



ISSUE 63
AUTUMN 2024

news

THE NEWSLETTER OF
THE BRITISH ASSOCIATION OF MR RADIOGRAPHERS

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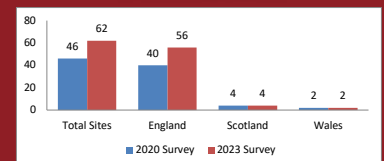
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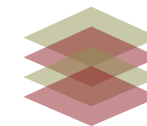
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welcome from your BAMRR PRESIDENT



Welcome to the Autumn edition of the BAMRR newsletter. With our membership numbers growing it is great to see a community of people at BAMRR who are passionate about MRI and who strive to share and improve their knowledge. In my year as President it has been great to see how many of our members get in touch with

requests for advice. As an organisation we really value being in a position where we work with people from across the UK and that we are able to give up to date information to our members.

When I joined the policy board six years ago I joined a group of people who inspire, who want to bring about positive changes in MRI safety standards in the UK, and who are committed to providing resources and organising events that support learning and professional development. I would like to thank the policy board for working on a voluntary basis, and for all their hard work and commitment as without them BAMRR would not be possible. I would also like to welcome our newest policy board member Erica Scurr who is a Cross-site Lead MRI Superintendent Radiographer at The Royal Marsden Hospital.

This year we have been busy organising events for 2024 as well as working collaboratively with other professional bodies and working parties in the UK. We had a very successful 'BAMRR Further' course and the scientific session at UKIO in Liverpool was well attended. This year during MR Safety week we saw the MR community come together to share resources and promote MR safety and at BAMRR we chose to focus on the topic of 'Shared Learning from Incidents'. As this newsletter goes to print we still have lots more planned for this year, with the 'BAMRR Intro' course in November and the annual conference which is being held on 5th October in Manchester. We hope to see you at one of our upcoming events.

I would like to thank you, our members, for your continued support and hope you enjoy this edition of the newsletter. I hope you feel inspired to expand your MRI knowledge and supported in your learning and professional development as you approach the end of the year.

Cath Mills
BAMRR President

Cath.mills@circlehealthgroup.co.uk

from your EDITORS



Welcome to the Autumn 2024 BAMRR News.

As editors of the Autumn edition of BAMRR News, Matthew and I would like to extend a heartfelt thank you all those that have contributed to this newsletter. Whether you're a regular contributor, or you're new to our circle, we're excited to have you on board. We're absolutely thrilled to welcome our

newest member of the BAMRR Policy Board, Erica Scurr, who brings a wealth of knowledge and MRI experience to the team.

In each edition, you can look forward to a blend of insightful articles, engaging case studies, and educational and safety updates from our team. Our goal is to provide you with content that not only informs but also inspires. We believe in fostering a strong connection with our readers, and your feedback is invaluable. Feel free to reach out with any comments, suggestions, or stories you'd like to share. Your voice helps shape the direction of our content and ensures we stay relevant and engaging. Any articles chosen for publication and written by a BAMRR member will be financially rewarded – please do get in touch if you have anything relevant you feel would be beneficial to share with the MRI community.

Sadly, throughout the world, MRI safety incidents continue to happen. In light of these issues, our commitment to safety remains unwavering. MRI safety week is always an important feature of the BAMRR team – we do hope you found the resources we put together for MRI safety week back in July, helped support the development of all Radiographers and reinforced safety throughout all teams.

If you haven't already, be sure to follow us on social media platforms (@BAMRR) to stay updated on the latest developments, safety tips, and more.

Zoe Lingham
BAMRR Editor

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On Facebook, search for “**BAMRR**” - be our fan and 'like' us and we will keep you update.



For tweeting visit
twitter.com/#!/BAMRR

WELCOME from our sponsor **GUERBET**

Guerbet wishes you a warm welcome to the Autumn edition of BAMRR News.

Guerbet are proud to continue our sponsorship of the BAMRR community and supporting your dedication to such a pivotal profession. 2023 is a significant year for Guerbet, with exciting developments around our MRI contrast portfolio planned, so we look forward to meeting you all at the BAMRR courses, and annual conference, through the year.

