NHS National Services Scotland

Standard Infection Control Precautions Literature Review: Respiratory and cough hygiene

Considered Judgement Form

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

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Approvals

Version	Date Approved	Group/Individual
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Research Question 1: What is meant by cough etiquette and respiratory hygiene?

Part A: Quality of evidence

1.1 How reliable is the body of evidence?

(see SIGN 50, section 5.3.1, 5.3.4)

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

If there is insufficient evidence to answer the key question, go to section B.

Comments	Evidence level
Twenty pieces of evidence were included to answer this research question.[1-20] • Two guideline documents were graded AGREE II: 'Recommend with modifications' due to limitations regarding the systematic review methodology used to underpin the recommendations and failure to update guidance as planned.[11, 14] • Eighteen guidance documents were graded SIGN 50 level 4, expert opinion, mainly due to a lack of robust evidence-based systematic review processes to form recommendations. SIGN 50 level 4 expert opinion guidance has potential bias given little detail is provided regarding how recommendations were formulated, and it is not always clear where expert opinion has taken precedence over scientific evidence. It is therefore considered low quality evidence.[1-10, 12, 13, 15-20]	2 x AGREE II: Recommend with modifications. 18 x SIGN 50 level 4

1.2 Is the evidence consistent in its conclusions?

(see SIGN 50, section 5.3.2)

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

Comments

- Two WHO guidelines, graded AGREE II 'recommend with modifications', and 11 expert opinion guidance documents from the United Kingdom (UK), the United States of America (USA), Canada, Australia, ECDC, and WHO were consistent in defining respiratory hygiene and cough etiquette as practices for reducing the spread of potentially infective respiratory secretions. This includes covering mouth and nose when coughing or sneezing by wearing a surgical or cloth mask, or with tissues, a sleeve, a flexed elbow or hand followed by hand hygiene.[2, 3, 5-7, 9-11, 14, 16-19]
- A tuberculosis guideline document from WHO, graded AGREE II 'recommend with modifications', further advise that cough etiquette and respiratory hygiene for symptomatic individuals should include covering of mouth and nose when breathing.[11] However, this was based on expert opinion.
- Two SIGN 50 level 4 expert opinion guidance documents further describe cough etiquette and respiratory hygiene as a source control method.[5, 17]
- Three SIGN 50 level 4 expert opinion guidance documents from the CDC and American Academy of Paediatrics define cough etiquette and respiratory hygiene as an integral component of standard infection control precautions used to prevent respiratory tract infections.[1, 8, 13]
- Four expert opinion guidance documents propose that cough etiquette and respiratory hygiene should be applied as part of standard infection control precautions for all patients in acute healthcare settings.[2, 4, 12, 20]
- Five expert opinion guidance documents propose that cough etiquette and respiratory hygiene should be applied to everyone in a healthcare setting, including patients, visitors and staff, regardless of infection or symptom status.[4, 9, 10, 13, 15]

Comments

- CDC expert opinion guidance for outpatient oncology facilities propose that cough etiquette and respiratory hygiene should only apply to all potentially infected persons with signs and symptoms of respiratory disease.[8]

The included pieces of evidence were generally consistent in their definitions of cough etiquette and respiratory hygiene as source control measures that are used to prevent or reduce the transmission of potentially infectious respiratory secretions.

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

(see SIGN 50, section 5.3.3)

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

Comments

The country or countries in which the guidance applies are as follows:

- United Kingdom (UK) (n=1)[21]
- United States of America (USA) (n=7)[1, 4-6, 8-10]
- Canada (n=2)[17, 19]
- Australia (n=1)[2]
- Republic of Ireland (n=1)[18]
- WHO (n=6)[3, 11, 13-15, 20]
- ECDC (n=2)[12, 16]

The expert opinion guidance document published within the UK is directly applicable to Scottish health and care settings.[21]

The expert opinion guidance documents published in Australia,[2] Republic of Ireland,[18] Canada[17, 19] and the USA[1, 4-6, 8-10] are specific to health and care settings within these countries but considered applicable to Scottish health and care settings because they are from internationally recognised organisations, and due

Comments
to the nature of the research question which focuses on general description of cough etiquette and respiratory hygiene. The six pieces of evidence published by the WHO applies internationally and are considered applicable to Scottish health and care settings.[3, 11, 13-15, 20] Guidance published by the ECDC applies to the European Union (EU) or European Economic Area (EEA) and is directly applicable to Scottish health and care settings.[12, 16]

1.4 Are the studies generalisable to the target population?

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

Comments
There were no primary studies included for this research question, therefore, issues such as sample size and methods of sample selection are not relevant.

1.5 Are there concerns about publication bias?

(see SIGN 50, section 5.3.5)

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

Comments
Due to the nature of the evidence identified for this research question, which primarily consists of expert opinion guidance documents, it is not possible to ascertain publication bias.

Part B: Evidence to decision

1.6 Recommendations

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

Note the following terminology:

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

Recommendation	Grading
Cough etiquette and respiratory hygiene is defined as source control measures intended to contain respiratory secretions to prevent transmission of respiratory infectious agents.	Not applicable.

1.7 Balancing benefits and harms

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

Benefits

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

Benefits
Not applicable.

Risks and harms

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

Risks and harms
Not applicable.

Benefit-Harm assessment

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

Benefit-Harm assessment
Not applicable.

