NHS Greater Glasgow and Clyde

ID:

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 Assessor:	John McLean	**Post Held:**	MR Safety Expert
Department:	**DCPB: core**	**Date of last review:**	**31/03/2023**

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

Pregnant staff working in the MRI Unit for 1.5T, 3T and 7T

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

Historically there has been some concern over the exposure to static magnetic fields in the MR Environment (MRE) and electromagnetic fields used by MRI systems. There has also been some concern about the noise levels the foetus might be exposed to. In addition, the MRE and the MR unit more generally can contain phantom test objects with mildly toxic materials inside.

Furthermore, at higher field strengths, in particular at 7T, people are more likely to report dizziness near or inside the bore of the magnet. This can vary from person to person, and theoretically could be considered an increased risk to mother and child, albeit indirectly, as a result of an increased likelihood of a fall. That being said, I don't know of any data to suggest falls are indeed more likely at 7T than lower field strengths.

Despite these concerns there is little evidence to suggest any adverse events have ever occurred either to mother or child from the mother having worked in the MRE during pregnancy.

'There is no clear evidence that exposure to static or low frequency magnetic fields can adversely affect pregnancy outcome' ICNIRP Procedures published in Health Physics 2004;87(2):197-216.

However, the foetus is considered particularly sensitive to heating and noise and so the NRPB and the MHRA advocate prudence regarding exposure to pregnant women to MR fields, despite the absence of evidence of harm.

The latest version (v4.3, Feb 2021) of the MHRA 'Safety guidelines for MRI in clinical use' recommends that throughout pregnancy, staff do not remain in the MRI magnet room during scanning due to concerns about acoustic noise and heating.

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.

Staff entering the MRI environment are the staff members of concern.

Existing Precautions	Describe how they might fail to prevent adverse outcomes.
In keeping with the MHRA Safety guidelines for MRI in clinical use. It is our local recommendation that pregnant staff do not remain the MR environment during scanning whilst they are pregnant. **Staff are advised to discuss with their line management and MRSE if they have any additional concerns.** **In keeping with our COSHH guidance, in the unlikely event of a test object or 'phantom' being broken, pregnant staff members should not clean up spills. Alternative staff should be sought to perform these duties.** **Regarding the theoretical increased risk of a fall within the 7T MRE as a result of dizziness from moving through the static field near the edge of the bore. This is a sensation, the extent of which, can vary from person to person. We advise that staff are made aware of this risk, that they do not move too quickly when near the bore i.e. normal walking pace is fine - no running. We advise that pregnant staff remain mindful of how they are feeling whilst operating in the MRE during pregnancy and if they begin to feel dizzy whilst in the MRE that they discuss the situation with their line manager and MRSE as needed.**	**The staff member may decide not take this advice**

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.

Assessment completed - date:	As per Qpulse document record	**Review date:**	As per Qpulse document record