As MRI enthusiasts, we'd like to share with you our new website; Innovation4MRI.com, where you can find summaries of recent research findings, infographics and video interviews with leading academics as well as industry

experts. For further support with educational programmes or to learn more about our CPD accredited educational webinars please contact your local Guerbet representative or email uk.events@guerbet.com

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Guerbet | 

BAMRR Policy Board Members, Autumn 2024

The co-ordination of the Associations activities is overseen and undertaken by an elected Policy Board. The board currently consists of the following who are members of BAMRR and working in different regions of the UK.

The Policy Board is composed of:



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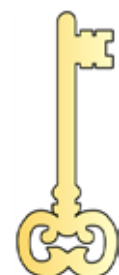
Coming Soon
Watch this space



This publication in BJR provides best practice recommendations from a multi-professional working group for the development of these procedures.

It is supported by The Institute of Physics and Engineering in Medicine, The Society of Radiographers, The Royal College of Radiologists, The British Institute of Radiology, British Association of MR Radiographers, The International Society of Magnetic Resonance in Medicine British and Irish Chapter and the NHS Scotland MRI Physics Group

Key Messages:



- The working group advocates MRI scanning of certain implants without manufacturers' assurance of safety (so called generic or blanket scanning)
- Such scanning should be undertaken through a generic implant safety procedure (GISP)
- This procedure should incorporate an Evidence Review, Risk Assessment, Procedure Statement / Workflow and formal approval within the relevant institution's governance framework.
- The procedure should undergo formal audit and review on a periodic basis.
- This article is aimed at radiographers, clinical scientists and other imaging professionals who develop MRI implant procedures. It is designed to be a resource for institutions to refer to when creating GISPs.
- A GISP can support MRI departments to scan low risk patients under pre-defined, institutionally approved, procedures, should they wish to do so.

BAMRR Session UKIO Report 2024

The BAMRR scientific session at UKIO this year was a great success. 'MRI In Contemporary Practice' took place on Tuesday 12th June at ACC Liverpool at Kings Dock

Our speakers this year joined us from Great Ormond Street NHS Foundation Trust and Lancashire Teaching Hospitals NHS Trust. Fern Sahidjuan presented on 'The Innovation of MR-guided Laser Ablation in Paediatric Radiology'. Paul Lowe presented on 'The Radiographer Led Sedation Service at Royal Preston Hospital', and Dr Sachin Mathur presented on 'The Importance of Quality in MR Neuro Imaging: A Radiologists Perspective'.

UKIO is the UK's largest imaging and oncology event that draws a multidisciplinary audience for three days of practice-based content and CPD. As well presentations there is a large professional exhibition of the latest state-of-the-art equipment, services and technology.



◆ Fern Sahidjuan Senior MRI/CT Radiographer, Great Ormond Street NHS Foundation Trust, London



◆ Paul Lowe Principal Lead Radiographer for the MRI department, Lancashire Teaching Hospitals NHS Trust



◆ Dr Sachin Mathur Consultant Neuro Radiologist, Lancashire Teaching Hospital NHS Trust

BAMRR Courses for 2024

Introduction to MRI course

Friday 22nd and Saturday 23rd November
at the
NCSEM in Loughborough

This is a two-day course for radiographers new to MRI and includes a hands - on - scanning session, physics and talks on MRI contrast, MSK and Neuro.

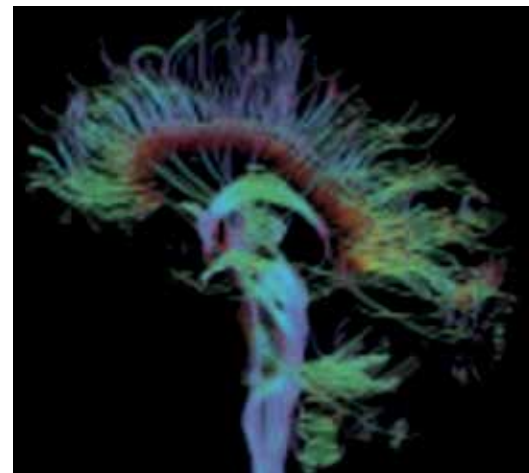
The cost is just
£135 for BAMRR members and £185 for non-members.

If you aren't a member and want to join, the course and annual membership is **£165.**

Details of our courses, including the full agenda and registration are on the website
www.bamrr.org.

For any queries please contact
Helen Estall at courses@bamrr.org.