1.8 Feasibility

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

Describe (if applicable):

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

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

Feasibility
Not applicable.

1.9 Expert opinion

Summarise the expert opinion used in creating the Recommendation or Good Practice Point. If none were involved, state “none”. Translating evidence into action often involves expert opinion where evidence is insufficient. Clearly outlining that expert opinion helps users understand their influence on interpreting objective evidence. Expert opinion may also be required where there is no evidence available.

Expert opinion
Not applicable.

1.10 Value judgements

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

Value judgements
Not applicable.

1.11 Intentional vagueness

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

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

Intentional vagueness
Not applicable.

1.12 Exceptions

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

Exceptions
Not applicable.

1.13 Recommendations for research

List any aspects of the question that require further research.

Recommendations for research
Not applicable.

Research Question 2: What are the effective components of cough etiquette and respiratory hygiene?

Part A: Quality of Evidence

2.1 How reliable is the body of evidence?

(see SIGN 50, section 5.3.1, 5.3.4)

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

If there is insufficient evidence to answer the key question, go to section B.

Comments	Evidence level
Twenty-nine pieces of evidence were included for this research question.[1-20, 22-30] • Two guideline documents were graded AGREE II: 'Recommend with modifications' due to limitations regarding the systematic review methodology used to underpin the recommendations and failure to update guidance as planned.[11, 14] The link between relevant recommendations and supporting evidence is unclear, it is mostly based on limited low-quality primary studies and expert opinion. • Two observational studies were graded SIGN 50 level 3 due to methodological limitations, including small sample size and confounding factors.[28, 30] In the study by Wood et al., there was no standardised protocol for performing cough etiquette, with all participants performing their usual techniques, making comparisons difficult and prone to bias. [30] The study by Zayas et al. only measured droplet concentration and size, hence, no conclusions can be drawn regarding	2 x AGREE II: Recommend with modifications. 2 x SIGN 50 level 3 25 x SIGN 50 level 4

Comments	Evidence level
effectiveness of manoeuvres against transmission of infectious particles.[28] • Twenty-five guidance documents were graded SIGN 50 level 4 expert opinion, mainly due to a lack of robust evidence-based systematic review processes to form recommendations. SIGN 50 level 4 expert opinion guidance has potential bias given little detail is provided regarding how recommendations were formulated, and it is not always clear where expert opinion has taken precedence over scientific evidence. It is therefore considered low quality evidence.[1-10, 12, 13, 15-20, 22-27, 29]	

2.2 Is the evidence consistent in its conclusions?

(see SIGN 50, section 5.3.2)

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

Comments
• Two WHO guidelines on respiratory infection prevention and control, graded AGREE II 'recommend with modifications', along with twenty-two SIGN 50 level 4 guidance documents from the UK, USA, Australia, Canada, Republic of Ireland and WHO consistently propose that the components of cough etiquette and respiratory hygiene involve covering the mouth and nose with tissues, if tissues are not available then preferably with elbow rather than hands. This should be followed by disposal of tissues into appropriate waste receptacle and hand hygiene.[1-20, 22-26, 29] • Five SIGN 50 level 4 guidance documents advise that hand hygiene should involve washing hands thoroughly with soap and water,[4, 17, 22, 23, 30] while two SIGN 50 level 4 guidance documents advise using alcohol-based hand rub.[4, 22]

Comments

- A PHS guidance document propose that hand sanitiser should only be used when soap and water are not available, as it is not effective against some viruses.[23] They further explained that washing hands with soap (preferably liquid soap) and warm water is the most effective way to clean hands, as it removes viruses and other micro-organisms.[23]
- Four SIGN 50 level 4 guidance documents from the UK, Australia, and Republic of Ireland were consistent in recommending that contaminated hands should be kept away from the mucous membranes of the mouth, eyes, and nose.[2, 18, 26, 29]
- Six SIGN 50 level 4 guidance documents from the USA, Canada and Australia were consistent in recommending that patients with symptoms of respiratory infections should turn their head away from others while coughing and sit as far away from others as possible or may be placed in a separate area while waiting for care in healthcare facilities.[2, 5, 6, 13, 17, 19]
- Five SIGN 50 level 4 guidance documents advise maintaining a separation of at least 1 metre or 3 feet when coughing or with respiratory infection symptoms.
- Two WHO guidelines graded AGREE II 'recommend with modifications', (one on IPC for acute respiratory infections and one on IPC for tuberculosis), propose that respiratory hygiene practices for patients with suspected or confirmed infection should involve covering the mouth and nose during breathing, coughing, or sneezing by wearing a surgical or cloth mask.[11, 14]
- Sixteen SIGN 50 level 4 guidance documents consistently recommend the use of a surgical mask for symptomatic patients and visitors as part of cough etiquette and respiratory hygiene.[4-7, 10, 12, 13, 15-20, 23, 24, 27]
- A CDC expert opinion guidance for outpatient oncology settings further advise that healthcare workers with respiratory infections, who cannot avoid direct patient contact, should wear a facemask while providing patient care.[8]

No high-quality primary study that assessed effectiveness of different components of cough etiquette and respiratory hygiene was included.

