission-based precautions [68,83].

Reported variation in risk assessment partly stemmed from the need to balance transmission risk with patients' physical and cognitive health. An online survey of HCWs from UK hospitals [67] reported that only 29% of respondents applied risk assessment to inform patient isolation decisions; however, this was often combined with, or overridden by, other approaches, including assessment of clinical symptoms and more involved discussion between treating clinicians and infection prevention teams to determine a patient's ability to tolerate isolation. In aged care settings, HCWs reported similar complexities in decision-making when navigating isolation decisions to keep residents safe, whilst also respecting quality of life goals [66,72]. These complexities were identified as a factor contributing to variation in current practices in aged care, with HCWs reporting a conflict between their perceptions of transmission risk and the promotion of a "home-like" environment [66] on isolation decisions.

Qualitative interviews with HCWs emphasised the importance of providing specific guidance on risk assessment for MDROs [63] and respiratory infections65 without affecting overall compliance. For respiratory infections, an Australian study on infection prevention guidance in primary care during the COVID-19 pandemic found that participants valued and felt protected by PPE when interacting with their patients, but confusion around the logistics of PPE use (e.g., doffing protocols) and limited training, particularly for nonclinical staff, impacted appropriate PPE use [75]. In non-pandemic settings, Chughtai (2020) identified that hospital staff lacked awareness of appropriate respiratory protection and often relied on guidance from infection control teams or hospital management directives [65]. For MDRO risk assessment, O'Hara (2018) explored HCW acceptability of a risk-tailored approach to MRSA contact precautions across different scenarios, including HCW role and work activity. The study found that whilst most participants were open to the concept of a risk-based approach, particularly the potential to reduce PPE waste, many reported that the resulting complexity of a tailored versus "all-or-none" approach to contact precautions may reduce compliance. The acceptability of risk-tailored approaches was explored in a follow-up study by the same authors, who used a discrete choice experiment to elicit HCW support for different policies [83]. The study estimated that 63% (95% CI 60%–66%) of respondents supported a risk-tailored approach over universal contact precautions; however, support varied significantly by HCW role (p-value = 0.02; Figure 12).

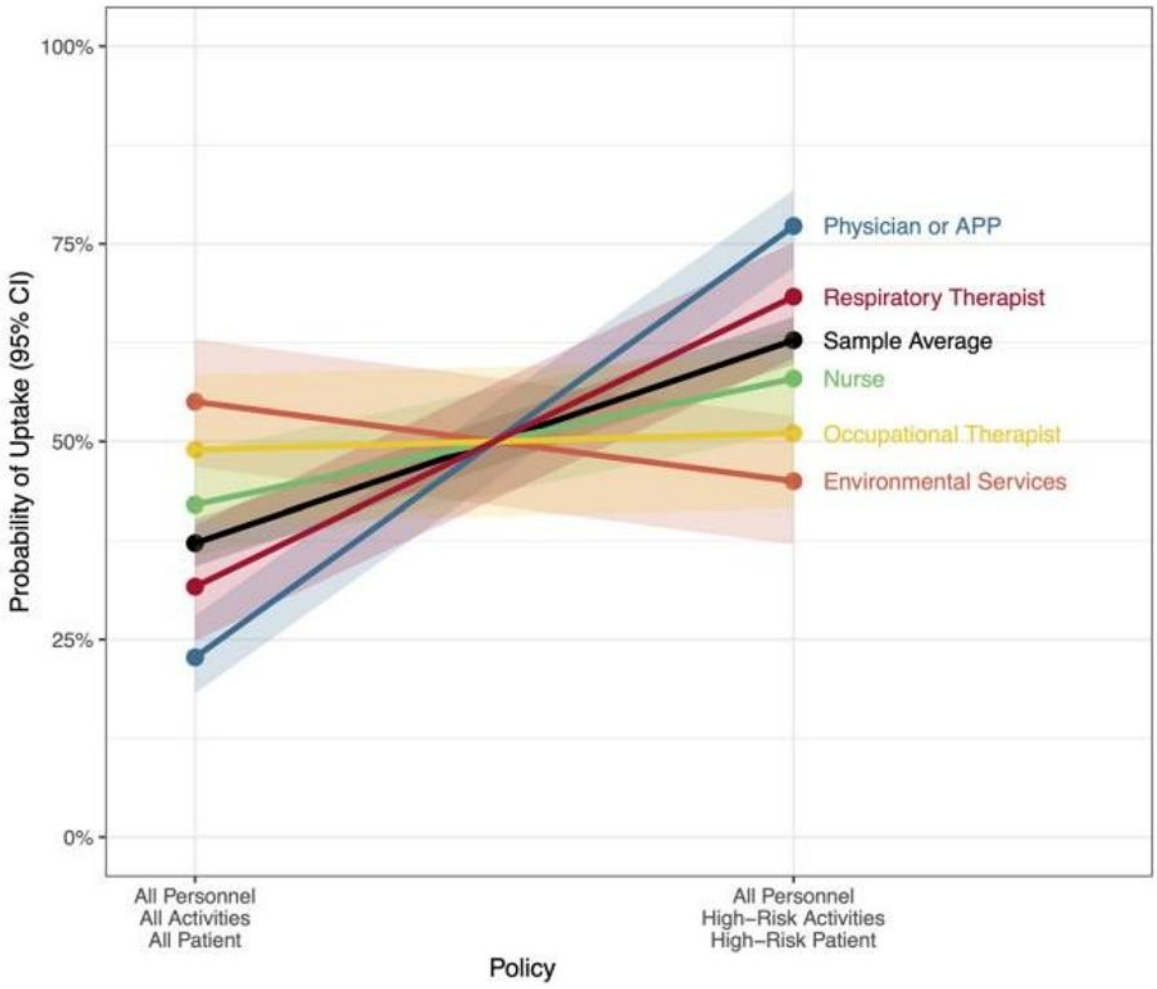

Figure 12: From O'Hara (2025)83. Results from a discrete choice experiment of 326 HCWs on preferences for risk-tailored policies for MRSA contact precautions. The x-axis shows HCW preferences for two hypothetical scenarios on the use of contact precautions. The solid points represent the point estimates for the probability of policy uptake. The shaded regions are 95% confidence intervals. Results are stratified by self-reported HCW role. APP: Advanced Practice Provided.

Differences in perceived transmission risk by HCW role were also reported by Harrod (2020) as part of qualitative interviews about factors influencing PPE use[68]. Compared with environmental services staff who viewed all organisms as "risky", physicians and nurses were more likely to base PPE decisions based on the organism of concern and whether their intended work tasks would involve direct patient care. Variation in processes to identify patients requiring precautions, at times within the same hospital, was also reported as a key theme influencing HCW decision-making.

Patient perspective

Patient-reported experiences from being placed under transmission-based precautions highlighted the role of risk assessment to support communication among HCWs, patients, and their families [70,71,74]. This communication was found to be particularly relevant when using single-room isolation as part of contact, droplet and airborne precautions.

For patients placed in single room isolation, their segregation from other patients and reduced opportunities for social interaction have been linked with feelings of stigma and related psychosocial risks [74,84]. These risks have been cited as a rationale for reconsidering isolation as a component of transmission-based precautions for MDROs [73,85,86,] which

require careful assessment of expected benefits versus harms [84]. It was noted that this rationale was cited by several studies evaluating discontinuation of contact precautions; however, all acknowledged that the current evidence base was inconclusive. Counterarguments to this rationale have highlighted the need for research to distinguish between the perceived harms of being placed in isolation and the contribution of patients' experience of being hospitalised and their underlying disease severity [87].

Adequate communication about the reasons for transmission-based precautions was a key factor in shaping patients' perspectives. A survey of patients placed under contact precautions at a single facility found that while 81% of respondents felt safer when HCWs used gloves and gowns during their care, only 65% felt the reasons for contact precautions were adequately explained to them [70]. These views have been similarly highlighted by qualitative interviews with patients, with negative experiences being linked to a lack of information about the reasons for isolation [71].

Organisational perspective

Mixed views were presented about the value of transmission-based precautions within the context of published hierarchies of controls (Figure 13). These views included the suggestion that PPE was the least effective control strategy [88]; that PPE should be used alongside, rather than as a substitute to, other risk control measures [68,87,89]; and recommendations about the selection of transmission-based precautions are currently based on low-quality and inconclusive evidence [86,90]. This evidence base was in part shaped by inconsistent terminology to describe modes of transmission for respiratory pathogens and the published evidence on the effectiveness of different transmission-based precautions [91-94]. Despite this, a review commissioned by the World Health Organisation in 2019 found that transmission-based precautions are the most common horizontal infection control and prevention strategy being implemented as part of minimum standard in healthcare settings (87%) [95].

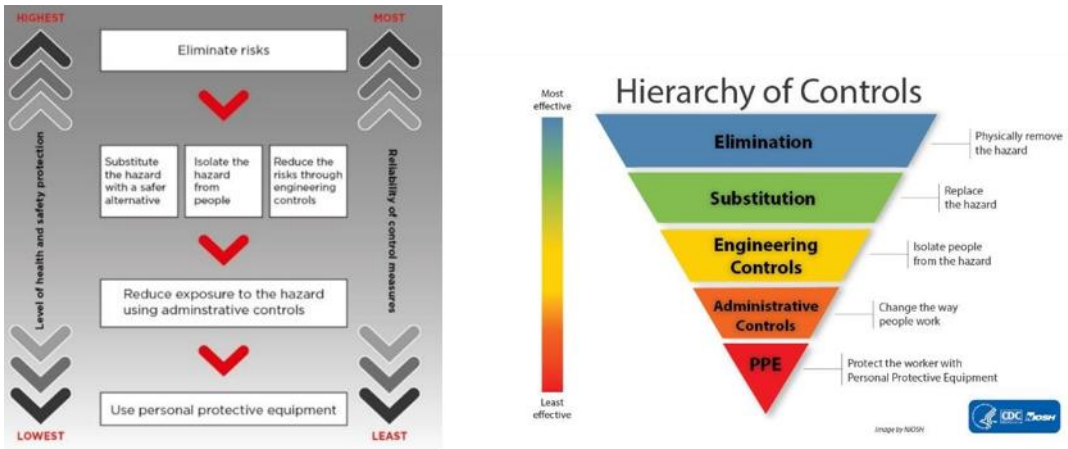

Figure 13: Hierarchy of controls referenced by eligible evidence in Australian and US contexts. Left: Safe Work Australia; Right: US Centres for Disease Control.

It was emphasised that addressing this issue at an individual level could be improved by appropriate administrative strategies, including protocols and training. Education for

healthcare workers on the role of PPE as a source control measure—not only for their own protection but also to safeguard patients at increased risk of healthcare-associated infections from airborne pathogens (e.g., due to chronic or underlying health conditions)—may also improve compliance [96]. One record highlighted that such education is a key strategy in ensuring safe access to healthcare, in line with the ACSQHC's Australian Charter of Healthcare Rights [96.]

The interpretation and perceived quality of published evidence may also contribute to variation in organisational perspectives on the role of transmission-based precautions. A 2024 survey of the Society for Healthcare Epidemiology of America Research Network reported that 35% of respondent health facilities have discontinued contact precautions for MRSA and VRE, compared with 7% in 2015[86] (2024 response rate= 43%). Among respondent facilities that have discontinued contact precautions, over 90% reported published research was a key deciding factor, alongside the use of other horizontal infection prevention strategies such as hand hygiene and routine chlorhexidine bathing. In contrast, the most common reason for continuing contact precautions among the remaining facilities surveyed was insufficient safety data and the availability of other horizontal infection prevention strategies.

The current evidence base was also referenced by Reddy (2019) as a source of ongoing uncertainty about the contribution of transmission-based precautions in reducing transmission risk, given its position within the CDC hierarchy of controls [87]. Specifically, the current assessment of transmission-based precautions alongside multiple concurrent infection prevention strategies was cited as an ongoing challenge. Further, they noted that such studies '…may underestimate the impact of contact precautions by not including effects on colonization or downstream adverse events, such as post-discharge infections, which are more common than hospital-onset infections' [87].

Strategies to support risk assessment

Active screening can contribute to risk assessment by identifying patients at higher risk of infection. Evidence in favour of this strategy was reported in published evaluations of universal and risk-based screening for respiratory illness [58,77] and MRDO carriage [76,78-82,97] upon admission to healthcare settings.

Risk-based screening to inform transmission-based precautions for MRDOs considered patients' hospitalisation history [79,80,97], antibiotic use [79,80], pre-existing comorbidities [79,80,97] and admission long-term or aged care settings [79,80,97]. Eligible evidence indicated that risk-based screening did not results in higher infection rates, however all were based on single-site, quasi-experimental designs with no adjustment for potential confounders.
In ICU settings, Djibré (2017) reported findings from a single-site quasi-experimental study that replaced universal glove and gown use with targeted use based on one or more patient-level risk factors associated with MDRO carriage [79]. The comparison of ICU-acquired MDRO infections between universal and risk-based strategies indicated a minor increase in infections among low-risk patients (8.4% versus 13%; p-value = 0.24) and a decrease in infections among MDRO carriers (23% versus <1%; p-value = 0.12). A limitation of the study was that outcome assessment relied on a second screening for MDRO carriage, which was completed for less than 50% of patients admitted during the study. A second ICU study by Ledoux (2016)[80] conducted a non-inferiority analysis that compared ICU-acquired infections under a universal isolation policy versus targeted isolation based on patient risk factors at ICU admission. Infection rates under each policy

were similar and not statistically significant (14.5% versus 13.3%; Risk difference [95% CI]: -1.3% [-5.2% - 2.6%]).

In general hospital settings, Liang (2019) evaluated pre-emptive isolation for patients with high-risk of CRE carriage on hospital-wide CRE bloodstream infections, as a complement to existing infection control strategies [97]. The study reported a statistically significant decrease in hospital-wide CRE bloodstream infections from 4% to 1.6% (OR: 0.379; 95% CI: 0.24 – 0.60; p-value < 0.001); however, reported CRE carriage also decreased during the same period (9.8% to 7.6%; OR: 0.763; 95% CI: 0.596–0.977; p-value = 0.037) and relied on the availability of single rooms for patient isolation.

Four studies evaluated admission-based screening to inform patient isolation decisions as part of transmission-based precautions. All studies targeted different organisms in different healthcare settings. Arena (2018) evaluated admission-based screening for CRE colonisation to inform contact precautions in a long-term rehabilitation setting [82]. The study reported a decrease in new CRE colonisations over 12 months from 17.7 to 7.2 cases per 100 at-risk patient-weeks, however, outcomes were only assessed after admission screening was introduced. Screening initiated in the emergency department evaluated admission screening to inform isolation of asymptomatic Clostridioides difficile carriers on healthcare-associated Clostridioides difficile infections [78], and isolation decisions for patients presenting with signs of respiratory illness [58,77]. All studies indicated benefits from screening to inform risk assessment, with two of the three studies reporting effectiveness via reduced infection rates [58,78.] The remaining study by Kang (2017)[77] compared isolation decisions based on the results of respiratory illness screening in the ED, with patients' isolation level in hospital based on their final diagnosis. Results reported a moderate correlation between ED and hospital isolation decisions (correlation coefficient: 0.56) with 76% sensitivity and 98% negative predictive value, as evidence in support of pre-hospitalisation screening.

Evidence supporting isolation decisions based on admission screening also considered its downstream impact on detecting other, non-targeted pathogens. In a retrospective audit of 17,677 inpatient admissions across US hospitals, Jones (2015) reported that patients with positive MRSA carriage at admission had a 2.5-fold higher risk of returning a positive clinical culture for other multidrug-resistant gram-negative bacteria within 30 days of admission [76.] The study interpreted findings in favour of risk-based screening to inform patient placement, noting that up to 44% of patients with positive cultures during their admission would have already been placed under contact precautions based on screening positive for MRSA at admission.

	Contact	Droplet	Airborne
Syndromic precautions	Diarrhoea; oozing wound; infestation; body fluids	Fever, cough or sneezing symptoms; influenza like illness; vomiting	Haemorrhagic fever; severe respiratory illness; high risk for MDR-Tb; measles rash
Organism based precautions *(not complete list)*	Group A Streptococcus; Norovirus; Shingles; Rotavirus; *C. difficile*; MRSA; MDR bacteria[a]	Pertussis; Mumps; Influenza; Norovirus	MERS-CoV; SARS; *M. tuberculosis*[c]; Chicken pox[b]; Measles[b]
Staff personal protective equipment (PPE)	Gloves + apron	Surgical mask + gloves + apron. Use FFP3 mask for AGP	FFP3 mask + gloves + apron
Side room	Yes	Preferred If multi-bedded bay: draw curtains	Yes
Negative pressure room required	No	No	Yes (chicken pox can be managed in single room)
Transport patient with surgical mask	No	Yes	Yes
Exceptions	CPE infected or colonised patients MUST be isolated in the V51		If Tb suspected, once MDR-Tb excluded see note below[c]

FFP3 mask must be fit tested.
MERS-CoV – Middle East Respiratory Syndrome-Coronavirus, SARS – Severe Acute Respiratory Syndrome
[a] MDR bacteria: multi-drug resistant i.e. Carbapenemase Producing Enterobacteriaceae, (CPE) Vancomycin Resistant Enterococcus (VRE), Extended Spectrum *B*-lactamase (ESBL) producing bacteria
[b] Staff with known immunity can use standard precautions. Use FFP3 mask for aerosol generating procedures (AGP)
[c] For meningitis and non MDR-Tb: isolate in single room with standard precautions. Use FFP3 mask for aerosol generating procedures (AGP)
If in doubt contact infection control: x28833

Figure 14: Guidance summary card evaluated by Russell (2015) to support HCW decision-making on the choice of transmission-based precautions based on local hospital guidelines[98].

Additional strategies to support risk assessment considered initiatives to improve HCW awareness of local infection prevention policies [64,98]. To address low HCW knowledge about the appropriate selection of transmission-based precautions, Russell (2025) [98] assessed HCW knowledge before and after the introduction of a guidance summary card as a point-of-care decision aid (Figure 14). Knowledge assessments before and after implementation reported increases in correct answers across both MDRO and respiratory infection scenarios based on local guidelines, including decisions on patient isolation (38% to 100%), contact precautions (56% to 100%) and surgical versus FFP3 masks as part of droplet versus airborne precautions (0% to 77%) (p-value < 0.0001). While the study reported significant improvements in HCW knowledge, the appropriate use of transmission-based precautions in daily practice was not evaluated.

A related study by Jain (2019) assessed a modified guideline for implementing contact precautions for MRSA and VRE [64]. The study aimed to improve appropriate use of non-sterile gloves during dry patient contacts as part of a hospital initiative to improve hand hygiene. The modified guideline was informed by HCW feedback about current guidelines not allowing them to use their own judgment about appropriate glove use, which resulted in continuous glove use for multiple contacts. As a process evaluation, the modified guidelines were perceived as positive by HCWs, in terms of consciously applying hand hygiene between contacts for self-protection, and increased empowerment from being able to use their own judgment. Changes in MRSA and VRE were not reported and remain unpublished.

In summary, available evidence indicates that risk-tailored approaches to inform the choice of transmission-based precautions are generally acceptable by HCWs and patients, provided the processes are clearly communicated. As a key horizontal infection prevention measure, evidence on the effectiveness of transmission-based precautions should be interpreted alongside other organisational strategies to reduce transmission risk.

Table 17: Summary of included records for review question 6

Author (Year); Country if applicable	Title	Study design
Arena (2018)[82]; Italy	Diversity of the epidemiology of carbapenemase-producing *Enterobacteriaceae* in long-term acute care rehabilitation settings from an area of hyperendemicity, and evaluation of an intervention bundle.	Prospective cohort study evaluating admission screening for CPE colonisation to guide contact precautions and ward-based cohorting.
Australasian College for Infection Prevention and Control (2025)[93]	Terminology for pathogens that transmit through the air	Position statement on updated terminology for pathogen transmission, in response to the World Health Organization global technical consultation report[92]
Australian Commission for Safety and Quality in Health Care (2025)[72]	Aged Care IPC Guide	Current guidance on the use of transmission-based precautions in aged care settings, which includes consideration of patient perspective.
Chittick (2016)[70]; USA	Assessing patient and caregiver understanding of and satisfaction with the use of contact isolation	Survey of patients who were subject to contact isolation at a single facility over 12 months on their experiences in contact isolation.
Chughtai (2020)[65]; Australia	Selection and Use of Respiratory Protection by Healthcare Workers to Protect from Infectious Diseases in Hospital Settings	Qualitative interviews with HCWs from a single hospital
Cohen (2015)[66]; USA	Infection prevention and control in nursing homes: A qualitative study of decision-making regarding isolation-based practices	Qualitative study of HCW in aged care on factors influencing their decisions to isolate residents to reduce and prevent MDRO transmission
de Jesus (2019)[71]; Brazil	Specific precautions: experiences of hospitalized patients	Qualitative study on patient-reported experiences following contact isolation
Djibré (2017)[79]; France	Universal versus targeted additional contact precautions for multidrug-resistant organism carriage for patients admitted to an intensive care unit.	Prospective cohort study comparing MDRO screening for all patients at ICU admission versus risk-based screening to determine the need for additional contact precautions.
Flores (2020)[69]; UK	Use of non-sterile gloves in the ward environment: an evaluation of healthcare workers' perception of risk and decision making	Qualitative study of HCW attitudes on nonsterile glove use

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Table 17 continued: Summary of included records for review question 6

Author (Year); Country if applicable	Title	Study design
Gammon (2019)[74]	The stigmatisation of source isolation: a literature review	Narrative review on evidence on the stigma associated with MDRO isolation precautions.
Gould (2018)[67]; UK	Isolating infectious patients: organisational, clinical, and ethical issues.	Online survey of HCW on factors associated with decision-making for isolation-based precautions, including the use of risk assessment
Harrod (2020)[68]; USA	A qualitative study of factors affecting personal protective equipment use among health care personnel	Qualitative study of HCW on personal, organisational and environmental factors associated with decision-making on PPE use
Hendersen (2018)[73]	Control of healthcare- and community-associated MRSA: Recent progress and persisting challenges	Narrative review including evidence on adverse effects of isolation as part of contact precautions
Hor (2022)[75]; Australia	'Like building a plane and flying it all in one go': an interview study of infection prevention and control in Australian general practice during the first 2 years of the SARS-CoV-2 pandemic	Qualitative interview with General Practitioners on their implementation of COVID-19 risk mitigation policies, including PPE.
Isenman (2016)[85]	Advances in prevention and treatment of vancomycin resistant Enterococcus infection	Review of current evidence on the effective of infection control strategies for VRE, including contact precautions
Khunti (2020)[88]; UK	The efficacy of PPE for COVID-19-type respiratory illnesses in primary and community care staff	Review of randomised trials and/or systematic reviews evaluating the efficacy of face masks, gowns/aprons, eye protection and/or shoe covers for preventing COVID-19 in primary and community care staff

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Table 17 continued: Summary of included records for review question 6

Author (Year); Country if applicable	Title	Study design
Jain (2019)[64]; Australia	Modified glove use for contact precautions: Health care workers' perceptions and acceptance	Qualitative findings from a trial evaluating the removal of gloves/appropriate nonsterile glove use for dry patient contacts, as part of a hospital initiative to improve hand hygiene. Implementation included a modified contact precautions guideline for use in HCW risk assessment
Jin (2025)[94]; China	A new classification of personal protective equipment in healthcare settings: Enhancing infection control and prevention	Letter to the Editor that proposes classifying PPE in terms of preventing infection and/or preventing contamination, motivated by the WHO's Global Technical Consultation Report on Proposed Terminology for Pathogens that Transmit Through the Air.
Jones (2015)[76]; USA	Collateral benefit of screening patients for methicillin-resistant *Staphylococcus aureus* at hospital admission: Isolation of patients with multidrug-resistant gram-negative bacteria	Retrospective audit of inpatients that screened positive for MRSA colonisation at hospital admission and subsequent MDRO acquisition during hospital admission.
Jones (2020)[99]; USA	A systematic risk-based strategy to select personal protective equipment for infectious diseases	Outlines a systematic four-step procedure for PPE selection, demonstrated by case studies for MRSA and SARS-CoV in healthcare settings
Kang (2017)[77]; Republic of Korea	The Utility of Preliminary Patient Evaluation in a Febrile Respiratory Infectious Disease Unit outside the Emergency Department	Post-implementation evaluation of a negative pressure unit for screening patients presenting to the Emergency Department with signs of acute respiratory illness, to inform isolation orders for subsequent admissions

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Table 17 continued: Summary of included records for review question 6

Author (Year); Country if applicable	Title	Study design
Ledoux (2016)[80]; France	Impact of a targeted isolation strategy at intensive-care-unit admission on intensive-care-unit-acquired infection related to multidrug-resistant bacteria: a prospective uncontrolled before and after study	Prospective before and after study comparing MDRO screening for all patients at ICU admission versus risk-based screening, to determine the need for single room isolation.
Liang (2019)[97]; China	Pre-emptive isolation and active surveillance in the prevention and control of nosocomial infection reduce the incidence of carbapenem-resistant *Enterobacteriaceae*	Pre-post evaluation following the introduction of pre-emptive isolation for high-risk patients based on their likelihood of CRE colonisation or infection.
Longtin (2016)[78]; Canada	Effect of Detecting and Isolating *Clostridium difficile* Carriers at Hospital Admission on the Incidence of C difficile Infections: A Quasi-Experimental Controlled Study	Before and after study evaluating *Clostridioides difficile* screening in the Emergency Department to determine contact isolation precautions for patients subsequently admitted to hospital.
Martin (2024)[86]; US	Contact precautions for MRSA and VRE: where are we now? A survey of the Society for Healthcare Epidemiology of America Research Network	Member survey on HCW perspectives of contact precautions for MRSA and VRE, including transmission risk and adverse events.
O'Hara (2024)[63]; US	Healthcare personnel opinions regarding the feasibility of a risk tailored approach to contact precautions for methicillin-resistant *Staphylococcus aureus* in the acute care setting	Qualitative focus groups with HCWs from two hospitals
O'Hara (2025)[83]; US	A discrete choice experiment to evaluate healthcare personnel preferences regarding risk-tailored policies for contact precautions for patients with methicillin-resistant *Staphylococcus aureus*	Findings from a discrete choice experiment on HCW preferences for when to use contact precautions for MRSA, based on risk setting and patient care activity
Plachouras (2023)[90]	Revisiting the personal protective equipment components of transmission-based precautions for the prevention of COVID-19 and other respiratory virus infections in healthcare	Evidence updates from the European Centre for Disease Prevention and Control
Reddy (2019)[87]	Improving the Use of Personal Protective Equipment: Applying Lessons Learned	Narrative review on the evidence for and against contact precautions in the context of the hierarchy of controls

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Table 17 continued: Summary of included records for review question 6

Author (Year); Country if applicable	Title	Study design
Romano-Bertrand (2021)[91]	How to address SARS-CoV-2 airborne transmission to ensure effective protection of healthcare workers? A review of the literature	Review – no search strategy provided
Rump (2017)[84]; The Netherlands	Signs of stigma and poor mental health among carriers of MRSA	Survey of MRSA carriers to measure self-reported stigma associated with colonisation and its association with mental health scores from the RAND Mental Health Inquiry instrument.
Russell (2015)[98]; UK	Healthcare workers' decision-making about transmission-based infection control precautions is improved by a guidance summary card	Prospective clinical audit before and after the introduction of a guidance summary card for HCW to inform choice of transmission-based precautions
Scantling-Birch (2021)[89]	Healthcare worker protection against epidemic viral respiratory disease	Summary article including professional society guidelines for HCW protection during the COVID-19 pandemic
The Safer Air Project (2024)[96]	Safer shared air: A critical accessibility and inclusion issue	Commissioned report on measures to provide safe healthcare environments for patients at high-risk of viral respiratory infections.
You (2018)[81]; Republic of Korea	Efficacy of infection control interventions, other than decolonization, in reducing the incidence of new MRSA acquisition in a neurosurgical intensive care unit	Letter to the Editor reporting on an observational before-and-after study on the introduction of active surveillance, weekly review meetings, and education to inform the use of contact precautions for MRSA
Youngs (2019)[58]; UK	Implementation of influenza point-of-care testing and patient cohorting during a high-incidence season: a retrospective analysis of impact on infection prevention and control and clinical outcomes.	Before and after study evaluating the introduction of point-of-care influenza in an Emergency Department to inform patient placement (cohorting)
World Health Organisation (2019)[95]	Minimum requirements for infection prevention and control	Technical report – includes a summary of a systematic review on components of infection prevention and control programs
World Health Organisation (2024)[92]	Global technical consultation report on proposed terminology for pathogens that transmit through the air.	Technical report – includes implications for the choice of transmission-based precautions based on COVID-19 experience

Review Question 7: What evidence is available to support an environmentally sustainable approach to transmission-based precautions?

