

### **SA3 – The service implements and monitors systems to manage risks associated with magnetic resonance imaging.**

- a) Risks associated with the use of magnetic resonance imaging (MRI) should be minimised for patients, staff and others. Local rules should be developed and maintained by the MR Responsible Person with input as necessary from the MR Safety Expert, and will include a list of the MR Authorised Persons. Good practice guidance advises that policies and protocols should be developed, agreed, maintained and applied to all examinations and procedures using MRI. Processes and protocols should be grounded in current best practice and reflect professional guidance and statutory requirements. There should be a specific protocol for each examination and piece of equipment used. Relevant staff should be aware of the protocols and how to access them, and any changes communicated to them.
- b) Effective management of MRI requires the definition and assessment of risks and optimisation of procedures and equipment. Exposure to, and levels of, electromagnetic fields and radiofrequencies should be kept As Low As Reasonably Practicable to obtain a diagnosis (see also standard statement CL2). Where MRI equipment produces noise which might cause damage, ear plugs should be supplied for patients, staff and others. Special care should be taken with neonates, paediatric patients, those who are unconscious and those who have special sensitivity to noise.
- c) All ancillary equipment used in MRI examination rooms should be certified and clearly labelled in accordance with recognised labelling systems as being MR-conditional or MR-safe, and staff should have a clear understanding of the difference.
- d) All referrals should be vetted, prioritised and justified to ensure that an MRI examination or procedure is suitable for the individual patient (see also standard statement CL1). A risk/benefit analysis should be undertaken before any MRI examination or procedure is carried out on certain categories of patients to ensure that the clinical benefit outweighs the risks, and each patient is aware of the risks. These categories will be clearly identified in the Local Rules. Justification of MRI for children should include an assessment of the risks of sedation and general anaesthetic if this would be required.
- e) Systems must be in place to ensure that checks are made before entry to MRI rooms for ferromagnetic objects and any active or passive implanted devices such as pacemakers. Screening should be applied to the patient, staff conducting the examination and carers or others who may enter the MRI room during the examination or procedure. Specific screening processes must be applied to unconscious patients. Screening of staff should take place annually or earlier if there is a relevant change. There must be a system of work in place for the management of implanted devices to include the process for obtaining information on the implanted device and the identification of MR conditional devices (and to what strength magnet). Processes should be in place to deal with incidents in which unanticipated ferromagnetic foreign bodies are detected during the examination or procedure.
- f) All staff who may access the MRI area, including cleaning staff and porters, should receive appropriate MRI safety training (see also standard statement FR4). A risk assessment must be carried out to ensure staff are not put at risk while working in the MR suite. . Pregnant staff should not remain in the MRI room during scanning.

## References

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[https://www.gov.uk/government/uploads/system/uploads/attachment\\_data/file/419352/Safety\\_guidelines\\_for\\_magnetic\\_resonance\\_imaging\\_equipment\\_in\\_clinical\\_use.pdf](https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/419352/Safety_guidelines_for_magnetic_resonance_imaging_equipment_in_clinical_use.pdf)

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## Legislation

*The Control of Electromagnetic Fields at Work Regulations 2016 SI2016 No. 588*

[http://www.legislation.gov.uk/ukxi/2016/588/pdfs/ukxi\\_20160588\\_en.pdf](http://www.legislation.gov.uk/ukxi/2016/588/pdfs/ukxi_20160588_en.pdf)

*The Control of Electromagnetic Fields at Work Regulations (Northern Ireland) 2016.*

<http://www.legislation.gov.uk/nisr/2016/266/contents/made>

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*The Control of Noise at Work Regulations 2005*. London: TSO, 2005.

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[http://www.legislation.gov.uk/ukxi/2006/438/pdfs/ukxi\\_20060438\\_en.pdf](http://www.legislation.gov.uk/ukxi/2006/438/pdfs/ukxi_20060438_en.pdf)

## Websites

BIR MRI Risk Assessment Templates

<https://www.bir.org.uk/professional-resources/special-interest-groups/bir-magnetic-resonance/emf-risk-assessments/risk-assessments/>

British Association of MR radiographers <http://www.bamrr.org/home>

International Society for Magnetic Resonance in Medicine.

<http://www.ismrm.org/resources/mr-sites/>

Health and Safety Executive. Noise Calculator. [www.hse.gov.uk/noise/calculator.htm](http://www.hse.gov.uk/noise/calculator.htm)

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