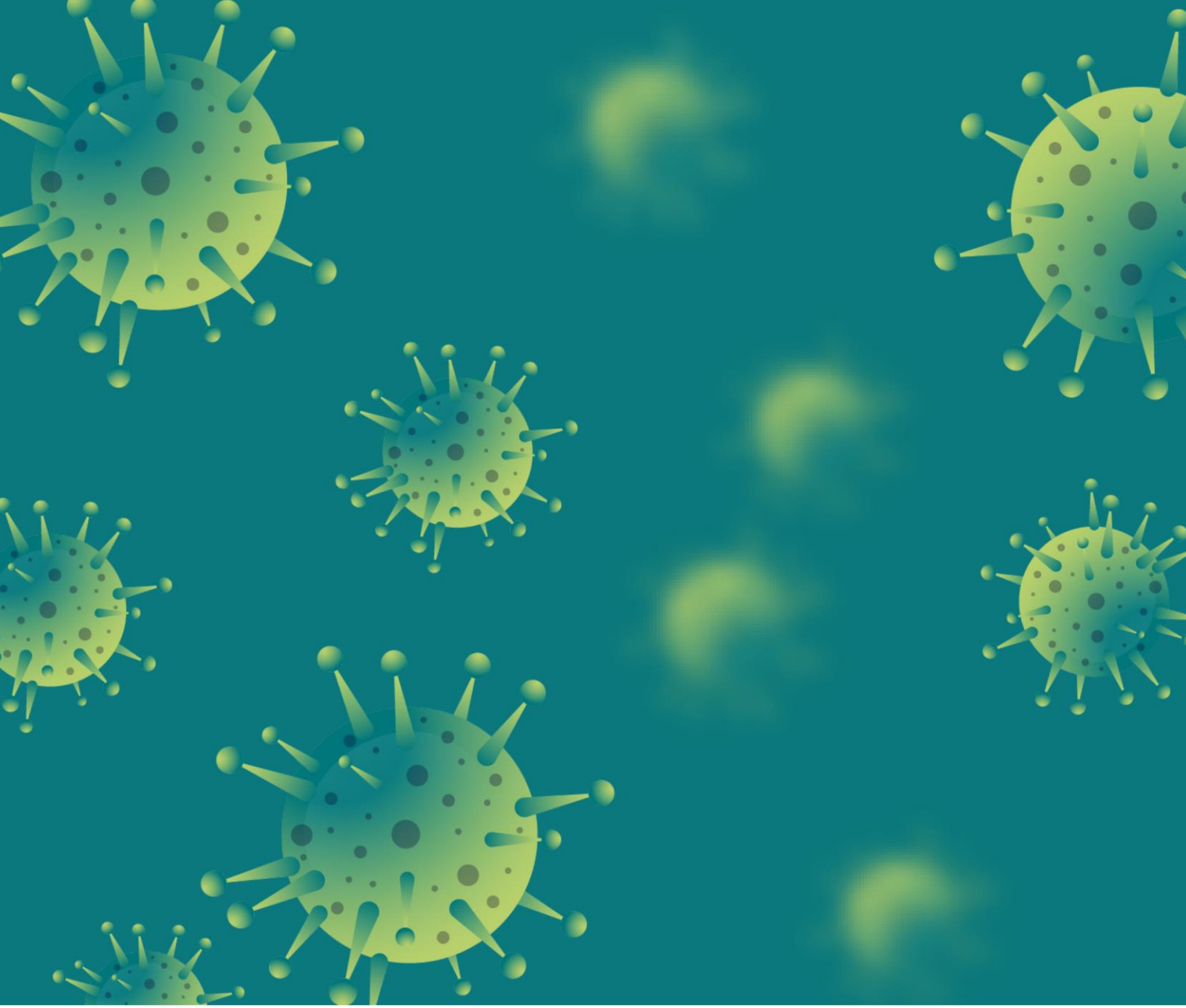

ACIPC

Australasian College
for Infection Prevention and Control

# ACIPC Position Statement

# IPC considerations for planning & construction in healthcare settings.

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# ACIPC Position Statement IPC considerations for planning and construction in healthcare setting.

## Executive Summary

Construction and renovation activities within healthcare settings present significant risks to patient and consumer safety, related to design principles, and environmental disruptions that increase transmission risk of infectious pathogens. Infection Prevention and Control (ICP) principles must be considered during the planning, design and implementation phases of construction and renovation activities within the healthcare setting to target elimination and minimization of these risks. The COVID-19 pandemic highlighted challenges in the management of consumers within existing facility infrastructure, and emerging evidence demonstrates greater consideration and mitigation of IPC risks is vital when planning and re-designing new facilities to ensure staff and consumer safety.

**ACIPC recommends:**

- Guidelines and resources are reviewed and updated to reflect emerging and contemporary evidence to include IPC risk elimination strategies in planning the design of new, re-design and renovation of existing healthcare facilities.
- Infection prevention and control professionals must be involved at the outset in the planning, co-design and construction activities within healthcare facilities, including consumer placement considerations, single rooms, negative pressure rooms, and environmental assessments.

## Introduction

The application of infection prevention and control (IPC) principles during the planning, design and execution of renovation and construction activities in healthcare settings is fundamental to reduce the risk of infection during the demolition, construction and renovation phase, and to provide a safe setting that minimises healthcare associated infection risks for consumers. A robust governance structure that engages key stakeholders in all stages of the construction and renovation project within the healthcare setting will minimise risks to consumers, healthcare workers (HCWs) and visitors.

