ARHAI Scotland

Antimicrobial Resistance and Healthcare Associated Infection

NHS National Services Scotland

# Standard Infection Precautions Literature Review Cough etiquette

## Cough Etiquette

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# Key Information

**Document title:** Standard Infection Control Precautions literature review: Cough Etiquette

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# Document Information

**Description:** This literature review examines the available professional literature on cough etiquette in NHSScotland health and care settings.

**Purpose:** To inform the Standard Infection Control Precaution (SICP) section on cough etiquette in the National Infection Prevention and Control Manual in order to facilitate the prevention and control of healthcare associated infections in NHS Scotland health and care settings.

**Target Audience:** All NHS health and care staff involved in the prevention and control of infection in Scotland.

**Update/review schedule:** Updated as new evidence emerges with changes made to recommendations as required.

Review will be formally updated every 3 years with next review in 2024

**Cross reference:** National Infection Prevention and Control Manual

**Update level:** **Practice:** – No significant change

**Research:** – Further research required in individual aspects of cough etiquette.

# Version History

This literature review will be updated in real time if any significant changes are found in the professional literature or from national guidance/policy.

| Version | Date | Summary of changes |
|---|---|---|
| 3.0 | September 2021 | **General:** Update of grades in line with grading standards outlined in appendix A.<br><br>**What is the evidence to support covering as an aspect of cough etiquette?** Added recommendation: “In the absence of disposable tissues and hand hygiene facilities, individuals should cough or sneeze into their elbow/sleeve.”<br><br>**What is the evidence to support hand hygiene as an aspect of cough etiquette?** Recommendation to avoid touching face (nose, mouth and eyes) added.<br><br>**What support is required for patients with restricted mobility or additional needs in understanding cough etiquette principles?** New question added based on review of literature. |
| 2.0 | August 2015 | Updated after Review of current literature. |
| 1.0 | January 2012 | Defined as final. |

## Approvals

| Version | Date Approved | Name |
|---|---|---|
| 3.0 | September 2021 | National Policies and Outbreaks Steering Group |
| 2.0 | August 2015 | Steering (Expert Advisory) Group for SICPs and TBPs |
| 1.0 | January 2012 | Steering (Expert Advisory) Group for SICPs and TBPs |

# Contents

# 1 Objectives

The aim of this review is to examine the extant professional literature regarding the application of cough etiquette/respiratory hygiene for standard infection control purposes in health and care settings including care homes/isolating people receiving healthcare as an element of cough etiquette.

The specific objectives of the review are to determine:

- What is meant by cough etiquette/respiratory hygiene?
- What is the evidence for covering the mouth/nose as part of cough etiquette?
- What is the evidence to support people receiving healthcare wearing a mask as a component of cough etiquette?
- What is the evidence to support distancing/isolating people receiving healthcare as an element of cough etiquette?
- What is the evidence to support hand hygiene as an aspect of cough etiquette?
- Where should the principles of cough etiquette be applied in health and care settings?
- When should the principles of cough etiquette be applied?
- What support is required for patients with restricted mobility or additional needs in understanding cough etiquette principles?
- What equipment should be available to support effective cough etiquette/respiratory hygiene?

# 2 Methodology

This targeted literature review was produced using a defined one-person, systematic methodology as described in the National Infection Prevention and Control Manual: Development Process.

# 3 Discussion

## 3.1 Implications for practice

**What is meant by cough etiquette/respiratory hygiene?**

There is very little available published evidence examining cough etiquette/respiratory hygiene. Much of the available material is limited to professional opinion and is based on the Centers for Disease Control and Prevention (CDC) isolation guidance of 2007[1].

Cough etiquette/respiratory hygiene can be defined as source control measures intended to contain respiratory secretions in order to limit transmission of respiratory pathogens spread by droplet or airborne routes; especially during seasonal outbreaks of viral respiratory tract infections in the community. [12].

**What is the evidence for covering the mouth/nose as part of cough etiquette?**

There is consensus in the literature that individuals should cover their mouth/nose with a disposable tissue when coughing or sneezing.[1-25] This is also recommended in guidance produced in response to the SARS-CoV-2 pandemic.[21-23, 26] Limited experimental evidence indicates that although covering the mouth/nose with a tissue may not completely contain respiratory droplet dispersal from coughing or sneezing, it does reduce dispersal, and so is preferable to unobstructed coughing or sneezing.[27, 28] This recommendation is consistent with the 2007 CDC's isolation guidance (updated 2019).[1] There is consensus in the literature that used tissues should be disposed of rapidly into the nearest appropriate waste receptacle. [19, 21-23, 25, 26].