The search strategy identified seven studies on the environmental impacts of PPE as part of transmission-based precautions, of which four discussed these impacts in the context of the COVID-19 pandemic [42,100-102]. Remaining studies evaluated the environmental impacts of gloves as a component of contact precautions, including reducing non-sterile glove use in favour of improving hand hygiene [103,104], and the comparative sustainability of non-sterile versus sterile gloves [105] (Table 18).

During the screening process, several records were identified that described approaches to reusing personal protective equipment (PPE) in healthcare settings, for example, the disinfection or decontamination of disposable respirators [101]. However, the rationale for reuse was due to limited supplies of PPE during surges in COVID-19 hospital admissions, rather than environmental considerations and was deemed out of scope.

The surge in PPE use during the COVID-19 pandemic highlighted the need for evidence on sustainable approaches to both preserve limited supplies and reduce the carbon footprint associated with single-use PPE[100]. Evidence of this footprint in the UK was reported by Rizan (2021), who presented findings from a life-cycle analysis of single-use PPE consumption during the first six months of the COVID-19 pandemic[42]. A base-case analysis of greenhouse gas emissions associated with the manufacture, transport, and disposal estimated that single-use PPE produced approximately 106,000 tonnes of carbon dioxide, with gowns and face shields as the largest contributors. Subsequent scenario analysis estimated that reductions in 6-month emissions could have been achieved by replacing gloves with improved hand hygiene (estimated 45% reduction) and reusing gloves and gowns for multiple patient contacts (estimated 10% reduction). The positive impacts of reducing PPE were also reported in a single-hospital study by Sutjipto (2025), following policy changes in PPE use in late 2022[102]. Following the nationwide de-escalation of PPE for managing COVID-19 patients in Singapore, the study estimated that approximately 66,000 kg of plastic waste was saved during the 12 months following de-escalation, based on hospital inventory records. The study further reported that PPE de-escalation did not significantly increase COVID-19 cases among HCW; however, these findings reflected levels of community transmission at the time of the study, when mass vaccination was available.

In non-pandemic settings, the discontinuation of glove use was associated with improved hand hygiene compliance among HCW managing patients under contact precautions [103,104]. Of note, an Australian study by Wilkie-Miskin (2025) evaluated the impact of a hospital-wide campaign to improve hand hygiene compliance on non-sterile glove use [104]. Over seven months, hand hygiene compliance increased from 59% to 83%, whilst unnecessary glove use reduced from 60% to 23%, based on regular audits completed by trained research staff. Observed reductions corresponded to an estimated 13,000 gloves saved per month or a 443 kg monthly saving in carbon dioxide emissions. Changes in healthcare-associated infections were not reported.

In summary, the carbon footprint associated with PPE use during the COVID-19 pandemic has highlighted the need for further research into environmentally sustainable approaches to transmission-based precautions. To date, evaluations of sustainable approaches are limited to single-site or model-based analyses, which have indicated positive environmental and financial impacts from reducing single-use PPE.

The downstream impacts of these approaches on transmission risk remain unclear.

Table 18: Summary of included records for review question 7

Author (Year); Country if applicable	Title	Study design
Cusini (2015)[103]; Switzerland	Improved hand hygiene compliance after eliminating mandatory glove use from contact precautions – Is less more?	Observational study evaluating hand hygiene compliance before and after the discontinuation of mandatory glove use in the care of patients under contact precautions
Jamal (2021)[105]	Non-sterile examination gloves and sterile surgical gloves: which are more sustainable?	Life cycle assessment on the environmental impact of nonsterile versus sterile glove
Mazahir (2022)[100]	Personal protective equipment (PPE) and plastic pollution during COVID-19: strategies for a sustainable environment	Review – no search strategy defined
Rizan (2021)[42]; UK	Environmental impact of personal protective equipment distributed for use by health and social care services in England in the first six months of the COVID-19 pandemic	Life cycle assessment of PPE use with scenario modelling
Sutjipto (2025)[102]; Singapore	Plastic Waste and COVID-19 Incidence Among Hospital Staff After Deescalation in PPE Use	Quality improvement study that evaluated the impact of a national PPE de-escalation policy for COVID-19 patients in late 2022
Wilkie-Miskin (2025)[104]; Australia	Gloves off!: Environmental and financial impacts of an educational intervention to improve hand hygiene. A quality improvement study	Observational study evaluating the discontinuation of non-sterile gloves as a component of contact precautions
Yen (2021)[101]	Infection prevention measures in acute care settings based on severe acute respiratory syndrome coronavirus 2 transmission patterns and risk: a review	Narrative review

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Appendix 1: Search filters

Searches run: 1 Sept 2025

Embase (Elsevier):

('hospitals'/exp OR 'hospital units'/exp OR 'academic medical centers'/de OR 'inpatients'/de OR 'adolescent, hospitalized'/de OR 'child, hospitalized'/de OR 'medical staff'/exp OR 'nursing staff'/exp

OR hospital* OR inpatient* OR (patient* AND (room* OR unit* OR ward*)) OR 'nursing homes'/exp OR 'longterm care'/de OR 'homes for the aged'/de OR 'assisted living facilities'/de OR 'residential facilities'/de OR 'care home*' OR 'elder* care facilit*' OR (('aged'/exp OR aged) AND ('home environment'/exp OR

(home AND environment) OR 'home environment' OR home OR facilit*)) OR ('long term' AND care) OR 'nursing home*' OR ((residential OR residentially) AND care) OR 'retirement facilit*' OR 'retirement home*' OR 'general practice'/exp OR 'primary health care'/de OR 'physicians offices' OR 'general practi*' OR 'family practice' OR 'primary health care' OR 'primary care' OR 'family physician' OR 'family doctor' OR 'ambulatory care facilities'/de OR ambulatory OR outpatient* OR 'emergency

department' OR 'emergency room*' OR 'accident and emergency' OR 'dental clinics'/de OR 'dental offices'/de

OR dentist* OR 'fertility clinics'/exp OR 'fertility clinic*' OR 'ivf clinic' OR 'student run clinic'/exp OR 'rehabilitation centers'/de OR 'substance abuse treatment centers'/de OR 'rehabilitation facilit*' OR 'rehabilitation cent*' OR 'treatment facilit*' OR 'treatment cent*' OR 'allied health' OR 'health facilities, proprietary'/exp OR 'health facility environment'/exp OR 'medical office buildings'/exp OR 'health facilit*' OR 'healthcare facilit*' OR 'health care facilit*') AND

((transmissability OR transmissable OR transmissibilities OR transmissibility OR transmissible OR transmissibles OR transmission:lnk

OR transmission OR transmissions OR contact OR contactable OR contacted OR contacting OR contacts OR droplet OR 'droplet s' OR droplets OR airborn OR airborne OR 'eur med j respir':jt OR respiratory OR 'aerosol s' OR aerosolic OR aerosolization OR aerosolizations OR aerosolize OR aerosolized OR aerosolizer OR aerosolizes OR aerosolizing OR aerosols:tn OR aerosols OR aerosol OR 'aerosols'/exp) AND (precaution OR precautions) OR 'respiratory bundle' OR 'infectious disease transmission, patient to professional'/exp OR 'personal protective equipment' OR ppe OR ((gloves OR apron) AND gowns) OR 'surgical mask*' OR 'particulate filter respirator*' OR n95 OR p2 OR 'protective eyewear' OR 'face shield' OR 'safety glasses' OR goggles OR 'patient placement' OR 'patient room placement' OR 'room placement' OR 'single room' OR 'patient cohorting' OR 'negative pressure' OR 'masks'/de OR 'gloves, protective'/exp OR 'patient isolation'/exp OR 'respiratory protective devices'/exp OR 'personal protective equipment'/exp) AND ('drug resistance, bacterial'/exp OR 'drug resistance, viral'/exp OR 'drug resistance, multiple, bacterial'/exp OR 'drug resistance, multiple, viral'/exp OR 'gram-negative bacteria'/exp OR 'grampositive bacteria'/exp OR 'multidrug resistant organism*' OR 'multi drug resistant organism*' OR mdro* OR mro OR 'gram negative' OR gnb OR 'gram

positive' OR enterobacterales OR 'carbapenemase-producing enterobacterales' OR 'clin psychol eur':jt OR cpe OR 'carbapenem resistant enterobacteriaceae' OR 'carbapenem resistant enterobacteriaceae'/exp OR cre OR 'extended-spectrum beta-lactamase' OR esbl OR 'acinetobacter baumannii' OR 'pseudomonas aeruginosa' OR 'klebsiella pneumoniae' OR 'methicillin-resistant staphylococcus aureus' OR mrsa OR 'vancomycin-resistant enterococcus' OR vre OR colonization OR colonisation OR 'respiratory tract infections'/exp OR 'coronavirus infections'/de OR 'covid 19'/de OR 'severe acute respiratory syndrome-related coronavirus'/exp OR 'cross infection'/exp OR 'rhinovirus'/exp OR 'pneumovirus infections'/exp OR 'respiratory syncytial virus infections'/exp OR 'respiratory syncytial virus, human'/exp OR 'metapneumovirus'/exp OR 'severe acute respiratory syndrome' OR sars OR 'sars cov 1' OR 'sars cov 2' OR 'covid 19' OR 'coronavirus'/exp OR coronavirus OR coronaviruses OR 'middle east respiratory syndrome coronavirus'/exp OR

(middle AND east AND respiratory AND syndrome AND coronavirus) OR 'middle east respiratory syndrome coronavirus' OR (mers AND cov) OR 'mers cov' OR 'middle east respiratory syndrome' OR 'infectious particles' OR 'infectious respiratory particles' OR 'influenza s' OR 'influenza, human'/exp OR

(influenza AND human) OR 'human influenza' OR influenza OR influenzas OR influenzae OR 'influenza-like illness' OR flu OR ili OR h1n1 OR h5n1 OR parainfluenza OR hpiv OR bronchiolitis OR 'human rhinovirus' OR hrv OR 'rhinovirus respiratory infection' OR rsv OR 'human respiratory syncytial virus' OR 'rsv infection' OR 'human metapneumovirus*' OR hmpv OR 'hmpv infection') AND ('article'/it OR 'conference paper'/it OR 'letter'/it OR 'review'/it OR 'clinical trial'/it) AND [humans]/lim AND [english]/lim AND ([embase]/lim OR 'clinical trial':dtype) AND [2015-2025]/py

PubMed:

((("hospitals"[MeSH Terms] OR "Hospital Units"[MeSH Terms] OR "Academic Medical Centers"[MeSH Terms:noexp] OR "inpatients"[MeSH Terms:noexp] OR "Health Facility Environment"[MeSH Terms] OR "adolescent, hospitalized"[MeSH Terms:noexp] OR "child, hospitalized"[MeSH Terms:noexp] OR "Medical Staff"[MeSH Terms] OR "Nursing Staff"[MeSH Terms] OR "hospital*"[All Fields] OR "inpatient*"[All Fields] OR ("patient*"[All Fields] AND ("room*"[All Fields] OR "unit*"[All Fields] OR "ward*"[All Fields])) OR "Nursing Homes"[MeSH Terms] OR "Long-Term Care"[MeSH Terms:noexp] OR "Homes for the Aged"[MeSH Terms:noexp] OR "Assisted Living Facilities"[MeSH Terms:noexp] OR "Residential Facilities"[MeSH Terms:noexp] OR "care home*"[All Fields] OR "elder* care facilit*"[All Fields] OR (("aged"[MeSH Terms] OR "aged"[All Fields]) AND ("home environment"[MeSH Terms] OR ("home"[All Fields] AND "environment"[All Fields]) OR "home environment"[All Fields] OR "home"[All Fields] OR "facilit*"[All Fields])) OR ("long term"[All Fields] AND "care"[All Fields]) OR "nursing home*"[All Fields] OR (("residential"[All Fields] OR "residentially"[All Fields]) AND "care"[All Fields]) OR "retirement facilit*"[All Fields] OR "retirement home*"[All Fields] OR "General Practice"[MeSH Terms] OR "Primary Health Care"[MeSH Terms:noexp] OR "physicians offices"[MeSH Terms:noexp] OR "general practi*"[All Fields] OR "Family Practice"[All Fields] OR "Primary Health Care"[All Fields] OR "primary care"[All Fields] OR "family physician"[All Fields] OR "family doctor"[All Fields] OR "Ambulatory Care Facilities"[MeSH Terms:noexp] OR "ambulatory"[All Fields] OR "outpatient*"[All Fields] OR "emergency department"[All Fields] OR "emergency room*"[All Fields] OR "accident and emergency"[All Fields] OR "Dental Clinics"[MeSH Terms:noexp] OR "Dental Offices"[MeSH Terms:noexp] OR "dentist*"[All Fields] OR "Fertility Clinics"[MeSH Terms] OR "fertility clinic*"[All Fields] OR "IVF clinic"[All Fields] OR "Student Run Clinic"[MeSH Terms] OR "Rehabilitation Centers"[MeSH Terms:noexp] OR "Substance Abuse Treatment Centers"[MeSH Terms:noexp] OR "rehabilitation facilit*"[All Fields] OR "rehabilitation cent*"[All Fields] OR "treatment facilit*"[All Fields] OR "treatment cent*"[All Fields] OR "allied health"[All Fields] OR "health facilities, proprietary"[MeSH Terms] OR "Health Facility Environment"[MeSH Terms] OR "Medical Office Buildings"[MeSH Terms] OR "health facilit*"[All Fields] OR "healthcare facilit*"[All Fields] OR "health care facilit*"[All Fields]) AND ((("transmissability"[All Fields] OR "transmissable"[All Fields] OR "transmissibilities"[All Fields] OR "transmissibility"[All Fields] OR "transmissible"[All Fields] OR "transmissibles"[All Fields] OR "transmission"[MeSH Subheading] OR "transmission"[All Fields] OR "transmissions"[All Fields] OR ("contact"[All Fields] OR "contactable"[All Fields] OR "contacted"[All Fields] OR "contacting"[All Fields] OR "contacts"[All Fields]) OR ("droplet"[All Fields] OR "droplet s"[All Fields] OR "droplets"[All Fields]) OR ("airborn"[All Fields] OR "airborne"[All Fields]) OR ("eur med j respir"[Journal] OR "respiratory"[All Fields]) OR ("aerosol s"[All Fields] OR "aerosolic"[All Fields] OR "aerosolization"[All Fields] OR "aerosolizations"[All Fields] OR "aerosolize"[All Fields] OR "aerosolized"[All Fields] OR "aerosolizer"[All Fields] OR "aerosolizes"[All Fields] OR "aerosolizing"[All Fields] OR "aerosols"[Supplementary Concept] OR "aerosols"[All Fields] OR "aerosol"[All Fields] OR "aerosols"[MeSH Terms])) AND ("precaution"[All Fields] OR

"precautions"[All Fields] OR ("precaution"[All Fields] OR "precautions"[All Fields])))) OR "Respiratory bundle"[All Fields] OR "infectious disease transmission, patient to professional"[MeSH Terms] OR "personal protective equipment"[All Fields] OR "PPE"[All Fields] OR (("gloves"[All Fields] OR "apron"[All Fields]) AND "gowns"[All Fields]) OR "surgical mask*"[All Fields] OR "particulate filter respirator*"[All Fields] OR "N95"[All

Fields] OR "P2"[All Fields] OR "protective eyewear"[All Fields] OR "face shield"[All Fields] OR "safety glasses"[All Fields] OR "goggles"[All Fields] OR "patient placement"[All Fields] OR "patient room placement"[All Fields] OR "room placement"[All Fields] OR "single room"[All Fields] OR "patient cohorting"[All Fields] OR "negative pressure"[All Fields] OR "Masks"[MeSH Terms:noexp] OR "gloves, protective"[MeSH Terms] OR "Patient Isolation"[MeSH Terms] OR "Respiratory Protective Devices"[MeSH Terms] OR "personal protective equipment"[MeSH Terms]) AND ("drug resistance, bacterial"[MeSH Terms] OR "drug resistance, viral"[MeSH Terms] OR "drug resistance, multiple, bacterial"[MeSH Terms] OR "drug resistance, multiple, viral"[MeSH Terms] OR "Gram-Negative Bacteria"[MeSH Terms] OR "Gram-Positive Bacteria"[MeSH Terms] OR "multidrug resistant organism*"[All Fields] OR "multi drug resistant organism*"[All

Fields] OR "mdro*"[All Fields] OR "MRO"[All Fields] OR "gram-negative"[All Fields] OR "GNB"[All Fields] OR

"gram-positive"[All Fields] OR "Enterobacterales"[All Fields] OR "Carbapenemase-producing

Enterobacterales"[All Fields] OR ("clin psychol eur"[Journal] OR "cpe"[All Fields]) OR "carbapenem resistant enterobacteriaceae"[All Fields] OR "carbapenem resistant enterobacteriaceae"[MeSH Terms] OR "CRE"[All Fields] OR "Extended-spectrum beta-lactamase"[All Fields] OR "ESBL"[All Fields] OR "Acinetobacter baumannii"[All Fields] OR "Pseudomonas aeruginosa"[All Fields] OR "Klebsiella pneumoniae"[All Fields] OR "Methicillin-resistant Staphylococcus aureus"[All Fields] OR "MRSA"[All Fields] OR "vancomycin-resistant

Enterococcus"[All Fields] OR "VRE"[All Fields] OR "colonization"[All Fields] OR "colonisation"[All Fields] OR

("Respiratory Tract Infections"[MeSH Terms] OR "Coronavirus infections"[MeSH Terms:noexp] OR "COVID19"[MeSH Terms:noexp] OR "Middle East Respiratory Syndrome Coronavirus"[MeSH Terms] OR "Severe acute respiratory syndrome-related coronavirus"[MeSH Terms] OR "Cross infection"[MeSH Terms] OR

"influenza, human"[MeSH Terms] OR "Rhinovirus"[MeSH Terms] OR "Pneumovirus Infections"[MeSH Terms] OR "Respiratory Syncytial Virus Infections"[MeSH Terms] OR "respiratory syncytial virus, human"[MeSH Terms] OR "Metapneumovirus"[MeSH Terms] OR "Severe Acute Respiratory Syndrome"[All Fields] OR "SARS"[All Fields] OR "SARS-CoV-1"[All Fields] OR "SARS-CoV-2"[All Fields] OR "COVID19"[All Fields] OR ("coronavirus"[MeSH Terms] OR "coronavirus"[All Fields] OR "coronaviruses"[All Fields])

OR ("Middle East Respiratory Syndrome Coronavirus"[MeSH Terms] OR ("middle"[All Fields] AND "east"[All

Fields] AND "respiratory"[All Fields] AND "syndrome"[All Fields] AND "coronavirus"[All Fields]) OR "Middle East Respiratory Syndrome Coronavirus"[All Fields] OR ("mers"[All Fields] AND "cov"[All Fields]) OR "mers cov"[All Fields]) OR "Middle East Respiratory Syndrome"[All Fields] OR "Infectious particles"[All Fields] OR

"infectious respiratory particles"[All Fields] OR ("influenza s"[All Fields] OR "influenza, human"[MeSH Terms]

OR ("influenza"[All Fields] AND "human"[All Fields]) OR "human influenza"[All Fields] OR "influenza"[All

Fields] OR "influenzas"[All Fields] OR "influenzae"[All Fields]) OR "influenza-like illness"[All Fields] OR

"flu"[All Fields] OR "ILI"[All Fields] OR "H1N1"[All Fields] OR "H5N1"[All Fields] OR "parainfluenza"[All Fields]

OR "HPIV"[All Fields] OR "bronchiolitis"[All Fields] OR "Human Rhinovirus"[All Fields] OR "HRV"[All Fields]

OR "Rhinovirus respiratory infection"[All Fields] OR "RSV"[All Fields] OR "Human Respiratory Syncytial

Virus"[All Fields] OR "RSV infection"[All Fields] OR "human metapneumovirus*"[All Fields] OR "HMPV"[All

Fields] OR "HMPV infection"[All Fields])) AND (("all"[Filter] NOT "preprint"[Publication Type]) AND

"humans"[MeSH Terms] AND 2015/01/01:2025/08/31[Date - Publication] AND "english"[Language])) AND

((excludepreprints[Filter]) AND (fha[Filter]) AND (humans[Filter]) AND (2015/1/1:2025/8/31[pdat]) AND (english[Filter]))

CINAHL:

((MH Hospital+) OR (MH "Hospital Units+") OR (MH "Academic Medical Centers") OR (MH Inpatients) OR

(MH "Health Facility Environment+") OR (MH "Adolescent, Hospitalized") OR (MH "Child, Hospitalized") OR (MH "Medical Staff+") OR (MH "Nursing Staff+") OR hospital* OR inpatient* OR (patient* AND (room* OR unit* OR ward*)) OR (MH "Nursing Homes+") OR (MH "Long-Term Care") OR (MH "Homes for the Aged") OR (MH "Assisted Living Facilities") OR (MH "Residential Facilities") OR "care home*" OR "elder* care facilit*" OR (aged AND (home OR facilit*)) OR ("long term" AND care) OR "nursing home*" OR (residential AND care) OR "retirement facilit*" OR "retirement home*" OR (MH "General Practice+") OR (MH "Primary Health Care") OR (MH "Physicians' Offices") OR "General Practi*" OR "Family Practice" OR "primary health care" OR "primary care" OR "family physician" OR "family doctor" OR (MH "Ambulatory Care Facilities") OR ambulatory OR outpatient* OR "emergency department" OR "emergency room*" OR "accident and emergency" OR (MH "Dental Clinics") OR (MH "Dental Offices") OR dentist* OR (MH "Fertility Clinics+") OR "fertility clinic*" OR "IVF clinic" OR (MH "Student Run Clinic+") OR (MH "Rehabilitation Centers") OR (MH "Substance Abuse Treatment Centers") OR "rehabilitation facilit*" OR "rehabilitation cent*" OR "treatment facilit*" OR "treatment cent*" OR "allied health" OR (MH "Health Facilities, Proprietary+") OR (MH "Health Facility Environment+") OR (MH "Medical Office Buildings+") OR "health facilit*" OR "healthcare facilit*" OR

"health care facilit*") AND (((Transmission OR Contact OR Droplet OR Airborne OR Respiratory OR Aerosol)

AND (Precaution OR Precautions)) OR "Respiratory bundle" OR (MH "Infectious Disease Transmission, Patient-to-Professional+") OR (MH "Infectious Disease Transmission, Patient-to-Patient+") OR "Personal protective equipment" OR PPE OR ((gloves OR apron) AND gowns) OR "surgical mask*" OR "particulate filter respirator*" OR N95 OR P2 OR "protective eyewear" OR "face shield" OR "safety glasses" OR goggles OR "patient placement" OR "patient room placement" OR "room placement" OR "single room" OR "patient cohorting" OR "negative pressure" OR (MH Masks) OR (MH "Gloves, Protective+") OR (MH "Patient Isolation+") OR (MH "Respiratory Protective Devices+") OR (MH "Personal Protective Equipment+")) AND

((MH "Drug Resistance, Bacterial+") OR (MH "Drug Resistance, Viral+") OR (MH "Drug Resistance, Multiple,

Bacterial+") OR (MH "Drug Resistance, Multiple, Viral+") OR (MH "Gram-Negative Bacteria+") OR (MH

"Gram-Positive Bacteria+") OR "Multidrug resistant organism*" OR "multi-drug resistant organism*" OR

MDRO* OR MRO OR gram-negative OR GNB OR gram-positive OR Enterobacterales OR

"Carbapenemase-producing Enterobacterales" OR CPE OR "Carbapenem-resistant Enterobacteriaceae" OR

(MH "Carbapenem-Resistant Enterobacteriaceae+") OR CRE OR "Extended-spectrum beta-lactamase" OR

ESBL OR "Acinetobacter baumannii" OR "Pseudomonas aeruginosa" OR "Klebsiella pneumoniae" OR

"Methicillin-resistant Staphylococcus aureus" OR MRSA OR "vancomycin-resistant Enterococcus" OR VRE

OR colonization OR colonisation OR (MH "Respiratory Tract Infections+") OR (MH "Coronavirus infections") OR (MH COVID-19) OR (MH "Middle East Respiratory Syndrome Coronavirus+") OR (MH "Severe acute respiratory syndrome-related coronavirus+") OR (MH "Cross infection+") OR (MH "Influenza, Human+") OR (MH Rhinovirus+) OR (MH "Pneumovirus Infections+") OR (MH "Respiratory Syncytial Virus Infections+") OR

(MH "Respiratory Syncytial Virus, Human+") OR (MH Metapneumovirus+) OR "Severe Acute Respiratory

Syndrome" OR SARS OR SARS-CoV-1 OR SARS-CoV-2 OR COVID-19 OR Coronavirus OR MERS-CoV

OR "Middle East Respiratory Syndrome" OR "Infectious particles" OR "infectious respiratory particles" OR influenza OR "influenza-like illness" OR flu OR ILI OR H1N1 OR H5N1 OR parainfluenza OR HPIV OR bronchiolitis OR "Human Rhinovirus" OR HRV OR "Rhinovirus respiratory infection" OR RSV OR "Human Respiratory Syncytial Virus" OR "RSV infection" OR "Human Metapneumovirus*" OR HMPV OR "HMPV infection");

Cochrane:

(([mh hospitals] OR [mh "Hospital Units"] OR [mh "Academic Medical Centers"] OR [mh inpatients] OR [mh

"Health Facility Environment"] OR [mh "adolescent, hospitalized"] OR [mh "child, hospitalized"] OR [mh "Medical Staff"] OR [mh "Nursing Staff"] OR hospital* OR inpatient* OR (patient* AND (room* OR unit* OR ward*)) OR [mh "Nursing Homes"] OR [mh "Long-Term Care"] OR [mh "Homes for the Aged"] OR [mh "Assisted Living Facilities"] OR [mh "Residential Facilities"] OR ("care" NEXT home*) OR (elder* NEXT "care" NEXT facilit*) OR (([mh aged] OR aged) AND ([mh "home environment"] OR (home AND environment) OR "home environment" OR home OR facilit*)) OR ("long term" AND care) OR ("nursing" NEXT home*) OR ((residential OR residentially) AND care) OR ("retirement" NEXT facilit*) OR ("retirement"

NEXT home*) OR [mh "General Practice"] OR [mh "Primary Health Care"] OR [mh "physicians offices"] OR ("general" NEXT practi*) OR "Family Practice" OR "Primary Health Care" OR "primary care" OR "family physician" OR "family doctor" OR [mh "Ambulatory Care Facilities"] OR ambulatory OR outpatient* OR "emergency department" OR ("emergency" NEXT room*) OR "accident and emergency" OR [mh "Dental

Clinics"] OR [mh "Dental Offices"] OR dentist* OR [mh "Fertility Clinics"] OR ("fertility" NEXT clinic*) OR "IVF clinic" OR [mh "Student Run Clinic"] OR [mh "Rehabilitation Centers"] OR [mh "Substance Abuse Treatment

Centers"] OR ("rehabilitation" NEXT facilit*) OR ("rehabilitation" NEXT cent*) OR ("treatment" NEXT facilit*)

OR ("treatment" NEXT cent*) OR "allied health" OR [mh "health facilities, proprietary"] OR [mh "Health Facility Environment"] OR [mh "Medical Office Buildings"] OR ("health" NEXT facilit*) OR ("healthcare" NEXT facilit*) OR ("health care" NEXT facilit*)) AND (((transmissability OR transmissable OR transmissibilities OR transmissibility OR transmissible OR transmissibles OR [mh /transmission] OR transmission OR transmissions OR (contact OR contactable OR contacted OR contacting OR contacts) OR (droplet OR droplets) OR (airborn OR airborne) OR (respiratory) OR (aerosolic OR aerosolization OR aerosolizations OR aerosolize OR aerosolized OR aerosolizer OR aerosolizes OR aerosolizing OR aerosols:kw OR aerosols OR aerosol OR [mh aerosols])) AND (precaution OR precautions OR (precaution OR precautions))) OR "Respiratory bundle" OR [mh "infectious disease transmission, patient to professional"] OR "personal protective equipment" OR PPE OR ((gloves OR apron) AND gowns) OR ("surgical" NEXT mask*) OR ("particulate filter" NEXT respirator*) OR N95 OR P2 OR "protective eyewear" OR "face shield" OR "safety glasses" OR goggles OR "patient placement" OR "patient room placement" OR "room placement" OR "single room" OR "patient cohorting" OR "negative pressure" OR [mh Masks] OR [mh "gloves, protective"] OR [mh "Patient Isolation"] OR [mh "Respiratory Protective Devices"] OR [mh "personal protective equipment"]) AND ([mh "drug resistance, bacterial"] OR [mh "drug resistance, viral"] OR [mh "drug resistance, multiple, bacterial"] OR [mh "drug resistance, multiple, viral"] OR [mh "Gram-Negative Bacteria"] OR [mh "Gram-

Positive Bacteria"] OR ("multidrug resistant" NEXT organism*) OR ("multi drug resistant" NEXT organism*)

OR mdro* OR MRO OR gram-negative OR GNB OR gram-positive OR Enterobacterales OR

"Carbapenemase-producing Enterobacterales" OR "CPE" OR "carbapenem resistant enterobacteriaceae"

OR [mh "carbapenem resistant enterobacteriaceae"] OR CRE OR "Extended-spectrum beta-lactamase" OR

ESBL OR "Acinetobacter baumannii" OR "Pseudomonas aeruginosa" OR "Klebsiella pneumoniae" OR

"Methicillin-resistant Staphylococcus aureus" OR MRSA OR "vancomycin-resistant Enterococcus" OR VRE

OR colonization OR colonisation OR ([mh "Respiratory Tract Infections"] OR [mh "Coronavirus infections"] OR [mh COVID-19] OR [mh "Middle East Respiratory Syndrome Coronavirus"] OR [mh "Severe acute respiratory syndrome-related coronavirus"] OR [mh "Cross infection"] OR [mh "influenza, human"] OR [mh Rhinovirus] OR [mh "Pneumovirus Infections"] OR [mh "Respiratory Syncytial Virus Infections"] OR [mh

"respiratory syncytial virus, human"] OR [mh Metapneumovirus] OR "Severe Acute Respiratory Syndrome" OR SARS OR SARS-CoV-1 OR SARS-CoV-2 OR COVID-19 OR ([mh coronavirus] OR coronavirus OR coronaviruses) OR ([mh "Middle East Respiratory Syndrome Coronavirus"] OR (middle AND east AND respiratory AND syndrome AND coronavirus) OR "Middle East Respiratory Syndrome Coronavirus" OR

(mers AND cov) OR "mers cov") OR "Middle East Respiratory Syndrome" OR "Infectious particles" OR

"infectious respiratory particles" OR (influenzas" OR [mh "influenza, human"] OR (influenza AND human) OR

"human influenza" OR influenza OR influenzas OR influenzae) OR "influenza-like illness" OR flu OR ILI OR H1N1 OR H5N1 OR parainfluenza OR HPIV OR bronchiolitis OR "Human Rhinovirus" OR HRV OR

"Rhinovirus respiratory infection" OR RSV OR "Human Respiratory Syncytial Virus" OR "RSV infection" OR ("human" NEXT metapneumovirus*) OR HMPV OR "HMPV infection")))

Appendix 2: GRADE levels of evidence

From: Schünemann H, Brożek J, Guyatt G, Oxman A, editors. GRADE handbook for grading quality of evidence and strength of recommendations. Updated October 2013. The GRADE Working Group, 2013.