Spaces do fill early so make sure you register soon!



National Taxonomy for Incident Learning in Clinical Imaging

There is a new national incident and near miss reporting analysis system which includes MRI incidents set up by the UK Health and Security Agency (UKHSA). The aim of the new system is to streamline incident analysis nationally, improving learning from incidents and therefore patient safety.

The system is for all incidents involving patients, carers and comforters. The document explaining the system with instructions and examples of the process can be found at: https://assets.publishing.service.gov.uk/media/66421c494f29e1d07fadc61a/User_guidance_national_taxonomy_for_incident_learning_in_clinical_imaging_MRI_and_nuclear_medicine.pdf.

The user guidance is available at <https://www.gov.uk/government/publications/national-coding-taxonomy-for-incident-learning-in-clinical-imaging-mri-and-nuclear-medicine>. This provides a practical approach to implementing the standard coding system and gives examples for each pathway and contributory code with example scenarios. The coding is split into 6 areas with different codes within each section:

1. Severity

2. Exposure type

3. Performed modality

4. Intended modality

5. Pathway coding

6. Contributory factors

When your lead finalises your local incident form (eg. Datix), they will need to add the relevant codes into the first open text field, they put the trigger code PRIA24 followed by the relevant coding. This then allows UKHSA to extract data from all of the UK incident reporting systems. They will then analyse the data and publish regularly via gov.uk and e-bulletins. This system will be very useful to look at the frequency and patterns of MRI incidents and is separate from the MHRA yellow card reporting system.

Example coding for a MRI incident:

A patient who had a sacral nerve stimulator (SNS) was referred for an MRI of the head. The referrer did not list the patient's implant at referral (1.1c) (CF1a). When going through the MRI checklist after arriving in the department, the patient reported their SNS to the radiographer. The SNS was conditional for MRI head, requiring the use of a transmit-receive head coil, however the radiographer did not note the additional MRI safety conditions of the stimulator prior to scanning (3.1e). The patient was scanned in normal mode SAR using a receive-only head coil, with the body coil used for transmit (3.2b)(CF1b)(CF2c). The patient was not injured.

L2 Level 2 incident

E1 Exposure type – medical exposure MG

Intended modality – magnetic resonance imaging P7

Performed modality – magnetic resonance imaging 1.1c

Referral information – MRI insufficient or inaccurate safety information 3.1e

Patient safety checks – MRI implanted medical devices or contraindications check 3.2b

Exposure safety checks – patient set-up CF1a

Individual – failure to recognise the hazard CF1b

Individual – decision making process CF2c Procedural – failure to follow procedures, protocols or guidelines

Code in first free text box of your incident reporting system for the above would be: PRIA24/L2/E1/MG/P7/1.1c/3.1e/3.2b/CF1a/CF1b/CF2c

The system appears to be quite complex at first glance but once you get the hang of the codes it is very easy and will be invaluable for us all to analyse patterns in MRI incidents nationally so please start to use it if possible and share this information with your leads.

MRI Reporting Radiographers in the UK

A second paper has been published recently on the number and scope of practice of MRI reporting by radiographers in the UK. Below is a brief summary of some of the results, if you are interested in reading the full paper then please follow the link below:

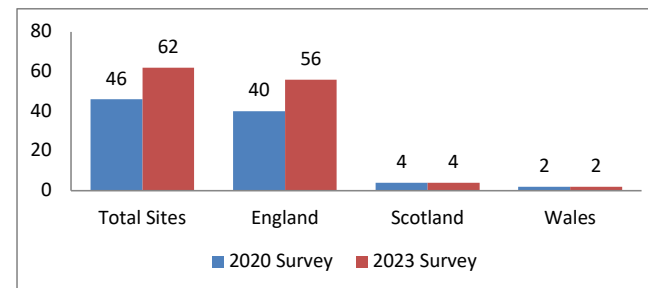
<https://doi.org/10.1016/j.jmir.2024.04.009>



The aim of the most recent study was to determine whether there had been a progression or regression in the numbers and scope of practice of MRI reporting radiographers (RRs) in the UK, using data from a previous study as a comparison. The number of MRI reporting radiographers is low and has been much slower in its progression compared to other modalities such as US and radiographic reporting.

A total of 62 sites responded that they had radiographers in training or radiographers trained to report MRI examinations, this compared to 46 sites in the previous survey.

