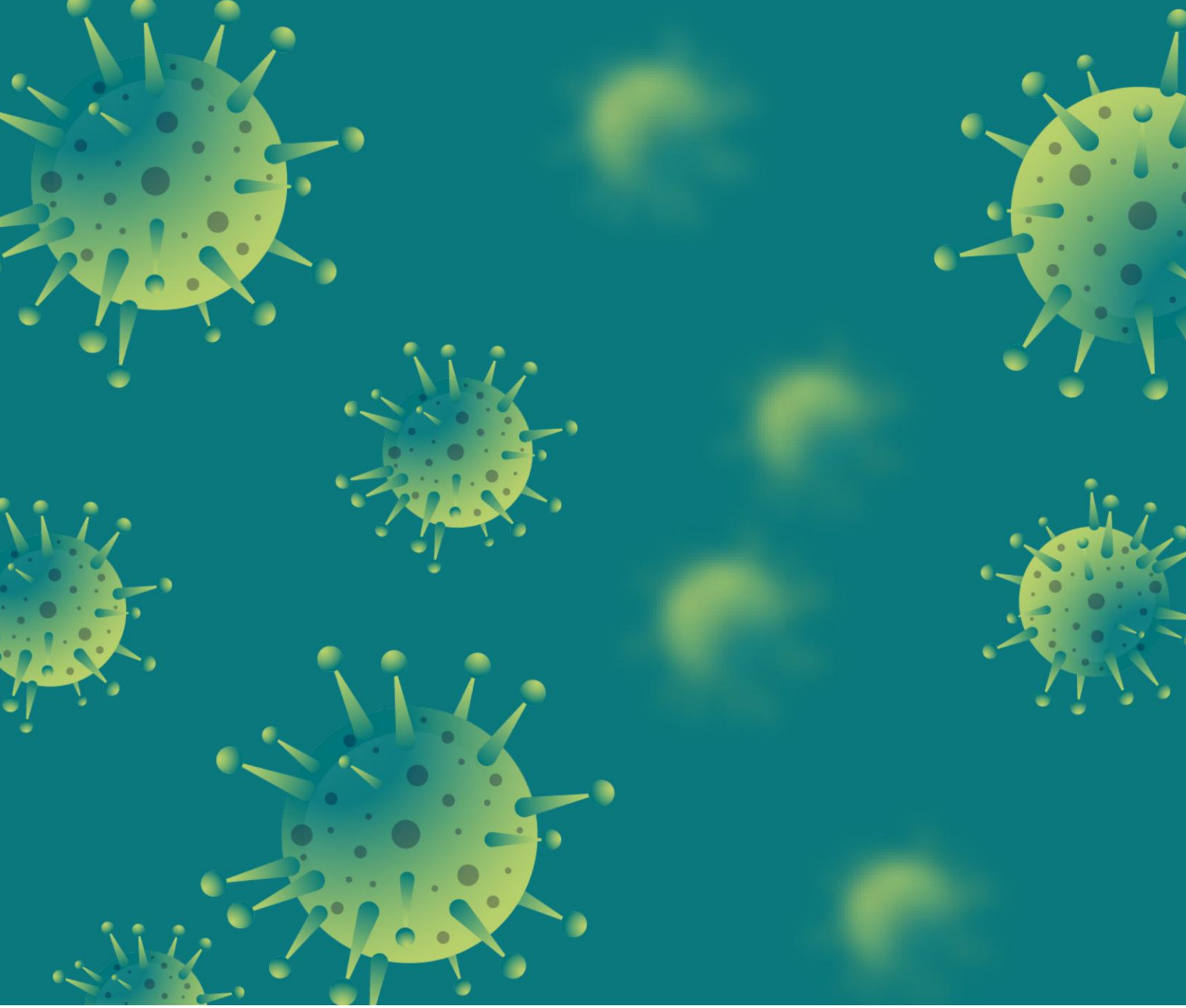

ACIPC

Australasian College
for Infection Prevention and Control

ACIPC Position Statement

Terminology for pathogens that transmit through the air

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ACIPC Position Statement terminology for pathogens that transmit through the air

Executive Summary

Inconsistencies in key terms has resulted in confusion of the use and understanding of transmission pathways. Standardising terminology as knowledge evolves is important for effective communication across all aspects of health.