Available from guidelinedevelopment.org/handbook. Section 5.

Grade	Definition
High	We are very confident that the true effect lies close to that of the estimate of the effect.
Moderate	We are moderately confident in the effect estimate: The true effect is likely to be close to the estimate of the effect, but there is a possibility that it is substantially different
Low	Our confidence in the effect estimate is limited: The true effect may be substantially different from the estimate of the effect.
Very Low	We have very little confidence in the effect estimate: The true effect is likely to be substantially different from the estimate of effect

Grades are assigned based on the consideration of the following factors. It is important to note that grades represent a continuum and are intended to reflect an overall judgment after considering multiple factors.

1. Reduced quality of evidence:

   a. Risk of bias due to limitations in study design or execution. In general, randomised controlled trials provide higher-quality evidence than observational studies, subject to risk-of bias assessment using appropriate tools.

   b. Inconsistency of results: Refers to heterogeneity in the magnitude of relative effect measures across studies that cannot be explained by known sources (e.g., different populations, interventions, comparators or outcomes). Reported statistics from meta analysis can help inform this assessment (e.g., forest plots and I-squared statistic).

   c. Indirectness of evidence: Refers to the applicability of evidence against pre-defined PICO elements, including the nature of comparisons between studied intervention(s)

   d. Imprecision: Considers the level of uncertainty in estimated effect sizes, for example, confidence intervals. Statistical uncertainty may be influenced by small sample sizes and/or outcome prevalence.

   e. Publication bias: Studies reporting statistically significant results, or findings that support widely held hypotheses, may have a greater chance of being published than “negative” studies.

2. Increased quality of evidence:

   a. Large effect sizes, when there are no concerns regarding risk of bias or imprecision.

   b. Dose-response gradient: Refers to evidence of a relationship between the level of intervention exposure (the “dose”) and outcomes (the “response”).

   c. Plausible residual confounding: Refers to scenarios where known confounders are expected to reduce an effect estimate or increase the magnitude of an effect if no effect was observed in an unadjusted analysis.

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School of Public Health and Social Work
QUT Centre for Healthcare Transformation, Faculty of Health
60 Musk Ave, Kelvin Grove QLD 4059

Appendix 2: Search filters applied to biomedical literature databases

Searches run: 1 Sept 2025

Embase (Elsevier):

('hospitals'/exp OR 'hospital units'/exp OR 'academic medical centers'/de OR 'inpatients'/de OR 'adolescent, hospitalized'/de OR 'child, hospitalized'/de OR 'medical staff'/exp OR 'nursing staff'/exp

OR hospital* OR inpatient* OR (patient* AND (room* OR unit* OR ward*)) OR 'nursing homes'/exp OR 'longterm care'/de OR 'homes for the aged'/de OR 'assisted living facilities'/de OR 'residential facilities'/de OR 'care home*' OR 'elder* care facilit*' OR (('aged'/exp OR aged) AND ('home environment'/exp OR

(home AND environment) OR 'home environment' OR home OR facilit*)) OR ('long term' AND care) OR 'nursing home*' OR ((residential OR residentially) AND care) OR 'retirement facilit*' OR 'retirement home*' OR 'general practice'/exp OR 'primary health care'/de OR 'physicians offices' OR 'general practi*' OR 'family practice' OR 'primary health care' OR 'primary care' OR 'family physician' OR 'family doctor' OR 'ambulatory care facilities'/de OR ambulatory OR outpatient* OR 'emergency

department' OR 'emergency room*' OR 'accident and emergency' OR 'dental clinics'/de OR 'dental offices'/de

OR dentist* OR 'fertility clinics'/exp OR 'fertility clinic*' OR 'ivf clinic' OR 'student run clinic'/exp OR 'rehabilitation centers'/de OR 'substance abuse treatment centers'/de OR 'rehabilitation facilit*' OR 'rehabilitation cent*' OR 'treatment facilit*' OR 'treatment cent*' OR 'allied health' OR 'health facilities, proprietary'/exp OR 'health facility environment'/exp OR 'medical office buildings'/exp OR 'health facilit*' OR 'healthcare facilit*' OR 'health care facilit*') AND

((transmissability OR transmissable OR transmissibilities OR transmissibility OR transmissible OR transmissi bles OR transmission:lnk

OR transmission OR transmissions OR contact OR contactable OR contacted OR contacting OR contacts O

R droplet OR 'droplet s' OR droplets OR airborn OR airborne OR 'eur med j respir':jt OR respiratory OR 'aerosol s' OR aerosolic OR aerosolization OR aerosolizations OR aerosolize OR aerosolized OR aerosolizer OR aer osolizes OR aerosolizing OR aerosols:tn OR aerosols OR aerosol OR 'aerosols'/exp) AND (precaution OR precautions) OR 'respiratory bundle' OR 'infectious disease transmission, patient to professional'/exp OR 'personal protective equipment' OR ppe OR ((gloves OR apron) AND gowns) OR 'surgical mask*' OR 'particulate filter respirator*' OR n95 OR p2 OR 'protective eyewear' OR 'face shield' OR 'safety glasses' OR goggles OR 'patient placement' OR 'patient room placement' OR 'room placement' OR 'single room' OR 'patient cohorting' OR 'negative pressure' OR 'masks'/de OR 'gloves, protective'/exp OR 'patient isolation'/exp OR 'respiratory protective devices'/exp OR 'personal protective equipment'/exp) AND ('drug resistance, bacterial'/exp OR 'drug resistance, viral'/exp OR 'drug resistance, multiple, bacterial'/exp OR 'drug resistance, multiple, viral'/exp OR 'gram-negative bacteria'/exp OR 'grampositive bacteria'/exp OR 'multidrug resistant organism*' OR 'multi drug resistant organism*' OR mdro* OR mro OR 'gram negative' OR gnb OR 'gram

positive' OR enterobacterales OR 'carbapenemase-producing enterobacterales' OR 'clin psychol eur':jt OR cpe OR 'carbapenem resistant enterobacteriaceae' OR 'carbapenem resistant enterobacteriaceae'/exp OR cre OR 'extended-spectrum beta-lactamase' OR esbl OR 'acinetobacter baumannii' OR 'pseudomonas aeruginosa' OR 'klebsiella pneumoniae' OR 'methicillin-resistant staphylococcus aureus' OR mrsa OR 'vancomycin-resistant

enterococcus' OR vre OR colonization OR colonisation OR 'respiratory tract infections'/exp OR 'coronavirus infections'/de OR 'covid 19'/de OR 'severe acute respiratory syndrome-related coronavirus'/exp OR 'cross infection'/exp OR 'rhinovirus'/exp OR 'pneumovirus infections'/exp OR 'respiratory syncytial virus infections'/exp OR 'respiratory syncytial virus, human'/exp OR 'metapneumovirus'/exp OR 'severe acute respiratory syndrome' OR sars OR 'sars cov 1' OR 'sars cov 2' OR 'covid 19' OR 'coronavirus'/exp OR coronavirus OR coronaviruses OR 'middle east respiratory syndrome coronavirus'/exp OR

(middle AND east AND respiratory AND syndrome AND coronavirus) OR 'middle east respiratory syndrome coronavirus' OR (mers AND cov) OR 'mers cov' OR 'middle east respiratory syndrome' OR 'infectious particles' OR 'infectious respiratory particles' OR 'influenza s' OR 'influenza, human'/exp OR

(influenza AND human) OR 'human influenza' OR influenza OR influenzas OR influenzae OR 'influenza-like illness' OR flu OR ili OR h1n1 OR h5n1 OR parainfluenza OR hpiv OR bronchiolitis OR 'human rhinovirus' OR hrv OR 'rhinovirus respiratory infection' OR rsv OR 'human respiratory syncytial virus' OR 'rsv infection' OR 'human metapneumovirus*' OR hmpv OR 'hmpv infection') AND ('article'/it OR 'conference paper'/it OR 'letter'/it OR 'review'/it OR 'clinical trial'/it) AND [humans]/lim AND [english]/lim AND ([embase]/lim OR 'clinical trial':dtype) AND [2015-2025]/py

PubMed:

(("hospitals"[MeSH Terms] OR "Hospital Units"[MeSH Terms] OR "Academic Medical Centers"[MeSH

Terms:noexp] OR "inpatients"[MeSH Terms:noexp] OR "Health Facility Environment"[MeSH Terms] OR

"adolescent, hospitalized"[MeSH Terms:noexp] OR "child, hospitalized"[MeSH Terms:noexp] OR "Medical

Staff"[MeSH Terms] OR "Nursing Staff"[MeSH Terms] OR "hospital*"[All Fields] OR "inpatient*"[All Fields]

OR ("patient*"[All Fields] AND ("room*"[All Fields] OR "unit*"[All Fields] OR "ward*"[All Fields])) OR "Nursing

Homes"[MeSH Terms] OR "Long-Term Care"[MeSH Terms:noexp] OR "Homes for the Aged"[MeSH

Terms:noexp] OR "Assisted Living Facilities"[MeSH Terms:noexp] OR "Residential Facilities"[MeSH

Terms:noexp] OR "care home*"[All Fields] OR "elder* care facilit*"[All Fields] OR (("aged"[MeSH Terms] OR

"aged"[All Fields]) AND ("home environment"[MeSH Terms] OR ("home"[All Fields] AND "environment"[All

Fields]) OR "home environment"[All Fields] OR "home"[All Fields] OR "facilit*"[All Fields])) OR ("long term"[All

Fields] AND "care"[All Fields]) OR "nursing home*"[All Fields] OR (("residential"[All Fields] OR

"residentially"[All Fields]) AND "care"[All Fields]) OR "retirement facilit*"[All Fields] OR "retirement home*"[All Fields] OR "General Practice"[MeSH Terms] OR "Primary Health Care"[MeSH Terms:noexp] OR "physicians offices"[MeSH Terms:noexp] OR "general practi*"[All Fields] OR "Family Practice"[All Fields] OR "Primary Health Care"[All Fields] OR "primary care"[All Fields] OR "family physician"[All Fields] OR "family doctor"[All

Fields] OR "Ambulatory Care Facilities"[MeSH Terms:noexp] OR "ambulatory"[All Fields] OR "outpatient*"[All Fields] OR "emergency department"[All Fields] OR "emergency room*"[All Fields] OR "accident and emergency"[All Fields] OR "Dental Clinics"[MeSH Terms:noexp] OR "Dental Offices"[MeSH Terms:noexp]

OR "dentist*"[All Fields] OR "Fertility Clinics"[MeSH Terms] OR "fertility clinic*"[All Fields] OR "IVF clinic"[All

Fields] OR "Student Run Clinic"[MeSH Terms] OR "Rehabilitation Centers"[MeSH Terms:noexp] OR

"Substance Abuse Treatment Centers"[MeSH Terms:noexp] OR "rehabilitation facilit*"[All Fields] OR "rehabilitation cent*"[All Fields] OR "treatment facilit*"[All Fields] OR "treatment cent*"[All Fields] OR "allied health"[All Fields] OR "health facilities, proprietary"[MeSH Terms] OR "Health Facility Environment"[MeSH Terms] OR "Medical Office Buildings"[MeSH Terms] OR "health facilit*"[All Fields] OR "healthcare facilit*"[All

Fields] OR "health care facilit*"[All Fields]) AND ((("transmissability"[All Fields] OR "transmissable"[All Fields]

OR "transmissibilities"[All Fields] OR "transmissibility"[All Fields] OR "transmissible"[All Fields] OR

"transmissibles"[All Fields] OR "transmission"[MeSH Subheading] OR "transmission"[All Fields] OR

"transmissions"[All Fields] OR ("contact"[All Fields] OR "contactable"[All Fields] OR "contacted"[All Fields]

OR "contacting"[All Fields] OR "contacts"[All Fields]) OR ("droplet"[All Fields] OR "droplet s"[All Fields] OR

"droplets"[All Fields]) OR ("airborn"[All Fields] OR "airborne"[All Fields]) OR ("eur med j respir"[Journal] OR

"respiratory"[All Fields]) OR ("aerosol s"[All Fields] OR "aerosolic"[All Fields] OR "aerosolization"[All Fields]

OR "aerosolizations"[All Fields] OR "aerosolize"[All Fields] OR "aerosolized"[All Fields] OR "aerosolizer"[All

Fields] OR "aerosolizes"[All Fields] OR "aerosolizing"[All Fields] OR "aerosols"[Supplementary Concept] OR

"aerosols"[All Fields] OR "aerosol"[All Fields] OR "aerosols"[MeSH Terms])) AND ("precaution"[All Fields] OR

"precautions"[All Fields] OR ("precaution"[All Fields] OR "precautions"[All Fields]))) OR "Respiratory bundle"[All Fields] OR "infectious disease transmission, patient to professional"[MeSH Terms] OR "personal protective equipment"[All Fields] OR "PPE"[All Fields] OR (("gloves"[All Fields] OR "apron"[All Fields]) AND "gowns"[All Fields]) OR "surgical mask*"[All Fields] OR "particulate filter respirator*"[All Fields] OR "N95"[All

Fields] OR "P2"[All Fields] OR "protective eyewear"[All Fields] OR "face shield"[All Fields] OR "safety glasses"[All Fields] OR "goggles"[All Fields] OR "patient placement"[All Fields] OR "patient room placement"[All Fields] OR "room placement"[All Fields] OR "single room"[All Fields] OR "patient cohorting"[All Fields] OR "negative pressure"[All Fields] OR "Masks"[MeSH Terms:noexp] OR "gloves, protective"[MeSH Terms] OR "Patient Isolation"[MeSH Terms] OR "Respiratory Protective Devices"[MeSH Terms] OR "personal protective equipment"[MeSH Terms]) AND ("drug resistance, bacterial"[MeSH Terms] OR "drug resistance, viral"[MeSH Terms] OR "drug resistance, multiple, bacterial"[MeSH Terms] OR "drug resistance, multiple, viral"[MeSH Terms] OR "Gram-Negative Bacteria"[MeSH

Terms] OR "Gram-Positive Bacteria"[MeSH Terms] OR "multidrug resistant organism*"[All Fields] OR "multi drug resistant organism*"[All

Fields] OR "mdro*"[All Fields] OR "MRO"[All Fields] OR "gram-negative"[All Fields] OR "GNB"[All Fields] OR

"gram-positive"[All Fields] OR "Enterobacterales"[All Fields] OR "Carbapenemase-producing

Enterobacterales"[All Fields] OR ("clin psychol eur"[Journal] OR "cpe"[All Fields]) OR "carbapenem resistant enterobacteriaceae"[All Fields] OR "carbapenem resistant enterobacteriaceae"[MeSH Terms] OR "CRE"[All Fields] OR "Extended-spectrum beta-lactamase"[All Fields] OR "ESBL"[All Fields] OR "Acinetobacter baumannii"[All Fields] OR "Pseudomonas aeruginosa"[All Fields] OR "Klebsiella pneumoniae"[All Fields] OR "Methicillin-resistant Staphylococcus aureus"[All Fields] OR "MRSA"[All Fields] OR "vancomycin-resistant

Enterococcus"[All Fields] OR "VRE"[All Fields] OR "colonization"[All Fields] OR "colonisation"[All Fields] OR

("Respiratory Tract Infections"[MeSH Terms] OR "Coronavirus infections"[MeSH Terms:noexp] OR "COVID19"[MeSH Terms:noexp] OR "Middle East Respiratory Syndrome Coronavirus"[MeSH Terms] OR "Severe acute respiratory syndrome-related coronavirus"[MeSH Terms] OR "Cross infection"[MeSH Terms] OR

"influenza, human"[MeSH Terms] OR "Rhinovirus"[MeSH Terms] OR "Pneumovirus Infections"[MeSH Terms] OR "Respiratory Syncytial Virus Infections"[MeSH Terms] OR "respiratory syncytial virus, human"[MeSH Terms] OR "Metapneumovirus"[MeSH Terms] OR "Severe Acute Respiratory Syndrome"[All Fields] OR "SARS"[All Fields] OR "SARS-CoV-1"[All Fields] OR "SARS-CoV-2"[All Fields] OR "COVID19"[All Fields] OR ("coronavirus"[MeSH Terms] OR "coronavirus"[All Fields] OR "coronaviruses"[All Fields])

OR ("Middle East Respiratory Syndrome Coronavirus"[MeSH Terms] OR ("middle"[All Fields] AND "east"[All

Fields] AND "respiratory"[All Fields] AND "syndrome"[All Fields] AND "coronavirus"[All Fields]) OR "Middle East Respiratory Syndrome Coronavirus"[All Fields] OR ("mers"[All Fields] AND "cov"[All Fields]) OR "mers cov"[All Fields]) OR "Middle East Respiratory Syndrome"[All Fields] OR "Infectious particles"[All Fields] OR

"infectious respiratory particles"[All Fields] OR ("influenza s"[All Fields] OR "influenza, human"[MeSH Terms]

OR ("influenza"[All Fields] AND "human"[All Fields]) OR "human influenza"[All Fields] OR "influenza"[All

Fields] OR "influenzas"[All Fields] OR "influenzae"[All Fields]) OR "influenza-like illness"[All Fields] OR

"flu"[All Fields] OR "ILI"[All Fields] OR "H1N1"[All Fields] OR "H5N1"[All Fields] OR "parainfluenza"[All Fields]

OR "HPIV"[All Fields] OR "bronchiolitis"[All Fields] OR "Human Rhinovirus"[All Fields] OR "HRV"[All Fields]

OR "Rhinovirus respiratory infection"[All Fields] OR "RSV"[All Fields] OR "Human Respiratory Syncytial

Virus"[All Fields] OR "RSV infection"[All Fields] OR "human metapneumovirus*"[All Fields] OR "HMPV"[All

Fields] OR "HMPV infection"[All Fields])) AND (("all"[Filter] NOT "preprint"[Publication Type]) AND

"humans"[MeSH Terms] AND 2015/01/01:2025/08/31[Date - Publication] AND "english"[Language])) AND

((excludepreprints[Filter]) AND (fha[Filter]) AND (humans[Filter]) AND (2015/1/1:2025/8/31[pdat]) AND (english[Filter]))

CINAHL:

((MH Hospital+) OR (MH "Hospital Units+") OR (MH "Academic Medical Centers") OR (MH Inpatients) OR

(MH "Health Facility Environment+") OR (MH "Adolescent, Hospitalized") OR (MH "Child, Hospitalized") OR (MH "Medical Staff+") OR (MH "Nursing Staff+") OR hospital* OR inpatient* OR (patient* AND (room* OR unit* OR ward*)) OR (MH "Nursing Homes+") OR (MH "Long-Term Care") OR (MH "Homes for the Aged") OR (MH "Assisted Living Facilities") OR (MH "Residential Facilities") OR "care home*" OR "elder* care facilit*" OR (aged AND (home OR facilit*)) OR ("long term" AND care) OR "nursing home*" OR (residential AND care) OR "retirement facilit*" OR "retirement home*" OR (MH "General Practice+") OR (MH "Primary Health Care") OR (MH "Physicians' Offices") OR "General Practi*" OR "Family Practice" OR "primary health care" OR "primary care" OR "family physician" OR "family doctor" OR (MH "Ambulatory Care Facilities") OR ambulatory OR outpatient* OR "emergency department" OR "emergency room*" OR "accident and emergency" OR (MH "Dental Clinics") OR (MH "Dental Offices") OR dentist* OR (MH "Fertility Clinics+") OR "fertility clinic*" OR "IVF clinic" OR (MH "Student Run Clinic+") OR (MH "Rehabilitation Centers") OR (MH "Substance Abuse Treatment Centers") OR "rehabilitation facilit*" OR "rehabilitation cent*" OR "treatment facilit*" OR "treatment cent*" OR "allied health" OR (MH "Health Facilities, Proprietary+") OR (MH "Health Facility Environment+") OR (MH "Medical Office Buildings+") OR "health facilit*" OR "healthcare facilit*" OR

"health care facilit*") AND (((Transmission OR Contact OR Droplet OR Airborne OR Respiratory OR Aerosol)

AND (Precaution OR Precautions)) OR "Respiratory bundle" OR (MH "Infectious Disease Transmission, Patient-to-Professional+") OR (MH "Infectious Disease Transmission, Patient-to-Patient+") OR "Personal protective equipment" OR PPE OR ((gloves OR apron) AND gowns) OR "surgical mask*" OR "particulate filter respirator*" OR N95 OR P2 OR "protective eyewear" OR "face shield" OR "safety glasses" OR goggles OR "patient placement" OR "patient room placement" OR "room placement" OR "single room" OR "patient cohorting" OR "negative pressure" OR (MH Masks) OR (MH "Gloves, Protective+") OR (MH "Patient Isolation+") OR (MH "Respiratory Protective Devices+") OR (MH "Personal Protective Equipment+")) AND

((MH "Drug Resistance, Bacterial+") OR (MH "Drug Resistance, Viral+") OR (MH "Drug Resistance, Multiple,

Bacterial+") OR (MH "Drug Resistance, Multiple, Viral+") OR (MH "Gram-Negative Bacteria+") OR (MH

"Gram-Positive Bacteria+") OR "Multidrug resistant organism*" OR "multi-drug resistant organism*" OR

MDRO* OR MRO OR gram-negative OR GNB OR gram-positive OR Enterobacterales OR

"Carbapenemase-producing Enterobacterales" OR CPE OR "Carbapenem-resistant Enterobacteriaceae" OR

(MH "Carbapenem-Resistant Enterobacteriaceae+") OR CRE OR "Extended-spectrum beta-lactamase" OR

ESBL OR "Acinetobacter baumannii" OR "Pseudomonas aeruginosa" OR "Klebsiella pneumoniae" OR

"Methicillin-resistant Staphylococcus aureus" OR MRSA OR "vancomycin-resistant Enterococcus" OR VRE

OR colonization OR colonisation OR (MH "Respiratory Tract Infections+") OR (MH "Coronavirus infections") OR (MH COVID-19) OR (MH "Middle East Respiratory Syndrome Coronavirus+") OR (MH "Severe acute respiratory syndrome-related coronavirus+") OR (MH "Cross infection+") OR (MH "Influenza, Human+") OR (MH Rhinovirus+) OR (MH "Pneumovirus Infections+") OR (MH "Respiratory Syncytial Virus Infections+") OR

(MH "Respiratory Syncytial Virus, Human+") OR (MH Metapneumovirus+) OR "Severe Acute Respiratory

Syndrome" OR SARS OR SARS-CoV-1 OR SARS-CoV-2 OR COVID-19 OR Coronavirus OR MERS-CoV

OR "Middle East Respiratory Syndrome" OR "Infectious particles" OR "infectious respiratory particles" OR influenza OR "influenza-like illness" OR flu OR ILI OR H1N1 OR H5N1 OR parainfluenza OR HPIV OR bronchiolitis OR "Human Rhinovirus" OR HRV OR "Rhinovirus respiratory infection" OR RSV OR "Human Respiratory Syncytial Virus" OR "RSV infection" OR "Human Metapneumovirus*" OR HMPV OR "HMPV infection");

Cochrane:

(([mh hospitals] OR [mh "Hospital Units"] OR [mh "Academic Medical Centers"] OR [mh inpatients] OR [mh

"Health Facility Environment"] OR [mh "adolescent, hospitalized"] OR [mh "child, hospitalized"] OR [mh "Medical Staff"] OR [mh "Nursing Staff"] OR hospital* OR inpatient* OR (patient* AND (room* OR unit* OR ward*)) OR [mh "Nursing Homes"] OR [mh "Long-Term Care"] OR [mh "Homes for the Aged"] OR [mh "Assisted Living Facilities"] OR [mh "Residential Facilities"] OR ("care" NEXT home*) OR (elder* NEXT "care" NEXT facilit*) OR (([mh aged] OR aged) AND ([mh "home environment"] OR (home AND environment) OR "home environment" OR home OR facilit*)) OR ("long term" AND care) OR ("nursing" NEXT home*) OR ((residential OR residentially) AND care) OR ("retirement" NEXT facilit*) OR ("retirement"

NEXT home*) OR [mh "General Practice"] OR [mh "Primary Health Care"] OR [mh "physicians offices"] OR ("general" NEXT practi*) OR "Family Practice" OR "Primary Health Care" OR "primary care" OR "family physician" OR "family doctor" OR [mh "Ambulatory Care Facilities"] OR ambulatory OR outpatient* OR "emergency department" OR ("emergency" NEXT room*) OR "accident and emergency" OR [mh "Dental

Clinics"] OR [mh "Dental Offices"] OR dentist* OR [mh "Fertility Clinics"] OR ("fertility" NEXT clinic*) OR "IVF clinic" OR [mh "Student Run Clinic"] OR [mh "Rehabilitation Centers"] OR [mh "Substance Abuse Treatment

Centers"] OR ("rehabilitation" NEXT facilit*) OR ("rehabilitation" NEXT cent*) OR ("treatment" NEXT facilit*)

