

# Laying the groundwork to support statewide IPC Professional involvement in health infrastructure projects

Belinda Andrews - Infection Prevention and Control CNC  
Queensland Infection Prevention and Control Unit, Queensland Health

*Acknowledgements - Belinda Henderson, Toni McLean, Kathryn O'Brien, QIPCU colleagues and statewide ICPs*

I wish to acknowledge the Muwinina people the Traditional Owners of Nipaluna, the lands we are on today, and pay my respect to their Elders past and present

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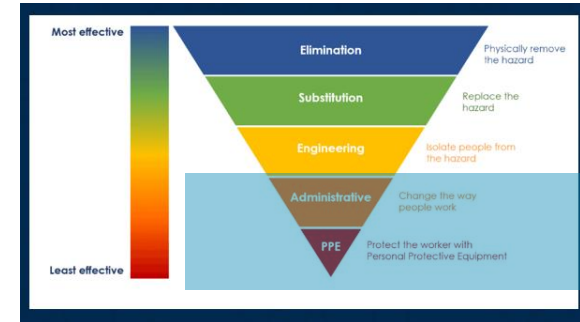


# Infrastructure works in hospitals today



# Risks – construction and the built environment

- 200,000+ HAIs per year – Australia (NHMRC, 2019)
- Many inherent risks (not just hand basins)
  - Layout and workflow
  - Surfaces and furnishings
  - Environmental factors: air handling, water quality management, monitoring and maintenance
  - Storage options and availability
  - Hand hygiene and PPE
  - Reprocessing
  - Human factors
  - Construction
- Less reliance on lower forms of control.





## Construction-related incidents and risks



# Health and environmental risks for construction and redevelopment



# Questions raised after five infections, two deaths among heart surgery patients

Precautions Taken Following Alleged Fungal Infection Outbreak at Chermerside Hospital



Transplant patients die from fungal infection after surgery at major Queensland hospital

Carpark construction focus in fungal infection cluster at Hospital in Brisbane

'That is certainly one theory.'

## Health boss backs Brisbane hospital over fungal infection cases



**Enhanced reputation of healthcare facility**



**Prevent outbreaks**



**IPC risks engineered out**

**Reduce redesign, rework and saves money**

**Early and consistent engagement with ICPs is critical for safe design and delivery of healthcare facilities**



**Future proof facilities with features designed in, to support best IPC practice, and address human factors**





## Reducing design errors and missed opportunities



“You don't have to see the whole staircase, just take the first step”

**Martin Luther King Jr**

*It was included at X hospital so must be ok install*

*Other standards and codes trump IPC in this instance*

*There's no budget allocated for .....*

*Designs are signed off, sorry it's too late!*

*AusHFG are "just a guide!"*

*It's not your job!, don't worry*

# Governance

# Advocacy



Achieve fit for purpose facilities

Ensure clinical safety from day one



Work collaboratively with QLD ICPs during entire project lifecycle



Embed IPC into project governance structures, influence design briefs, layouts and procurement



Minimise or eliminate risks for construction redevelopment and the built environment

# Education and capacity building

# Legislation

Chapter 4 Public Health Act 2005 (QLD)  
Environmental Protection Act 1994 (Qld)  
Work Health and Safety Act 2011 (Qld)  
Hospitals and Health Boards Act 2011 (Qld)

# Standards

NSQHS - Preventing and Controlling Infections Standard – actions 3.13 and 3.14  
Building Codes  
Australian/ New Zealand standards (plumbing, air-conditioning, food, sewerage)

# Guidelines

NHMRC Australian Guidelines for the Prevention and Control of Infection in Healthcare  
AusHFG (room layout sheets, Health planning units)  
Capital infrastructure guidelines

# Project governance

PSC, PCG, EUG, PUG  
HIQ Project teams  
HHS Project teams

HHS  
ICP

# Governance



# Laying the groundwork - Governance

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## Construction, redevelopment, and the built environment - Integration of infection prevention and control principles