Some literature also advocates coughing or sneezing into the elbow or upper arm, but not the hands, where no tissue is available. [2, 10, 12-14, 18, 20, 21, 26] However, there is no consensus on this issue with guidance recommending this as an aspect of cough etiquette. Whilst an individual sneezing into their sleeve may be preferable to sneezing into or onto their hands, it is possible that their sleeve will prove less able to contain the dispersal of respiratory secretions compared to a tissue. One experimental study demonstrated that use of the sleeve/arm to cover the mouth and nose when sneezing did not completely block droplet dispersal, however the study also found that none of the other cough etiquette manoeuvres tested were able to completely block droplet dispersal either. [27] The use of the upper arm or sleeve may also represent a potential source of indirect contamination until such time as the item of clothing is changed. [10] There is no

high quality evidence available to suggest sneezing/coughing into the elbow or sleeve is good practice. However, expert opinion recognised that sneezes and coughs are often unexpected and availability of tissues and hand hygiene facilities may be lacking. Therefore, and only in the absence of disposable tissues and hand hygiene facilities, individuals should cough and sneeze into their elbow or sleeve. It is recommended that people do not sneeze or cough into or onto their hands to limit contamination to other surfaces or people.

**What is the evidence to support people receiving healthcare wearing a mask as a component of cough etiquette?**

It is consistently recommended in the literature that during seasonal outbreaks or during periods of increased viral respiratory tract infections, individuals exhibiting the symptoms of respiratory illness, and especially those that are coughing or sneezing, should be encouraged to wear an appropriate surgical face mask (e.g. Type II R FRSM) providing that it is clinically safe to do so and tolerated by the patient. [6;9;10;12] Limited experimental evidence indicates that while the use of a surgical mask may not completely contain respiratory droplet dispersal from coughing or sneezing, it does reduce dispersal, and so is preferable to unobstructed coughing or sneezing. [27-29] However, these studies may not reflect the effectiveness of mask wearing in practice due to their experimental methodology.

In response to the SARS-CoV-2 pandemic expert opinion guidance has made recommendations related to people in healthcare wearing masks. This guidance is pandemic-specific and is constantly under review and subject to change as prevalence changes. At the time of publication it was recommended that, during SARS-CoV-2 outbreaks and when clinically safe and tolerated, all (symptomatic and non-symptomatic) individuals (patient, visitors, carers, family members) should wear an appropriate face mask from point of entry to health care [18, 22, 23, 30]. According to the CDC this includes patients wearing a well-fitting face mask in waiting rooms and while moving around a facility as well as in when in the presence of others. [23] Similarly, the European Centre for Disease Prevention and Control (ECDC) advised that patients should wear a medical/surgical grade mask when in the presence of others and when transported. [22] The World Health Organisation (WHO) recommends universal masking of patients (and others) within health care facilities during known community or cluster outbreaks of SARS-COV-2 and masking of inpatients when 1m distancing is not possible or where patients are outside their care areas[30]. An experimental study using simulated SARS-CoV-2 virus expulsions and mannequin heads demonstrated a protective effect when both the spreader and receiver wore a face mask, including cotton or surgical masks.[31] Although

significantly limited, by its experimental nature and use of high viral loads which may not reflect mask use in real life settings, the findings suggest that universal face covering/mask wearing may have some protective effects. [31]

In response to limiting COVID-19 transmission the Scottish Government made the use of face coverings and surgical face masks mandatory in NHSScotland unless medically exempt or in specific circumstance.[32] The purpose of these measures is to prevent transmission of the virus primarily by means of source control, in recognition of the risk of pre-symptomatic and asymptomatic transmission, and the difficulties in maintaining physical distancing in the workplace. These recommendations are in-line with guidance produced by the World Health Organization, as outlined above. [30] Furthermore, the Scottish COVID-19 addendum for acute care settings published within the National Infection Prevention and Control Manual on October 27th 2020 stated that inpatients across all pathways must wear a surgical facemask at all times if it can be tolerated and if it does not compromise their clinical care.