There are significant design and planning lessons to be learnt from the COVID-19 pandemic with consideration to IPC risks during the planning phase of renovation or new developments. Evidence based risk assessment frameworks, including the hierarchy of controls framework, when used in conjunction with infection prevention and control principles, provides a two-tiered approach to risk mitigation strategies[1]. The use of contemporary evidence to assess risk and implement design guidelines in the post-pandemic era, are required to ensure key IPC risks are identified and included in much needed updated resources.

The risks associated with the planning phase of healthcare settings include but are not limited to; ventilation and air flow, single room design, negative pressure and negative air flow rooms, and

hand hygiene sink and product placement. Considerations related to the construction and renovation phase include contamination and dissemination of bacteria and fungi, dust control strategies and disruptions to and contamination of water supplies, all of which can lead to healthcare-associated infections[2]. Risks associated with planning and renovation of healthcare facilities can lead to increased exposure risk and transmission of infections within the facility if IPC risks are not mitigated.

## Definitions

**Healthcare facility:** the building and facilities in which care is provided – includes visits, short stay or permanent.

**Healthcare setting:** Places and services where healthcare occurs, including acute care hospitals, urgent care centres, rehabilitation centres, aged and disability residential care, specialised outpatient services (e.g., haemodialysis, dentistry, and office-based services), and community care.

**Healthcare worker:** anyone who works in a healthcare or social care setting, e.g., medical practitioners, nurses, midwives, carers, dentists, allied health, students on placement; as well as executives, managers, and administration.

**HVAC:** Heating, ventilation, and air conditioning system

## Literature Review

The COVID-19 pandemic highlighted existing infrastructure deficits in many healthcare facilities and provides opportunity for significant learnings to expand the body of available research and challenge current guidelines, with the potential to have a sustained impact on patient outcomes, workforce resourcing and healthcare expenditure.

Construction and renovation within the healthcare setting must comply with the relevant standards, legislative, and regulatory requirements, in addition to guidelines issued by local jurisdictions. However, many of these recourses were developed pre-pandemic, and are largely outdated when considering the risks associated with IPC in the health care setting.

The Australasian Health Facility Design Guidelines (AusHFG) Part D – Infection Prevention and Control[3], reviewed pre-pandemic in 2016 and currently under review, do not take into consideration contemporary or practical advice for minimising infection risk in healthcare facilities. The AusHFG released the Pandemic Preparedness – Health Infrastructure Planning and Design Guidance in 2023[4], with the intention to ensure future hospital development and health systems are responsive to pandemics and surges of respiratory infection case numbers. These guidelines take into consideration updates to HVAC systems and air exchanges, provisions for maximising outside air circulation or filtration units, placement of PPE stations and configuration of single rooms.

### Risk Assessment

IPC risk assessments require the integration of multiple strategies and should include the use of the hierarchy of controls framework in conjunction with infection prevention and control principles to

strengthen the risk assessment. The hierarchy of controls framework provides a tiered approach to implement multiple strategies simultaneously to minimise hazards and where possible eliminate risk[3]. The focus on planning and design of healthcare settings should be the elimination of hazards and risks, which is considered the most effective control strategy within the framework and provides the highest level of protection. Considerations to this control strategy must be embedded within planning and design of projects, to ensure the healthcare environment poses no risk to patients, for example; considerations for increased single rooms, and placement of hand washing sinks away from patients. The AusHFG Pandemic Preparedness guidelines outline the use of this framework in the pandemic setting but does not provide guidance on the use of this framework in the context of other infectious diseases, and while the general principles would apply, more structured and specific advice is required to implement and integrate this framework successfully into infection prevention and control policy and procedures within the healthcare setting.

**Hand washing**

Design implications related to hand washing activities require review and updated consideration to the risks associated with hand basins and transmission of multi-resistant organisms (MROs), and waterborne diseases[5,6]. Emerging research investigating contamination from hand washing sinks within a 2-meter splash zone in critical care areas identified invasive access equipment in use within the splash zone of 65% of sinks, and alcohol-based hand rub (ABHR) and personal protective equipment (PPE) within the splash zone of 57% of sinks[7,8]. Challenges with space in clinical areas can lead to items being stored or used in close proximity to hand washing sinks and places them at risk of splash contamination. Recommendations for the placement and frequency of hand washing sinks requires review given the increased use of ABHR, and risk of contamination.

**Single rooms**

The provision of single rooms has been identified as the single most effective IPC strategy to reduce IPC exposure and transmission infection risks. The current AusHFG – Part D and Australian Guidelines for the Prevention and Control of Infection in Healthcare[9] both recommend a calculation to project the required number of single rooms that considers trends in infections from the previous year[3]. However considerations for increasing the number of single rooms must be given to projections of healthcare associated infections (HAI) and antimicrobial resistance (AMR), with estimates of one in five HAIs being caused by a multi-resistant organism by 2030[10]. The more recent AusHFG pandemic preparedness guidelines recommend 60-80% of a new-build rooms are single rooms, with some specialized areas requiring 100% single rooms[4]. Negative pressure rooms and single rooms with negative airflow are recommended in clinical areas based on the risk profile[4]. Updates to the guidelines are required to consider more stringent controls for the number of single rooms, taking into consideration updated evidence on the transmission of pathogens via viral particles.

## Recommendations

IPC and health facility design guidelines and resources require review in light of emerging and contemporary evidence. The inclusion of IPC related risk considerations and mitigation strategies during the planning and design phase of healthcare facilities is required to reduce the risk of infections to consumers, healthcare workers and visitors.

Infection prevention and control professionals must be involved at the outset in the planning, co-design, renovation and construction activities within healthcare facilities, including consumer placement considerations, single rooms, negative pressure rooms, and environmental assessments.

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## Version

| Version | Date | Addition/Amendments | Author | Review By |
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