



Royal College
of Nursing



Raising the Bar



This document has been designed in collaboration with our members to ensure it meets most accessibility standards. However, if this does not fit your requirements, please contact

RCN Legal Disclaimer

This publication contains information, advice and guidance to help members of the RCN. It is

The pandemic has highlighted concerns and opportunities regarding infection prevention and control (IPC) guidance aimed at supporting health care professionals delivering care where infection risks exist to both themselves and their patients. At the heart of guidance on preventing the transmission of infection lies language and technical advice aimed at breaking the 'chain of infection'. Standard and transmission-based precautions are a core component of this and directly impact on the delivery of safe and compassionate nursing care.

The language and terminology surrounding infection prevention and control precautions has expanded since the mid-1980s, with reports that this has resulted in confusion among those responsible for implementation of guidance.

In November 2021, the RCN commissioned an independent review to identify and

- There is consensus across all the guidelines inspected. Standard precautions/ standard infection prevention and control precautions (SICPs) are the basic fundamental infection prevention and control strategies that should be used continuously with all patients by all staff engaged in health and social care.
- There is consensus across all guidelines. Transmission-based precautions are the additional infection prevention and control precautions required to prevent spread from patients known or suspected to have an infection when standard precautions alone would not be sufficient to contain spread.
- Similarity in terminology across guidelines is not surprising given the inter-relationships between the guidelines and the way that guidance offered by one organisation has influenced recommendations issued by the others. Confusion might be caused by the use of the term 'precautions' in the context of infection prevention and control.

Research undertaken during the 2020/2021 COVID-19 pandemic should be used to update information to prevent the spread of respiratory pathogens in transmission-based IPC guidelines as soon as practical. A clear statement regarding any assumptions/evidence that are used in the process should be included. Patients and front-line practitioners should be involved in the process of guideline development to ensure that they have confidence in the recommendations.

Information about the updated guidelines should be communicated to employers, managers and health workers as soon as practical, accompanied by an implementation plan.

Implementation of the updated guidelines should be monitored in premises where health and social care are delivered. The findings should be reported to trust boards with benchmarking between organisations and feedback to staff.

All organisations delivering health care in the UK undertake routine audit of hand hygiene adherence. Hand hygiene audit should be extended to cover the other key elements of SICPs, in particular glove use.

The updated guidelines should be evaluated in terms of acceptability, practicality and effectiveness within an agreed period following implementation and thereafter.

Recommendations for updated IPC guidelines should be developed using the Grading of Recommendations Assessment, Development and Evaluation (GRADE) and information and recommendations should be stated succinctly and be designed to be as acceptable to health workers and as practical as possible. Australian guidance, although not complete in the version presented on the website, is an example where GRADE is used very clearly, demonstrating clear links between the evidence and recommendations.

Although there is a plethora of guidance, much is either relatively old, or uses outdated methods, particularly for the translation of evidence into recommendations. It is important

Introduction

The language and terminology surrounding infection prevention and control (IPC) precautions has been expanding since the mid-1980s. Confusion has been reported among

The reviewers inspected websites to compare the terms used to describe IPC precautions, paying particular attention to guidance for the use of gloves and face-coverings. They assessed whether the guideline recommendations had been developed according to good practice using the Grading of Recommendations, Assessment, Development and Evaluations (GRADE) or an equivalent guideline development tools. These include SIGN and AGREE.

Guideline development tools reviewed

Although the review considered methodologies below, the overarching purpose was not to provide a detailed critique of the method of guideline production but rather assess how the evidence has been translated into recommendations.

GRADE is widely used for rating the quality of a body of evidence used to answer a clinical question, presenting a summary of that evidence, and then turning it into a recommendation. Within this system there is clear separation between judgements about the quality of evidence and the strength of recommendations, as there are other factors that need to be taken into account when making recommendations. These are contained within the Evidence to Decision Frameworks, but in summary comprise: the balance between desirable and undesirable outcomes; an assessment of values and preferences and their variability; the resources used; cost-effectiveness; equity; acceptability and feasibility; as well as a judgement about the overall quality of evidence (Alonso-Coello et al., 2016). Making a judgement about each of these provides a guideline development group with evidence to make one of five7 (i)3.6 (d)2.9(e)2 (A)16.5 (l)18.2 (on)3.2 (s)2.4 (o)-1520.7 (i)5.1 (o

SIGN

Although SIGN 50 contains elements of a robust methodology, the recommendations ignore the other key factors included in GRADE. A major drawback of SIGN 50 is that it includes expert opinion as a level of evidence, contrary to GRADE. The guidance states “the grade of recommendation relates to the strength of the evidence on which the recommendation is based. It does not reflect the clinical importance of the recommendation” (p.51). Nevertheless, the document is unclear about the other factors that should be taken into account when making a recommendation and providing a strength behind it. A strength of the method is that it allows considerable flexibility when involving patients and carers in guideline development (Scottish Intercollegiate Guidelines Network et al., 2008).