For infectious disease of high consequence or emergency situations such as the COVID-19 pandemic additional measures related to mask wearing may be implemented as part of the wider public health response. However, as part of cough etiquette (a standard infection control precaution), patients displaying respiratory symptoms should be encouraged to wear a surgical face mask where it is tolerated by the patient and where it is clinically safe.

**What is the evidence to support distancing/isolating people receiving healthcare as an element of cough etiquette?**

The literature identified by this review also demonstrates consensus on the segregation/isolation of symptomatic patients in health and care settings, suggesting that patients with respiratory symptoms who are considered to have known or suspected infections should be isolated by a distance of at least 1 metre (3 feet) from non-symptomatic and non-infectious persons. [1, 4, 8, 10, 12-14, 33, 34]

In response to the SARS-CoV-2 pandemic expert opinion guidance has advised that during known community/cluster outbreaks and across health and care settings, all individuals – including those without any symptoms - should maintain a distance of 2 metres (6 feet) where possible and patients with signs and symptoms of COVID-19 should be separated/isolated in a separate waiting room and inpatient area with reduced contact wherever possible and clinically appropriate. [23, 35] Similarly, in situations where distancing cannot be maintained it was advised that face coverings/masks be worn.[32, 36]

For infectious disease of high consequence or emergency situations such as the COVID-19 pandemic additional infection prevention and control measures related to isolation and/or physically distancing may be implemented as part of the wider public health response. However, as part of cough etiquette, individuals with respiratory symptoms should be isolated from those who are non-symptomatic/ non-infectious by a minimum distance of 3 feet or 1 metre.

**What is the evidence to support hand hygiene as an aspect of cough etiquette?**

The literature also consistently recommends that hand hygiene should be performed by an individual after there has been any contact with respiratory secretions - to reduce spread of infections - for example from blowing their nose, coughing, sneezing, or touching used tissues.[1, 3-6, 8, 10-14, 18, 19, 21, 24-26, 37-39] Additionally, some guidance has indicated that individuals should avoid touching their nose, mouth and eyes. [18, 25, 26] This is to avoid contact with respiratory secretions. Hand hygiene should be conducted after touching the face (particularly the eyes, nose and mouth). In addition to the possible sources of contamination outlined above, it is also recommended that all individuals perform hand hygiene before donning and doffing a face mask and after touching their face mask.[18, 26] As well as after touching frequently touched surfaces such as door handles. [41] Systematic review evidence indicates that hand hygiene can reduce the spread of respiratory viruses.[40] While this evidence was published in 2011 and is not specifically in relation to cough etiquette, it is appropriate to extrapolate from this evidence to strengthen this recommendation.[40]

**Where should the principles of cough etiquette be applied in health and care settings?**

There is a consensus within the identified literature that the principles of cough etiquette should be applied across health and care settings and facilities for the duration of an individual's stay, including in communal and shared areas as well as those areas that act as the first point of contact for individuals e.g. waiting rooms, reception areas, outpatient clinics and triage areas.[4, 5, 7, 8, 12, 13, 17, 21, 23, 24, 35]

**When should the principles of cough etiquette be applied?**

The literature identified by this review is consistent in its recommendation that cough etiquette should be applied, as a standard precaution, by all individuals (including patients, visitors, residents, family members or staff) exhibiting symptoms of respiratory illness at the first point of contact with health and social care services.[1, 4-9, 13, 17, 24, 35] Similarly, expert opinion guidance published by PHE in response to the SARS-CoV-2 pandemic specifically advised that

respiratory hygiene/cough etiquette should be applied in all care settings, throughout all pathways, at all times and by all individuals regardless of their infection status.[35]

**What support is required for patients with restricted mobility or additional needs in understanding cough etiquette principles?**

A gap in the literature was identified with few studies addressing the support of patients with mobility problems or additional needs in understanding or implementing the principals of cough etiquette.[25] The PHE guidance for admission and care of residents in care homes during COVID-19 stated that some people, such as those who are immobile, may require support or assistance maintaining respiratory hygiene such as a container (e.g. a bag) at hand for the prompt disposal of used tisues.[42]