OR ("treatment" NEXT cent*) OR "allied health" OR [mh "health facilities, proprietary"] OR [mh "Health Facility Environment"] OR [mh "Medical Office Buildings"] OR ("health" NEXT facilit*) OR ("healthcare" NEXT facilit*) OR ("health care" NEXT facilit*)) AND (((transmissability OR transmissable OR transmissibilities OR transmissibility OR transmissible OR transmissibles OR [mh /transmission] OR transmission OR transmissions OR (contact OR contactable OR contacted OR contacting OR contacts) OR (droplet OR droplets) OR (airborn OR airborne) OR (respiratory) OR (aerosolic OR aerosolization OR

aerosolizations OR aerosolize OR aerosolized OR aerosolizer OR aerosolizes OR aerosolizing OR aerosols:kw OR aerosols OR aerosol OR [mh aerosols])) AND (precaution OR precautions OR (precaution OR precautions))) OR "Respiratory bundle" OR [mh "infectious disease transmission, patient to professional"] OR "personal protective equipment" OR PPE OR ((gloves OR apron) AND gowns) OR ("surgical" NEXT mask*) OR ("particulate filter" NEXT respirator*) OR N95 OR P2 OR "protective eyewear" OR "face shield" OR "safety glasses" OR goggles OR "patient placement" OR "patient room placement" OR "room placement" OR "single room" OR "patient cohorting" OR "negative pressure" OR [mh Masks] OR [mh "gloves, protective"] OR [mh "Patient Isolation"] OR [mh "Respiratory Protective Devices"] OR [mh "personal protective equipment"]) AND ([mh "drug resistance, bacterial"] OR [mh "drug resistance, viral"] OR [mh "drug resistance, multiple, bacterial"] OR [mh "drug resistance, multiple, viral"] OR [mh "Gram-Negative Bacteria"] OR [mh "Gram-

Positive Bacteria"] OR ("multidrug resistant" NEXT organism*) OR ("multi drug resistant" NEXT organism*)

OR mdro* OR MRO OR gram-negative OR GNB OR gram-positive OR Enterobacterales OR

"Carbapenemase-producing Enterobacterales" OR "CPE" OR "carbapenem resistant enterobacteriaceae"

OR [mh "carbapenem resistant enterobacteriaceae"] OR CRE OR "Extended-spectrum beta-lactamase" OR

ESBL OR "Acinetobacter baumannii" OR "Pseudomonas aeruginosa" OR "Klebsiella pneumoniae" OR

"Methicillin-resistant Staphylococcus aureus" OR MRSA OR "vancomycin-resistant Enterococcus" OR VRE

OR colonization OR colonisation OR ([mh "Respiratory Tract Infections"] OR [mh "Coronavirus infections"] OR [mh COVID-19] OR [mh "Middle East Respiratory Syndrome Coronavirus"] OR [mh "Severe acute respiratory syndrome-related coronavirus"] OR [mh "Cross infection"] OR [mh "influenza, human"] OR [mh Rhinovirus] OR [mh "Pneumovirus Infections"] OR [mh "Respiratory Syncytial Virus Infections"] OR [mh

"respiratory syncytial virus, human"] OR [mh Metapneumovirus] OR "Severe Acute Respiratory Syndrome" OR SARS OR SARS-CoV-1 OR SARS-CoV-2 OR COVID-19 OR ([mh coronavirus] OR coronavirus OR coronaviruses) OR ([mh "Middle East Respiratory Syndrome Coronavirus"] OR (middle AND east AND respiratory AND syndrome AND coronavirus) OR "Middle East Respiratory Syndrome Coronavirus" OR

(mers AND cov) OR "mers cov") OR "Middle East Respiratory Syndrome" OR "Infectious particles" OR

"infectious respiratory particles" OR (influenzas" OR [mh "influenza, human"] OR (influenza AND human) OR

"human influenza" OR influenza OR influenzas OR influenzae) OR "influenza-like illness" OR flu OR ILI OR H1N1 OR H5N1 OR parainfluenza OR HPIV OR bronchiolitis OR "Human Rhinovirus" OR HRV OR

"Rhinovirus respiratory infection" OR RSV OR "Human Respiratory Syncytial Virus" OR "RSV infection" OR ("human" NEXT metapneumovirus*) OR HMPV OR "HMPV infection")))

Appendix 3: Search methodology used for grey literature and other sources

A search of grey literature and other sources searches identified at total of 1,074 records:

- Australian Government domains: *n* = 286
- Australasian College for Infection Prevention and Control: *n* = 19
- Commonwealth Scientific and Industrial Research Organisation: *n* = 2
- Infection Prevention Society: *n* = 0
- European Centre for Disease Prevention and Control: *n* = 18
- United Kingdom National Health Service: *n* = 272
- World Health Organization: n = 179
- European Society of Clinical Microbiology and Infectious Diseases: *n* = 0
- United States Centres for Disease Control and Prevention: *n* = 298
- ClinicalTrials.gov*: n* = 0
- Other sources: *n* = *19* (snowballing and reference lists: *n* = *16*, records provided by the ACSQHC: *n* = *3*).

Appendix 4: Study characteristics

Table 5 Summary of included records on the effectiveness of contact precautions.

For eligible reviews, the number of eligible studies based on the search strategy timeframe (1 January 2015 to 31 August 2025) is listed in brackets under 'Healthcare setting'.

Author (Year); Country if applicable	Title	Study design	Healthcare setting (Total sites)	Infection(s) evaluated
Almyroudis (2016); US	Discontinuation of Systematic Surveillance and Contact Precautions for Vancomycin-Resistant *Enterococcus* (VRE) and Its Impact on the Incidence of VRE faecium Bacteremia in Patients with Hematologic Malignancies	Observational	Hospital (1)	VRE
An (2017); Republic of Korea	Active surveillance for carbapenem-resistant *Acinetobacter baumannii* in a medical intensive care unit: Can it predict and reduce subsequent infections and the use of colistin?	Observational	ICU (1)	Carbapenem-resistant *Acinetobacter baumannii* (CRAB)
Bardossy (2017); USA	Evaluation of contact precautions for methicillin-resistant *Staphylococcus aureus* and vancomycin-resistant *Enterococcus*	Observational	Hospital (1)	MRSA, VRE
Bearman (2018); USA	Impact of Discontinuing Contact Precautions for Methicillin-Resistant *Staphylococcus aureus* and Vancomycin-Resistant *Enterococcus*: An Interrupted Time Series Analysis	Observational	Hospital (1)	Device-related MRSA, VRE, HAI
Biehl (2019); Germany	Impact of single-room contact precautions on hospital-acquisition and transmission of multidrug-resistant *Escherichia coli*: a prospective multicentre cohort study in haematological and oncological wards	Observational	Hospital (4)	BSI with third-generation cephalosporin-resistant *Escherichia coli* (3GCR-EC) that are non-susceptible to fluoroquinolones

Biehl (2022); Germany	Impact of single-room contact precautions on acquisition and transmission of vancomycin-resistant *enterococci* on haematological and oncological wards, multicentre cohort-study, Germany, January-December 2016	Observational	Hospital (4)	VRE
Carey (2020); USA	The impact of discontinuing contact precautions for multidrug-resistant organisms at a less than 400-bed level II teaching hospital and a community hospital: A 3-month pilot study	Observational	Hospital (2)	MRSA, VRE
Cheon (2016); Republic of Korea	Controlling endemic multidrug-resistant *Acinetobacter baumannii* in intensive care units using antimicrobial stewardship and infection control	Observational	ICU (1)	Multidrug-resistant *Acinetobacter baumannii*
Edmond (2015); USA	The Impact of Discontinuing Contact Precautions for VRE and MRSA on Device-Associated Infections	Observational	Hospital (1)	Device-related MRSA, VRE
Eichel (2021); Germany	Impact of discontinuing contact precautions and enforcement of basic hygiene measures on nosocomial vancomycin-resistant *Enterococcus* faecium transmission	Observational	ICU (8); 1 hospital	VRE
Godbout (2019); USA	Impact of discontinuation of contact precautions on central-line associated bloodstream infections in an academic children's hospital	Observational	Hospital (1)	CLABSI
Haessler (2020); USA	Stopping the routine use of contact precautions for management of MRSA and VRE at three academic medical centers: An interrupted time series analysis	Observational	Hospital (1)	MRSA, VRE
Hayden (2015); USA	Prevention of Colonization and Infection by *Klebsiella pneumoniae* Carbapenemase-Producing Enterobacteriaceae in Long-term Acute-Care Hospitals	Randomised trial	Long-term care hospital (4)	Carbapenemase-producing Enterobacteriaceae (CPE)

Karunakaran (2024); USA	Impact of discontinuation of contact precautions on surveillance- and whole genome sequencing-defined methicillin-resistant *Staphylococcus aureus* healthcare-associated infections	Observational	Hospital (1)	MRSA
Kawamura (2016); Japan	A bundle that includes active surveillance, contact precaution for carriers, and cefazolin-based antimicrobial prophylaxis prevents methicillin-resistant *Staphylococcus aureus* infections in clean orthopedic surgery	Observational	Hospital (1)	MRSA
Kelly (2024); USA	Discontinuation of contact precautions in patients with hospital-acquired MRSA and VRE infections during the COVID-19 pandemic: A multi-center experience	Observational	Hospital (1)	MRSA, VRE
Khader (2021); USA	Effectiveness of Contact Precautions to Prevent Transmission of Methicillin-Resistant *Staphylococcus aureus* and Vancomycin-Resistant *Enterococci* in Intensive Care Units	Randomised trial (secondary analysis)	ICU (18)	MRSA, VRE
Khader (2021); USA	Association Between Contact Precautions and Transmission of Methicillin-Resistant *Staphylococcus aureus* in Veterans Affairs Hospitals	Observational	Hospital (108)	MRSA
Kleyman (2021)	Does the removal of contact precautions for MRSA and VRE infected patients change health care-associated infection rate? A systematic review and meta-analysis	Review	Hospital (10 studies)	MRSA, VRE
Lemieux (2017); Canada	Longitudinal Multicenter Analysis of Outcomes After Cessation of Control Measures for Vancomycin-Resistant *Enterococci*	Observational	Hospital (4)	VRE
MacDougall (2020)	Economic evaluation of vancomycin-resistant *enterococci* (VRE) control practices: a systematic review	Review	Hospital (1 study)	VRE

Maechler (2020); Germany, the Netherlands, Spain, Switzerland	Contact isolation versus standard precautions to decrease acquisition of extended-spectrum beta-lactamase-producing Enterobacterales in non-critical care wards: a cluster-randomised crossover trial	Randomised trial	Hospital (4)	ESBL
Marra (2018)	Discontinuing contact precautions for multidrug-resistant organisms: A systematic literature review and meta-analysis	Review	Hospital (8 studies)	MRSA, VRE
Martin (2016); USA	Elimination of Routine Contact Precautions for Endemic Methicillin-Resistant *Staphylococcus aureus* and Vancomycin-Resistant *Enterococcus*: A Retrospective Quasi-Experimental Study	Observational	Hospital (2)	MRSA, VRE
Martin (2022); USA	Discontinuing MRSA and VRE contact precautions: Defining hospital characteristics and infection prevention practices predicting safe de-escalation	Observational	Hospital (15)	MRSA, VRE
McCarthy (2024)	Prevention in adults of transmission of infection with multidrug-resistant organisms: An updated systematic review from Making Healthcare Safer IV	Review	Hospital (4 studies)	MDRO
Metan (2017); Türkiye	Cessation of Contact Precautions for Extended-Spectrum Beta-Lactamase (ESBL)-Producing *Escherichia coli* Seems to be Safe in a Non-epidemic Setting	Observational	Hospital (1)	ESBL
Morgan (2020); US	The Effectiveness of Contact Precautions on Methicillin-Resistant *Staphylococcus aureus* in Long-term Care Across the United States	Observational	Long-term care (74)	MRSA
Most (2024); US	Discontinuation of Contact Precautions for Methicillin-resistant *Staphylococcus aureus* in a Paediatric Healthcare System	Observational	Hospital (3)	MRSA

Renaudin (2017); France	Impact of Discontinuing Contact Precautions for MRSA and ESBLE in an Intensive Care Unit: A Prospective Noninferiority Before and After Study	Observational	ICU (1)	MRSA, ESBL
Rupp (2017); US	Effect of Cessation of Contact Isolation for Endemic Methicillin-Resistant *Staphylococcus aureus* and Vancomycin-Resistant *Enterococci*	Observational	Hospital (1)	MRSA, VRE
Savage (2021)	*Clostridioides difficile* Infection in Children: The Role of Infection Prevention and Antimicrobial Stewardship	Review	Hospital (0 studies)	CDI
Schrank (2020); US	The discontinuation of contact precautions for methicillin-resistant *Staphylococcus aureus* and vancomycin-resistant *Enterococcus*: Impact upon patient adverse events and hospital operations	Observational	Hospital (1)	MRSA, VRE
Slekovec (2021); France	Do Contact Precautions Reduce the Incidence of Intensive Care Unit-Acquired *Pseudomonas aeruginosa* Infections? The DPCPYO (Detection and Contact Precautions for Patients with *P. aeruginosa*) Cluster-Randomised Crossover Trial	Randomised trial	ICU (10)	*Pseudomonas aeruginosa*
Tawney (2015); USA	Impact of contact isolation precautions on multidrug-resistant *Acinetobacter baumannii* in the paediatric intensive care unit	Observational	ICU (1)	Multidrug-resistant *Acinetobacter baumannii*
Thompson (2020); USA	Incidence of healthcare-associated extended-spectrum beta-lactamase-positive patients before and after discontinuation of contact precautions	Observational	Hospital (1)	ESBL
Toth (2019); USA	Model-based Assessment of the Effect of Contact Precautions Applied to Surveillance-detected Carriers of Carbapenemase-producing Enterobacteriaceae in Long-term Acute Care Hospitals	Randomised trial (secondary analysis)	Hospital (4)	*Klebsiella pneumoniae* CPE

Xiao (2024)	Effect of contact precautions on preventing methicillin-resistant *Staphylococcus aureus* transmission in intensive care units: a review and modelling study of field trials	Review	ICU (3 studies)	MRSA
Zahar (2015); France	About the usefulness of contact precautions for carriers of extended-spectrum beta-lactamase-producing *Escherichia coli*	Observational	Hospital (2)	ESBL

Table 6 Summary of included records on the effectiveness of droplet and respiratory precautions

Author (Year); Country if applicable	Title	Study design	Healthcare setting (Total sites)	Infection(s) evaluated
Birrer (2024); Switzerland	Hospital-acquired respiratory viral infections while applying droplet precautions on-site (DropPS) - prospective observation during the 2019/20 influenza season, Bern, Switzerland	Observational	Hospital (1)	Respiratory viral infections
Lawton (2022); UK	Airborne protection for staff is associated with reduced hospital-acquired COVID-19 in English NHS trusts	Observational	Hospital (16)	Healthcare associated COVID-19
McMichael (2023); USA	Use of standard, contact, and droplet precautions with eye protection for the prevention of severe acute respiratory coronavirus virus 2 (SARS-CoV-2) transmission among home healthcare personnel in hospice and home healthcare settings-King and Snohomish counties, Washington, February-October 2020	Observational	Home-based healthcare	SARS-CoV-2
Rubin (2018); USA	Reduction in Rate of Nosocomial Respiratory Virus Infections in a Children's Hospital Associated with Enhanced Isolation Precautions	Observational	Hospital (1)	Respiratory viral infections
Wee (2021); Singapore	Unintended consequences of infection prevention and control measures during COVID-19 pandemic	Observational	Hospital (1)	MDRO, Respiratory viral infections

Table 7 Studies that evaluated components of transmission-based precautions.

Author (Year); Country if applicable	Title	Study design	Healthcare setting (Total sites)	Component(s) evaluated	Infection(s) evaluated
Arruda (2019); Brazil	Cohorting to prevent acquisition of multidrug-resistant bacteria: An interrupted time series study	Observational	Hospital (1)	Patient placement	MDRO
Chang (2023); Republic of Korea	Impact of discontinuing isolation in a private room for patients infected or colonized with vancomycin resistant enterococci (VRE) on the incidence of healthcare-associated VRE bacteraemia in a hospital with a predominantly shared-room setting	Observational	Hospital (1)	Patient placement	VRE
Kluytmans-van den Bergh (2019); The Netherlands	Contact precautions in single-bed or multiple-bed rooms for patients with extended-spectrum β-lactamase-producing Enterobacteriaceae in Dutch hospitals: a cluster-randomised, crossover, noninferiority study	Randomised trial	Hospital (16)	Patient placement	ESBL-E
Kim (2025); Korea	Effects of Cessation of Single-Room Isolation on Transmission of Vancomycin-Resistant Enterococcus in a Hospital	Observational	Hospital (1)	Patient placement	VRE
Lydecker (2021); USA	Targeted gown and glove use to prevent *Staphylococcus aureus* acquisition in community-based nursing homes: A pilot study	Observational	Residential aged care (2)	Gloves and gowns	MRSA

Margalit (2025); Israel	Impact of cohorting carbapenem-resistant Acinetobacter baumannii (CRAB) patients combined with enhanced environmental cleaning on CRAB bloodstream infections: a prospective surveillance-based study	Observational	Hospital (1)	Patient placement	CRAB
Pan (2024)	Does the removal of isolation for VRE-infected patients change the incidence of health care-associated VRE? A systematic review and meta-analysis	Review	Hospital (5 studies)	Patient placement	VRE
Park (2024); Republic of Korea	The impact of discontinuing single-room isolation of patients with vancomycin-resistant enterococci: a quasi-experimental single-centre study in South Korea	Observational	Hospital (1)	Patient placement	VRE
Radonovich (2019); USA	N95 Respirators vs Medical Masks for Preventing Influenza Among Health Care Personnel: A Randomized Clinical Trial	Randomised trial	Outpatient units (137)	Masks, respirators	Laboratory-confirmed influenza
World Health Organisation (2017)	Guidelines for the prevention and control of carbapenem-resistant Enterobacteriaceae, Acinetobacter baumannii and Pseudomonas aeruginosa in health care facilities	Review	--	Patient placement	CRE

Youngs (2019); UK	Implementation of influenza point-of-care testing and patient cohorting during a high-incidence season: a retrospective analysis of impact on infection prevention and control and clinical outcomes	Observational	Emergency department	Patient placement	Healthcare-associated influenza

Table 8 Summary of included records for narrative review question 6

Author (Year); Country if applicable	Title	Study design
Arena (2018); Italy	Diversity of the epidemiology of carbapenemase-producing *Enterobacteriaceae* in long-term acute care rehabilitation settings from an area of hyperendemicity, and evaluation of an intervention bundle.	Prospective cohort study evaluating admission screening for CPE colonisation to guide contact precautions and ward-based cohorting.
Australasian College for Infection Prevention and Control (2025)	Terminology for pathogens that transmit through the air	Position statement on updated terminology for pathogen transmission, in response to the World Health Organization global technical consultation report.
Australian Commission for Safety and Quality in Health Care (2025)	Aged Care IPC Guide	Current guidance on the use of transmission-based precautions in aged care settings, which includes consideration of patient perspective.
Chittick (2016); USA	Assessing patient and caregiver understanding of and satisfaction with the use of contact isolation	Survey of patients who were subject to contact isolation at a single facility over 12 months on their experiences in contact isolation.
Chughtai (2020); Australia	Selection and Use of Respiratory Protection by Healthcare Workers to Protect from Infectious Diseases in Hospital Settings	Qualitative interviews with HCWs from a single hospital.
Cohen (2015); USA	Infection prevention and control in nursing homes: A qualitative study of decision-making regarding isolation-based practices	Qualitative study of HCW in aged care on factors influencing their decisions to isolate residents to reduce and prevent MDRO transmission.

de Jesus (2019); Brazil	Specific precautions: experiences of hospitalized patients	Qualitative study on patient-reported experiences following contact isolation.
Djibré (2017); France	Universal versus targeted additional contact precautions for multidrug-resistant organism carriage for patients admitted to an intensive care unit	Prospective cohort study comparing MDRO screening for all patients at ICU admission versus risk-based screening to determine the need for additional contact precautions.
Flores (2020); UK	Use of non-sterile gloves in the ward environment: an evaluation of healthcare workers' perception of risk and decision making	Qualitative study of HCW attitudes on non-sterile glove use.
Gammon (2019)	The stigmatisation of source isolation: a literature review	Narrative review on evidence on the stigma associated with MDRO isolation precautions.
Gould (2018); UK	Isolating infectious patients: organisational, clinical, and ethical issues	Online survey of HCW on factors associated with decision-making for isolation-based precautions, including the use of risk assessment.
Harrod (2020); USA	A qualitative study of factors affecting personal protective equipment use among health care personnel	Qualitative study of HCW on personal, organisational and environmental factors associated with decision-making on PPE use.
Hendersen (2018)	Control of healthcare- and community-associated MRSA: Recent progress and persisting challenges	Narrative review including evidence on adverse effects of isolation as part of contact precautions.
Hor (2022); Australia	'Like building a plane and flying it all in one go': an interview study of infection prevention and control in Australian general practice during the first 2 years of the SARS-CoV-2 pandemic	Qualitative interview with General Practitioners on their implementation of COVID-19 risk mitigation policies, including PPE.
Isenman (2016)	Advances in prevention and treatment of vancomycin-resistant Enterococcus infection	Review of current evidence on the effective of infection control strategies for VRE, including contact precautions.
Khunti (2020); UK	The efficacy of PPE for COVID-19-type respiratory illnesses in primary and community care staff	Review of randomised trials and/or systematic reviews evaluating the efficacy of face masks, gowns/aprons, eye protection and/or shoe covers for preventing COVID-19 in primary and community care staff.
Jain (2019); Australia	Modified glove use for contact precautions: Health care workers' perceptions and acceptance	Qualitative findings from a trial evaluating the removal of gloves/appropriate nonsterile glove use for dry patient contacts, as part of a hospital initiative to improve hand hygiene. Implementation included a modified contact precautions guideline for use in HCW risk assessment.

Jin (2025); China	A new classification of personal protective equipment in healthcare settings: Enhancing infection control and prevention	Letter to the Editor that proposes classifying PPE in terms of preventing infection and/or preventing contamination, motivated by the WHO's Global Technical Consultation Report on Proposed Terminology for Pathogens that Transmit Through the Air.
Jones (2015); USA	Collateral benefit of screening patients for methicillin-resistant *Staphylococcus aureus* at hospital admission: Isolation of patients with multidrug-resistant gram-negative bacteria	Retrospective audit of inpatients that screened positive for MRSA colonisation at hospital admission and subsequent MDRO acquisition during hospital admission.
Jones (2020); USA	A systematic risk-based strategy to select personal protective equipment for infectious diseases	Outlines a systematic four-step procedure for PPE selection, demonstrated by case studies for MRSA and SARS-CoV in healthcare settings.
Kang (2017); Republic of Korea	The Utility of Preliminary Patient Evaluation in a Febrile Respiratory Infectious Disease Unit outside the Emergency Department	Post-implementation evaluation of a negative pressure unit for screening patients presenting to the Emergency Department with signs of acute respiratory illness, to inform isolation orders for subsequent admissions.
Ledoux (2016); France	Impact of a targeted isolation strategy at intensive-care-unit-admission on intensive-care-unit-acquired infection related to multidrug-resistant bacteria: a prospective uncontrolled before and after study	Prospective before and after study comparing MDRO screening for all patients at ICU admission versus risk-based screening, to determine the need for single room isolation.
Liang (2019); China	Pre-emptive isolation and active surveillance in the prevention and control of nosocomial infection reduce the incidence of carbapenem-resistant *Enterobacteriaceae*	Pre-post evaluation following the introduction of pre-emptive isolation for high-risk patients based on their likelihood of CRE colonisation or infection.
Longtin (2016); Canada	Effect of Detecting and Isolating *Clostridium difficile* Carriers at Hospital Admission on the Incidence of *C difficile* Infections: A Quasi-Experimental Controlled Study	Before and after study evaluating *Clostridioides difficile* screening in the Emergency Department to determine contact isolation precautions for patients subsequently admitted to hospital.
Martin (2024); US	Contact precautions for MRSA and VRE: where are we now? A survey of the Society for Healthcare Epidemiology of America Research Network	Member survey on HCW perspectives of contact precautions for MRSA and VRE, including transmission risk and adverse events.
O'Hara (2024); US	Healthcare personnel opinions regarding the feasibility of a risk-tailored approach to contact precautions for methicillin-resistant *Staphylococcus aureus* in the acute care setting	Qualitative focus groups with HCWs from two hospitals.

O'Hara (2025); US	A discrete choice experiment to evaluate healthcare personnel preferences regarding risk-tailored policies for contact precautions for patients with methicillin-resistant *Staphylococcus aureus*	Findings from a discrete choice experiment on HCW preferences for when to use contact precautions for MRSA, based on risk setting and patient care activity.
Plachouras (2023)	Revisiting the personal protective equipment components of transmission-based precautions for the prevention of COVID-19 and other respiratory virus infections in healthcare	Evidence updates from the European Centre for Disease Prevention and Control.
Reddy (2019)	Improving the Use of Personal Protective Equipment: Applying Lessons Learned	Narrative review on the evidence for and against contact precautions in the context of the hierarchy of controls.
Romano-Bertrand (2021)	How to address SARS-CoV-2 airborne transmission to ensure effective protection of healthcare workers? A review of the literature	Review – no search strategy provided.
Rump (2017); The Netherlands	Signs of stigma and poor mental health among carriers of MRSA	Survey of MRSA carriers to measure self-reported stigma associated with colonisation and its association with mental health scores from the RAND Mental Health Inquiry instrument.
Russell (2015); UK	Healthcare workers' decision-making about transmission-based infection control precautions is improved by a guidance summary card	Prospective clinical audit before and after the introduction of a guidance summary card for HCW to inform choice of transmission-based precautions.
Scantling-Birch (2021)	Healthcare worker protection against epidemic viral respiratory disease	Summary article including professional society guidelines for HCW protection during the COVID-19 pandemic.
The Safer Air Project (2024)	Safer shared air: A critical accessibility and inclusion issue	Commissioned report on measures to provide safe healthcare environments for patients at high-risk of viral respiratory infections.
You (2018); Republic of Korea	Efficacy of infection control interventions, other than decolonization, in reducing the incidence of new MRSA acquisition in a neurosurgical intensive care unit	Letter to the Editor reporting on an observational before-and-after study on the introduction of active surveillance, weekly review meetings, and education to inform the use of contact precautions for MRSA.
Youngs (2019); UK	Implementation of influenza point-of-care testing and patient cohorting during a high-incidence season: a retrospective analysis of impact on infection prevention and control and clinical outcomes	Before and after study evaluating the introduction of point-of-care influenza in an Emergency Department to inform patient placement (cohorting).

World Health Organisation (2019)	Minimum requirements for infection prevention and control	Technical report – includes a summary of a systematic review on components of infection prevention and control programs.
World Health Organisation (2024)	Global technical consultation report on proposed terminology for pathogens that transmit through the air	Technical report – includes implications for the choice of transmission-based precautions based on COVID-19 experience.

Table 9 Summary of included records for narrative review question 7

Author (Year); Country if applicable	Title	Study design
Cusini (2015); Switzerland	Improved hand hygiene compliance after eliminating mandatory glove use from contact precautions – Is less more?	Observational study evaluating hand hygiene compliance before and after the discontinuation of mandatory glove use in the care of patients under contact precautions.
Jamal (2021)	Non-sterile examination gloves and sterile surgical gloves: which are more sustainable?	Life cycle assessment on the environmental impact of non-sterile versus sterile glove.
Mazahir (2022)	Personal protective equipment (PPE) and plastic pollution during COVID-19: strategies for a sustainable environment	Review – no search strategy defined.
Rizan (2021); UK	Environmental impact of personal protective equipment distributed for use by health and social care services in England in the first six months of the COVID-19 pandemic	Life cycle assessment of PPE use with scenario modelling.
Sutjipto (2025); Singapore	Plastic Waste and COVID-19 Incidence Among Hospital Staff After Deescalation in PPE Use	Quality improvement study that evaluated the impact of a national PPE de-escalation policy for COVID-19 patients in late 2022.
Wilkie-Miskin (2025); Australia	Gloves off!: Environmental and financial impacts of an educational intervention to improve hand hygiene. A quality improvement study	Observational study evaluating the discontinuation of non-sterile gloves as a component of contact precautions
Yen (2021)	Infection prevention measures in acute care settings based on severe acute respiratory syndrome coronavirus 2 transmission patterns and risk: a review	Narrative review.

