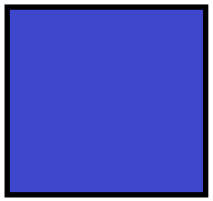
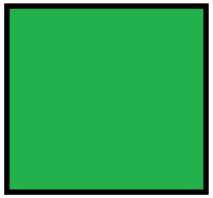
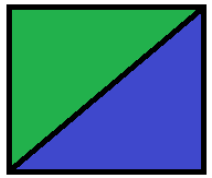
Worcestershire Acute Hospitals NHS Trust

Appendix 6 Monitoring of Isolation Rooms

WAHT Isolation Room Ventilation Risk Parameters		
		
Blue Square denotes a **negative pressure** room, these rooms should be used for patients who are Infectious – where other people can be harmed by exposure to their condition	Green Square denotes a **positive pressure** room, these rooms should be used for patients who are Neutropenic – can be harmed by exposure to pathogens	A Blue / Green square denotes a **switchable** room, these room can be made **either positive or negative**. The room will have a gauge outside showing the pressure status of the room as positive or negative. Clinical staff must always check the pressure status of a room before putting a patient into a room and ensure the pressure setting is correct. If staff are unsure of the pressure status or do not know how to change the pressure status, they should contact Estates for guidance

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Ventilation Systems and Isolation Rooms

Maintenance is carried out at 3 and 6 monthly intervals. The ward will be informed by Estates staff of any planned maintenance. They will place a sign on the door of any room that is affected. Loss of pressure for a short period of time (less than one hour) is not considered to be significant.

For planned maintenance taking longer (up to 4 hours), ward staff should keep traffic in and out of the room to a minimum (for rooms under positive pressure) and also avoid activities that generate aerosols (aerosol generating procedures -AGPs) of airborne pathogens as far as is clinically possible (for rooms under negative pressure) until the appropriate pressure is regained in both instances.

Please note: some rooms can be switched from positive to negative pressure (rooms identified by the blue/green square) in order to nurse infectious patients. It is important that these rooms are thoroughly cleaned before being switched back to a positive pressure.

ALWAYS action when the red light at the nurses' station starts flashing and illuminating "isolation rooms: pressure failure".

This should be an extremely rare event but indicates that both supply and extract systems have failed and been shut down. The magnehelic gauge will read zero. In the event that this should happen, please ensure that you inform Estates via Helpdesk and follow the guidance above (for maintenance up to 4hrs).

Airborne Isolation

Single rooms suitable for this type of isolation will display either a blue square or a blue/green square (as above). These rooms should be monitored by ward staff **daily** when in use for a patient with an infection and a record kept; a proforma for use is attached to this appendix.

These rooms are required for all patients with an infection that is spread by the **airborne** route

The magnehelic gauge above the single room door measures the pressure difference between the room and the corridor. The room should always be **negative** (magnehelic needle to the left – see picture below) relative to the corridor so that no air escapes from the single room.

Normally, the pressure should be minus 20 pascals (in the left/red zone). This may vary slightly, but if negative pressure drops to 10 pascals or less (in the left/red zone), then report the problem to Estates via the Helpdesk. If the problem persists, inform the Infection Prevention Team (IPT).

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Neutropenic Isolation (Protective Isolation)

Single rooms suitable for this type of isolation will display either a green square or a blue/green square (as above). These rooms should be monitored by ward staff **daily** when in use for an immunocompromised patient (e.g. neutropenic) and a record kept; a proforma for use is attached to this appendix.

The magnehelic gauge above the single room door measures the pressure difference between the room and the corridor. The room should always be **positive** (magnehelic needle to the right – see picture below) relative to the corridor so that no air enters the single room that could be carrying potentially pathogenic organisms to the patient. Windows should also always be kept shut as organisms, particularly fungal spores, from outside are also potentially hazardous.

Normally, the pressure should be minus 20 pascals (in the right/green zone). This may vary slightly, but if positive pressure drops to 10 pascals or less (in the right/green zone), then report the problem to Estates via the Helpdesk. If the problem persists, inform the Infection Prevention Team (IPT).

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High Level Infectious Isolation Rooms (Avon 3 rooms 12 & 14)

These rooms are designated for the care of patients with infectious such as Multi-Drug Resistant Tuberculosis (MDR-TB). Much of the time, however, these will function as standard infectious isolation rooms.

When a patient with an infection such as MDR-TB is due to be admitted, the monitoring panel by the nurses' station should be switched on using the key (located in Sister's Office) to activate the enhanced monitoring system.

It is critical that these negative pressure rooms are **never** allowed to become positive, as this could result in the spread of infectious particles into the corridor and subsequent ward areas. There are, therefore, several failsafe mechanisms built into the ventilation system; the monitoring panel on the ward is the most important of these as it monitors whether the rooms are at negative pressure in relation to the corridor.

Figure 1.

As with routine isolation, a daily record of the pressure reading for each room should be kept by the ward. This can be obtained from the control box mounted on the wall at the nurses' station. The proforma attached to this appendix can be used.

Figures 2 & 3

A light will show over the room (as Figure 2). The door & window must remain closed in order to maintain negative pressure. If pressure is lost, the red light above the relevant room will light up. Check that both door and window are closed in the first instance.

If pressure is lost for 5 minutes, the red flashing light (Figure 3) over the nurses' station will activate, giving a further prompt to check the room. If pressure remains lost for 10 minutes, the claxon alarm will sound from the display panel and an alert is electronically sent to the Estates control system.

There are 3 levels of action following a loss of pressure:

First Level (immediately on loss of pressure):
Red light over room.

Action:

- Ensure door is closed again as soon as is convenient.
- Ensure window has not been opened.

Second Level (after 5 minutes of lost pressure):
Red light over nurses' station flashing.

Action:

- A further opportunity to ensure doors and windows are closed.

Third Level (after 10 minutes of lost pressure):
Claxon sounding from control panel:

If no local reason for failure, the problem will lie in the supply and extract of air which will both have been shut off as a fault has been detected.

Action:

- Inform Estates via helpdesk
- Reset alarm to mute using key (kept in the Sister's Office). Alarm will go off again every hour until pressure is restored.

- Keep room doors closed and contact IPT for further advice. Under these circumstances, traffic in and out of the room and aerosol generating activities should be kept to a minimum as far as is clinically possible until the problem is rectified, and negative pressure regained.

Once the ventilation system is functioning correctly, the ward monitoring will be reset by Estates staff.

Daily Magnehelic Monitoring Proforma for In-Use Isolation Rooms

Negative pressure rooms: (source isolation)

Normally the pressure should be minus 20 pascals (in the left / red zone). This may vary slightly but if negative pressure drops to 10 or less (in the left / red zone), then report the problem to Estates via the Helpdesk. If the problem persists, inform the Infection Prevention Team.

Positive pressure rooms: (protective isolation)

Normally the pressure should be 20 positive pascals (in the right / green zone). This may vary slightly but if positive pressure drops to 10 or less (in the right / green zone), report the problem to Estates via the Helpdesk. If the problem persists, inform the Infection Prevention Team.

Patient Name: …… DOB: ……..

Ward: …… Room Number: ……..

Date	Pressure satisfactory (please tick)	Unsatisfactory pressure (please cross) Check for open windows, etc	Unsatisfactory pressure resolved (please tick)	Unsatisfactory pressure not resolved, reported to Estates (insert job number)