- Wood et al. in their observational study on cystic fibrosis (CF) patients with chronic *Pseudomonas aeruginosa* infection demonstrated that practicing

Comments

cough etiquette (covering mouth with hand), and wearing a surgical mask or N95 respirator significantly reduced viable *P. aeruginosa* aerosol dispersal [P=0.001] in comparison to uncovered coughing], measured using a closed wind tunnel system and six-stage Andersen Cascade Impactor at 2 meters.[30] The mask and respirator manoeuvre provided more aerosol reduction (94%) than covering mouth with hand (53%).

- An observational study by Zayas et al. assessed four different manoeuvres of cough etiquette and respiratory hygiene on healthy individuals, including use of tissues, hands, sleeve or arm, and surgical mask. No manoeuvre was found to be completely effective in blocking the dispersion of respiratory particles into the surrounding environment as measured by laser diffraction system, only the use of surgical mask and tissues provided reduction of respiratory particles, measured by laser diffraction system.[28] No statistical analysis was carried out.

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

(see SIGN 50, section 5.3.3)

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

Comments

The country or countries in which the guidance or research was conducted and applies to are as follows:

- UK (n=4)[7, 22, 25, 26]
- USA (n=9)[4-6, 8-10, 20, 24, 27]
- Canada (n=3)[17, 19, 28]
- Australia (n=3)[2, 29, 30]
- Republic of Ireland (n=1)[18]
- WHO (n=7)[3, 11, 13-15, 20, 23]
- ECDC (n=2)[12, 16]

Comments
The four expert opinion guidance documents published within the UK are directly applicable to Scottish health and care settings.[7, 22, 25, 26] The expert opinion guidance documents published in Canada,[17, 19] Australia,[2, 29] Republic of Ireland[18] and the USA[1, 4-6, 8-10, 20, 24, 27] are specific to health and care settings within these countries but considered applicable to Scottish health and care settings because they are from internationally recognised organisations. Guidance regarding components of cough etiquette and respiratory hygiene is a universal principle which is not anticipated to be described in other ways between different countries. The seven pieces of evidence published by the WHO applies internationally and is considered applicable to Scottish health and care settings.[3, 11, 13-15, 20, 23] Guidance published by the ECDC applies to the EU/EEA and is directly applicable to Scottish health and care settings.[12, 16] The included observational studies were carried out in Australia (n=1)[30] and Canada (n=1),[28] under controlled conditions. The masks and respirator types used in these studies may differ from the style or type used within the UK.

2.4 Are the studies generalisable to the target population?

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

Comments
The two primary research studies included are observational studies with a small sample size, and limited generalisability outside the patient groups in which they were conducted.[28, 30] One of these studies included cystic fibrosis patients (n=25) and measured *Pseudomonas aeruginosa* which is an organism that commonly colonise this patient group.[30] While the other investigated cough etiquette manoeuvres on healthy volunteers (n=31), who may not have infective particles in

Comments
their respiratory secretions.[28] Consequently, results from these studies may not be relevant for other patient groups.

2.5 Are there concerns about publication bias?

(see SIGN 50, section 5.3.5)

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

Comments
A formal assessment of publication bias was not conducted, however, there is a risk of publication bias as primary studies that show no significant difference in cough etiquette and respiratory hygiene effectiveness may not have been published.

Part B: Evidence to decision

2.6 Recommendations

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

Note the following terminology:

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

Recommendation	Grading
GPP2.1. The effective components of cough etiquette and respiratory hygiene should include: • turning head away from others while coughing and sneezing • covering the mouth and nose with tissues to contain respiratory secretions when coughing or sneezing • disposal of tissues into appropriate waste receptacle • in the absence of disposable tissues, individuals should cough or sneeze into their inner elbow rather than hands • performing hand hygiene, with non-antimicrobial liquid soap and water, after contact with respiratory secretions • where it does not compromise clinical care and is tolerable, patients and service users who have symptoms suggestive of a respiratory infection should wear a face mask.	Good practice point

2.7 Balancing benefits and harms

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

Benefits

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

Benefits
GPP2.1. This will help reduce the risk of spreading respiratory infection.

Risks and harms

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

Risks and harms
GPP2.1 No harms anticipated.

Benefit-Harm assessment

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

Benefit-Harm assessment
GPP2.1 Only benefits identified.

2.8 Feasibility

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

Describe (if applicable):

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

- human factors

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

Feasibility
GPP2.1 There may be financial implications, staff resources and education requirements for employers to ensure provision of materials, adequate instruction, and information to support practicing cough etiquette correctly. Human factors might affect how much this can be applied as vulnerable and immobile patients, including children and some adults with incapacity, may not be able to practice cough etiquette effectively.

2.9 Expert opinion

Summarise the expert opinion used in creating the Recommendation or Good Practice Point. If none were involved, state “none”. Translating evidence into action often involves expert opinion where evidence is insufficient. Clearly outlining that expert opinion helps users understand their influence on interpreting objective evidence. Expert opinion may also be required where there is no evidence available.

Expert opinion
GPP2.1. This good practice point is informed by two WHO guideline documents, graded AGREE II ‘Recommend with modifications’,[11, 14] 22 SIGN 50 Level 4 guidance documents,[1-10, 12, 13, 15-20, 22-26, 29, 31] that consistently recommend that components of cough etiquette include turning head away from others while coughing and sneezing, covering the mouth and nose with tissues to contain respiratory secretions when coughing, sneezing or into inner elbow in the absence of disposable tissues, followed by disposal of tissues into appropriate waste receptacle; and washing hands with liquid soap and water after contact with respiratory secretions. ARHAI Scotland and NPGE working groups expert opinion recommends the use of non-antimicrobial liquid soap as this is consistent with existing literature and recommendations on the NIPCM.