AGREE

The Appraisal of Guidelines for REsearch & Evaluation (AGREE) guidance and

The findings are presented in terms of the aims of the review on page 7.

Section 1. International definitions and guidance used to describe standard and transmission-based infection prevention and control precautions

Much of the thinking around IPC guidance originated in the United States but is relevant to this report as it has influenced practice in many countries, including the UK. Section 1 outlines early guidance before presenting contemporary guidelines.

Early guidance

Until the mid-1980s specific IPC precautions were reserved for patients known or suspected to have a specific infection. Guidelines developed in the UK by the Hospital Infection Committee of the Medical Research Council suggested three categories: standard, stool-urine-needle and strict isolation (Bagshawe et al., 1978). Throughout the 1970s seven categories of isolation precautions were adopted in the US (National Communicable Disease Center, 1970): strict, respiratory, protective, enteric, wound and skin, discharge and blood. The epidemic caused by the human immunodeficiency virus

Standard precautions were introduced by CDC in 1996 (Garner, 1996) in response to advice from the Healthcare Infection Control Practices Advisory Committee (HICPAC).

Single rooms were recommended to contain spread by the droplet route, but special ventilation systems were not considered necessary. Instead, emphasis was placed on hand hygiene to contain transmission from droplets that had settled onto surfaces in the near patient environment. Infections thought to be transmitted via droplet included influenza, *Neisseria meningitidis* and Group A streptococci.

iii. Airborne transmission

Airborne precautions were recommended by CDC to prevent the transmission of pathogens via aerosols spread over long distances (eg measles, varicella, *Mycobacterium tuberculosis*). Single rooms with good ventilation were recommended for these patients. For some conditions (eg multi-drug tuberculosis) negative pressure rooms are recommended.

Contemporary definition of standard precautions

CDC updated its guidelines for isolation in 2007 and again in 2019 (Centers for Disease Control and Prevention, 2019) in response to the threats posed by emerging infectious diseases (eg SARS, prions, viral haemorrhagic fevers) but the three categories of transmission-based precautions remain as above. Today the term 'standard precautions' is still used by CDC (see Table 2).

Table 2. Centers for Disease Control: components of standard precautions

1. Hand hygiene.
2. Personal protective equipment
3. Respiratory hygiene/cough etiquette.
4. Sharps safety
5. Safe injection practices (eg aseptic technique for parenteral medications).
6. Sterilisation of equipment
7. Cleaning and disinfection of environmental surfaces.

Standard precautions have been incorporated into the IPC guidance used in many other countries. Professional organisations in the US (eg Association of Infection Prevention and Control, Society for Healthcare Epidemiology of America, Association for Professionals in Infection Control and Epidemiology) base their definitions and recommendations on those proposed by CDC.

World Health Organization

The WHO definition of standard precautions dates from 2007. The original webpages presenting the guidance have been taken down, but information is presented on the existing website (World Health Organization, n.d.). The WHO definition of standard precautions is very similar to that offered by CDC. Standard precautions are intended as the minimum level of precautions necessary for all patients to reduce the risk of transmitting bloodborne and other pathogens from recognised and unrecognised sources

of infection. Hand hygiene is promoted as a major component of standard precautions. The use of PPE including gloves is recommended after undertaking risk assessment. Non-sterile gloves are required when handling blood, body fluids, secretions, excretions, non-intact skin, and mucous membranes. Gloves should be changed between activities for the same patient and after contact with potentially infectious material. They should be removed after use, before touching items/surfaces that are not contaminated and before attending to another patient. Hands should always be cleansed after gloves have been removed.

