



Negative Pressure Isolation Room Type 5 Procedure

Effective: 1 March 2017

1. Guiding Principles

Airborne transmission occurs when either airborne droplet nuclei or dust particles disseminate infectious agents. Air currents can widely disperse such microorganisms, which a susceptible host (near or quite far from the source patient) can then inhale. Control of environmental factors is necessary to limit airborne transmission of microorganisms such as measles, chicken pox and Mycobacterium tuberculosis (TB).

Pressure Gradients

[Australian Standard \(AS\) 1386](#) determines the minimum differential pressure between the isolation room and adjacent ambient pressure areas should be 30 pascals (Pa) if the room has an ante room or airlock and 15Pa if the room does not have an airlock. The gradient between successive pressure areas should not be less than 15Pa.

Anteroom or airlocks have three distinct functions, they provide:

- 1.1 a barrier against loss of pressurisation and entry or exit of contaminated air into or out of the isolation room when the door to the airlock is opened
- 1.2 a controlled environment in which protective garments can be donned, without contamination, prior to entry into the isolation room
- 1.3 a controlled environment in which equipment, supplies and the like can be managed to enable transfer to or from the isolation room without contaminating the surrounding areas.

2. Procedure

Facilities with negative pressure isolation rooms

A negative pressure room is a single room with an ensuite and an anteroom. Negative Pressure Rooms (type 5) locations:

- 1 in High Dependency Unit Room 5 (GL 0630).
- 1 in Medical ward Room 40 (L1 0344).
- 1 in Paediatric ward Room 60 (L1 0396).
- 1 in Emergency Department this has Room (GL 0524).
a carbon filter in the
decontamination setting to exhaust
chemical fumes.

- 2.1 **Nurse Manager** identifies patient admitted with communicable disease transmitted by airborne route as defined in [Australian Commission on Safety and Quality in Health Care – National Infection Control Guidelines 2010](#).

- 2.2 Nurse Manager informs shift coordinator of requirement for negative pressure room.
- 2.3 **Shift Coordinator** allocates room or arranges intra hospital transfer via nurse manager. If no negative pressure rooms are available for a patient that requires airborne transmission precautions the patient is to be nursed in a single to room with airborne transmission precautions in place.
- 2.4 **Nurse caring for patient** checks that isolation switch is on, all doors are closed and pressure is – 30 pascals (or air changes = 145 litres per second).
- 2.5 If pressure is not correct submit an EWAMS. If the patient requires airborne transmission precautions transfer the patient to another negative pressure room if available.
- 2.6 Explain to patient why the additional transmission precautions are necessary and provide relevant [fact sheet](#).
- 2.7 Document in the patient's nursing care plan, airborne transmission precautions in place and utilisation of a negative pressure room.

Each negative pressure room has a panel (see [Appendix](#)), that continually monitors the pressure within the room and an alarm system.

If negative pressure is not required turn off with key which is kept with the after hours Nurse Manager.

- The circular gauge and room pressure identify patient room pressure; the optimal range is negative 30 Pascals.
- Please note there will be a drop when doors are open and closed.

3. Definitions

Negative Pressure Isolation Rooms (type 5)	A single room with a shower/toilet en suite and self-closing door that has a negative pressure/flow lower than adjacent areas, which keeps air from flowing out of the room and into adjacent areas. This is particularly important for reducing the risk of micro-organisms being spread by airborne transmission from a source patient (suspected or known to have an airborne infection) to susceptible patients and other persons in the hospital.
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4. Roles and Responsibilities

Monitoring: The Negative pressure rooms have a warning light system. An orange light will flash on the control panel outside the room. If this light flashes nursing staff are to notify engineering during office hours and Duty Nurse Manager out of hours. The negative pressure system is also continuously monitored through the BMS system. Any faults or alerts will be brought to the attention of engineering department via paging and telephone systems 24 hours a day.

Contingency plan room pressure failure

If the room's negative pressure is not functioning the contingency plan is:

- If the patient requires airborne precautions move them to another available negative pressure room. If another negative pressure is not available commence precautions in a single room set up with the requirements for airborne precautions. (this can be the negative pressure room they are already in).
- If the patient requires contact or droplet precautions the patient can remain in the negative pressure room without the pressure and precaution requirements in place.

Testing of negative flow/pressure room

Testing six (6) monthly or after a repair of room, performed and registered by maintenance staff.

- In patients room hold non-irritating smoke test tube near the bottom and approximately two inches in front of the door.
- Move the smoke test tube along the bottom of the door ensure the room is under negative pressure, by observing the smoke travelling up into the room.
- If the room is not under negative pressure, the smoke will be blown under the door or remain stationary.

5. Compliance

- Monitoring of the negative pressure system is through BMS monitoring.
- The planned maintenance schedule should have a minimum of a 13-week cycle and include checking such items as:
 - air change rate
 - supply air and exhaust quantities
 - terminal filters
 - exhaust registers
 - room pressure gauges
 - damage to the room interior
 - supply and exhaust fans
 - room seals and door closer
 - building automation system connections where fitted.

6. Evaluation

Annual report from Maintenance Department to Regional Infection Control Committee

7. References

- [Australian Standard 1386 and 1668.2](#)
- Business briefing: hospital engineering and facilities management 2004 Design of Hospital Isolation Rooms by Kevin Moon
<http://www.readbag.com/touchbriefings-pdf-747-hosp041-moon>
- Operating and maintenance manual. 2006. Rockingham hospital - Phase One, Building Management and Control System.
- Victorian Isolation room Guidelines. 2007. Guidelines for the classification and design of isolation rooms in health care facilities. Victorian Advisory Committee on Infection Control
- [Australian Commission on Safety and Quality in Health Care – National Infection Control Guidelines 2010](#)

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APPENDIX

Wards



Emergency Department