Expert opinion
Two WHO guideline documents, graded AGREE II 'Recommend with modifications',[11, 14] and 18 SIGN 50 Level 4 guidance documents [4-7, 10, 12, 13, 15-20, 23, 24, 27, 32] consistently recommend the use of surgical mask for symptomatic individuals with a respiratory infection. The two SIGN 50 level 3 studies included also demonstrate that wearing masks showed greater reduction in aerosol dispersion when compared to unblocked cough and other cough etiquette manoeuvres.[28, 30] This evidence was considered insufficient for a recommendation because the recommendations of the AGREE-graded guideline, specific to this research question, were based on expert opinion and the low quality of the primary studies.

2.10 Value judgements

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

Value judgements
GPP2.1 No value judgements to note.

2.11 Intentional vagueness

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

- inadequate evidence
- inability to achieve consensus regarding evidence quality, anticipated benefits or harms, or interpretation of evidence

- legal considerations
- economic reasons
- ethical or religious reasons

Intentional vagueness
GPP2.1. No intentional vagueness to note.

2.12 Exceptions

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

Exceptions
GPP2.1. It is important to note that there may be exemptions in place for the masking element as it may not always be appropriate to apply to young children and those that cannot tolerate a mask due to medical condition etc.

2.13 Recommendations for research

List any aspects of the question that require further research.

Recommendations for research
There is very limited primary evidence for this research question. Majority of the evidence are SIGN 50 level 4 expert opinion which is insufficient for making recommendations. This lack of evidence may be due to the subjective nature of the topic, and because the application of cough etiquette as a single entity can be difficult to measure quantitatively. Primary studies that demonstrate the effectiveness of cough etiquette and respiratory hygiene in healthcare settings will be beneficial to fill this evidence gap. For example, controlled experimental studies, where specific elements of cough etiquette are tested, and aerosol dispersal measured. However, it is acknowledged that ethical issues and other feasibility barriers may make it difficult to conduct primary studies on effectiveness of cough etiquette.

Research Question 3: When should the components of cough etiquette and respiratory hygiene be applied?

Part A: Quality of Evidence

3.1 How reliable is the body of evidence?

(see SIGN 50, section 5.3.1, 5.3.4)

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

If there is insufficient evidence to answer the key question, go to section B.

Comments	Evidence level
Twenty-nine pieces of evidence were included for this research question.[1-12, 14-20, 23, 24, 27, 29-36] • Two guideline documents were graded AGREE II: 'Recommend with modifications' due to limitations regarding the systematic review methodology used to underpin the recommendations and failure to update guidance as planned.[11, 14] • Twenty-seven were graded SIGN 50 level 4, expert opinion guidance, mainly due to a lack of robust evidence-based systematic review process to form recommendations. SIGN 50 level 4 expert opinion guidance has potential bias given little detail is provided regarding how recommendations were formulated, and it is not always clear where expert opinion has taken precedence over scientific evidence. It is therefore considered low quality evidence.[1-10, 12, 15-20, 23, 24, 27, 29-36]	2 x AGREE II: Recommend with modifications. 27 x SIGN 50 level 4

3.2 Is the evidence consistent in its conclusions?

(see SIGN 50, section 5.3.2)

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

Comments
Indications for cough etiquette Standard infection control precautions • Eight SIGN 50 level 4 guidance documents were consistent in advising that cough etiquette and respiratory hygiene should be applied, as a standard infection control precaution, by all individuals (patients, residents, visitors, and staff) in health and care settings, from the first point of contact and maintained for the duration of stay, including while in reception areas, waiting rooms, communal and shared areas, outpatient clinics and triage areas.[1-3, 7, 10, 20, 24, 35] Transmission based precautions • The UK Department of Health and Social Care code of practice advise that infection prevention and control measures should be applied at the point at which persons at-risk are identified.[33] • A WHO guideline, graded AGREE II 'recommend with modifications', and 18 SIGN 50 level 4 guidance documents consistently recommend that cough etiquette and respiratory hygiene should be applied by all individuals (patients, residents, visitors, and staff) with symptoms of respiratory illness, and those suspected or confirmed to have acute respiratory infections upon entry into health and care facilities.[1, 2, 4, 5, 7, 9, 11, 12, 14, 16-18, 23, 24, 27, 29, 31, 32, 34] • A WHO guideline, graded AGREE II 'recommend with modifications', and two CDC expert opinion guidance documents consistently advise that cough etiquette and respiratory hygiene should be applied by patients who may be at risk of transmitting airborne infectious diseases like Tuberculosis (TB) and Measles/Rubeola.[5, 6, 11] • A CDC expert opinion guidance document for outpatient oncology facilities propose that respiratory hygiene or cough etiquette should be implemented

Comments

at the point of entry of "potentially infected persons" and can be lifted "at the point it is determined that infectious agents do not require droplet or airborne precautions".[8]

During periods of high community transmission

- Five SIGN 50 level 4 guidance documents recommend that cough etiquette and respiratory hygiene should be applied by patients during periods of high community transmission of viral respiratory infections such as RSV, influenza, adenovirus, parainfluenza virus, COVID-19, and SARS.[5, 12, 24, 31, 36]