The majority of responses were from England with responses from only a few Scottish and Welsh sites. Responders from Northern Ireland confirmed that there were no MRI RRs in Northern Ireland. Figure 1 demonstrates the number of sites in each nation with MRI RRs compared to the previous survey.

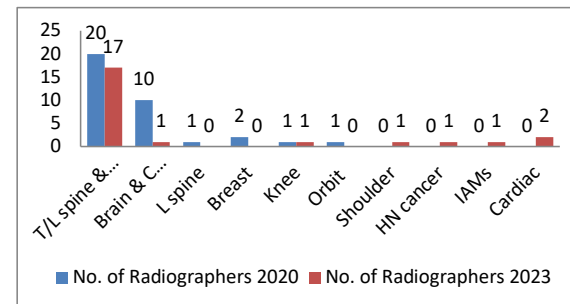


◆ Figure 1

The results demonstrate that there were significant geographical variations with the majority of MRI RRs being in England, the reasons for this are perhaps multifactorial including the only provision of a reporting course being in the south east of England.

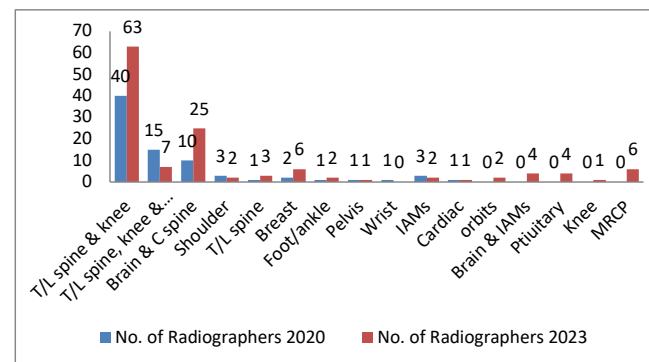
There were fewer radiographers training to report MRIs in the most recent survey, 24 from 19 sites compared to 31 from 21 sites previously, but the anatomical areas where reporting training was happening increased. Figure 2 demonstrates the number and anatomical areas that radiographers are training to report, some are training in several anatomical areas. The majority are still training to report T/L spine and knee.

The majority of sites were still only training one radiographer with issues such as funding, backfill and availability of radiologist support likely to be contributory factors, this also has implications on the peer support process.



◆ Figure 2

The number of radiographers trained in MRI reporting was 125 from 59 sites compared to 80 from 38 sites previously; this number also includes those not in practice. The number of MRI RRs in practice was 84 from 47 sites compared to 57 from 35 sites previously. Approximately 50% of sites still had single handed practice for their MRI RRs. The scope of practice had increased between the two surveys with the addition of pituitary, orbits and MRCPs as per figure 3 which demonstrates the number of radiographers reporting in each anatomical area.



◆ Figure 3

Both radiologist and management support are vital to the success of RRs both during and after the training process. Appropriate governance processes and documentation to support RRs are essential to support continuing practice. The RCR and SoR believe that reporting teams should be the result of careful and considered service development; these results suggest that this is still not common practice, evidenced by the number of RRs trained and not currently in practice.

The results demonstrated that the majority of the responders' scope of practice incorporated T/L spine and knee MRI. However, the clinical scope of practice had increased in some sites with the inclusion of MRCPs, pituitary and orbit MRI examinations, the increased scope suggests an increased confidence in the RRs and the positive impact that they have on the service.

If you would like to read the details of the first paper then please follow the link below:

<https://doi.org/10.1016/j.radi.2020.11.017>



BAMRR produced materials for MRI safety week (Mon 22nd - Sun 28th July).

MRI SAFETY WEEK 2024



What is MRI Safety Week?

This week includes the anniversary of the tragic accident that resulted in the death of six-year-old Michael Colombini from a projectile incident (oxygen cylinder) during an MRI scan in America... July 27th, 2001.

<https://abcnews.go.com/US/story?id=92745&page=1>

To commemorate this, BAMRR will be producing safety and educational materials and collaborating with the British Institute of Radiology (BIR), International Society for MR Radiographers & Technologists (ISMRT) and the Society and College of Radiographers (SCoR) in sharing links.

What is BAMRR focusing on for MR Safety Week 2024?