Appendix 5: Guideline Development Group Membership

Table 10: AICGs Guideline Development Group (GDG) Members

	Member name	Basis of appointment
1	co-Chair – Professor Peter Collignon AM	Content expert: Infectious diseases
2	co-Chair – Adjunct Professor Allison McMillan PSM	Content expert: Nursing and health policy
3	Ms Shiraz Abdulla	Implementation end user: Nursing (acute sector)
4	Ms Emma Coombes	Implementation end user: Allied health (primary care)
5	Dr Kathy Dempsey AM	Content expert: Infection prevention and control, large jurisdiction
6	Ms Sara Drew	Implementation end user: Nursing (primary/community sector)
7	Professor Thomas Gottlieb AO	Content expert: Infectious diseases
8	Professor Lisa Hall	Methodological expert: evidence brokering and guideline development
9	Dr Tanvir Kapoor	Implementation end user: Medical
10	Ms Lucy Lehane	Implementation end user: Clinical governance
11	Ms Rebecca McCann	Content expert: Infection prevention and control, small jurisdiction
12	Mr Sean Mutchmor	Implementation end user: Patient safety and quality (regional and rural sector)
13	Ms Angela Myers	Consumer representative: Primary care
14	Ms Stephanie Newell	Consumer representative: Hospital sector
15	Ms Clee Tonkin	Implementation end user: Allied Health (Hospital sector)
16	Dr Yvonne Zurynski	Implementation expert: Implementation science

Appendix 6: Reflective questions - Transmission-based precautions

Meeting 2 - Guideline development Group

Instructions

These reflective questions are for you to decide if there is enough evidence from the systematic review on the effectiveness of transmission-based precautions to inform the revision of existing recommendations and the development of new good practice statements for transmission-based precautions.

Reflective questions 1 and 5 relate to glove use, reflective questions 2, 3 and 4 relate to mask use, reflective question 6 is asking you consider if a new good practice statement should be developed for respiratory precautions. You should use the information from the Summary of evidence on the systematic review on the effectiveness of transmission-based precaution to help you answer these reflective questions.
When answering each reflective question, consider if there is sufficient evidence in the systematic review to support the proposed changes to the recommendation or development of a good practice statement

Answer options:
Yes: you agree
No: you don't agree
Unsure: Currently, you need more information before you make a decision, or this is outside your scope of expertise, or you don't now.

For question 1; please declare any potential or real conflicts of interest before completing this survey and continue to answer all the questions for each topic.
Definitions - Australian Guidelines for the Prevention and Control of Infection in Healthcare, 2019
Standard precautions (Section 3.1): Work practices that constitute the first-line approach to infection prevention and control in the healthcare environment. These are recommended for the treatment and care of all patients. Standard precautions include:

- hand hygiene
- appropriate personal protective equipment (PPE) use (i.e.: PPE may include aprons, gowns, gloves, surgical masks, protective eyewear and face shields or a combination of several of these items used to protect the wearer from exposure (handling, spray) to blood (including dried blood); all other body fluids (excluding sweat), regardless of whether they contain visible blood; non-intact skin; and mucous membranes)
- the safe use and disposal of sharps
- routine environmental cleaning
- reprocessing of reusable medical equipment and instrument
- respiratory hygiene and cough etiquette
- aseptic technique
- appropriate waste management
- appropriate linen handling.

Definitions - Australian Guidelines for the Prevention and Control of Infection in Healthcare, 2019

Transmission-based precautions: Extra work practices in situations where standard precautions alone may be insufficient to prevent infection (e.g. for patients known or suspected to be infected or colonised with infectious agents that may not be contained with standard precautions alone).

Contact precautions (Section 3.2.2): A set of practices used to prevent transmission of infectious agents that are spread by direct or indirect contact with the patient or the patient's environment. Contact precautions include appropriate PPE use (aprons/gowns, gloves), patient placement (e.g., single room, cohorting), and minimising patient movement, in conjunction with standard precautions.

Droplet precautions (Section 3.2.3): A set of practices used for patients known or suspected to be infected with agents transmitted by respiratory droplets. Droplet precautions include appropriate PPE use (surgical mask, protective eyewear/face shield), patient placement (single room, cohorting), and minimising transfer or transport, in conjunction with standard precautions.

Airborne precautions (Section 3.2.4): A set of practices used for patients known or suspected to be infected with agents transmitted person-to-person by the airborne route. Airborne precautions include appropriate PPE use (correctly fitted particulate filter respirator e.g., P2, N95, protective eyewear) and patient placement (negative pressure room), in conjunction with standard precautions.

Respiratory precautions: There is currently no consistent definition for respiratory precautions, based on published literature. The working definition for respiratory precautions used in this review was the use of a particulate filter respirator (P2, N95), apron/gown, protective eyewear and patient placement (negative pressure room), as per the Aged Care Infection Prevention and Control Guide (ACSQHC, 2025), in conjunction with standard precautions.

Reflective question 1: Effectiveness of personal protective equipment (PPE) (gloves) against transmission of multidrug-resistant organisms (MDROs).

Does the evidence from the systematic review support updating Conditional recommendation 21- Contact precautions regarding advice on glove use? Change wording from “putting on gloves” to “use gloves as part standard precautions”?

Conditional recommendation 21: It is suggested that appropriate hand hygiene be undertaken and personal protective equipment worn to prevent contact transmission.

It is suggested that when working with patients who require contact precautions, healthcare workers should:

- perform hand hygiene
- put on gloves and gown upon entry to the patient-care area
- if performing multiple tasks whilst in the patient-care area, apply the principles of standard precautions and remove gloves, perform hand hygiene and apply clean gloves between tasks when required to minimise risk of infection transmission
- ensure that clothing and skin do not contact potentially contaminated environmental surfaces
- remove gown and gloves and perform hand hygiene before leaving the patient-care area.

Survey

Criteria	**Reflective questions**	**Answer options**
1. Conflict of interest	Do you have a conflict of interest related to this topic? *For example: Have you or anyone directly related to you received financial payment (e.g.: research grants, consultancy honoraria) from organisations/companies related to glove use or manufacturing.*	☐ Yes ☐ No ☐ Unsure - please add details here:
2. Balance of effects - benefit versus harm	Do the benefits of NOT wearing gloves routinely for contact precautions (the intervention) compared to wearing gloves, when needed as part of standard precautions (the comparator) outweigh any potential or real harm to patients and or healthcare workers from this change? *Consider possible desirable outcomes (reduction in the environmental colonisation, patient infection or colonisation) compared to undesirable outcomes (increase in environmental colonisation, patient infection or colonisation, negative patient perceptions about infection risks/hygiene)*	☐ Yes ☐ No ☐ Unsure
3. Certainty of evidence	How strong do you think the evidence is to support not wearing gloves routinely for contact precautions?	☐ Very low ☐ Low ☐ Moderate ☐ strong/Large ☐ Unsure
4. Generalisability	Does the intervention (not wearing gloves routinely for contact precautions) apply to all clinical settings or specific settings only? *Consider if the intervention was only tested in hospitals or community settings, only for specific clinical procedures or under outbreak or non-outbreak conditions.*	☐ Yes, applies to all settings ☐ No, applies to specific settings only ☐ Unsure

5. Acceptability	Would the intervention (not wearing gloves routinely for contact precautions) be generally acceptable to patients, healthcare workers, and healthcare consumers? *Consider if the intervention could impact a person's values and preferences or access to receiving or providing healthcare.*	☐ Yes ☐ No ☐ Unsure
6. Resources (and other considerations)	How much resourcing/support would be required to implement the recommendation? *Consider what resources/support could be required:* - *human resources (staffing levels and skills, additional staff education/training, updating supporting resources)* - *financial costs (products, purchasing, access to single rooms)* - *governance and system wide support for practice change* - *other infrastructure such as building modifications*	☐ Large ☐ Moderate ☐ Small ☐ Varies ☐ Unsure
7. Sustainability	Is the intervention (not wearing gloves for contact precautions) economically sustainable? *Consider:* - *costs and resources associated with glove use.* - *other factors associated with the intervention from the systematic review (risk for patient infections/colonisations, other infection prevention and control implications)* - *if there is any potential impact on service delivery*.	☐ Yes ☐ No ☐ Unsure
,	Is the intervention (not wearing gloves routinely for contact precautions) environmentally sustainable? *Consider:* - *savings (cost/resources) and waste generation (gloves)* - *other factors associated with the intervention from the systematic review.*	☐ Yes ☐ No ☐ Unsure

Reflective question 2: Effectiveness of PPE (masks) against transmission of respiratory viruses

Does the evidence from the systematic review support updating the terminology used in Conditional recommendation 24 - Droplet precautions, regarding advise on mask use? Change from “surgical mask” to “a mask (surgical or particulate filter respirator [PFR]), based on a risk assessment approach to support HCWs to choose a suitable mask (surgical or PFR) based on a local risk.

Conditional Recommendation 24: It is suggested that a surgical mask should be worn when entering a patient-care environment to prevent droplet transmission.

Survey

Criteria	**Reflective questions**	**Answer options**
1. Conflict of interest	Do you have a conflict of interest related to this topic? *For example: Have you or anyone directly related to you received financial payment (e.g.: research grants, consultancy honoraria) from organisations/companies related to mask use/manufacturing.*	☐ Yes ☐ No ☐ Unsure - please add details here:
2. Balance of effects - benefit versus harm	Does the benefits of mask use (any type – choice based on risk assessment) for droplet precautions (the intervention) compared to no mask use (the comparator) outweigh any potential or real harm to patients and/or healthcare workers? *Consider possible desirable outcomes (reduction in patient and/or healthcare worker infection) compared to undesirable outcomes (increase in patient and/or healthcare worker infection)*	☐ Yes ☐ No ☐ Unsure
3. Certainty of evidence	How strong do you think the is evidence to support the use of masks (any type – choice based on risk assessment) to prevent the transmission of respiratory infections?	☐ Very low ☐ Low ☐ Moderate ☐ Strong/Large ☐ Unsure
4. Generalisability	Does the intervention (any type – choice based on risk assessment) for droplet precautions apply to all clinical settings or specific settings only? *Consider if the intervention was only tested in hospitals or community settings, only for specific clinical procedures or under outbreak or non-outbreak conditions.*	☐ Yes, applies to all settings ☐ No, applies to specific settings only ☐ Unsure
5. Acceptability	Would the intervention (mask use, based on a risk assessment to prevent the transmission of respiratory infections for droplet precautions) be generally acceptable to patients, healthcare workers, and healthcare consumers? *Consider if the intervention could impact a person's values and preferences or access to receiving or providing healthcare.*	☐ Yes ☐ No ☐ Unsure

6. Resources (and other considerations)	How much resourcing/support would be required to implement the recommendation? *Consider what resources/support could be required* - *human resources (staffing levels and skills, additional staff education/training, updating supporting resources)* - *financial costs (products, purchasing, access to single rooms)* - *governance and system wide support for practice change* - *other infrastructure such as building modifications*	☐ Large ☐ Moderate ☐ Small ☐ Varies ☐ Unsure
7. Sustainability	Is the intervention (mask use based on a risk assessment to prevent the transmission of respiratory infections) economically sustainable? *Consider:* - *costs and resources associated with mask use.* - *other factors associated with the intervention from the systematic review (risk for patient and/or healthcare worker infections, requirements for fit testing PFRs, other infection prevention and control implications)* - *if there is any potential impact on service delivery.*	☐ Yes ☐ No ☐ Unsure
	Is the intervention (mask use based on a risk assessment to prevent the transmission of respiratory infections) environmentally sustainable? *Consider:* - *savings (cost/resources) and waste generation (masks)* - *other factors associated with the intervention from the systematic review*	☐ Yes ☐ No ☐ Unsure

Reflective question 3: Effectiveness of transmission-based precautions (including mask use) against respiratory virus transmission

Does the evidence from the systematic review support updating Conditional recommendation 26 – Airborne precautions to include using airborne precautions for novel respiratory infections where the route of transmission is unknown?

Conditional Recommendation 26: It is recommended that airborne precautions, in addition to standard precautions, are implemented in the presence of known or suspected infectious agents that are transmitted person-to-person by the airborne route.

Survey		
1. Conflict of interest	Do you have a conflict of interest related to this topic? *For example: Have you or anyone directly related to you received financial payment (e.g.: research grants, consultancy honoraria) from organisations/companies related to mask use/manufacturing/ventilation.*	☐ Yes ☐ No ☐ Unsure - please add details here:
2. Balance of effects - benefit versus harm	Does the benefits of airborne precautions, in addition to standard precautions to reduce the risk of novel respiratory infection transmission (the intervention) compared to standard precautions only or other transmission-based precautions (the comparator) outweigh the any potential or real harm to patients and/or healthcare workers? *Consider possible desirable outcomes (reduction in patient and/or healthcare worker infection) compared to undesirable outcomes (increase in patient and/or healthcare worker infection)*	☐ Yes ☐ No ☐ Unsure
3. Certainty of evidence	How strong is the evidence to support the use of airborne precautions, in addition to standard precautions for novel respiratory infection where the route of transmission is unknown?	☐ Very low ☐ Low ☐ Moderate ☐ Strong/Large ☐ Unsure
4. Generalisability	Does the intervention (airborne precautions, in addition to standard precautions for novel respiratory infection where the route of transmission is unknown) apply to all clinical settings or specific settings only? *Consider if the intervention was only tested in hospitals or community settings, only for specific clinical procedures or under outbreak or non-outbreak conditions.*	☐ Yes, applies to all settings ☐ No, applies to specific settings only ☐ Unsure
5. Acceptability	Would the intervention (airborne precautions, in addition to standard precautions for novel respiratory infection where the route of transmission is unknown) be generally acceptable to patients, healthcare workers, and healthcare consumer? *Consider if the intervention could impact a person's values and preferences or access to receiving or providing healthcare.*	☐ Yes ☐ No ☐ Unsure
6. Resources (and other considerations)	How much resourcing/support would be required to implement the recommendation? *Consider what resources/support could be required* - *human resources (staffing levels and skills, additional staff education/training, updating supporting resources)* - *financial costs (products, purchasing, access to single rooms)* - *governance and system wide support for practice change* - *other infrastructure such as building modifications*	☐ Large ☐ Moderate ☐ Small ☐ Varies ☐ Unsure

7. Sustainability	Is the intervention (airborne precautions, in addition to standard precautions for novel respiratory infection where the route of transmission is unknown) economically sustainable? *Consider:* - *costs and resources associated with mask use, availability of single rooms for airborne precautions (negative pressure).* - *other factors associated with the intervention from the systematic review (risk for patient and/or healthcare worker infections, other infection prevention and control implications)* - *if there is any potential impact on service delivery.*	☐ Yes ☐ No ☐ Unsure
	Is the intervention (airborne precautions, in addition to standard precautions for novel respiratory infection where the route of transmission is unknown) environmentally sustainable? *Consider:* - *savings (cost/resources) and waste generation (masks)* - *other factors associated with the intervention from the systematic review*	☐ Yes ☐ No ☐ Unsure

Reflective question 4: Effectiveness of PPE (masks) against transmission of respiratory viruses

Does the evidence from the systematic review support updating the terminology used in Conditional recommendation 27 for mask use from “P2 respirator” to “particulate filter respiratory (PFR)”?

Conditional Recommendation 27: It is suggested that a correctly fitted P2 respirator is worn when entering the patient-care area when an airborne-transmissible infectious agent is known or suspected to be present.

Survey		
1. Conflict of interest	Do you have a conflict of interest related to this topic? *For example: Have you or anyone directly related to you received financial payment (e.g.: research grants, consultancy honoraria) from organisations/companies related to mask use/manufacturing.*	☐ Yes ☐ No ☐ Unsure - please add details here:
2. Balance of effects - benefit versus harm	Does the benefits of PFR use for airborne/respiratory precautions (the intervention) compared to no mask use/surgical mask or other transmission-based precautions (the comparator) outweigh the any potential or real harm to patients and or healthcare workers? *Consider possible desirable outcomes (reduction in patient and/or healthcare worker infection) compared to undesirable outcomes (increase in patient and/or healthcare worker infection)*	☐ Yes ☐ No ☐ Unsure
3. Certainty of evidence	How strong do you think the evidence is to support the use of a PFR for airborne precautions to reduce the risk of respiratory infection transmission?	☐ Very low ☐ Low ☐ Moderate ☐ strong/Large ☐ Unsure
4. Generalisability	Does the intervention (PFR use for airborne precautions to reduce the risk of transmission of respiratory infection transmission) apply to all clinical settings or specific settings only? *Consider if the intervention was only tested in hospitals or community settings, only for specific clinical procedures or under outbreak or non-outbreak conditions.*	☐ Yes, applies to all settings ☐ No, applies to specific settings only ☐ Unsure
5. Acceptability	Would the intervention (PRF use for airborne precautions to reduce the risk of transmission of respiratory infection transmission) be generally acceptable to patients, healthcare workers, and healthcare consumers? *Consider if the intervention could impact a person's values and preferences or access to receiving or providing healthcare.*	☐ Yes ☐ No ☐ Unsure

6. Resources (and other considerations)	How much resourcing/support would be required to implement the recommendation? *Consider what resources/support could be required:* - *human resources (staffing levels and skills, additional staff education/training, updating supporting resources* - *financial costs (products, purchasing, access to single rooms)* - *governance and system wide support for practice change* - *other infrastructure such as building modifications*	☐ Large ☐ Moderate ☐ Small ☐ Varies ☐ Unsure
7. Sustainability	Is the intervention (PFR use for airborne precautions) economically sustainable? *Consider:* - *costs and resources associated with PRF use.* - *other factors associated with the intervention from the systematic review (risk for patient and/or healthcare worker infections, other infection prevention and control implications)* - *if there is any potential impact on service delivery.*	☐ Yes ☐ No ☐ Unsure
	Is the intervention (PFR use for airborne precautions) environmentally sustainable? *Consider:* - *savings (cost/resources) and waste generation (masks/PFRs)* - *other factors associated with the intervention from the systematic review*	☐ Yes ☐ No ☐ Unsure

Reflective question 5: Effectiveness of PPE (gloves) against transmission of multidrug-resistant

Does the evidence to support updating Conditional recommendation 32 - multi drug resistant organisms (MDRO) regarding advise on glove use? Change from “putting on gloves” to “use gloves as per standard precautions”?

Conditional recommendation 32: It is suggested that contact precautions be considered for all patients colonised or infected with a multi-resistant organism (MRO) where there is anticipated patient and/or environmental contact, including:

- performing hand hygiene and putting on gloves and gowns before entering the patient-care area
- using patient-dedicated or single-use non-critical patient-care equipment
- using a single-patient room or, if unavailable, cohorting patients with the same strain of MRO in designated patient-care areas (upon approval from the healthcare facility's Infection Control Team)
- ensuring consistent cleaning and disinfection of surfaces in close proximity to the patient and those likely to be touched by the patient and healthcare workers.

Survey

1. Conflict of interest	Do you have a conflict of interest related to this topic? *For example: Have you or anyone directly related to you received financial payment (e.g: research grants, consultancy honoraria) from organisations/companies related to glove use or manufacturing.*	☐ Yes ☐ No ☐ Unsure - please add details here:
2. Balance of effects - benefit versus harm	Does the benefits of NOT wearing gloves routinely for contact precautions (i.e. as per standard precautions) (the intervention) compared to always wearing glove (the comparator) outweigh the any potential or real harm to patients and/or healthcare workers? *Consider possible desirable outcomes (reduction in the environmental colonisation, patient infection or colonisation) compared to undesirable outcomes (increase in environmental colonisation, patient infection or colonisation, negative patient perceptions about infection risks/hygiene)*	☐ Yes ☐ No ☐ Unsure
3. Certainty of evidence	How strong do you think the evidence is to support not wearing gloves routinely for contact precautions?	☐ Very low ☐ Low ☐ Moderate ☐ Strong/Large ☐ Unsure
4. Generalisability	Does the intervention (not wearing gloves routinely for contact precautions) apply to all clinical settings or specific settings only?	☐ Yes, applies to all settings ☐ No, applies to specific settings only ☐ Unsure

5. Acceptability	Would the intervention (not wearing gloves routinely for contact precautions to reduce the risk of MDRO transmission) be generally acceptable to patients, healthcare workers, and healthcare consumers? *Consider if the intervention could impact a person's values and preferences or access to receiving or providing healthcare.*	☐ Yes ☐ No ☐ Unsure
6. Resources (and other considerations)	How much resourcing/support would be required to implement the recommendation? *Consider what resources/support could be required* - *human resources (staffing levels and skills, additional staff education/training, updating supporting resources* - *financial costs (products, purchasing, access to single rooms)* - *governance and system wide support for practice change* - *other infrastructure such as building modifications*	☐ Large ☐ Moderate ☐ Small ☐ Varies ☐ Unsure
7. Sustainability	Is the intervention (not wearing gloves for contact precautions) economically sustainable? *Consider:* - *costs and resources associated with glove use.* - *other factors associated with the intervention from the systematic review (risk for patient infections/colonisations, other infection prevention and control implications)* - *if there is any potential impact on service delivery.*	☐ Yes ☐ No ☐ Unsure
	Is the intervention (not wearing gloves routinely for contact precautions) environmentally sustainable? *Consider:* - *savings (cost/resources) and waste generation (gloves)* - *other factors associated with the intervention from the systematic review*	☐ Yes ☐ No ☐ Unsure

Reflective question 6: Effectiveness of respiratory precautions (development of new Good Practice Statement)

Does the evidence from the systematic review support developing a new good practice statement for the appropriate use of respiratory precautions in Australian healthcare settings?

Survey		
1. Conflict of interest	Do you have a conflict of interest related to this topic? *For example: Have you or anyone directly related to you received financial payment (e.g.: research grants, consultancy honoraria) from organisations/companies related to mask use or manufacturing or ventilation.*	☐ Yes ☐ No ☐ Unsure - please add details here:
2. Balance of effects - benefit versus harm	Do the benefits of respiratory precautions, in addition to standard precautions to reduce the risk of novel respiratory infection transmission (the intervention) compared to standard precautions only or other transmission-based precautions (the comparator) outweigh the any potential or real harm to patients and or healthcare workers? *Consider possible desirable outcomes (reduction in patient and/or healthcare worker infection) compared to undesirable outcomes (increase in patient and/or healthcare worker infection)*	☐ Yes ☐ No ☐ Unsure
3. Certainty of evidence	How strong do you think the evidence is to support the use of respiratory precautions?	☐ Very low ☐ Low ☐ Moderate ☐ Strong/Large ☐ Unsure
4. Generalisability	Does the intervention (respiratory precautions, in addition to standard precautions for respiratory infection) apply to all clinical settings or specific settings only? *Consider if the intervention was only tested in hospitals or community settings, only for specific clinical procedures or under outbreak or non-outbreak conditions.*	☐ Yes, applies to all settings ☐ No, applies to specific settings only ☐ Unsure
5. Acceptability	Would the intervention (respiratory precautions, in addition to standard precautions for respiratory infection) be generally acceptable to patients, healthcare workers, and healthcare consumers? *Consider if the intervention could impact a person's values and preferences or access to receiving or providing healthcare.*	☐ Yes ☐ No ☐ Unsure
6. Resources (and other considerations)	How much resourcing/support would be required to implement the recommendation? *Consider what resources/support could be required* - *human resources (staffing levels and skills, additional staff education/training, updating supporting resources* - *financial costs (products, purchasing, access to single rooms* - *governance and system wide support for practice change* - *other infrastructure such as building modifications*	☐ Large ☐ Moderate ☐ Small ☐ Varies ☐ Unsure

7. Sustainability	Is the intervention (respiratory precautions, in addition to standard precautions for respiratory infection) economically sustainable? *Consider:* - *costs and resources associated with mask use, availability of single rooms for patient placement.* - *other factors associated with the intervention from the systematic review (risk for patient and/or healthcare worker infections, other infection prevention and control implications)* - *if there is any potential impact on service delivery.*	☐ Yes ☐ No ☐ Unsure
	Is the intervention (respiratory precautions, in addition to standard precautions for respiratory infection) environmentally sustainable? *Consider:* - *savings (cost/resources) and waste generation (masks)* - *other factors associated with the intervention from the systematic review*	☐ Yes ☐ No ☐ Unsure

Appendix 7: Results of reflective questions for Transmission-based precautions

Reflective question 1: Effectiveness of personal protective equipment (PPE) (gloves) against transmission of multidrug-resistant organisms (MDROs).

Does the evidence from the systematic review support updating Conditional recommendation 21- Contact precautions regarding advice on glove use? Change wording from “putting on gloves” to “use gloves as part standard precautions”?

Figure 1 Do the benefits of NOT wearing gloves routinely for contact precautions (the intervention) compared to wearing gloves, when needed as part of standard precautions (the comparator) outweigh any potential or real harm to patients and/or healthcare workers from this change?

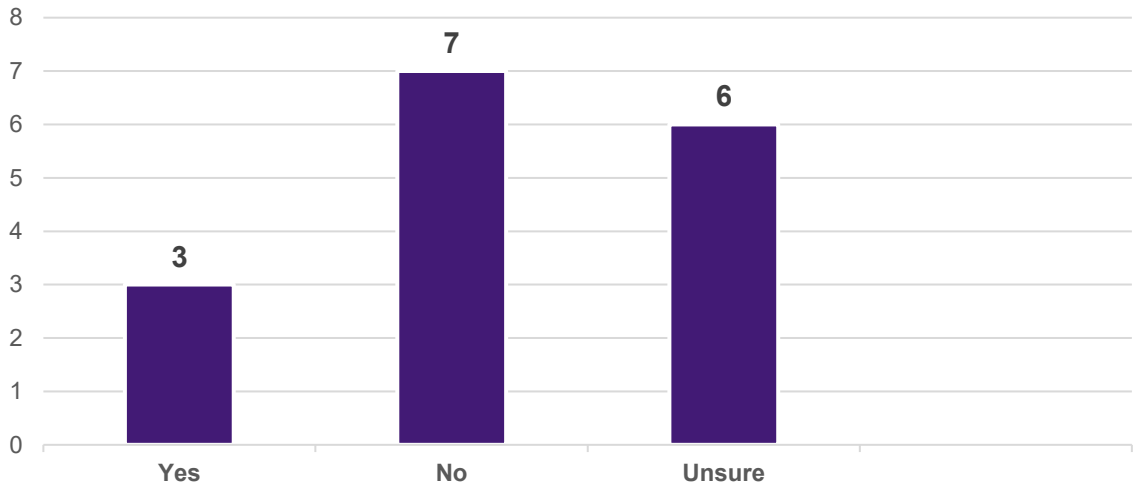


Figure 2 How strong do you think the evidence is to support not wearing gloves routinely for contact precautions?

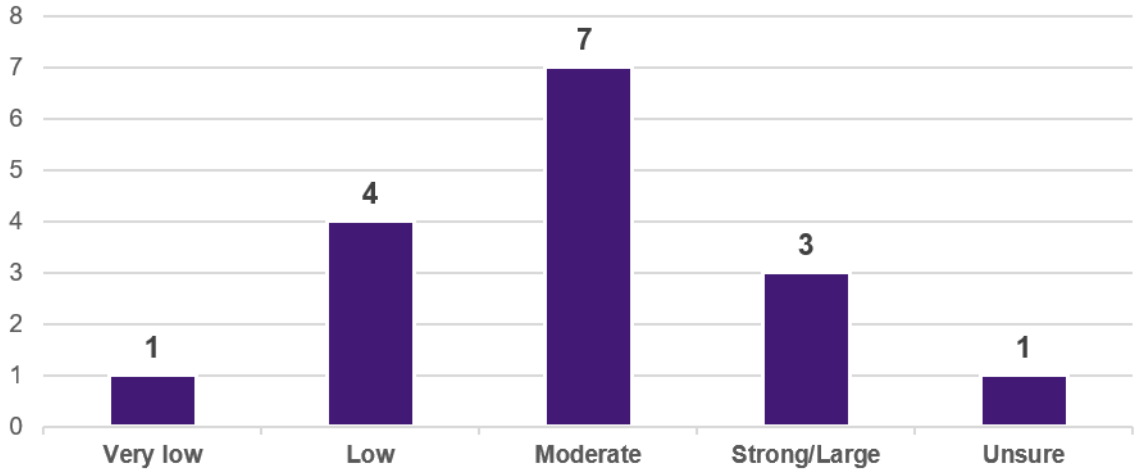


Figure 3 Does the intervention (not wearing gloves routinely for contact precautions) apply to all clinical settings or specific settings only?