'Source control measures' (not defined in the document) are incorporated into standard precautions through lessons learned during the 2002-2004 SARS pandemic. Their purpose is to prevent the spread of respiratory pathogens by applying what WHO calls 'respiratory hygiene' and 'cough etiquette': encouraging patients to cover the mouth and nose when coughing or sneezing, hand hygiene after contact with respiratory secretions and physical distancing (1 metre) when patients have respiratory symptoms. In March 2020, WHO added further information to this guidance: 'COVID-19 virus is transmitted between people through close contact and droplets, not by airborne transmission. The people most at risk of infection are those in 1eve

European Society of Clinical Microbiology and Infectious Diseases

The European Society of Clinical Microbiology and Infectious Diseases is a voluntary organisation of clinicians, scientists, and others with an interest in clinical microbiology and infectious diseases. ESCMID endorses the use of standard and contact precautions for multi-drug resistant organisms but without offering definitions (Tacconelli et al., 2014). Respiratory transmission is not considered.

The Australian Commission on Safety and Quality in Health Care defines standard precautions as the 'basic infection prevention and control strategies that apply to everyone, regardless of their perceived or confirmed infectious status' (National Health and Medical Research Council, 2019). They include hand hygiene, PPE, cleaning, and sharps handling and disposal. Transmission-based precautions are identified as the specific interventions required for patients suspected or confirmed to be infected with pathogens transmitted by contact, droplet or airborne routes. They are recommended when standard precautions may be insufficient to prevent spread and during outbreaks, tailored to the specific pathogen and its mode of transmission. Risk assessment is not mentioned in this document.

National Institute for Health and Care Excellence

The NICE guidelines

published in 2012 and last updated in 2017 refer to 'standard principles' which cover hand hygiene, the use of PPE including gloves and the handling and disposal of sharps but do not specifically mention either standard or transmission-based precautions (National Institute for Health and Care Excellence, 2017).

NHS England and NHS Improvement

Standard infection control precautions (SICP) were introduced by NHS England and NHS Improvement in 2019 (NHS England and NHS Improvement, 2019). SICPs are an elaboration of the CDC's existing standard precautions. They also appear to have been influenced by guidance from the WHO (2007) as much of the wording is very similar (see Table 3). SICPs are always advocated for use by all health workers in all care settings, for all patients regardless of whether they have a known infection. Transmission-based precautions are the additional measures required to prevent transmission from patients with known or suspected infection when spread cannot be contained by standard precautions alone.

Table 3. NHS England and NHS Improvement: Standard infection control precautions

- Patient placement/assessment for infection risk
- Hand hygiene
- Respiratory and cough hygiene
- Personal protective equipment
- Management of care equipment
- Management of the care environment
- Management of linen
- Management of blood and body fluids
- Disposal of waste (including sharps)
- Occupational safety/managing prevention of exposure (including sharps).

Scottish National Infection Prevention and Control Manual

The Scottish National Infection Prevention and Control Manual (introduced in 2012 and last updated October 2021) is presented as the mandatory practice guide for IPC for NHS Scotland (National Infection Prevention and Control Manual, 2021). NIPCM promotes SICPs to be used continuously by all staff, in all care settings, at all times, for all patients whether infection is known to be present or not. SICPs are described as the basic IPC measures necessary to reduce the risk of transmission of infectious agents from both recognised and unrecognised sources of infection. The components of SICPs are the same as those suggested by NHS England and NHS Improvement. Application depends on risk assessment which should consider the activity about to be undertaken, level of the interaction and the anticipated level of exposure to blood or other body fluids. Ten SICPs are identified (see Table 3 above) including hand hygiene, respiratory and cough hygiene

and the use of PPE which should follow risk assessment. The use of gloves use is in line with WHO recommendations although respiratory precautions are dealt with in more detail than by WHO. Eye and face protection (fluid-resistant Type IIR surgical face mask and goggles or fluid-resistant Type IIR surgical face mask and full-face visor) are recommended when splashing is possible. Transmission-based precautions are the additional precautions required for patients with a known or suspected infection. The most recent version of the manual (October 2021) promotes IPC precautions according to transmission through contact, droplet or airborne routes, referring to the dichotomy between particle size adopted by CDC in 1996 although greater emphasis is placed on clinical decision-making when precautions are implemented.

Public Health Wales

Public Health Wales has teamed with NHS Scotland and is using the Scottish National Infection Prevention and Control Manual. The most recent (October 2021) policies for SICPs and transmission-based precautions are presented on its website.

