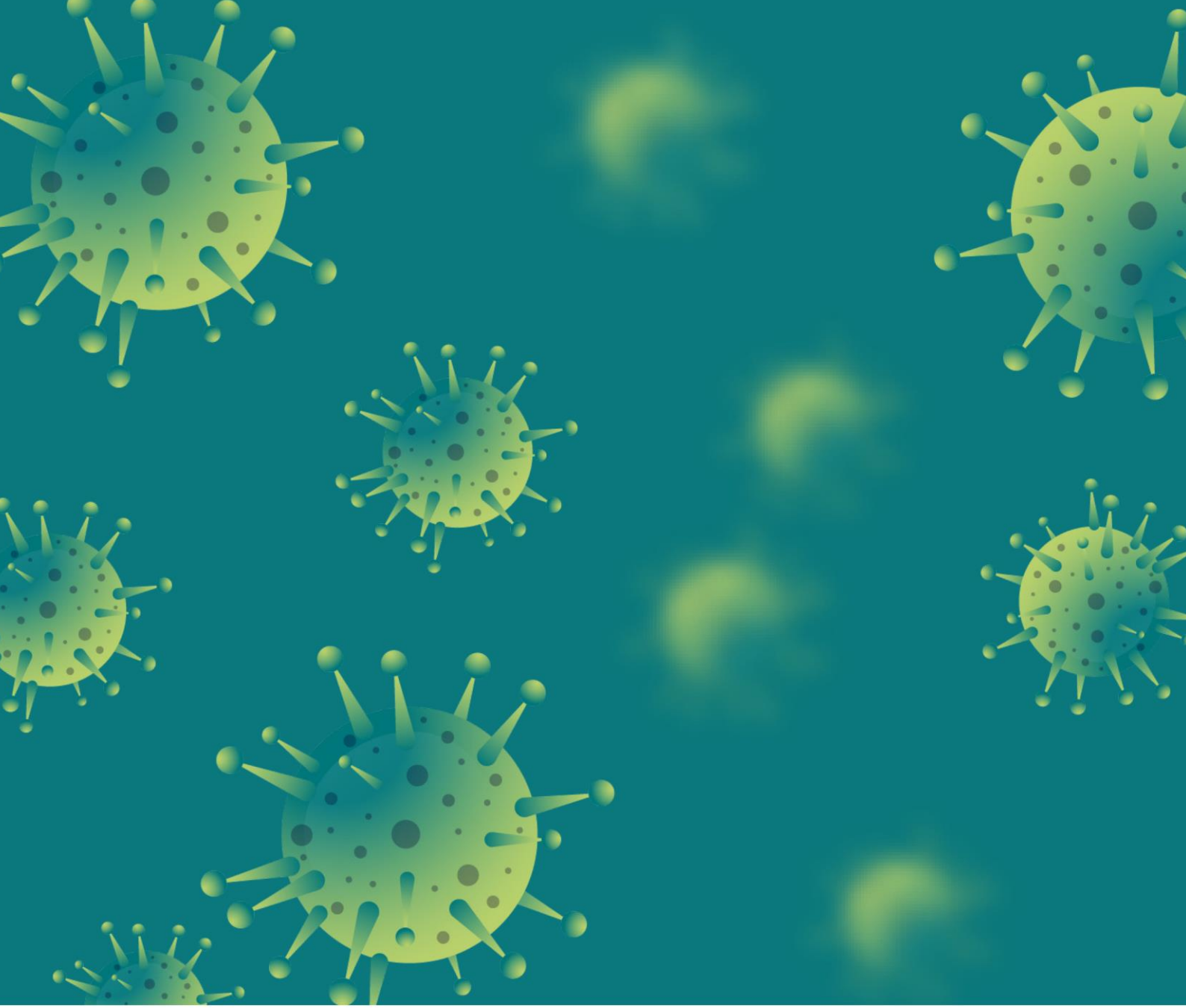

ACIPC

Australasian College
for Infection Prevention and Control

ACIPC Position Statement

The use of particulate filter respirators (PFR) masks for the management of COVID-19 in healthcare settings

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Executive Summary

The Australian College for Infection Prevention and Control (ACIPC) acknowledges the airborne/inhalation transmission risks posed by COVID-19, especially within healthcare settings. ACIPC challenges current Australian infection prevention and control guidelines, which now currently recommend surgical masks based on risk assessment, advocating instead for the consistent use of particulate filter respirators (PFR) in all healthcare environments where COVID-19 is suspected or confirmed. PFRs play a crucial role in mitigating airborne/inhalation transmission of COVID-19. Current evidence demonstrates that PFRs provide superior protection over surgical masks in preventing airborne/inhalation transmission.