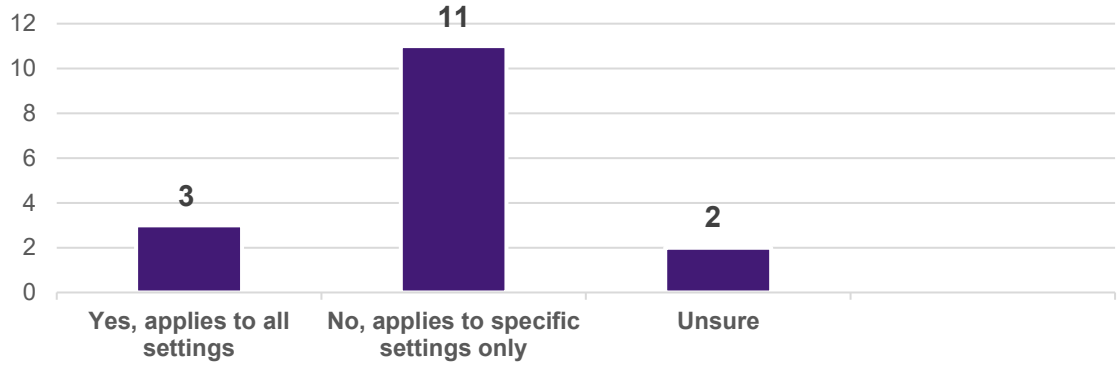


Figure 5 How much resourcing/support would be required to implement the recommendation?

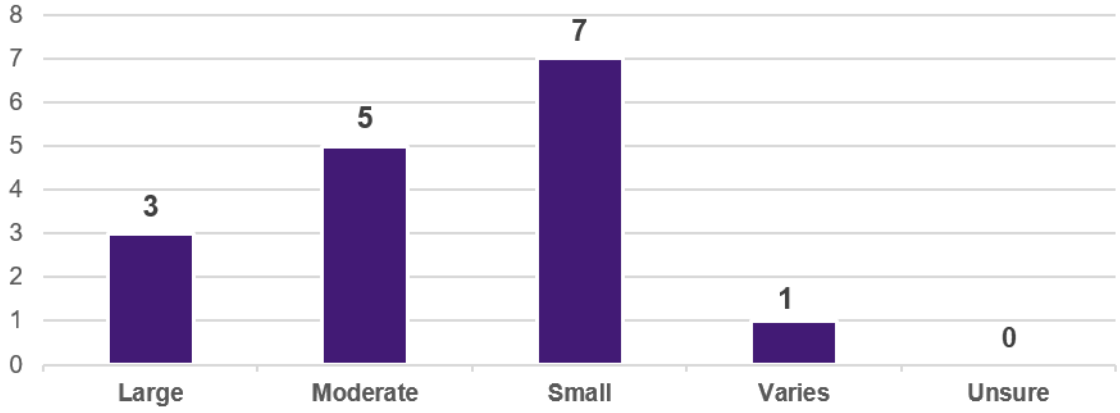


Figure 6 Is the intervention (not wearing gloves for contact precautions) economically sustainable?

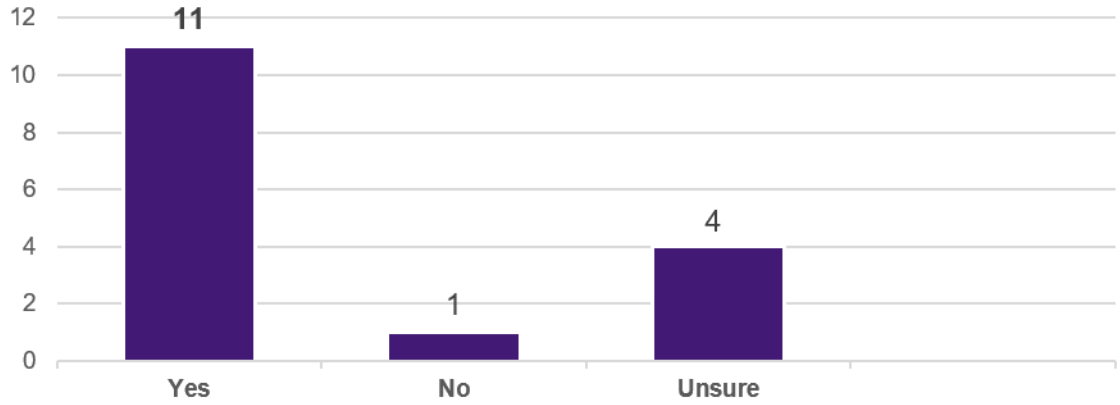
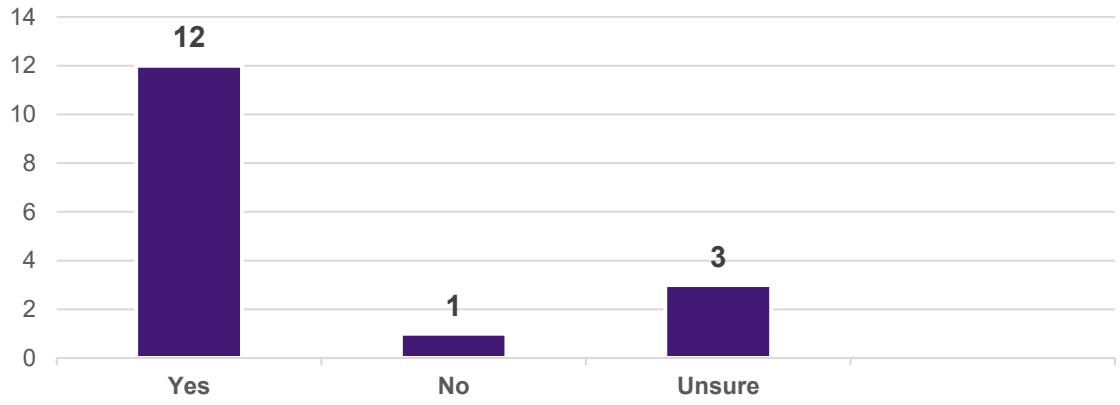


Figure 7 Is the intervention (not wearing gloves routinely for contact precautions) environmentally sustainable?



Summary of Member feedback on Reflective question 1

- Clarity and scope of intent

Members noted ambiguity in wording, particularly whether the proposal applies to gloves alone or to both gloves and gowns as part of contact precautions. Several Members suggested clearer phrasing, such as “use gloves when necessary,” to avoid misinterpretation. Members emphasised the need to clearly distinguish glove use from broader contact precautions bundles.

- Evidence base and interpretation

Members acknowledged that the evidence is largely derived from bundled contact precautions studies, which limits certainty and complicates assessment of evidence strength. Despite this, many Members considered the evidence convincing enough to support a change in practice, particularly where hand hygiene remains the primary control and glove use is guided by risk assessment.

- Scope of applicability

Members noted that the intervention has been studied mainly in specific clinical settings, particularly hospital environments, and has not been established as universally applicable. Most Members supported implementation in a majority of routine settings, including community, residential, and general hospital care, but not all settings. They identified possible exceptions, such as active outbreaks or highly resistant organisms (e.g. untreatable Acinetobacter in intensive care units).

- Practice implications and feasibility

Members highlighted the need for education and staff support to enable consistent risk assessment and appropriate glove use. They stressed that hand hygiene must remain central. Some Members raised uncertainty about economic sustainability, noting reduced disposable use may be offset by downstream infection related costs if implementation is poorly managed.

- Implementation support and future risks

Members emphasised the importance of simple, targeted guidance and messaging, including clear sequencing of hand hygiene and glove use. They also encouraged retaining flexibility for emerging pathogens or biocontainment scenarios, where a higher threshold for personal protective equipment use may be required.

Overall position

Members expressed conditional support for risk-assessed, non-routine glove use in most settings, provided guidance clearly defines scope, maintains hand hygiene as the primary control, and includes education and safeguards for high-risk scenarios.

Reflective question 2: Effectiveness of PPE (masks) against transmission of respiratory viruses

Does the evidence from the systematic review support updating the terminology used in Conditional recommendation 24 - Droplet precautions, regarding advise on mask use? Change from “surgical mask” to “a mask (surgical or particulate filter respirator [PFR]), based on a risk assessment approach to support HCWs to choose a suitable mask (surgical or PFR) based on a local risk.

Figure 8 Does the benefits of mask use (any type – choice based on risk assessment) for droplet precautions (the intervention) compared to no mask use (the comparator) outweigh any potential or real harm to patients and/or healthcare workers?

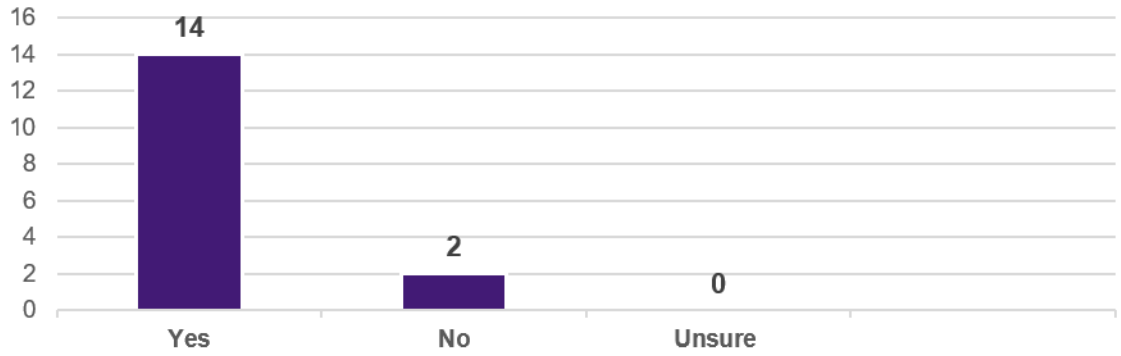


Figure 9 How strong do you think the evidence is to support the use of masks (any type – choice based on risk assessment) to prevent the transmission of respiratory infections?

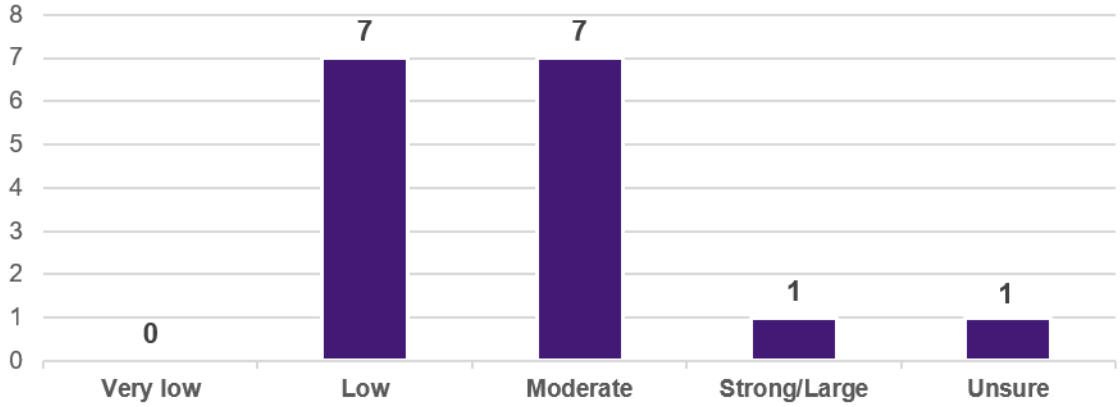


Figure 10 Does the intervention (any type – choice based on risk assessment) for droplet precautions apply to all clinical settings or specific settings only?

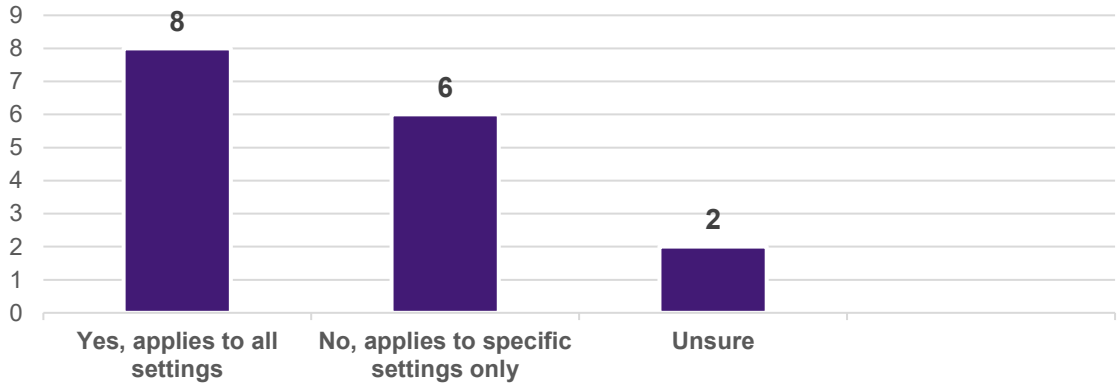


Figure 11 Would the intervention (mask use, based on a risk assessment to prevent the transmission of respiratory infections for droplet precautions) be generally acceptable to patients, healthcare workers, and healthcare consumers?

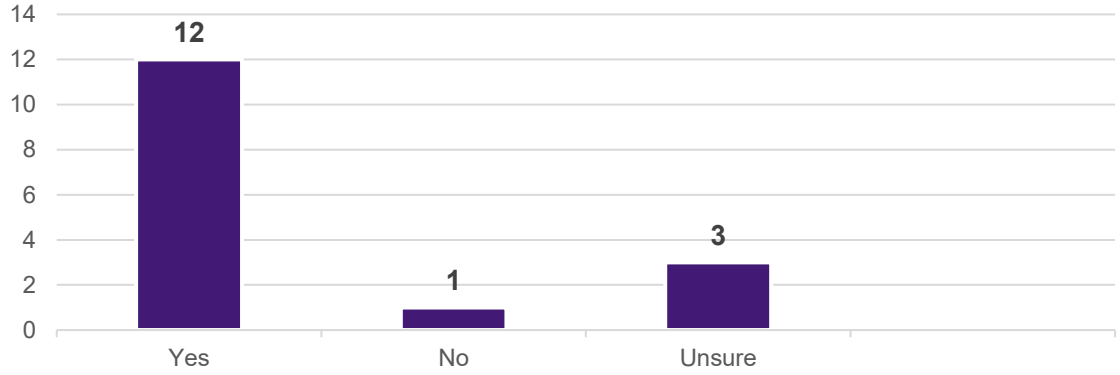


Figure 12 How much resourcing/support would be required to implement the recommendation?

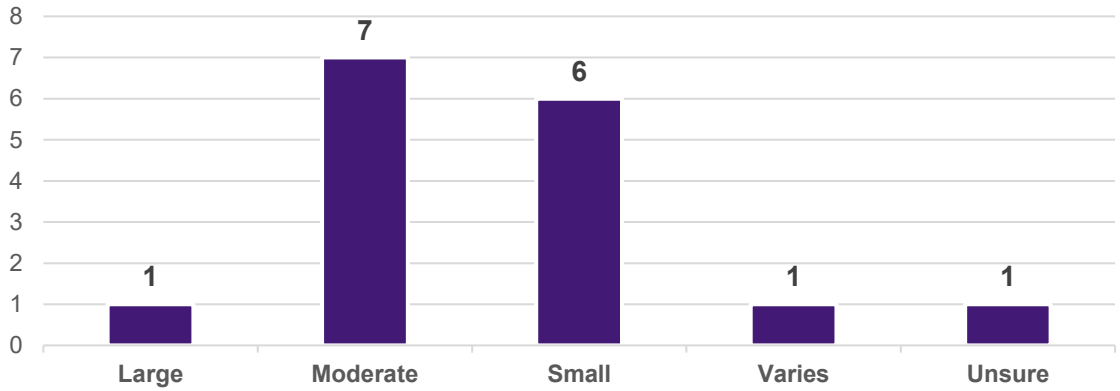


Figure 13 Is the intervention (mask use based on a risk assessment to prevent the transmission of respiratory infections) economically sustainable?

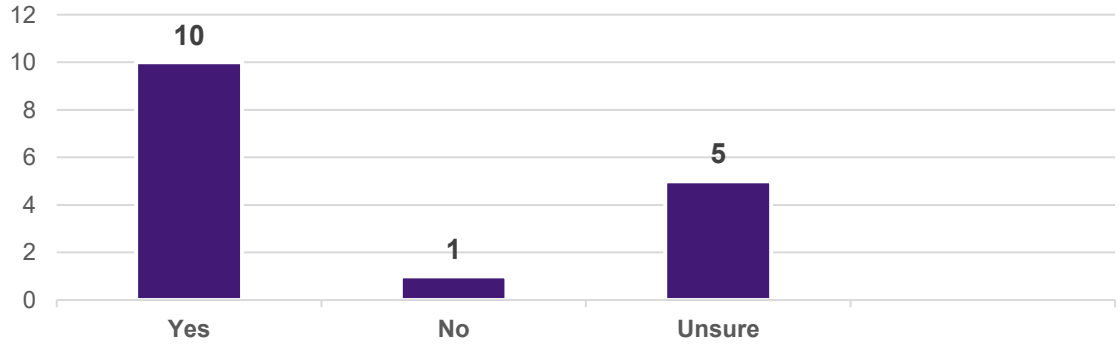
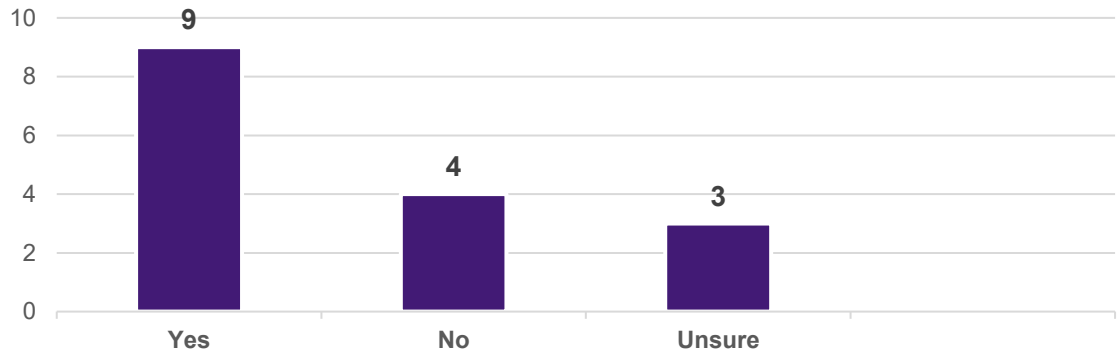


Figure 14 Is the intervention (mask use based on a risk assessment to prevent the transmission of respiratory infections) environmentally sustainable?



Summary of Member feedback on Reflective question 2

- **Clarity and scope of intent**

Members found some questions difficult to interpret, particularly where wording specified "surgical mask" rather than mask use more broadly. Several Members noted that appropriateness depends not only on setting, but also on type of interaction and respiratory risk, and cautioned against overly narrow or prescriptive statements.

- **Evidence base and interpretation**

Members generally considered the data strongly supportive of the intervention, noting consistent reductions in healthcare worker-to-patient transmission of acute respiratory infections when droplet precautions are applied. Members supported a unified approach to respiratory protection, incorporating droplet and airborne precautions under a risk-based framework.

- **Scope of applicability**

Members emphasised that implementation should remain risk-based, allowing services caring for immunocompromised or high-risk patients to apply more stringent mask or respirator requirements. Some Members observed that post-COVID practice may already exceed minimum recommendations in many settings.

- **Practice implications and feasibility**

Members viewed surgical mask use as requiring minimal additional resourcing, beyond procurement. In contrast, reliance on particulate filter respirators would require ongoing fit testing, education, and maintenance, raising feasibility concerns. Some Members recommended shifting emphasis from fit testing to fit checking, where appropriate.

- **Acceptability and patient impact**

Members noted that increased mask use may introduce communication challenges for patients and should be supported by broader infection prevention strategies to maintain acceptability and quality of care.

- **Environmental considerations**

Members acknowledged the environmental impact of single-use masks but generally viewed this as outweighed by transmission-prevention benefits. Several Members encouraged procurement of biodegradable or lower-waste mask options to mitigate sustainability impacts.

Overall position

Members expressed support for risk-assessed mask use as part of respiratory protection, with flexibility to escalate protection based on setting, interaction, and patient risk. Members

emphasised clear wording, proportional use of respirators, and consideration of workforce, patient, and environmental impacts.

Reflective question 3: Effectiveness of transmission-based precautions (including mask use) against respiratory virus transmission

Does the evidence from the systematic review support updating Conditional recommendation 26 – Airborne precautions to include using airborne precautions for novel respiratory infections where the route of transmission is unknown?

Figure 15 Does the benefits of airborne precautions, in addition to standard precautions to reduce the risk of novel respiratory infection transmission (the intervention) compared to standard precautions only or other transmission-based precautions (the comparator) outweigh the any potential or real harm to patients and/or healthcare workers?

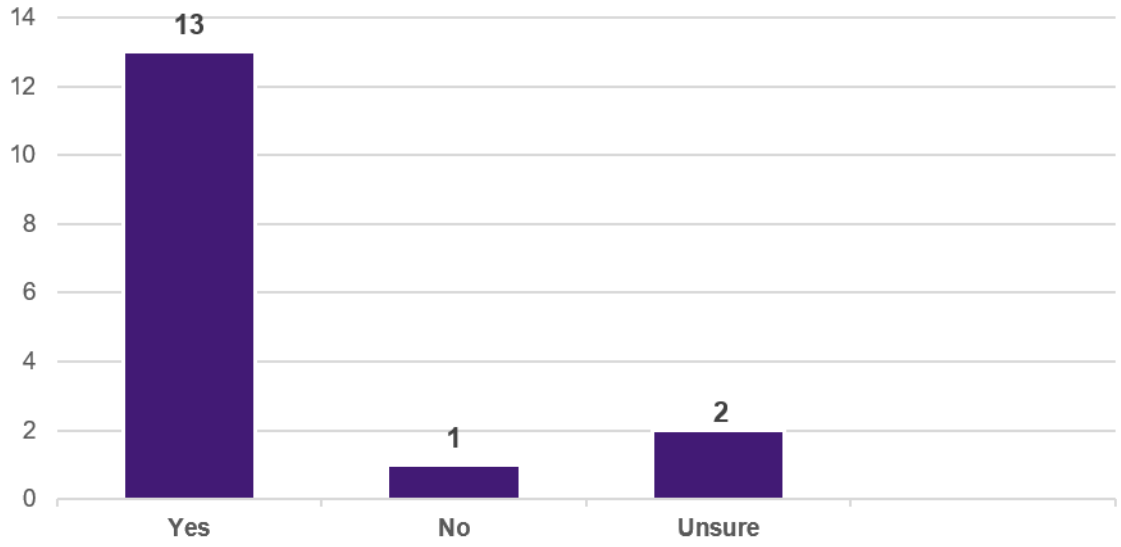


Figure 16 How strong is the evidence to support the use of airborne precautions, in addition to standard precautions for novel respiratory infection where the route of transmission is unknown?

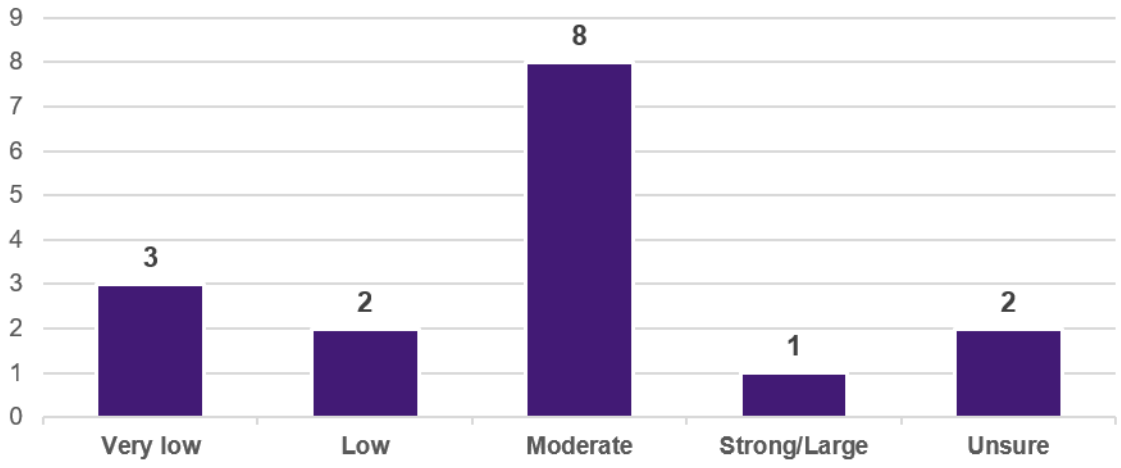


Figure 17 Does the intervention (airborne precautions, in addition to standard precautions for novel respiratory infection where the route of transmission is unknown) apply to all clinical settings or specific settings only?

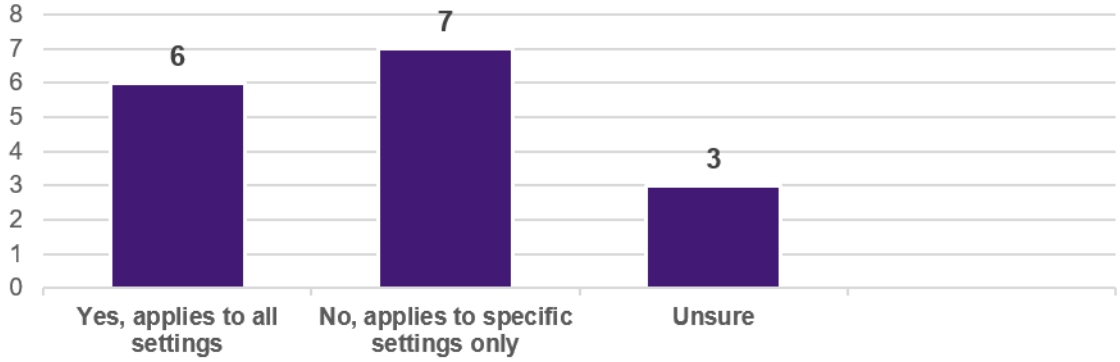


Figure 18 Would the intervention (airborne precautions, in addition to standard precautions for novel respiratory infection where the route of transmission is unknown) be generally acceptable to patients, healthcare workers, and healthcare consumer?

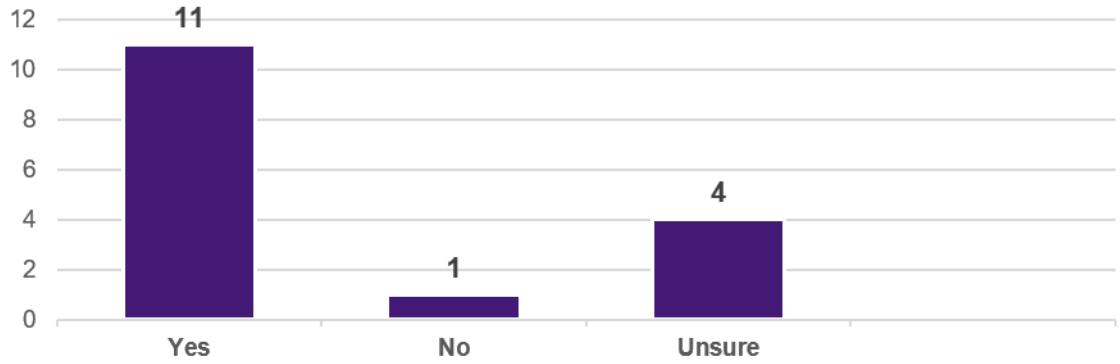


Figure 19 How much resourcing/support would be required to implement the recommendation?