The Northern Ireland Regional Infection Prevention and Control Manual (Public Health Agency, 2015) describes standard precautions as a set of activities designed to prevent the transmission of organisms between patients and staff in all settings with the aim of preventing the spread of health care-associated infection. Standard precautions

WHO endorses the use of GRADE in its guidelines for guideline development (World Health Organization, 2014) but perversely, it does not appear to have applied GRADE when constructing its own guidelines for standard and transmission-based precautions. Little information relating to the methodology used is available. WHO is one of the few organisations to remove older versions of its guidelines from its website and it is possible that this information has been lost when deletions were made.

ESCMID uses GRADE in its guideline development, and its methodology includes a requirement for reviewers to be trained in its use (Scudeller et al., 2020)

Section 3. Summary of the findings and implications for contemporary nursing practice

The guidance from CDC published in 1996 has influenced guideline development in other countries and continues to do so. The original CDC guidelines pre-dated the introduction of GRADE and the recommendations have evolved over the years.

In all the guidelines inspected there was consensus. Standard precautions/standard infection prevention and control precautions (SICPs) are the basic infection prevention and control strategies that should be used continuously with all patients by all staff engaged in health and social care. The precise components included in standard precautions vary slightly between guidelines (eg disposal of waste and linen are included in some guidance but not others). Nevertheless, all items included in any version of standard precautions can be considered central to IPC.

In the UK, standard precautions have been expanded into standard infection control precautions (SICPs). These are presented in a slightly different way across England, Scotland, Wales, and N. Ireland. The SICPs system has not been adopted by any organisation outside the UK.

The consensus across all guidelines is that transmission-based precautions represent additional IPC precautions required to prevent spread from patients known or suspected to have an infection when standard precautions alone would not be sufficient to contain spread.

Similarity in terminology across guidelines is not surprising given the inter-relationships between them and the way that guidance by one organisation has influenced recommendations issued by the others. Confusion might exist because IPC teams have interpreted and implemented the guidelines differently.

Terminology to describe respiratory protection is not consistent across guidelines. A mixture of terms is used including 'respiratory hygiene', 'cough etiquette', 'surgical masks', 'procedure masks'. Specific types of respiratory protection are mentioned and are not the same in all documents when recommended for the same clinical procedures. There is a risk that health care workers' access to the most appropriate respiratory protection may be inequitable.

Indications for the use of face coverings (what type to use and when to wear them) are not the same in all guidelines. In the current pandemic situation, there are implications for the use of face coverings and the safety of patients, the public and health workers.

Research undertaken during the 2020/2021 COVID-19 pandemic concerning the transmission of airborne particles has not been used to update information to prevent the spread of respiratory pathogens in transmission-based IPC precautions (Drossinos et al., 2021). Differentiation between the droplet and airborne routes is unhelpful as it is impossible to determine the size of particles exhaled by an individual and it is likely that as droplets dry out, they give rise to smaller particles able to remain airborne and potentially infectious for prolonged periods and could travel over long distances

The need for contact precautions has been questioned on the basis that if standard precautions are followed correctly and conscientiously with adherence to hand hygiene, contact precautions would be unnecessary, helping to reduce the inappropriate use of non-sterile gloves, contain the costs of health care and promote sustainability (Curran 2015). Rigorous evaluations of the effectiveness of contact precautions are required.

Indications for the use of gloves (which type to use and when to wear them) are the same in all contemporary guidelines irrespective of whether they are used as part of standard precautions or in additional contact precautions. These recommendations appear to be pragmatic Good Practice Points.

WHO guidelines have influenced guidance in other countries as would be expected for recommendations provided by a major international body. Greater emphasis is placed on

hand hygiene (e.g. 90% of time) and use of gloves (e.g. 22% of time) by the 2009 and 2010 editions of the WHO Guidelines for Infection Prevention and Control (IPC) for Health-Care Facilities (WHO 2009, WHO 2010). The 2010 edition of the WHO Guidelines for IPC for Health-Care Facilities (WHO 2010) also includes recommendations for the use of contact precautions (WHO 2010).

Section 4. Recommendations for practice

An analysis of language and definitions used to describe standard and transmission-based precautions was commissioned to provide a baseline assessment of historical and contemporary literature and evidence pertaining to the fundamental but critical elements of nursing practice. These lie at the heart of infection prevention and control and influence many other guidelines and policies. They are critical for the protection

of patients and staff. The analysis identified a number of key terms and definitions that are used in the literature and in guidelines and policies. These are discussed in detail in the following sections.

The analysis identified a number of key terms and definitions that are used in the literature and in guidelines and policies. These are discussed in detail in the following sections.

6.