**What equipment should be available to support effective cough etiquette/respiratory hygiene?**

The identified evidence for this review suggested that health and care facilities should have supplies of tissues available in common areas (e.g. waiting rooms) to be provided to those who require them as well as adequate supplies/facilities to engage in hand hygiene including soap and clean running water or alcohol based hand rub that can be used by any individual. [6, 8, 9, 12, 13, 17, 21, 23, 24, 37, 42] The results of one experimental study suggested that 4-ply tissues may be more effective than 2-ply tissues at containing respiratory droplets created during coughing/sneezing, due to the fact that 2-ply tissues tore more easily during use.[28] Non-touch waste receptacles should be available to allow for the prompt disposal of used tissues and face masks to reduce contamination risks.[12, 13, 23, 24] Persons who are immobile or bed ridden should be provided with a waste bag for disposing contaminated items. [42] There should also be adequate supplies of suitable face masks where appropriate.[17, 24, 32]

A comprehensive risk assessment should be conducted before positioning alcohol based hand rub dispensers in health and social care settings. [43-45]

## 3.2 Implications for research

A significant portion of the evidence base is expert opinion and/or was produced rapidly in response to the SARS-CoV-2 pandemic. The updated literature searches for version 3.0 identified a small number of observational/experimental studies most of which were excluded based on their limitations (e.g. small sample size, bundled approaches). Further research is required to assess the effectiveness of the individual elements, in order to strengthen the overall evidence base and corresponding grades of recommendation.

# 4 Recommendations

This review makes the following recommendations based on an assessment of the extant professional literature on cough etiquette/respiratory hygiene for standard infection control purposes in health and care settings:

**What is meant by cough etiquette/respiratory hygiene?**

Cough etiquette/respiratory hygiene can be defined as source control measures intended to contain respiratory secretions in order to prevent droplet transmission of respiratory pathogens.

(Grade B Recommendation)

**What is the evidence for covering the mouth/nose as part of cough etiquette?**

Individuals should cover their mouth/nose with a disposable tissue when coughing or sneezing. Used tissues should be disposed of immediately into the nearest appropriate waste receptacle.

In the absence of disposable tissues and hand hygiene facilities only, individuals should cough or sneeze into their elbow/sleeve.

(Grade C recommendation)

**What is the evidence to support people receiving healthcare wearing a mask as a component of cough etiquette?**

During seasonal outbreaks or increased presentations of viral respiratory tract infections, individuals exhibiting symptoms of respiratory illness, and especially those that are coughing or sneezing, should be encouraged to wear an appropriate surgical face mask (i.e. Type II R FRSM) providing that it is clinically feasible to do so and will be tolerated by the patient.

(Grade C recommendation)

**What is the evidence to support distancing/isolating people receiving healthcare as an element of cough etiquette?**

In common areas of health and other care facilities, persons receiving healthcare with respiratory symptoms should be isolated by a distance of at least 1 metre (3 feet) from other individuals until infectious risk has been clinically assessed.

(Grade C recommendation)

**What is the evidence to support hand hygiene as an aspect of cough etiquette?**

Hand hygiene must be performed by an individual after there has been any contact with respiratory secretions including from blowing their nose, coughing, sneezing, touching used tissues, eyes, nose, mouth, used masks, frequently touched items or surfaces in the area e.g. door handles.

(Grade C recommendation)

**Where should the principles of cough etiquette be applied in health and care settings?**

The principles of cough etiquette should be applied across all health and care facilities, including areas that are the first point of contact for individuals e.g. waiting rooms, reception areas, outpatient clinics and triage areas.

(Grade C recommendation)

**When should the principles of cough etiquette be applied?**

Cough etiquette should be applied by all individuals (including patients, visitors, residents, family members or staff) exhibiting symptoms of respiratory illness from the first point of contact with health and other care services.

(Grade C recommendation)

**What support is required for patients with restricted mobility or additional needs in understanding cough etiquette principles?**

Certain patients, for example the elderly or children, may require assistance with the containment of respiratory secretions. Patients who are immobile will require provision of tissues, a receptacle readily at hand for the immediate disposal of used tissues and provision of hand hygiene facilities.

(Grade C recommendation)

**What equipment should be available to support effective cough etiquette/respiratory hygiene?**

Health and care settings should have supplies of tissues to provide to all individuals who require them in common areas (e.g. waiting rooms). There should be adequate facilities/supplies to wash hands with soap and clean running water or adequate supplies of alcohol based hand rub that can be used by any individual. Masks should be provided to those that require one. Non-touch waste receptacles should be available to allow for the prompt disposal of used tissues or masks.

(Grade C recommendation)

Alcohol based hand rub dispensers should be positioned based on a risk assessment of fire, ingestion and unintended use.

(Mandatory)

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# Appendix 1 Grading of recommendations

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