For vulnerable patients

- Three SIGN 50 level 4 guidance documents advise that cough etiquette should be practiced by vulnerable individuals and those caring for them; including healthcare workers, visitors and mothers of infants or children; on entry into health and care facilities.[3, 20, 24]
- Two SIGN 50 level 4 guidance documents propose that symptomatic patients with non-infectious conditions including asthma, allergic rhinitis, or chronic obstructive lung disease such as cystic fibrosis, but at risk of respiratory infections should also be encouraged to practice respiratory hygiene and cough etiquette when entering health care facilities.[5, 24]

Indication for the use of masks as a component of cough etiquette

- Two WHO guideline documents, graded AGREE II 'recommend with modifications', and 14 expert opinion guidance documents were consistent in recommending that symptomatic individuals and those who may be at risk of transmitting airborne infectious diseases, should supplement cough etiquette and respiratory hygiene with a surgical mask when in close proximity to others, when in communal spaces, when leaving isolation rooms, during transportation within or between healthcare settings and during periods of high community transmissions of viral respiratory infections.[2, 4, 5, 7, 10-12, 14, 16-19, 24, 29, 31, 36]

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

(see SIGN 50, section 5.3.3)

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

Comments
The country or countries in which the guidance or research was conducted and applies to are as follows: • UK (n=2)[7, 33] • USA (n=13)[1, 4-6, 8-10, 24, 27, 31, 32, 34, 36] • Canada (n=2)[17, 19] • Australia (n=2)[2, 29] • Republic of Ireland (n=1)[18] • WHO (n=6)[3, 11, 14, 15, 20, 23] • ECDC (n=2)[12, 16] • European Network for Infectious Diseases (EUNID) (n=1)[35] The two expert opinion guidance documents published within the UK are directly applicable to Scottish health and care settings.[7, 33] The expert opinion guidance documents published in the USA,[1, 4-6, 8-10, 24, 27, 31, 32, 34, 36] Australia,[2, 29] Canada,[17, 19] and Republic of Ireland[18] are specific to health and care settings within these countries. However, they are considered applicable to Scottish health and care settings because they are from internationally recognised organisations. Guidance regarding components of cough etiquette and respiratory hygiene, including when they should be applied, are universal principles which are not anticipated to be significantly different between different countries. The six pieces of evidence published by the WHO applies internationally and is considered applicable to Scottish health and care settings.[3, 11, 14, 15, 20, 23] Guidance published by the ECDC[12, 16] and EUNID[35] applies to the EU/EEA and is directly applicable to Scottish health and care settings.[12, 16]

3.4 Are the studies generalisable to the target population?

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

Comments
There were no primary studies included for this research question, therefore, issues such as sample size and methods of sample selection are not relevant.

3.5 Are there concerns about publication bias?

(see SIGN 50, section 5.3.5)

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

Comments
Risk of publication bias is not applicable due to the type of evidence identified for this research question

Part B: Evidence to decision

3.6 Recommendations

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

Note the following terminology:

- **"must"** implies that the health and care setting must implement the recommended approach and is used where a recommendation has been directly lifted from legislation or mandatory guidance

- **"should"** implies that the health and care setting "should" implement the recommended approach unless a clear and compelling rationale for an alternative approach is present
- **"should consider"** implies that the health and care setting should consider implementing the recommended approach

Recommendation	Grading
GPP3.1. Cough etiquette and respiratory hygiene should be applied by all individuals (patients, residents, visitors, and staff) at all times in health and care settings.	Good practice point
GPP3.2. Cough etiquette and respiratory hygiene should be applied at the point of entry to health and care settings and maintained for the duration of stay.	Good practice point
GPP3.3. Support for performing the components of cough etiquette and respiratory hygiene should be provided to those who require assistance.	Good practice point

3.7 Balancing benefits and harms

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

Benefits

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

Benefits
GPP3.1. This will help reduce the risk of contamination of the environment and transmission of infectious agents. GPP3.2. Applying cough etiquette at the point of entry and maintaining it throughout will ensure that attempts to contain respiratory emissions are continued at all times when in a health and care setting. GPP3.3. Providing support to those who require assistance will ensure that everyone is practicing cough etiquette and respiratory hygiene and reduce the chance of contamination and transmission of infectious particles.

Risks and harms

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

Risks and harms
GPP3.1 to GPP3.3. No harms anticipated.

Benefit-Harm assessment

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

Benefit-Harm assessment
GPP3.1 to GPP3.3. Only benefits were identified.

3.8 Feasibility

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

Describe (if applicable):

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

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

Feasibility
GPP3.1. and GPP3.2. There may be additional financial implications, human resources and educational materials required to support effective cough etiquette and respiratory hygiene, including provision of instruction and information on when and how to correctly perform each of the steps effectively. GPP3.3. There will be material and human resource requirements to support those who require assistance, including vulnerable and immobile patients who may not be able to perform cough etiquette effectively.

3.9 Expert opinion

Summarise the expert opinion used in creating the Recommendation or Good Practice Point. If none were involved, state “none”. Translating evidence into action often involves expert opinion where evidence is insufficient. Clearly outlining that expert opinion helps users understand their influence on interpreting objective evidence. Expert opinion may also be required where there is no evidence available.

