ID: DR-GGC-RISK-023

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	**Post Held:**	MR Safety Expert
Department:	**Imaging**	**Date (Initial Review):**	**10/8/2018**

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

MRI scanning of patients with external fixation devices. Note that this risk assessment considers 1.5T and 3T MRI scanning of patients with external fixation devices i.e. devices which are fixed to bone but also extend beyond the surface of the patient's skin. This risk assessment does not cover internal fixation devices i.e. orthopaedic implants fixed to the bone and entirely held within the body.

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

The strong static magnetic field of the MRI scanner has the potential to exert force on ferromagnetic objects. Furthermore, there is a risk of heating to all metal objects within the volume of the MRI transmission coil as a result of the RF power being transmitted. This is typically the length of the body coil, though it could be another, more focal, volume if a local transmit and receive coil is being used).
The subject of this risk assessment is to assess the risk to patients with external fixation devices when exposed to the static magnetic field and the RF power of the MRI scanner.

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.

Until recently external fixation devices were considered to be a contraindication for MRI. However, there have recently been products brought onto the market which are MR conditional. Therefore, if a patient presents for MRI with an external fixation device. The make and model of the fixation device must be established. The MRI safety status must then be confirmed e.g. from manufacturers instructions from use (IFU). If the External fixation device is MRI conditional, ensure you can satisfy the MRI conditions for safe scanning before you proceed.

Existing Precautions	**Describe how they might fail to prevent adverse outcomes.**

Clinicians referring patients for an MRI scan must state whether patient has an external fixation device. Patients who receive a letter regarding the details of their MRI investigation will be further asked if they have any implant/device. Identify patients with external fixation devices through the MRI safety checklist procedure and visually if possible. Patients with external fixation devices will only be scanned if documented proof is available of the make and model of the external fixation device and that this external fixation device is known to be MRI conditional. Given the implications of making a mistake, word of mouth information is not good enough to confirm the make and model of an external fixation device.	Extra care must be applied when determining the make and model of the external fixation device and the specific MR conditions. For example, the Standard Hoffmann 2 external fixation device is MRI unsafe, whereas, the Hoffmann 2 MRI and Hoffmann 3 MRI are MRI conditional. Furthermore, the MR conditions for the Hoffmann 2 MRI and Hoffmann 3 require careful consideration as the location of the implant relative to the bore of the magnet and the scanning coil plays a part in determining whether a patient with this implant may be scanned or not.

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