ACIPC recommends:
Terminology for pathogens that transmit through the air is standardised including;

- Introduction of the term "infectious respiratory particles" (IRPs) to describe respiratory particles containing pathogens that travel through the air.
- Recognition of the spectrum of IRP particle sizes and moving away from using aerosols and droplets to define IRP size.
- The use of "transmission through the air" as the overarching term to describe the movement of IRPs, with subcategories of "airborne/inhalation" and "direct deposition".
- The term "particulate filter respirators" (PFR) is used to replace P2/N95 respirators to provide consistency.

Introduction

The COVID-19 pandemic identified variability and inconsistencies in the use of terminology used for pathogens that are transmitted through the air, resulting in confusion for healthcare workers, health care settings and the community.

The World Health Organization (WHO) Global technical consultation report on the proposed terminology for pathogens that transmit through the air, aimed to bring together viewpoints from experts across a range of disciplines and to seek consensus on the terminology used to describe the transmission of pathogens through the air, that can potentially cause infections in humans[1].

Literature Review

The WHO proposed terminology includes descriptors for pathogens and transmission modes and is presented below[1].

Infectious respiratory particles (IRPs) and infected particles (IPs)

Particles generated by a person infected with a pathogen during the infectious stage of a disease are described as infectious particles (IPs). Pathogens contained within a particle that travel through the air are known as infectious respiratory particles (IRPs), which can enter the respiratory tract through inhalation or deposition on the mucosa. Pathogens within this definition include those that cause respiratory infections (tuberculosis, influenza, severe acute respiratory syndrome (SARS), Middle East respiratory syndrome) as well as those that cause respiratory and other organ system infections (measles, SARS-CoV-2).

IRPs exist on a continuous spectrum of sizes, ranging from sub-micron to millimetres in diameter, and no single cut off point should be used to distinguish smaller from larger particles[1]. The way IRPs travel through or remain suspended in the air is influenced by environmental factors including, ambient air temperature, velocity, humidity, sunlight and airflow distribution[1].

Transmission through the air

'Through the air' is the term used to characterise an infectious disease where the mode of transmission involves the IRP travelling through or being suspended in the air[1] (Table 1). In a similar way that waterborne and blood borne pathogens are used to describe the medium through which specific diseases are transmitted[1].

Within this mode of transmission, two descriptors can be used:

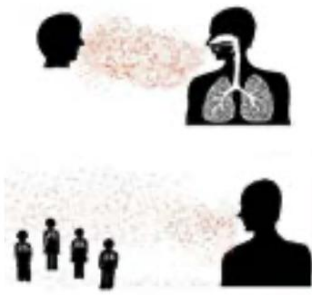
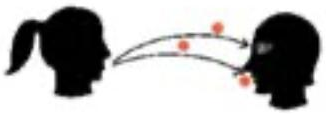
Airborne/inhalational transmission

- Occurs when IRPs are expelled into the air and enter the respiratory tract of another person and may cause infection.
- Transmission can occur when the IRP has travelled either short or long distances from the infectious person or remains suspended in the air.

Direct deposition

- Occurs when IRPs expelled into the air following a short-range trajectory and are then directly deposited on the exposed facial mucosal surface (mouth, nose, or eyes) of another person.
- This term is similar to the existing term 'droplet transmission', however it does not include specific particle size designation.