May 2025, version 1.2

### Key messages

- Infection Prevention and Control Professional (IPC) input is critical during all stages of the Queensland Health infrastructure project lifecycle during DESIGN, PROCURE and BUILD.
- Construction and redevelopment require extensive planning and consultation using a systematic approach to design-in risk-reduction features that support effective infection prevention and control (IPC) practices and design-out hazards that may cause harm.
- The importance of partnerships and effective communication between the IPCs, project managers, and other stakeholders cannot be overestimated. The value of shared expertise, a high level of commitment, understanding, and cooperation by all, combined with efforts to reduce infection risks, ensures safe, fit-for-purpose spaces for patient care.
- The importance of partnerships and effective communication between the IPCs, project managers, and other stakeholders cannot be overestimated. The value of shared expertise, a high level of commitment, understanding, and cooperation by all, combined with efforts to reduce infection risks, ensures safe, fit-for-purpose spaces for patient care.
- Construction and redevelopment may place patients, staff, and visitors at risk of serious harm when the environment and/or air, water heating, and ventilation (HVAC) systems become contaminated by dust or debris that carries microorganisms.
- Appropriate IPC measures must be in place throughout the QH infrastructure project lifecycle to reduce harm.
- The most common organisms implicated in outbreaks associated with construction activities include *Aeruginosa* and *Legionella*. Many other organisms can cause harm. Therefore, those named within this guideline are not an exhaustive list.
- The [Infection Prevention and Control Building and Refurbishment checklist](#) should be used for any construction/redevelopment project. The [Construction Action Plan and Audit](#) can be used to document site inspections.
- Before commencing work, project teams should submit a detailed construction risk assessment and action plan for review and approval by the IPC Committee. Construction/redevelopment projects should not commence until such approvals have been gained.
- Construction projects must comply with all statutory requirements, directives, policies, and service delivery requirements and demonstrate continuous improvement in asset planning, maintenance procedures and risk management.
- Evaluation of activities associated with construction, redevelopment, and the built environment should be carried out on completion of tasks.

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## Infection Prevention and Control (IPC) Building and Refurbishment Works Checklist

### 1 Introduction

Infection prevention and control (IPC) is a key priority in Queensland Health hospitals. All building refurbishment and maintenance activities within a healthcare facility should incorporate a formal approach to risk management. This also includes building and refurbishment works undertaken adjacent to health services that are likely to impact patients, other users of the health services, or staff. Construction project staff **MUST** submit a **formal construction risk assessment and action plan**, and formally engage the services of **infection prevention and control** for all building and refurbishment and related activities within clinical buildings or a hospital.

#### Project managers/Builders MUST work with key stakeholders to:

- Identify any at-risk populations.
- Identify the location of at-risk populations during construction.
- Develop an overarching **construction risk assessment and action plan** which includes a detailed summary of IPC mitigation strategies to be utilised throughout the project. [The IPC building and refurbishment works checklist](#) may be used to inform the overarching risk assessment.
- **Continue ongoing risk assessments** (for example, disruptive work statements) which details mitigation strategies to be utilised throughout project.

#### It is recommended local infection prevention and control services:

- Know the transmission route of a likely pathogen and measures to mitigate the risk in the planning stages.
- Review documentation provided by project managers and consider risk rating applied for the project.
- Review and approve builders' construction risk assessment and action plan.
- Table action plans at Infection Prevention and Control Committee or equivalent.
- Monitor IPC recommendations for duration of project and update as required.

### 2 Procedure

Determine the following and complete the IPC Building and refurbishment works with **Project Coordinator, relevant stakeholders and ensure infection prevention and control sign off before commencement of works.**

- **Step 1:** Determine TYPE of construction – the "Construction Activity Type" as either Type A, B, C or D.
- **Step 2a and 2b:** Categorise GROUP – Using the [Infection Control Risk Groups and Individual Patient Risk factors to consider for Invasive Aspergillus Infection](#), identify the Patient Risk Group.
- **Step 3:** Determine CLASS – Using the "Construction Class Matrix" identify the Class by cross referencing the Construction Activity Type against the Risk Group to determine if Type I, II, III, IV which informs the types of IPC precautions to be put in place.
- **Step 4:** Finalise IPC Recommendations and ensure sign off prior to commencement of project. Review recommendations during works and update if required (for example, new risks identified)
- **Step 5:** Monitor renovation and construction activities using Infection Control Daily Check List.
- **Step 6:** Completion of IPC Sign-off and Pre-Commissioning Checklist on completion of works.