The College recommends:

- Recognising the significant risk of airborne/inhalation transmission of COVID-19 in healthcare settings.
- The use of PFR masks over surgical masks to better prevent airborne/inhalation transmission.
- Consistent use of PFR masks in healthcare environments with suspected or confirmed COVID-19.
- A revision of national IPC guidelines to reflect evidence on airborne risks and support PFR mask usage.

Introduction

COVID-19 transmission through the air is by both respiratory droplet (direct deposition) and airborne particles (airborne/inhalation). Evidence demonstrates that COVID-19 is capable of airborne/inhalation transmission, particularly in enclosed spaces, where there is high viral loading and during aerosol-generating procedures (AGPs). Healthcare workers and individuals are at heightened risk due to frequent close contact with patients/individuals and the potential for exposure to aerosolized viral particles. As such, appropriate PPE—especially PFR masks—is crucial in reducing transmission risks.

ACIPC disagrees with Australian infection prevention and control guidelines [1, 9] which recommend surgical masks as standard PPE in healthcare settings, especially in environments where there is suspected and/or confirmed COVID-19 heightening the risk for airborne/inhalation transmission. This statement provides an overview of the need for and benefits of PFR masks in mitigating airborne transmission in healthcare environments.

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Definitions

Term	Abbreviation	Defininiton
Airborne/inhalation transmission		The spread of infectious agents through tiny, aerosolized particles that can be inhaled into the respiratory system.
Aerosol generating behaviours	AGB	Activities that produce tiny droplets or particles suspended in the air, potentially carrying infectious agents.
Aerosol-generating procedures	AGP	Medical interventions or interventions that create small airborne particles, increasing the risk of respiratory transmission of infections.
Airborne particles/ Aerosolized particles		Microscopic particles or droplets suspended in the air can carry infectious agents, potentially leading to respiratory transmission when inhaled.
Coronavirus Disease 2019	COVID-19	Caused by SARS-CoV-2, is a respiratory illness spread through contact, droplets and aerosolized particles, ranging from mild to severe symptoms, with serious risks for vulnerable populations.
Continuous Positive Airway Pressure	CPAP	A medical treatment that uses a constant flow of air to keep the airways open, often used to treat conditions like sleep apnea or respiratory failure.
Severe Acute Respiratory Syndrome Coronavirus 2.	SARS-CoV-2	A novel coronavirus responsible for causing COVID-19, primarily transmitted through respiratory droplets and aerosolized particles.
Direct deposition		The process by which airborne droplets are inhaled and settle directly onto the respiratory tract or mucous membranes.
National infection prevention and control (IPC) guidelines		Evidence-based recommendations and protocols designed to prevent and control the spread of infections within healthcare settings, ensuring the safety of patients/individuals, healthcare workers, and visitors.
Particulate filter respirators	PFR	Personal protective equipment designed to filter out airborne particles, including infectious agents, providing a higher level of protection against inhalation of harmful particles compared to surgical masks.
Respiratory droplets/ Respiratory activity		Droplets of saliva or mucus expelled from the respiratory tract when a person coughs, sneezes, sings, talks, or breathes, which can carry infectious agents and potentially spread diseases.

Surgical mask		A disposable face covering designed to protect against respiratory droplets and prevent the spread of infectious agents, worn in healthcare settings to protect both the wearer and others.

Literature Key Points

Airborne/Inhalation Transmission of COVID-19

The spread of COVID-19 through airborne/inhalation transmission is well documented. Aerosols generated by respiratory activities can remain suspended in the air for prolonged periods, posing a significant risk of transmission, particularly in enclosed environments [8].

Healthcare settings including accident and emergency departments; respiratory wards; areas where aerosol-generating procedures (AGPs) are performed (such as intubation, suctioning, nebulization, and CPAP); locations where aerosol-generating behaviours occur (such as singing, coughing, and yelling); residential care homes during COVID-19 outbreaks; and areas with inadequate ventilation; are environments with a high risk of prolonged exposure to aerosolised particles.