Table 1. Infectious respiratory particle features and mode of transmission*

Mode of transmission	Typical distance from source	Route of transfer	Respiratory tract entry mechanism	Graphic depiction
Airborne/inhalation transmission	Any distance	Through the air (suspended in air or moving through air flows)	Inhalation	
Direct deposition	Short	Through the air (semi-ballistic trajectory)	Deposition on the mucosa of the mouth, nose or eyes	

*Adapted from: Global technical consultation report on proposed terminology for pathogens that transmit through the air. Geneva: World Health Organization; 2024.

Personal Protective Equipment (PPE)

Terminology relating to mask use in healthcare guidelines and recommendations is variable and used interchangeably across current guidelines and resources, including mask, face mask, surgical mask and medical mask. And P2, N95, particulate mask, particulate respirator, respirator and respiratory protective devices.

The terms 'P2 respirator' and 'N95 respirator' often used interchangeably in the healthcare setting, are used to meet different standards. In Australasia the requirements for P2 respirators are stated in

AS/NZS 1716:2012. The United States National Institute of Occupational Safety and Health (NIOSH) specifies N95 respirator requirements[2].

Consideration must be given to standardised terminology to consistently describe PPE used for pathogens that are transmitted through the air, ACIPC recommends;

Surgical mask

A medical grade mask that must comply with the national standards, graded as level 1, 2 and 3 based on the level of fluid resistant protection they provide[3].

Particulate filter respirators (PFR)

A respirator which forms a tight seal around the face, has higher filtration and is recommended for protection against particles such as fine dust vapours, smoke and aerosolising or airborne infectious diseases. The most common PFRs are P2 or N95 respirators[2].

Considerations to modes of transmission

Aerosol generating procedures and behaviours have been identified as an increased risk in the transmission of pathogens through the air. There is variability in the Australasian guideline's acceptance and use of these definitions. Some procedures are more likely to generate higher concentrations of IRPs than coughing, sneezing, talking or breathing, and potentially place healthcare workers at an increased risk of exposure, however there is no expert consensus or sufficient supporting data to create a definitive list of AGPs in healthcare settings[4].

Consideration must be given to standardised terminology to consistently describe procedures and behaviours that can increase the release of IRPs and form part of the risk assessment for PPE use:

Aerosol generating procedures (AGPs)

A procedure that has potential to generate IRPs, including but not limited to: bronchoscopy, tracheal intubation, non-invasive ventilation, high-flow nasal oxygen therapy, manual ventilation, cardiopulmonary resuscitation, suctioning sputum induction and nebuliser use[2,5].

PPE used during an AGP regardless of the known infectious status should include a particulate filtration mask (PFR), protective eyewear/face shield, in addition to PPE required for standard precautions[2].

Aerosol generating behaviours (AGBs)

Behaviours that are more likely to generate higher concentrations of IRPs such as persistent or severe coughing, screaming, shouting, or heavy breathing and panting during labour[5].

Recommendations

ACIPC recommends the updated terminology is adopted and used consistently within all aspects of health, and across health care and community settings.

References

1. World Health Organization. Global technical consultation report on proposed terminology f or pathogens that transmit through the air. Geneva: WHO; 2024.
2. National Health and Medical Research Council (NHMRC). *Australian Guidelines for the Prevention and Control of Infection in Healthcare*. National health and Medical Research Council; 2019.
3. Safe Work Australia. Comparison of mask types for COVID-19. Safe Work Australia. https://covid19.swa.gov.au/comparison-mask-types-covid-19#:~:text=Surgical%20masks%20are%20medical%20grade,resistance%2C%20they%20provide%20the%20wearer.
4. Centers for Disease Control and Prevention. Clinical Safety: Occupationally-acquired Infections and Healthcare Workers. CDC; 2024.
5. Victorian Department of Health. COVID-19 infection Prevention and Control Guidelines. Melbourne: Victorian Department of Health 2024.

Version

Version	Date	Addition/Amendments	Author	Review By
1.0	Feb 2025	New position statement	IPC Clinical Nurse Consultant	ACIPC Board