Expert opinion
ARHAI Scotland and NPGE working groups support the expert opinion used to underpin GPP3.1, GPP3.2, and GPP3.3. GPP3.1. This good practice point is informed by two WHO guideline documents, graded AGREE II ‘recommend with modifications’,[11, 14] and 24 SIGN 50 level 4

Expert opinion
guidance documents [1-7, 9, 10, 12, 16-20, 23, 24, 27, 29, 31, 32, 34-36] that are consistent in advising that cough etiquette and respiratory hygiene should be applied by all individuals (patients, residents, visitors, and staff) at all times in health and care settings. This evidence was considered insufficient for a recommendation because the recommendations of the AGREE-graded guidelines, specific to this research question, was based on expert opinion. GPP3.2. This good practice point is informed by eight SIGN 50 level 4 guidance documents that are consistent in recommending that cough etiquette and respiratory hygiene should be applied from the first point of contact with health and care settings and maintained for the duration of stay, including waiting rooms, reception areas, outpatient clinics and triage areas.[1-3, 7, 10, 20, 24, 35] GPP3.3. This GPP is based on ARHAI Scotland and NPGE working groups expert opinion that support should be provided to those who require assistance to perform the components of cough etiquette and respiratory hygiene.

3.10 Value judgements

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

Value judgements
GPP3.1 to GPP3.3. No value judgements to note.

3.11 Intentional vagueness

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

acknowledging the reasoning clearly promotes transparency. Reasons for vagueness may include:

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

Intentional vagueness
GPP3.1 to GPP3.3. No intentional vagueness to note.

3.12 Exceptions

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

Exceptions
GPP3.1 to GPP3.3. No exceptions to note.

3.13 Recommendations for research

List any aspects of the question that require further research.

Recommendations for research
None.

Research Question 4: What is the evidence to support hand hygiene as an aspect of cough etiquette and respiratory hygiene?

Part A: Quality of Evidence

4.1 How reliable is the body of evidence?

(see SIGN 50, section 5.3.1, 5.3.4)

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

If there is insufficient evidence to answer the key question, go to section B.

Comments	Evidence level
Twenty pieces of evidence were included for this research question.[2, 3, 5, 7-10, 12, 15-18, 22-27] All included evidence were graded SIGN 50 level 4, expert opinion guidance, mainly due to a lack of robust evidence-based systematic review process to form recommendations. SIGN 50 level 4 expert opinion guidance has potential bias given little detail is provided regarding how recommendations were formulated, and it is not always clear where expert opinion has taken precedence over scientific evidence. It is therefore considered low quality evidence.	20 x SIGN 50 level 4

4.2 Is the evidence consistent in its conclusions?

(see SIGN 50, section 5.3.2)

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

Comments

- Twenty SIGN 50 level 4 guidance documents were consistent in recommending hand hygiene as a component of cough etiquette and respiratory hygiene. Hand hygiene should be performed; after coming into contact with respiratory tract secretions or any materials and objects that have become contaminated with respiratory secretions, including through coughing, sneezing and using tissues for respiratory hygiene.[1-3, 5, 7-10, 12, 15-18, 22-27, 29]

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

(see SIGN 50, section 5.3.3)

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

Comments

The country or countries in which the guidance applies to are as follows:

- UK (n=4) [7, 22, 25, 26]
- USA (n=7) [1, 5, 8-10, 24, 27]
- Canada (n=1) [17]
- Australia (n=2) [2, 29]
- Republic of Ireland (n=1)[18]
- WHO (n=3) [3, 15, 23]
- ECDC (n=2)[12, 16]

The four expert opinion guidance documents published within the UK are directly applicable to Scottish health and care settings.[7, 22, 25, 26]

The expert opinion guidance documents were published in the USA,[1, 5, 8-10, 24, 27] Canada,[17] Australia,[2, 29] and Republic of Ireland[18] and are specific to health and care settings within these countries but considered applicable to Scottish health and care settings because they are from internationally recognised organisations.

Comments
Guidance regarding hand hygiene is not anticipated to be significantly different between health and care settings of different countries. The three pieces of evidence published by the WHO applies internationally and is considered applicable to Scottish health and care settings.[3, 15, 23] Guidance published by the ECDC applies to the EU/EEA and is directly applicable to Scottish health and care settings.[12, 16]

4.4 Are the studies generalisable to the target population?

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

Comments
There were no primary studies included for this research question, therefore, issues such as sample size and methods of sample selection are not relevant.

4.5 Are there concerns about publication bias?

(see SIGN 50, section 5.3.5)

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

Comments
Risk of publication bias is not applicable due to the type of evidence identified for this research question.

Part B: Evidence to decision

4.6 Recommendations

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

Note the following terminology:

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

Recommendation	Grading
GPP4.1. Hand washing should be performed after coming into contact with respiratory tract secretions, following coughing, sneezing, blowing the nose, and touching used or contaminated items, such as tissues and masks.	Good practice point

4.7 Balancing benefits and harms

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

Benefits

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

Benefits
GPP4.1. This will reduce the risk of environmental contamination and transmission of infection following contact with potentially infectious respiratory secretions.

Risks and harms

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

Risks and harms
GPP4.1. No harms anticipated.

Benefit-Harm assessment

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

Benefit-Harm assessment
GPP4.1. Only benefits were identified.

