NHS Greater Glasgow and Clyde

ID: ID: DR-GGC-RISK-068

Risk Assessment Form

Use this form for any detailed risk assessment unless a specific form is provided. Refer to your Summary of Hazards/Risks and complete forms as required, including those that are adequately controlled but could be serious in the absence of active management. The Action Plan and reply section is to help you pursue those requiring action.

Name of Initial Assessor/Reviewer	John McLean Blair Johnston	**Post Held:**	MR Safety Expert Clinical Scientist
Department:	**Imaging**	**Date (Initial Review):**	**24/3/2015** **Updated 01/11/24**

Subject of Assessment: E.g.: hazard, task, equipment, location, people

Use of MRI infusion pump capsules within the MR Environment

Hazards (Describe the harmful agent(s) and the adverse consequences they could cause)

There are several MRI infusion pump capsules on the market designed to hold several infusion pumps for use within the MR Environment. These products are typically used in support of anaesthetic sessions being conducted during MRI.

The units included in this risk assessment include the B. Braun SpaceStation (BBS), the BD Alaris MRI capsule and the Fresenius Kabi Agilia.

These devices are MR Conditional; the principle condition of concern is that the pumps themselves are slightly ferromagnetic. While the pumps are typically anchored in position within the MRI capsule, they can be detached and exchanged. The condition for acceptable use is that the MRI capsule must not be taken into areas where the magnetic field strength exceeds 20mT.

Description of Risk

Describe the work that causes exposure to the hazard, and the relevant circumstances. Who is at risk? Highlight significant factors: what makes the risk more or less serious – e.g.: the time taken, how often the work is done, who does it, the work environment, anything else relevant.

Potential missiles if the pumps became separated and are brought into region which exceeds a magnetic field strength of 20mT. May cause injury to patient, staff or anyone else within the MR Environment.

Existing Precautions	**Describe how they might fail to prevent adverse outcomes.**
As a precaution we have floor markings in most Magnet Rooms to denote the projectile zone, a region where the magnetic field strength exceeds 3mT i.e. a safer, more conservative marking than the 20mT recommended by the MRI capsule manufacturers' conditional criteria. In practice the capsule can sit outside or on the red line, but not over the line. Once positioned, the brake should be applied to the system. These capsules have a Magnetic Field Indicator alarm (both audible and visual) if the capsule is brought too close to the scanner Pumps must not be exchanged within the MR Environment i.e. the capsule should be taken out of the room for pump to be exchanged. This is a safer and more conservative working practice with the aim of avoiding entirely the possibility of one of the individual pump units becoming separated from the main capsule unit and potentially ending up becoming a missile hazard Anaesthetic staff including anaesthetists and ODPs have	A staff member may fail to follow the conditions for safe use of the MRI capsule system. If the MRI capsule system is brought too close to the magnet it will be drawn towards to magnet and may collide with the bore cover. The more pumps in situ, the greater the risk, as it is the pumps which are ferrous. However the magnetic field indicator alarm should prevent this from happening. A staff member may fail to follow the MRI safety conditions and remove one of the ferromagnetic pumps from the MRI capsule whilst still in the room. If this occurs, provided the MRI capsule is positioned correctly (outside or on the red line denoting the projectile zone), this is still safe. However, the concern at this stage would be where the pump goes from that stage; for example, it should not be placed on the couch. Given the staff training provided and the explicit conditions of safe use for the device, the likelihood of injury as a result of a rogue infusion pump becoming a missile is low.

had an annual MRI safety update which includes a discussion on the safe working use of the MRI capsule. The conditions of safe scanning have also been summarised and placed on the side of the MRI capsule where they are plain to see for all staff concerned. The MRI capsule is clearly marked as an MR Conditional device.	

Level of Risk - Is the control of this risk adequate?
Give more than one risk level if the assessment covers a range of circumstances. You can use the 'matrix' to show how 'likelihood' and 'consequences' combine to give a conclusion. Also, be critical of existing measures: if you can think how they might fail, or how they could be improved, these are indications of a red or orange risk.

Risk Matrix

Likelihood	**Impact/Consequences**				
	Negligible	**Minor**	**Moderate**	**Major**	**Extreme**
Almost Certain	Medium	High	High	V High	V High
Likely	Medium	Medium	High	High	V High
Possible	Low	Medium	Medium	High	High
Unlikely	Low	Medium	Medium	**Medium**	High
Rare	Low	Low	Low	Medium	Medium

Very High **High** **Medium** **Low**

Current risk level

Given the current precautions, and how effective and reliable they are, what is the current level of risk? **Green** is the target – you have thought it through critically and you have no serious worries. Devise ways of making the risk green wherever you can. **Yellow** is acceptable but with some reservations. You can achieve these levels by reducing the inherent risk and or by effective and reliable precautions.
High (Orange) or Very High (Red) risks are unacceptable and must be acted on: use the Action Plan section to summarise and communicate the problems and actions required.

Action Plan (if risk level is **High (Orange) or Very High (Red)**

Use this part of the form for risks that require action. Use it to communicate, with your Line Manager or Risk Coordinator or others if required. If using a copy of this form to notify others, they should reply on the form and return to you. Check that you do receive replies.

Describe the measures required to make the work safe. Include hardware – engineering controls, and procedures. Say what you intend to change. If proposed actions are out with your remit, identify them on the plan below but do not say who or by when; leave this to the manager with the authority to decide this and allocate the resources required.

Proposed actions to control the problem List the actions required. If action by others is required, you must send them a copy	**By Whom**	**Start date**	**Action due date**

Action by Others Required - Complete as appropriate: (please tick or enter YES, name and date where appropriate)

Report up management chain for action	
Report to Estates for action	

Contact advisers/specialists	
Alert your staff to problem, new working practice, interim solutions, etc	

Reply

If you receive this form as a manager from someone in your department, you must decide how the risk is to be managed. Update the action plan and reply with a copy to others who need to know. If appropriate, you should note additions to the Directorate / Service Risk Register.

If you receive this as an adviser or other specialist, reply to the sender and investigate further as required.

Date of last review: As per QPulse record **Next review date:** As per QPulse record