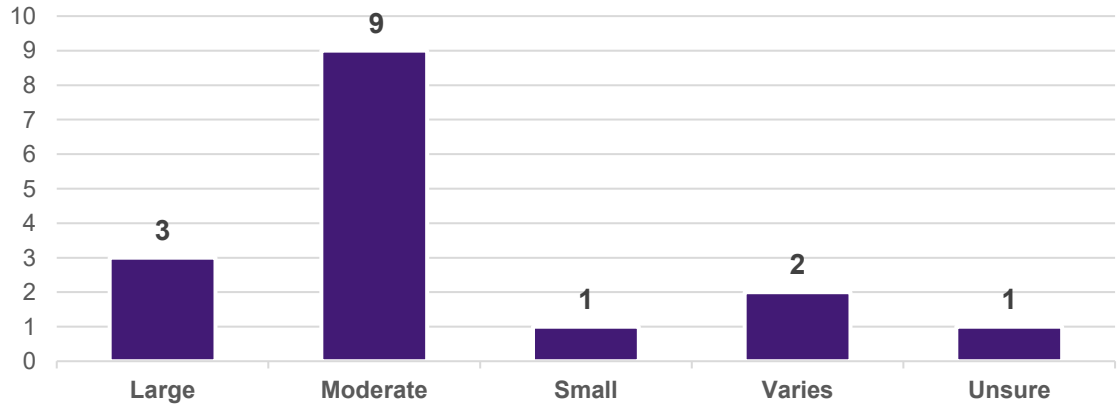


Figure 20 Is the intervention (airborne precautions, in addition to standard precautions for novel respiratory infection where the route of transmission is unknown) economically sustainable?

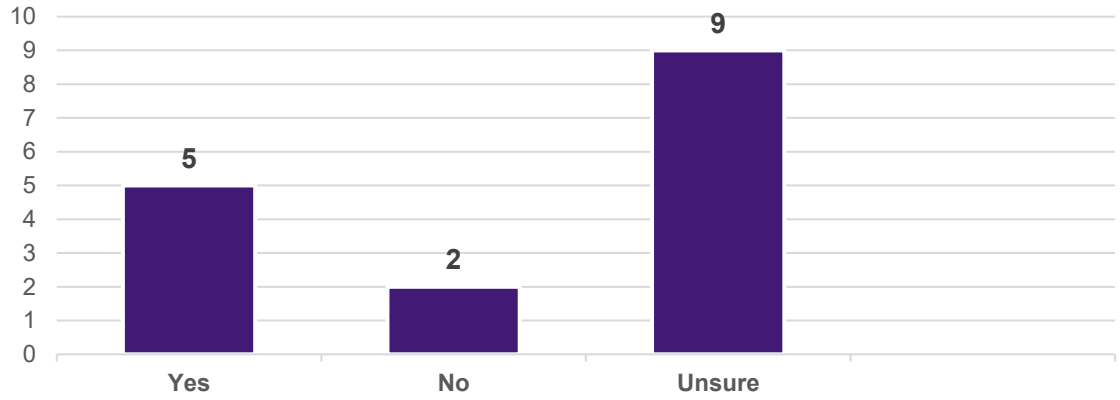
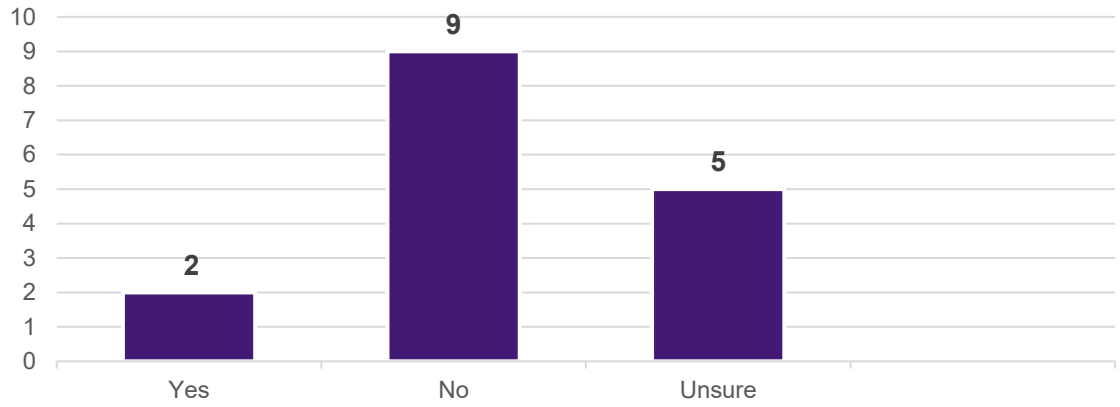


Figure 21 Is the intervention (airborne precautions, in addition to standard precautions for novel respiratory infection where the route of transmission is unknown) environmentally sustainable?



Summary of Member feedback on Reflective question 3

- **Clarity and scope of intent**

Members reported difficulty interpreting the intent of the question, noting that applicability depends on setting (community versus acute), outbreak status, pathogen characteristics, and level of transmission risk. Several Members questioned whether the recommendation targets unknown pathogens, pandemic conditions, or routine practice, and cautioned that this distinction is critical.

- **Evidence base and interpretation**

Members acknowledged limited trial-based evidence but broadly accepted the rationale for enhanced respiratory precautions during high-risk viral transmission scenarios. Several Members noted that, in principle, it would be difficult to justify not strengthening precautions, particularly given the likelihood of future respiratory pathogens with pandemic potential.

- **Practice implications and feasibility**

Members raised concerns about routine airborne-level precautions, noting that continuous respirator use is unlikely to be practical or sustainable for staff, and may not offer clear

benefit over surgical masks outside defined high-risk scenarios. Members also highlighted the need to consider additional components, such as eye protection, and the cumulative burden of extended personal protective equipment use.

- **Economic and environmental considerations**

Members expressed uncertainty about economic and environmental sustainability, particularly where precautions extend beyond masks to include particulate filter respirators and additional controls. They noted a tension between high implementation and infrastructure costs and the potential for cost savings through prevention of infection and service disruption during high-risk periods.

- **Acceptability and impact on care**

Members identified a balance between perceived safety and protection and the potential negative impacts on comfort, workload, and care experience. They emphasised that acceptability would vary by context and intensity of implementation.

Overall position

Members expressed conditional support for enhanced respiratory precautions in high-risk scenarios, but cautioned against routine, universal application. Members emphasised the need for clearer scope, proportionate risk-based escalation, and careful consideration of workforce, economic, and environmental impacts.

Reflective question 4: Effectiveness of PPE (masks) against transmission of respiratory viruses

Does the evidence from the systematic review support updating the terminology used in Conditional recommendation 27 for mask use from “P2 respirator” to “particulate filter respiratory (PFR)”?

Figure 22 Does the benefits of PFR use for airborne/respiratory precautions (the intervention) compared to no mask use/surgical mask or other transmission-based precautions (the comparator) outweigh the any potential or real harm to patients and/or healthcare workers?

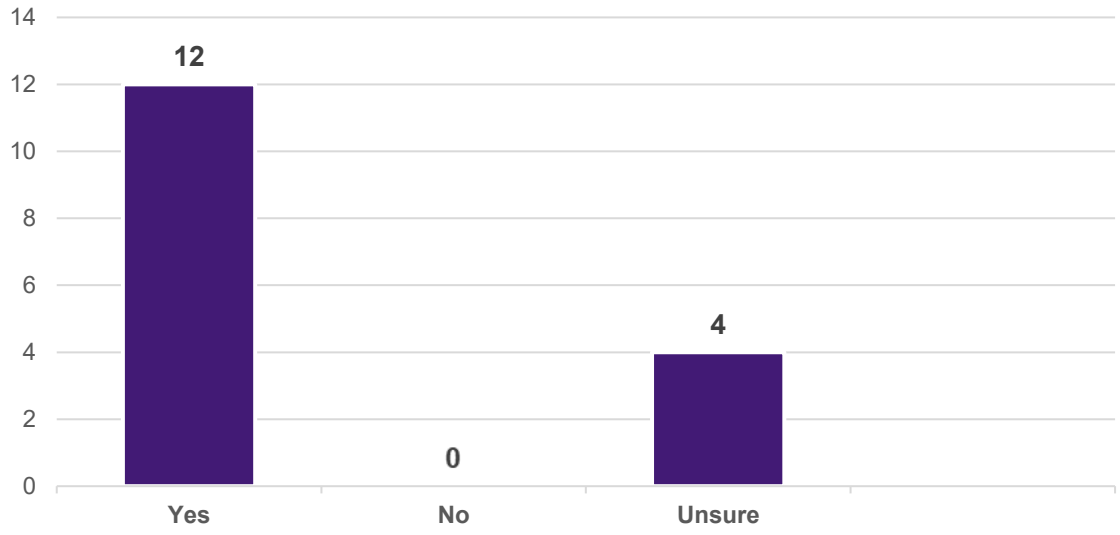


Figure 23 How strong do you think the evidence is to support the use of a PFR for airborne precautions to reduce the risk of respiratory infection transmission?

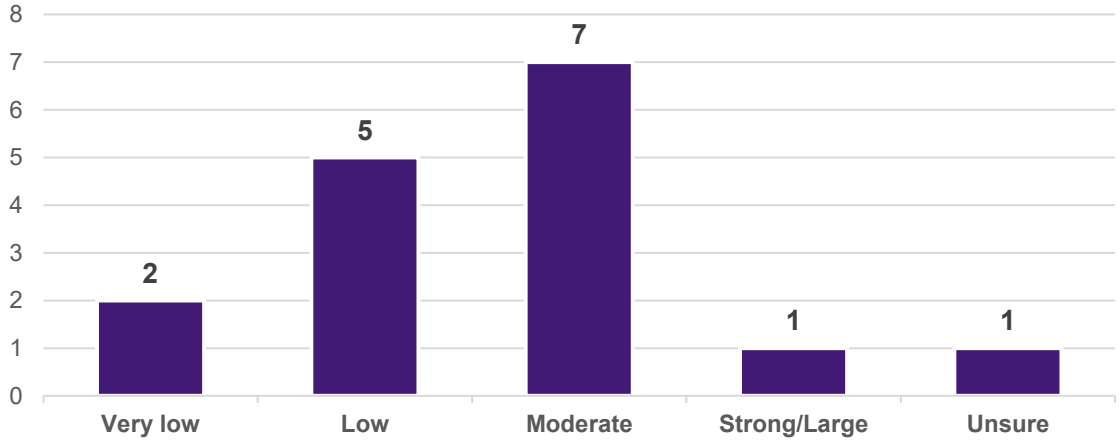


Figure 24 Does the intervention (PFR use for airborne precautions to reduce the risk of transmission of respiratory infection transmission) apply to all clinical settings or specific settings only?

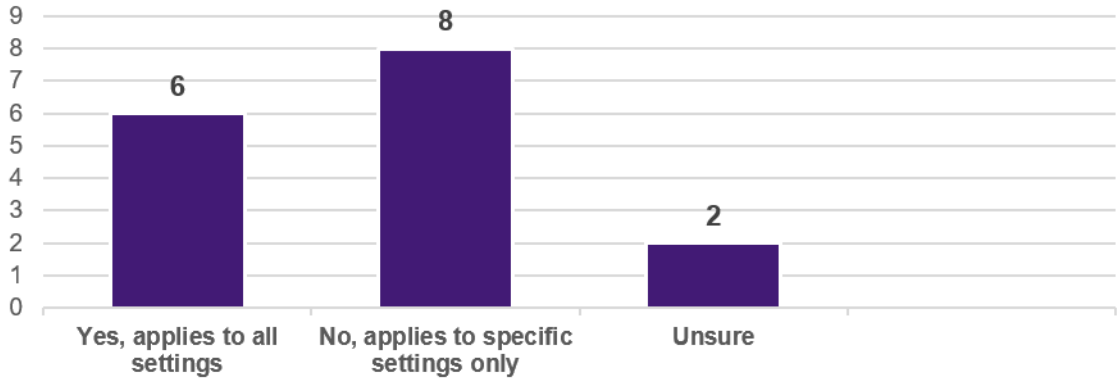


Figure 25 Would the intervention (PRF use for airborne precautions to reduce the risk of transmission of respiratory infection transmission) be generally acceptable to patients, healthcare workers, and healthcare consumers?

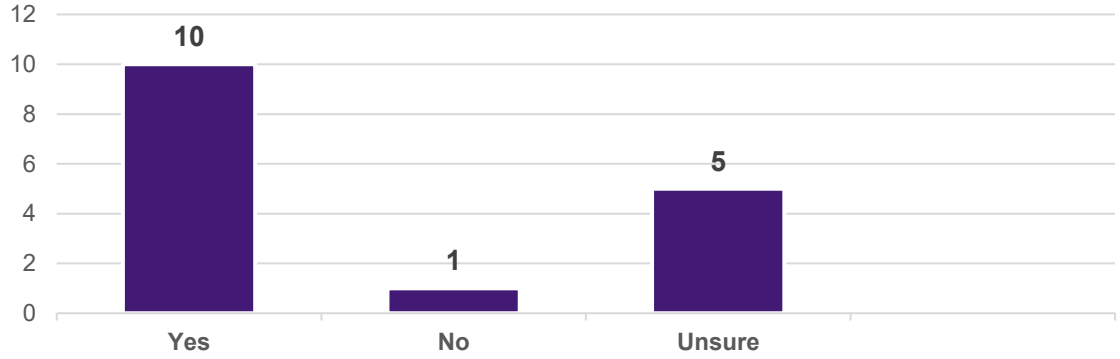


Figure 26 How much resourcing/support would be required to implement the recommendation?

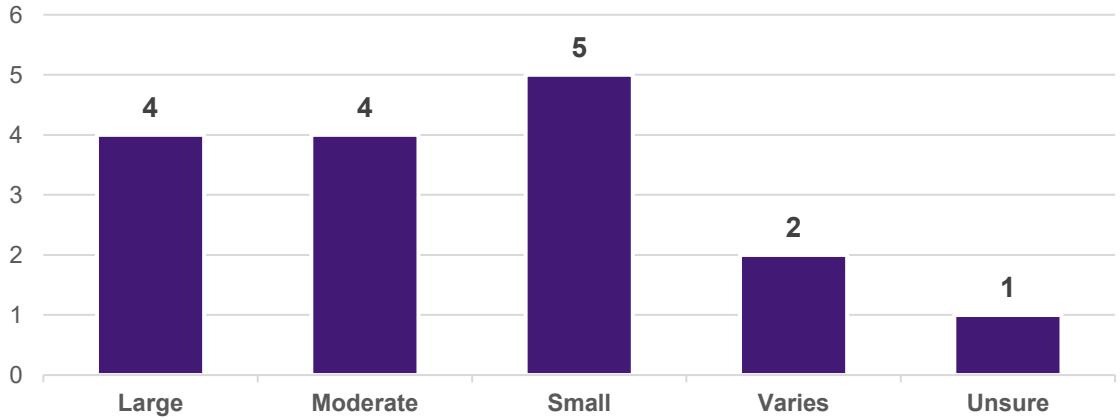


Figure 27 Is the intervention (PFR use for airborne precautions) economically sustainable?

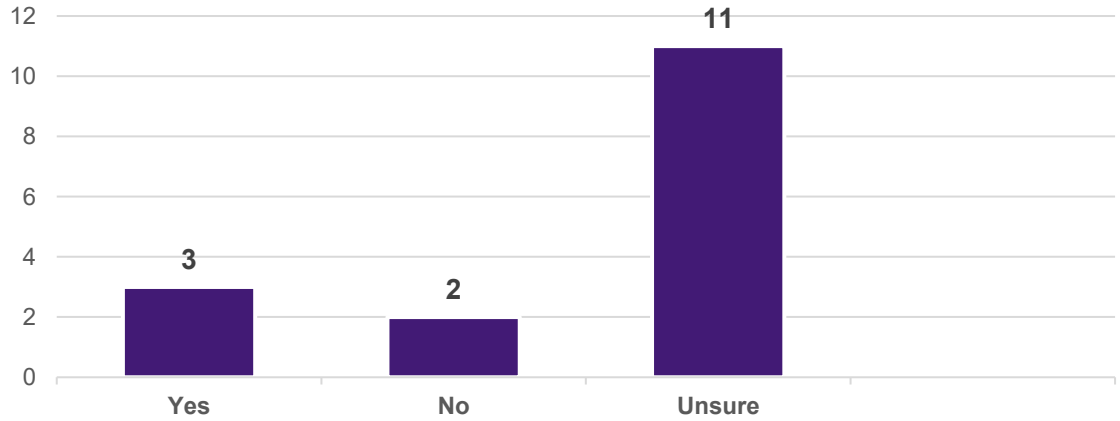
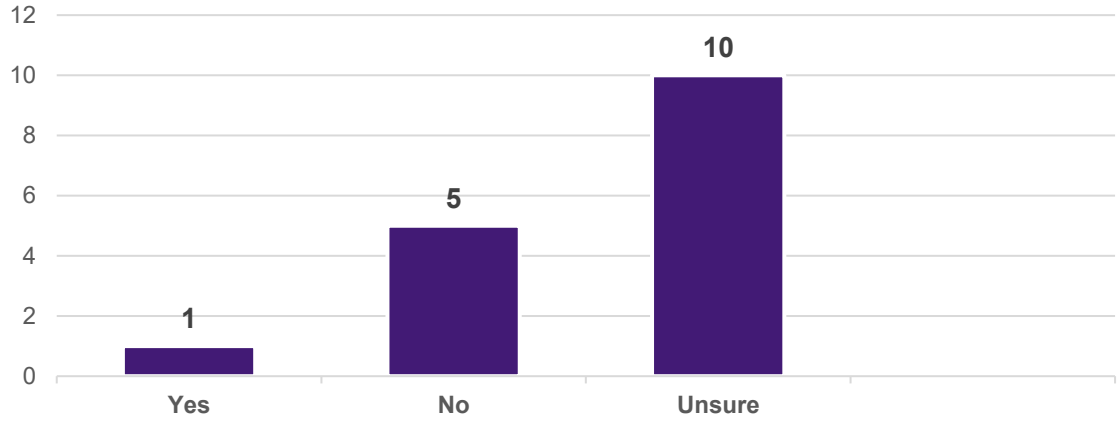


Figure 28 Is the intervention (PFR use for airborne precautions) environmentally sustainable?



Summary of Member feedback on Reflective question 4

- **Evidence base and interpretation**

Members acknowledged that PFRs provide higher-level protection but noted that studies do not consistently demonstrate superiority over surgical masks across all settings. Several Members emphasised that evidence supports mask use in general but remains inconclusive regarding respirator benefit outside clearly defined airborne transmission risks.

- **Clarity and scope of intent**

Members stressed the need for clear definitions, particularly for the term “airborne-transmissible infectious agent.” Without precise terminology and guidance, Members warned that PFRs may be overused where surgical masks are sufficient, leading to unnecessary cost and burden. Some Members also noted confusion created by grouping no mask and surgical mask together.

- **Scope of applicability**

Members highlighted that applicability varies by setting and patient population, with different considerations for community care, general hospital wards, intensive care units, and immunocompromised patients. Members cautioned against broad application without explicit risk stratification.

- **Practice implications and feasibility**

Members noted that routine PFR use introduces comfort, usability, and communication challenges for staff and patients. They raised concerns about sustained compliance and workforce burden, particularly if respirator use is applied beyond high-risk scenarios.

- **Economic and environmental considerations**

Members identified higher upfront and ongoing costs associated with PFRs, including procurement, education, and maintenance. While they acknowledged potential savings from infection prevention, Members questioned economic and environmental sustainability without clear evidence of added benefit. Some also raised concerns about respirator standards and quality consistency if terminology changes broaden acceptable products.

- **Acceptability and patient impact**

Members noted that patient acceptability may be negatively affected by communication barriers when healthcare workers wear respirators, further supporting a proportionate, risk-based approach.

Overall position

Members supported risk-based, clearly defined use of PFRs for true airborne infection risks but did not support routine or broad application. Members emphasised the need for clearer definitions, setting-specific guidance, assurance of product quality, and careful consideration of workforce, economic, environmental, and patient impacts.

Reflective question 5: Effectiveness of PPE (gloves) against transmission of multidrug-resistant

Does the evidence to support updating Conditional recommendation 32 - multi drug resistant organisms (MDRO) regarding advise on glove use? Change from “putting on gloves” to “use gloves as per standard precautions”?

Figure 29 Does the benefits of NOT wearing gloves routinely for contact precautions (i.e. as per standard precautions) (the intervention) compared to always wearing glove (the comparator) outweigh the any potential or real harm to patients and/or healthcare workers?

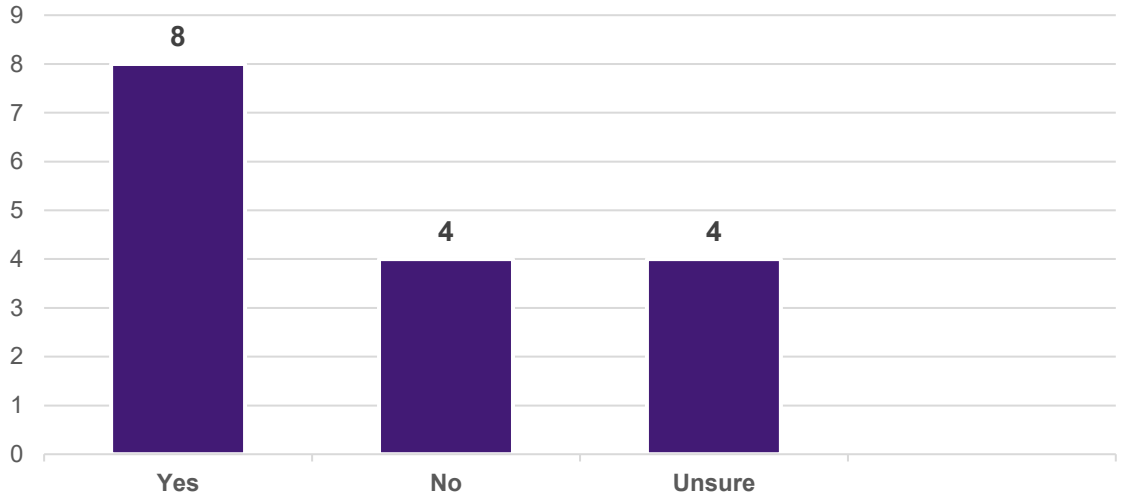


Figure 30 How strong do you think the evidence is to support not wearing gloves routinely for contact precautions?

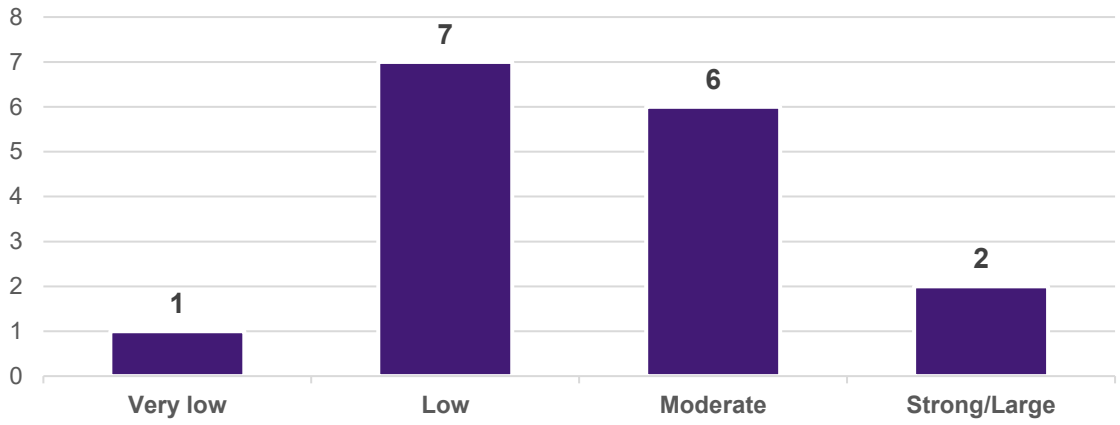


Figure 31 Does the intervention (not wearing gloves routinely for contact precautions) apply to all clinical settings or specific settings only?

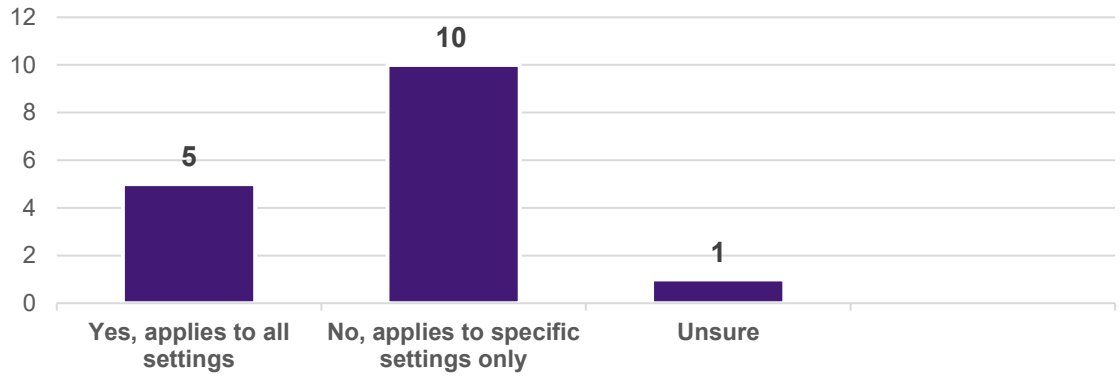


Figure 32 Would the intervention (not wearing gloves routinely for contact precautions to reduce the risk of MDRO transmission) be generally acceptable to patients, healthcare workers, and healthcare consumers?

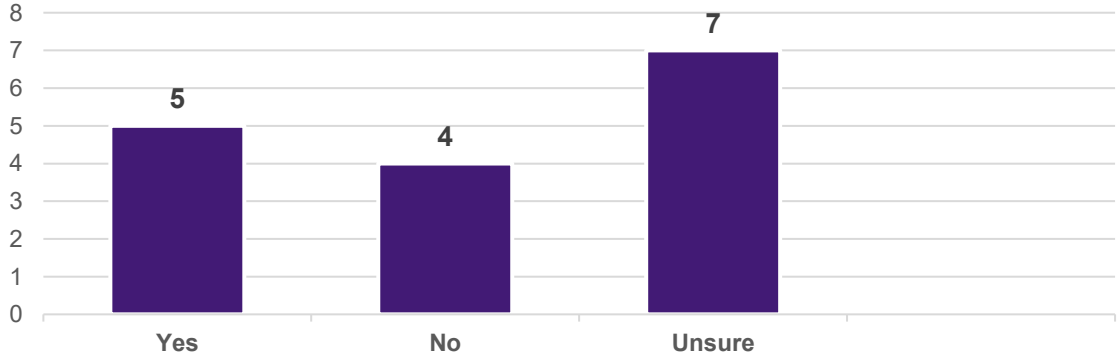


Figure 33 How much resourcing/support would be required to implement the recommendation?

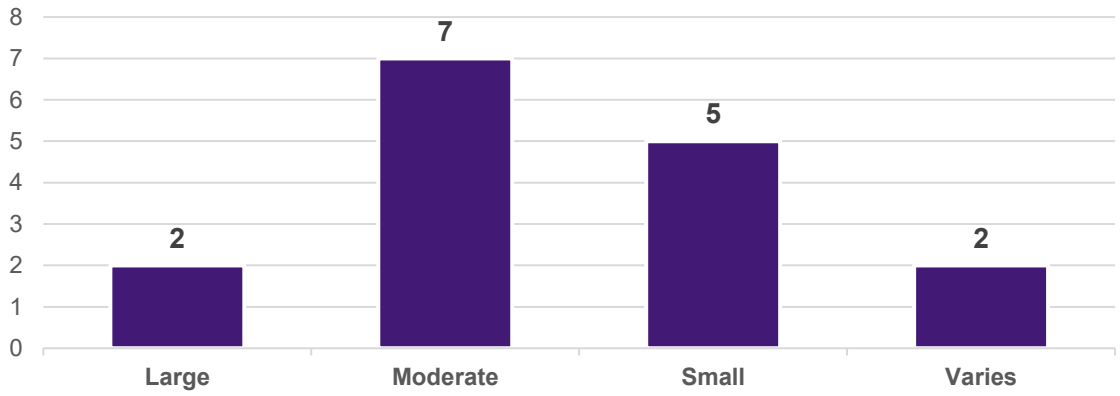


Figure 34 Is the intervention (not wearing gloves for contact precautions) economically sustainable?