Research continues to highlight that airborne/inhalation transmission may be the dominant route of transmission, thus necessitating enhanced protective measures [6, 13].

Comparison of PFR Masks and Surgical Masks

PFR masks provide higher protection than surgical masks by filtering at least 95% of airborne particles, including the smaller aerosolized viral particles. Surgical masks, while effective in blocking respiratory droplets, are not designed to filter fine aerosols, making them less effective in protecting healthcare workers and individuals against airborne/inhalation transmission of COVID-19. Numerous studies have shown that healthcare workers wearing PFR masks experience lower rates of infection compared to those using surgical masks, particularly in high-risk settings [7, 12].

Efficacy of PFR Masks

PFR masks provide a tighter seal around the face and ensure better protection against airborne particles (CDC, 2023). Their design allows for higher filtration rates and less leakage, which is critical during high-risk interactions, such as performing AGPs or caring for COVID-19 patients/individuals in healthcare environments [7]. The scientific consensus supports the use of PFR masks in these settings to protect healthcare workers and individuals from inhaling potentially infectious aerosols.

International and National Guidelines

International guidelines, including those from the CDC (2022), WHO (2023), Public Health Agency of Canada (2023) and Public Health England (2023), have consistently and strongly recommend PFR masks in risk healthcare settings. These organisations acknowledge that airborne/inhalation

transmission is a primary route of infection for COVID-19, particularly in areas with high viral load or during AGPs.

In contrast, the Australian Government's guidelines for infection control, including the Australian Guidelines for the Prevention and Control of Infection in Healthcare (2019) and the Aged Care Infection Prevention and Control Guide (2024), continue to emphasize the use of surgical masks as standard PPE in most settings, reserving PFR masks for high-risk exposure scenarios (e.g., AGPs).

Following review of the evidence and literature, ACIPC disputes this approach, arguing that it underestimates the risk of airborne/inhalation transmission in healthcare environments and fails to provide adequate protection for healthcare workers and individuals, particularly in situations with significant potential for aerosol exposure.

ACIPC asserts that PFR masks and eye protection should be the standard PPE in all healthcare settings where airborne/inhalation transmission is a risk, not just during AGPs or with COVID-19-positive patients/individuals.

Recommendations

PFR mask use in the management of all pathogens that are transmitted via airborne/inhalation means:

ACIPC recommends the use of PFR masks in all healthcare settings, where there is risk of airborne/inhalation transmission from suspected or confirmed COVID-19 and all other airborne/inhalation transmitted pathogens [6, 10, 11,13]. In addition to the PFR mask, airborne/inhalation precautions require the use of eye protection at all times.

Note: Residential Care Homes and Community Care: Given the vulnerability of individuals in residential care homes and community healthcare settings, it is imperative that healthcare workers use PFR masks in areas/homes where there is confirmed or suspected cases of COVID-19, to protect these high-risk populations from potential airborne/inhalation transmission [10, 12].

Wearing PFR Masks During AGPs:

Healthcare workers should always wear PFR masks during aerosol-generating procedures, including intubation, suctioning, and the use of non-invasive ventilation, to minimize the risk of airborne transmission [5, 6].

Revise National IPC Guidelines:

ACIPC acknowledges the differences in surgical and PFR mask recommendations for the management of COVID-19 and urges governing bodies to review and revise Australian national IPC guidelines to reflect evidence on airborne/inhalation transmission of COVID-19.

Enhance Training and Fit Testing:

To ensure optimal protection, all healthcare workers should undergo annual (and as required) fit testing to ensure the correct mask fit (IPC and aged care IPC Guide. Healthcare workers must be provided with and undertake regular training and competency (including fit checking) achievement

to ensure the correct use of PFR masks. This will help ensure that masks provide a secure fit and the highest level of protection.

Improve Ventilation and Infection Control Measures:

In addition to PPE, healthcare facilities should enhance ventilation and adopt additional infection control measures, such as isolation protocols, to reduce the overall risk of airborne transmission.

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Version

Version	Date	Addition/Amendments	Author	Review By
1.0	April 2025	New Position Statement	IPC Clinical Nurse Consultant	ACIPC Board