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## Construction action plan compliance audit

Class of Works II to IV redevelopment, maintenance and construction

Facility:		Month:	
Location:		Year:	
Project Manager:			

Class of works	During Construction Project
<b>Class I*</b>	<ol style="list-style-type: none"> <li>1. Execute work by methods to minimise raising dust from construction operations.</li> <li>2. Immediately replace a ceiling tile displaced for visual inspection.</li> </ol>
<b>Class II**</b>	<ol style="list-style-type: none"> <li>1. Provide active means to prevent airborne dust from dispersing into atmosphere.</li> <li>2. Water mist work surface to control dust while cutting.</li> <li>3. Seal unused doors with duct tape.</li> <li>4. Block off and seal air vents.</li> <li>5. Place dust mat at entrance and exit of work area.</li> <li>6. Remove or isolate HVAC system in areas where work is being performed.</li> </ol> <p>*It is strongly recommended that highest risk patients are assessed for additional measures (such as mask wearing or change to antibiotic prophylaxis regimen) dependent on construction activity</p>
<b>Class III**</b>	<ol style="list-style-type: none"> <li>1. Remove or isolate HVAC system in area where work is being done to prevent contamination of duct system.</li> <li>2. Complete all critical barriers i.e., plasterboard, plywood, plastic, to seal area from non-work or implement control cube method (cart with plastic covering and sealed connection to work site with HEPA vacuum for vacuuming prior to exit) before construction begins.</li> <li>3. Place dust-mat at entrance and exit of work area and replace when no longer effective.</li> <li>4. Maintain negative air pressure within work site utilising HEPA equipped air filtration units.</li> <li>5. Contain construction waste before transport to prevent construction waste spill, e.g., place waste in tightly covered containers.</li> <li>6. Cover transport receptacles or carts. Tape covering unless solid.</li> </ol> <p>**It is strongly recommended that highest risk patients are assessed for additional measures (such as mask wearing or change to antibiotic prophylaxis regimen) dependent on construction activity</p>
<b>Class IV**</b>	<ol style="list-style-type: none"> <li>1. Isolate HVAC system in area where work is being done to prevent contamination of duct system.</li> <li>2. Complete all critical barriers i.e., plasterboard, plywood, plastic, to seal area from non-work area or implement control cube method (cart with plastic covering and sealed connection to work site with HEPA vacuum for vacuuming prior to exit) before construction begins.</li> <li>3. Place dust-mat at entrance and exit of work area and replace when no longer effective.</li> <li>4. Maintain negative air pressure within work site utilising HEPA equipped air filtration units.</li> <li>5. Seal holes, pipes, conduits, and punctures appropriately.</li> <li>6. Construct anteroom and require all personnel to pass through this room. Staff should be vacuumed using a HEPA vacuum cleaner before leaving work site or staff wear cloth or paper coveralls that are removed each time they leave the work site.</li> <li>7. All personnel entering work site should be encouraged to keep footwear clean and free from debris.</li> <li>8. Do not remove barriers from work area until completed project is inspected by infection control team and thoroughly cleaned by operational services.</li> </ol> <p>**It is strongly recommended that highest risk patients are assessed for additional measures (such as mask wearing or change to antibiotic prophylaxis regimen) dependent on construction activity.</p>

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“Never doubt that a small group of thoughtful, committed citizens can change the world. Indeed, it is the only thing that ever has.”

**Margaret Mead**

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- AusHFG working groups with peers AU/NZ
  - Part D – Infection prevention and control
  - Inpatient unit and standard room designs
  - Ambulatory Care Unit
  - Mental health intensive care unit
  - Isolation room – engineering and design requirements
- Collaboration with local and statewide infrastructure teams
  - Dedicated meetings
  - Joint designs (hand hygiene basins)
  - Contribute to planning documents
  - Project issues

# Advocacy

“Our greatness comes when we appreciate each other’s strengths, when we learn from each other, when we lean on each other.”

**Michelle Obama**



- Principles to encourage ICP engagement
- Presentations at Princess Alexandra Hospital course
- 2025 Post forum workshop
- Individualised support and advice
- Statewide updates (memorandum)
- ACIPC national course - “in progress”.

# Education and Capacity building

We are what we  
repeatedly do.  
Excellence, then,  
is not an act, but a  
habit.

**Aristotle**



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- **Key takeaway:** ICP involvement must be embedded across the infrastructure lifecycle.
- **Enablers:**
  - Statewide guidance and assessment tools
  - Interdisciplinary partnerships
  - Ongoing education, advocacy and capacity building.

# Key takeaways



# Conclusion & Call to Action

*“Safe design isn’t just good design.....it’s infection prevention in action. And that’s why infection control professionals must be at the table from the start.”*

Thankyou to QIPCU team.

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