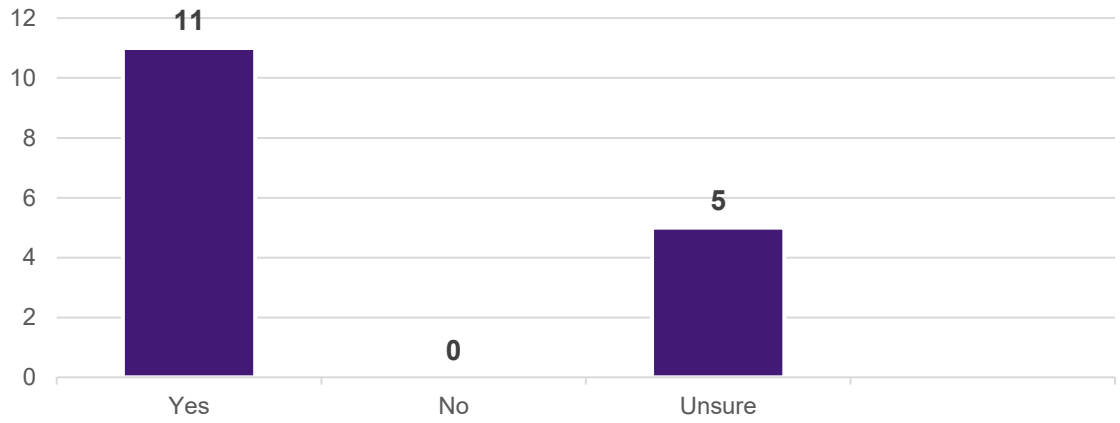
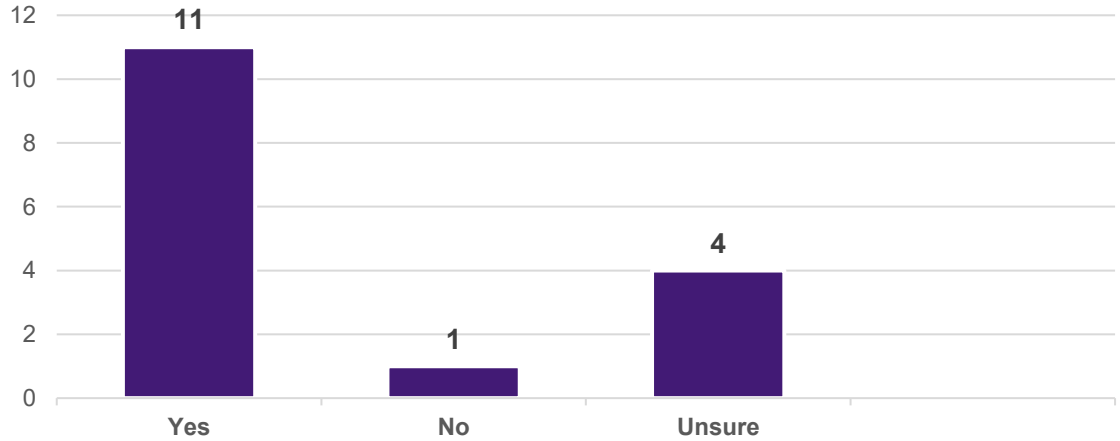


Figure 35 Is the intervention (not wearing gloves routinely for contact precautions) environmentally sustainable?



Summary of Member feedback on Reflective question 5

- **Clarity and scope of intent**

Members reported confusion about the intervention, noting that not wearing gloves routinely is counter-intuitive and was not consistently explicit across questions. Several Members emphasised the need to clearly state the intervention throughout to avoid misunderstanding. Members also noted that evidence and discussion focused more clearly on gloving than gowning, which remains an unresolved issue.

- **Evidence base and interpretation**

Members generally considered the evidence supportive of risk-based glove use, with no major increase in infection risk when gloves are used appropriately within standard precautions and hand hygiene remains optimal. Some Members highlighted the relevance of this evidence for specific organisms, such as methicillin-resistant *Staphylococcus aureus*, *Enterobacterales* producing extended-spectrum beta-lactamases, and vancomycin-resistant *Enterococcus.*

- **Scope of applicability**

While some Members initially questioned applicability across all settings, several concluded that the approach could apply to all settings, provided it is clearly understood that gloves remain mandatory when contact with blood or body fluids is anticipated and hand hygiene standards are maintained.

- **Practice implications and feasibility**

Members emphasised the need for education and clear guidance to support appropriate glove risk assessment and consistent practice. They noted that reduced routine glove use may generate cost savings and environmental benefits but cautioned that unclear infection outcomes could offset these benefits if implementation is poor.

- **Acceptability and perception**

Members raised concerns that reduced glove use may affect perceptions of safety and hygiene, as gloves serve as a visible indicator of infection control for patients and staff. Members emphasised the importance of communication to support acceptability.

Overall position

Members expressed conditional support for reducing routine glove use within contact precautions, provided the intervention is clearly articulated, supported by education, embedded within standard precautions, and carefully communicated to maintain trust, safety perceptions, and compliance.

Reflective question 6: Effectiveness of respiratory precautions (development of new Good Practice Statement)

Does the evidence from the systematic review support developing a new good practice statement for the appropriate use of respiratory precautions in Australian healthcare settings?

Figure 36 Do the benefits of respiratory precautions, in addition to standard precautions to reduce the risk of novel respiratory infection transmission (the intervention) compared to standard precautions only or other transmission-based precautions (the comparator) outweigh the any potential or real harm to patients and/or healthcare workers?

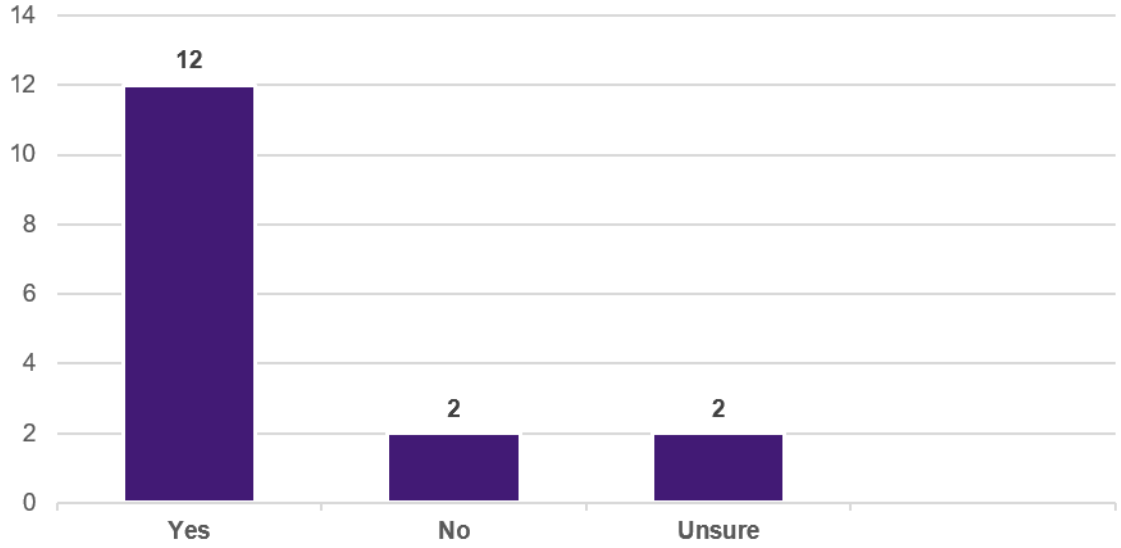


Figure 37 How strong do you think the evidence is to support the use of respiratory precautions?

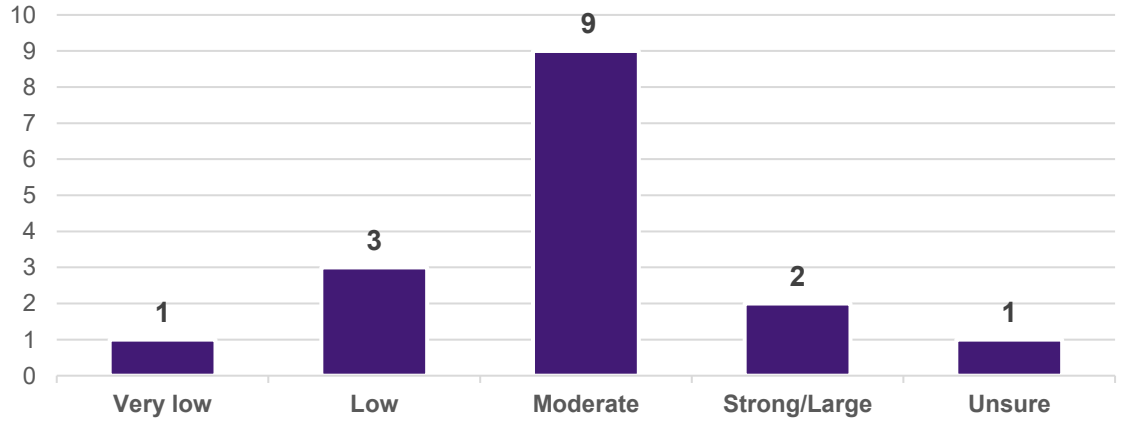


Figure 38 Does the intervention (respiratory precautions, in addition to standard precautions for respiratory infection) apply to all clinical settings or specific settings only?

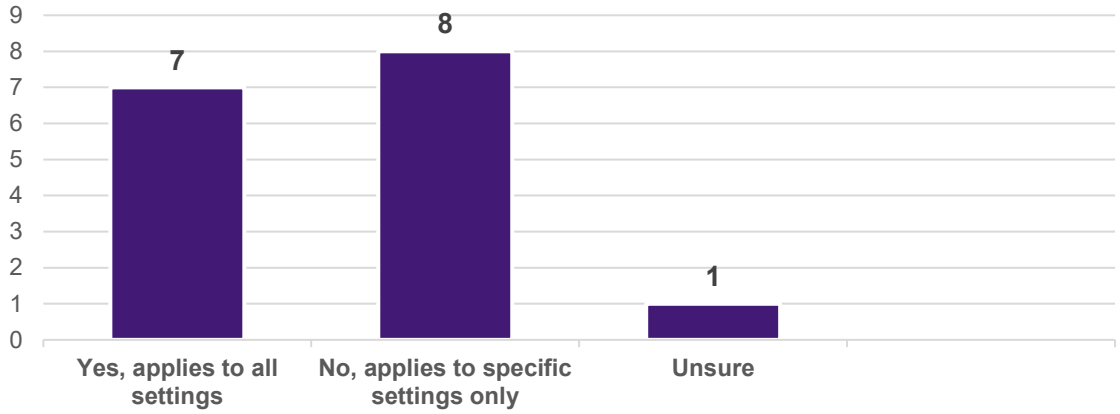


Figure 39 Would the intervention (respiratory precautions, in addition to standard precautions for respiratory infection) be generally acceptable to patients, healthcare workers, and healthcare consumers?

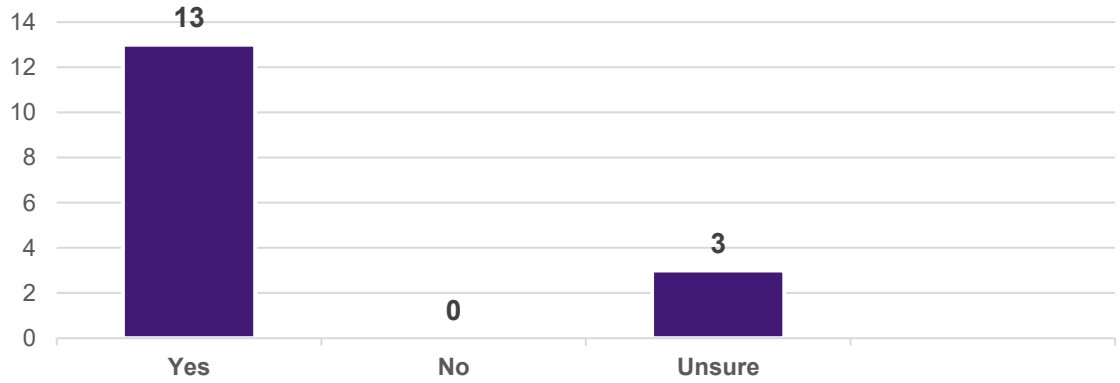


Figure 40 How much resourcing/support would be required to implement the recommendation?

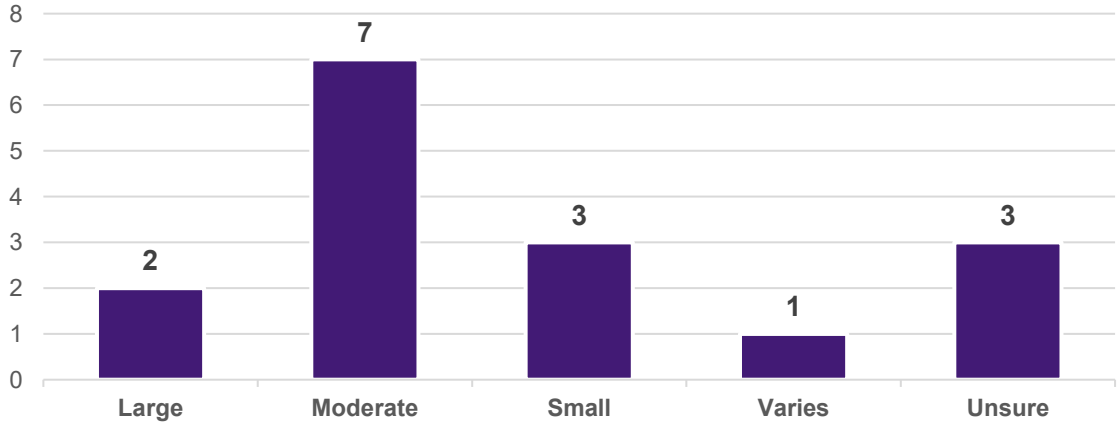


Figure 41 Is the intervention (respiratory precautions, in addition to standard precautions for respiratory infection) economically sustainable?

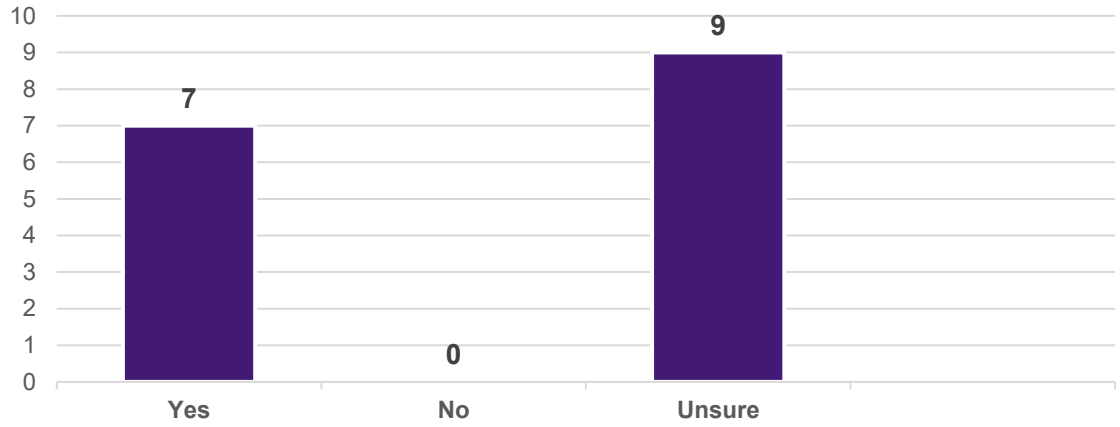
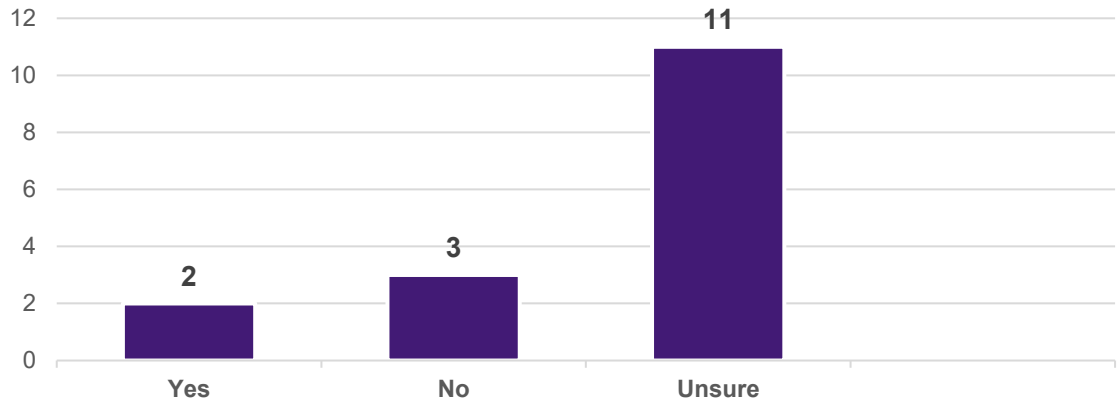


Figure 42 Is the intervention (respiratory precautions, in addition to standard precautions for respiratory infection) environmentally sustainable?



Summary of Member feedback on Reflective question 6

- **Clarity and scope of intent**

Members noted uncertainty about definitions and comparators, particularly whether respiratory precautions refer to surgical masks, particulate filter respirators (PFRs), or a tiered approach distinguishing droplet and airborne transmission. Clearer wording and explicit separation of mask versus PFR use were seen as essential.

- **Evidence base and interpretation**

Members acknowledged that while the evidence is not strong, it is sufficient to support a good practice statement, particularly where risk of respiratory transmission is credible. Members emphasised the importance of embedding risk assessment into any recommendation.

- **Practice implications and feasibility**

Members supported enhanced respiratory precautions when applied proportionately, noting likely acceptance due to perceived increased protection. However, they cautioned against prolonged or universal use due to PPE fatigue, discomfort, and compliance challenges, and stressed that precautions should not apply continuously across all seasons or settings.

- **Economic and environmental considerations**

Members identified trade-offs between increased PPE costs and the potential for significant cost savings through prevention of outbreaks and service disruption. They expressed

uncertainty about sustainability outcomes, noting that limited upfront PPE use may avert much larger environmental and economic impacts during outbreaks. Members suggested that sustainability could be improved through predominant use of surgical masks and procurement of biodegradable products.

- **Acceptability and patient impact**

Members noted potential communication barriers for patients associated with prolonged mask or respirator use, reinforcing the need for proportionate, risk-based application supported by broader infection prevention strategies.

Overall position

Members expressed support for proportionate, risk-assessed respiratory precautions, provided guidance clearly differentiates mask and respirator use, avoids over-application, and considers workforce, patient, economic, and environmental impacts.

Appendix 8: Guideline Development Group – Meeting 3 Notes

Australian Guidelines for the Prevention and Control of Infection in Healthcare
Guideline Development Group

Meeting Notes

26 May 2026, 11:00 – 13:00 (AEST)

Level 2, 287 Elizabeth Street, Sydney 2000 NSW

TOPIC
1. Welcome, Acknowledgement of Country and apologies The co-Chairs welcomed Members and provided an Acknowledgement of Country. The co-Chairs emphasised that: • Members must contribute as individual experts, not as organisational representatives. • Need for timely completion of out-of-session work to avoid delays. • Meeting uses anonymous polling to test alignment on concepts before drafting recommendations. • Objective is to confirm direction and consensus, not finalise wording. Attending Members: Professor Peter Collignon AM (co-Chair), Professor Alison McMillan PSM (co-Chair), Ms Shiraz Abdulla, Ms Emma Coombs, Ms Sara Drew, Professor Lisa Hall, Ms Lucy Lehane, Mr Sean Mutchmor, Ms Angela Myers, Ms Stephanie Newell, Ms Clee Tonkin, Professor Yvonne Zurynski, Attending Commission staff: Dr Jan Gralton, Ms Jennifer Caldwell, Mr Sinisa Ristic, Apologies: Dr Kathy Dempsey, Professor Thomas Gottlieb AO, Dr Tanvir Kapoor, Ms Rebecca McCann Members agreed to record the meeting for transcription and note taking.
2. Conflicts of Interest The co-Chairs invited Members to declare any real or potential conflicts of interest, including any changes since previous declarations. Members were reminded that: • All declarations must be provided to the Secretariat for inclusion in the conflicts of interest register. • The Secretariat will manage and maintain disclosures in accordance with NHMRC requirements, including Requirement A.6 and the NHMRC Guidelines for Guidelines module on Identifying and Managing Conflicts of Interest. • Members are participating in an individual expert capacity and not representing organisational positions. • Declared conflicts do not preclude participation but must be transparently documented and appropriately managed. No new conflicts of interest were declared during this meeting.

TOPIC
3. Notes and actions arising from previous meeting The co-Chairs invited Members to confirm the accuracy of the notes from the meeting held on 30 March 2026. • Members indicated agreement with the notes. • Action items from the previous meeting were noted as completed or addressed on the current agenda. Previous meeting notes Members accepted as accurate.
4. Transmission-based precautions: Outcome of polling for reflective questions The co-Chairs noted that evidence-to-decision (EtD) polling identified variation and uncertainty, particularly in relation to glove use and interpretation of precautions. The co-Chairs emphasised that standard precautions remain foundational and includes the use of gloves where there is a risk of contact with blood or body fluids. The co-Chairs proposed that routine glove use should not be required for all contact precautions and instead should align with standard precautions, supported by risk assessment. The co-Chairs also noted that recommendations should define minimum requirements, with escalation based on clinical context, and that good practice statements may be required where evidence is limited. Members discussed that: • gloves are often overused in practice and may reduce adherence to hand hygiene • but removing mandatory glove use may create confusion, particularly where there is limited understanding of the distinction between standard and contact precautions • guidance must be clear, explicit and practical, and must be understandable across a diverse workforce • the importance of reinforcing hand hygiene as the primary infection prevention measure and noted that inappropriate glove use may increase the risk of contamination. Members agreed: • on the inclusion of clinical context and explanatory guidance to assist application in different settings and professions • that risk assessment is not consistently applied across all settings and that examples will support implementation • that narrative text will be required to clearly describe when gloves should and should not be used. The co-Chairs introduced discussion on mask use within droplet precautions, outlining a minimum requirement approach, supported by escalation based on risk. Members supported this approach and noted that guidance should allow flexibility based on clinical context rather than prescribe fixed requirements.

TOPIC
Members discussed airborne precautions and novel respiratory infections. Members noted the uncertainty associated with emerging infections and supported a risk-based, flexible approach that allows for escalation and de-escalation. Members cautioned against overly prescriptive guidance where evidence is limited. Members participated in anonymous polling on questions where there was limited agreement in the first round of out-of-session voting. The polling focused on whether Members support progressing with: • aligning glove use to standard precautions rather than requiring use for all contact precautions • including clinical context and explanatory guidance to support decision-making • adopting a minimum requirement approach for mask use, with escalation based on risk • exploring more nuanced guidance for airborne precautions • developing narrative text and, where appropriate, good practice statements to support implementation The co-Chairs noted: • there was increased alignment across the group compared to initial polling responses • that Members broadly support a risk-based approach across precautions, supported by clear narrative guidance and practical examples • that further work will focus on draft guidance for consideration out of session and at a future meeting. **Action 1:** The Commission to update the current clinical practice recommendations and EtD frameworks for transmission-based precautions based on the final results from the polling on the criteria and findings from the systematic review. **Action 2:** The Commission to develop a new good practice statement and evidence to decision framework for respiratory precautions based on the final results from the polling on the criteria and findings from the systematic review. **Action 3:** The Commission will provide the draft recommendations and evidence to decision frameworks for review by the Members as out of session papers **Action 4:** The Secretariat to collate and share relevant existing and companion resources to show how the guideline aligns with broader activities. **Action 5:** The Secretariat to collate polling outcomes in a consolidated report and share with Members out of session prior to the next meeting.
5. Waterless models of care: Outcome of polling for reflective questions The co-Chairs outlined that the purpose of the discussion is consideration of alcohol-based surgical hand scrub and the role of sinks, noting that the intent is not to remove sinks but to consider appropriate use and context. Alcohol-based surgical hand scrub is distinct from routine hand hygiene products and is used in specific procedural contexts. It was clarified that these products are not interchangeable and must be considered separately in the development of guidance.

TOPIC
Members noted: • concept of waterless models of care was complex and required clarification, particularly the distinction between alcohol-based surgical hand scrub and routine hand hygiene products • products are used in different contexts and that this distinction must be clearly communicated in the guidance • sinks may present risks in certain environments and that considerations relate to placement and use. Members discussed: • strength of the available evidence and noted that it is limited and does not support development of formal recommendations • development of a good practice statement is appropriate, supported by expert consensus • any good practice statement must clearly define the scope, purpose and limitations to avoid misinterpretation or inappropriate application. • inclusion of explanatory guidance to assist decision-making, including when and how waterless approaches may be appropriate • guidance should reflect clinical context and support safe implementation across different settings with clear communication to both clinicians and consumers • economic and environmental considerations and noted that there is limited evidence to inform a clear position • available trade-offs, including water usage, product manufacturing, infrastructure and access in different settings • acknowledgement of trade-off factors should be included in supporting text, while recognising that impacts may vary across contexts, including regional and resource-limited settings • national guidance is required to support consistent implementation and reduce variation in practice • guidance may include consideration of sink placement, particularly in the context of new builds and renovations • additional implementation resources may be required following development of the guideline to support uptake and application in practice. Members participated in anonymous polling on questions where there was limited agreement in the first round of out-of-session voting. The co-Chairs noted that subsequent polling and discussion demonstrated improved alignment across the group. Members confirmed support for progressing with development of narrative text and a good practice statement to guide appropriate use of waterless models of care. Members also agreed that areas of uncertainty, including economic and environmental impacts, may require further consideration out of session.

TOPIC
Action 6: The Commission to draft good practice statements on waterless models of care, and the use of alcohol-based surgical hand scrub and develop new evidence to decision frameworks for each statement. **Action 7:** The Commission will provide the draft recommendations and evidence to decision frameworks for review by the Members as out of session papers. **Action 8:** The Commission to develop supporting narrative text outlining clinical context, appropriate use and limitations. **Action 9:** The Secretariat to collate polling outcomes in a consolidated report and share with Members out of session prior to the next meeting.
6. Other business The Secretariat advised that a targeted public consultation process form part of the Guideline development. Members were invited to provide suggestions on relevant external stakeholders, organisations and groups to be included in consultation. **Action 10:** Members to provide suggestions of relevant external stakeholders to the Secretariat via email. **Action 11:** The Secretariat to collate stakeholder suggestions and incorporate them into consultation planning.

Australian Guidelines for the Prevention and Control of Infection in Healthcare Guideline Development Group

Actions arising from meeting held on 26 May 2026

Agenda Item	Action		Status
4	**Transmission-based precautions: Outcome of polling for reflective questions**	**Action 1:** The Commission to update the current clinical practice recommendations and EtD frameworks for transmission-based precautions based on the final results from the polling on the criteria and findings from the systematic review.	**Completed**
		Action 2: The Commission to develop a new good practice statement and evidence to decision framework for respiratory precautions based on the final results from the polling on the criteria and findings from the systematic review.	**Completed**
		Action 3: The Commission will provide the draft recommendations and evidence to decision frameworks for review by the Members as out of session papers.	**Completed**

Agenda Item	Action		Status
		Action 4: The Secretariat to collate and share relevant existing and companion resources to show how the guideline aligns with broader activities.	**Completed**
		Action 5: The Secretariat to collate polling outcomes in a consolidated report and share with Members out of session prior to the next meeting.	**Completed**
5	**Waterless models of care: Outcome of polling for reflective questions**	**Action 6:** The Commission to draft good practice statements on waterless models of care, and the use of alcohol-based surgical hand scrub and develop new evidence to decision frameworks for each statement.	**Completed**
		Action 7: The Commission will provide the draft recommendations and evidence to decision frameworks for review by the Members as out of session papers.	**Completed**
		Action 8: The Commission to develop supporting narrative text outlining clinical context, appropriate use and limitations.	**Completed**
		Action 9: The Secretariat to collate polling outcomes in a consolidated report and share with Members out of session prior to the next meeting.	**Completed**
6	**Other business**	**Action 10:** Members to provide suggestions of relevant external stakeholders to the Secretariat via email.	**Completed**
		Action 11: The Secretariat to collate stakeholder suggestions and incorporate them into consultation planning.	**Completed**

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