4.8 Feasibility

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

Describe (if applicable):

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

- facility needs
- sustainability issues
- human factors

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

Feasibility
GPP4.1. There may be additional financial implications and human resource requirements for employers in terms of provision of materials to support effective hand hygiene. This will include staff resource and educational materials to ensure provision of adequate instruction and information on how to correctly perform hand hygiene.

4.9 Expert opinion

Summarise the expert opinion used in creating the Recommendation or Good Practice Point. If none were involved, state “none”. Translating evidence into action often involves expert opinion where evidence is insufficient. Clearly outlining that expert opinion helps users understand their influence on interpreting objective evidence. Expert opinion may also be required where there is no evidence available.

Expert opinion
GPP4.1. This good practice point is informed by 20 SIGN 50 level 4 guidance documents that are consistent in recommending hand hygiene as a component of cough etiquette and respiratory hygiene which should be performed after coming into contact with respiratory tract secretions or any materials and objects that have become contaminated with respiratory secretions, through coughing, sneezing, blowing nose, and touching used tissues or masks.[1-3, 5, 7-10, 12, 15-18, 22-27, 29] This GPP aligns with ‘moment 3’ of the WHO 5 moments of hand hygiene. ARHAI Scotland and NPGE working groups support the expert opinion used to underpin this GPP.

4.10 Value judgements

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

Value judgements
GPP4.1. No value judgements to note.

4.11 Intentional vagueness

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

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

Intentional vagueness
GPP4.1. No intentional vagueness to note.

4.12 Exceptions

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

Exceptions
GPP4.1. No exceptions to note.

4.13 Recommendations for research

List any aspects of the question that require further research.

Recommendations for research
None.

Research Question 5: What equipment should be available to support effective cough etiquette and respiratory hygiene?

Part A: Quality of Evidence

5.1 How reliable is the body of evidence?

(see SIGN 50, section 5.3.1, 5.3.4)

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

If there is insufficient evidence to answer the key question, go to section B.

Comments	Evidence level
Thirty pieces of evidence were included for this research question. • Two guideline documents were graded AGREE II: 'Recommend with modifications' due to limitations regarding the systematic review methodology used to underpin the recommendations and failure to update guidance as planned.[11, 14] • Twenty-seven guidance documents were graded SIGN 50 level 4 expert opinion mainly due to a lack of robust evidence-based systematic review process to form recommendations. SIGN 50 level 4 expert opinion guidance has potential bias given little detail is provided regarding how recommendations were formulated, and it is not always clear where expert opinion has taken precedence over scientific evidence. It is therefore considered low quality evidence.[1-10, 12, 15-20, 23, 24, 27, 29-35]	2 x AGREE II: Recommend with modifications 27 x SIGN 50 level 4 1 x SIGN 50 Mandatory

Comments	Evidence level
• One mandatory document, a UK statutory instrument was also included.[37]	

5.2 Is the evidence consistent in its conclusions?

(see SIGN 50, section 5.3.2)

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

Comments

• The control of substances hazardous to health regulation 2002 (as amended), stipulates that adequate materials, PPE, and washing facilities should be provided to prevent exposure to biological agents which are considered substances hazardous to health.[37]
• Two WHO guideline documents, graded AGREE II 'recommend with modifications',[11, 14] and 26 SIGN 50 level 4 expert opinion guidance documents [1-5, 7-10, 12, 13, 15-20, 22-27, 29, 31, 32] were consistent in recommending that equipment that should be available to support effective cough etiquette and respiratory hygiene should include:
  • tissues to cough or sneeze into
  • hands-free waste receptacles for tissue disposal
  • facemasks for symptomatic patients, and visitors
  • soap and water with handwashing sink and/or ABHR dispensers for hand hygiene purposes.
• Three SIGN 50 level 4 expert opinion guidance documents consistently recommend that hand hygiene 'resources' should be made available close to or within waiting areas, in common areas, and entrance or triage areas.[10, 13, 31]
• Four SIGN 50 level 4 expert opinion guidance documents were consistent in recommending that assistance and support should be provided to vulnerable and immobile patients, including children and the elderly, who are unable to contain secretions or wash hands independently and cannot wear a mask. They further suggest the provision of accessible plastic bags

Comments

or containers for prompt disposal of waste along with arrangements to offer hand hygiene.[2, 21, 22, 24]

There is inconsistency in the evidence base regarding the type of mask that should be made available to support cough etiquette.

- Four sources (a guideline and three expert opinion guidance documents) specified the use of a 'medical mask' [3, 14, 15, 20] while six sources (a guideline and five expert opinion guidance documents) advise the use of a surgical mask.[2, 4-7, 11]
- A SIGN 50 level 4 expert opinion guidance document from the Optometrists Association Australia propose that FFP2 or N95 respirators should be provided for healthcare workers and patients who present with an influenza-like illness or have been in contact with a confirmed case of Influenza A(H1N1).[29]

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

(see SIGN 50, section 5.3.3)

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

Comments

The country or countries in which the guidance or research was conducted and applies to are as follows:

- UK (n=5)[7, 22, 25, 26, 37]
- USA (n=11)[1, 4-6, 8-10, 24, 27, 31, 32]
- Canada (n=2)[17, 19]
- Australia (n=2)[2, 29]
- Republic of Ireland (n=1)[18]
- WHO (n=7)[3, 11, 13-15, 20, 23]
- ECDC (n=2)[12, 16]

Comments
The five expert opinion guidance documents published within the UK are directly applicable to Scottish health and care settings.[7, 22, 25, 26, 37] The expert opinion guidance documents published in the USA,[1, 4-6, 8-10, 24, 27, 31, 32] Canada,[17, 19] Australia,[2, 29] and Republic of Ireland[18] are specific to health and care settings within these countries but considered applicable to Scottish health and care settings because they are from internationally recognised organisations. Guidance regarding equipment to support cough etiquette and respiratory hygiene is not anticipated to be significantly different between countries. The seven pieces of evidence published by the WHO applies internationally and is considered applicable to Scottish health and care settings.[3, 11, 13-15, 20, 23] Guidance published by the ECDC applies to the EU/EEA and is directly applicable to Scottish health and care settings.[12, 16]

5.4 Are the studies generalisable to the target population?

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

Comments
There were no primary studies included for this research question, therefore, issues such as sample size and methods of sample selection are not relevant.

5.5 Are there concerns about publication bias?

(see SIGN 50, section 5.3.5)

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

Comments
Risk of publication bias is not applicable due to the type of evidence identified for this research question.

Part B: Evidence to decision

5.6 Recommendations

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

Note the following terminology:

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

Recommendation	Grading
GPP5.1. Equipment and supplies that should be available to support effective cough etiquette and respiratory hygiene include: • disposable tissues • facemasks for symptomatic patients and service users • hands-free waste receptacles for tissue and mask disposal • soap and water with hand washing sink, and hand rub.	Good practice point

Recommendation	Grading
• paper towels to dry hands.	
GPP5.2. All equipment and supplies listed in GPP5.1 should be made available within relevant and accessible locations to encourage people to undertake respiratory and cough hygiene effectively.	Good practice point

5.7 Balancing benefits and harms

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

Benefits

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

Benefits
GPP5.1. Provision of all these supplies within health and care settings will support enactment of cough etiquette and respiratory hygiene and minimise any associated transmission risks. GPP5.2. Provision of hand hygiene resources and other equipment, within relevant and accessible areas will encourage hand hygiene and cough etiquette and respiratory hygiene practices and reduce the risk of contamination and transmission of infectious agents.

Risks and harms

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

Risks and harms
GPP5.1 and GPP5.2. No harms anticipated.

Benefit-Harm assessment

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

Benefit-Harm assessment
GPP5.1 and GPP5.2. Only benefits were identified.

5.8 Feasibility

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

Describe (if applicable):

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

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

Feasibility
GPP5.1 and GPP5.2. There will be financial implications, educational materials, and human resource requirements for employers in terms of procurement and provision of equipment and guidance to support cough etiquette and respiratory hygiene.

5.9 Expert opinion

Summarise the expert opinion used in creating the Recommendation or Good Practice Point. If none were involved, state “none”. Translating evidence into action often involves expert opinion where evidence is insufficient. Clearly outlining that expert opinion helps users understand their influence on interpreting objective evidence. Expert opinion may also be required where there is no evidence available.

Expert opinion
ARHAI Scotland and NPGE working groups support the expert opinion used to underpin GPP5.1 and GPP5.2. GPP5.1. This good practice point is informed by two WHO guideline documents, graded AGREE II ‘Recommend with modifications’,[11, 14] and 26 SIGN 50 level 4 expert opinion guidance documents [1-5, 7-10, 12, 13, 15-20, 22-27, 29, 31, 32] that were consistent in advising that tissues, facemasks, hands-free waste receptacles, soap and water, and hand washing sink should be made available to support effective cough etiquette and respiratory hygiene. It is the expert opinion of ARHAI Scotland and the NPGE working group that paper towels and hand rub, rather than ABHR, and should be made available to support effective cough etiquette and respiratory hygiene. This evidence was considered insufficient for a recommendation because the recommendations of the AGREE-graded guideline, specific to this research question, was based on expert opinion. GPP5.2. This good practice point is informed by three SIGN 50 level 4 guidance documents that are consistent in recommending that hand hygiene ‘resources’ should be made available close to or within waiting areas, in common areas, and entrance or triage areas.[10, 13, 31] It is the expert opinion of ARHAI Scotland and the NPGE working group that making all equipment available within relevant and

Expert opinion
accessible locations will encourage people to undertake respiratory and cough hygiene effectively.

5.10 Value judgements

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

Value judgements
GPP5.1 and GPP5.2. No value judgements to note.

5.11 Intentional vagueness

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

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

Intentional vagueness
GPP5.1 and GPP5.2. No intentional vagueness to note.

5.12 Exceptions

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

Exceptions
GPP5.1 and GPP5.2. No exceptions to note.

5.13 Recommendations for research

List any aspects of the question that require further research.

Recommendations for research
None.

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Appendix 1 - Definitions

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

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

The considered judgement form and recommendation system are adapted from the following three sources:

- Update to the Centers for Disease Control and Prevention and the Healthcare Infection Control Practices Advisory Committee Recommendation Categorization Scheme for Infection Control and Prevention Guideline Recommendations. (2019)

- Scottish Intercollegiate Guidelines Network (SIGN). A guideline developer's handbook. (2019)

- Grading of Recommendations, Assessment, Development and Evaluation (GRADE) Handbook. (2013)