This year for MRI Safety Week, we would like to focus on 'Shared Learning from Incidents'.

Each day, BAMRR will discuss components of an incident - check our website daily

BAMRR would like to thank Dr Gillian MacNaught, Lead MRI Physicist, NHS Lothian, for her images and sharing the MRI team's experience and full permission has been granted for use.

Please see our website to view the slides on "Shared Learning from Incidents".

<https://www.bamrr.org/2024/07/26/mr-safety-week-2024-day-5/>

Materials from previous years are available on the BAMRR, BIR and SOR website

Ironically just as MRI Safety Week had passed, we learned of another projectile incident, this time in Turkey.

<https://www.auntminnieeurope.com/clinical-news/mri/article/15680583/mri-accident-causes-serious-damage-at-turkish-hospital>

A safety article of interest on burns and MRI safety has been recently issued

<https://www.auntminnieeurope.com/clinical-news/mri/article/15679097/how-can-you-prevent-skin-burns-and-boost-mri-safety>

The Joint BAMRR and Society and College of Radiographers MRI Safety Publication. This is in the process of being updated.

Coming soon, so keep an eye on the BAMRR website

<https://www.sor.org/learning-advice/professional-body-guidance-and-publications/documents-and-publications/policy-guidance-document-library/safety-in-magnetic-resonance-imaging>

GISP's (Generic implant safety procedure)

BAMRR has been involved in this piece of work and it is about to be published in BJR Open.

See the IPEM website for more details.

<https://www.ipem.ac.uk/resources/generic-implant-safety-procedures-gisps-task-and-finish-group/>

ABMRS

American Board of Magnetic Resonance Safety



The ABMRS has just announced that the international version of the ABMRS MRSO exam is now available in the UK.

The international versions of the MRSE and MRMD will be made available as soon as possible.

Please see their website for more information

<https://abmrs.org/information-and-registration-international/>

If there is anything about MRI safety you want to share with colleagues or ask about, then please get in touch via safety@bamrr.org



FIRST MRI SCANNER WRAP IN UK

Set to save patients' lives with earlier diagnosis and thousands of pounds in patient care

The very first wrap of an MRI Scanner in the UK will have a profound impact on both patients and staff at Addenbrooke's Hospital in Cambridgeshire – saving patients' lives as well as thousands of pounds per patient for the hospital trust. A new state-of-the-art scanner in the MRIS department has been wrapped with vinyl using a nature-based forest design – aimed at 'bringing the outside in'. In addition to the scanner, the walls of the scanner room have also been wrapped in a forest design, showing images of sunlight bursting through a forest and completely transforming the room. The work was undertaken by Grosvenor Interiors, whose head office is based in Surrey, but was funded by the generosity of donors and supporters of Addenbrooke's Charitable Trust (ACT), the official charity for Addenbrooke's and the Rosie, whose supporters raise funds to help make the hospitals even better by funding cutting-edge research, innovations and high-tech equipment, above and beyond what the NHS is able to provide. Work has completely transformed the scanner room as well as the GE 3.0 tesla MRI scanner, which is used as a showcase scanner for GE for other hospitals to come and visit, and was part of a bigger project to completely transform the MRIS department – with beautiful nature scenes also adorning the walls and corridors of the waiting area as well as the changing rooms. As well as the vinyl wraps, ACT supporters have also funded two £30,000 audio visual systems within two of the department's three scanners, meaning that stressed patients arriving for a scan can now listen to music and watch videos whilst completing their scan.

Bruno Carmo, MRI Service Manager at Addenbrooke's Hospital, said:

"It has made a massive difference not just for the staff but for the patients too. Everybody who comes in to visit the department notices the environment immediately. It's different, it's beautiful and it's friendly. It just fills my soul." The state-of-the-art GE scanner, which is equipped with cutting-edge AI technology, supports the department's world-leading research. It is the department's second scanner of its type, which improves diagnostic accuracy for conditions like cancer and musculoskeletal disorders. Since the scanner went live at the end of July, the department has not seen any patients unable to go through with their scan – which Bruno said will ultimately save patients' lives as well as thousands of pounds per patient in some cases. "One of the big reasons for patients being unable to complete a scan is claustrophobia and anxiety and just the fact that we can see the impact of this nice calm environment already reduces the possibility of a patient having to be recalled for a second time." "Ensuring a patient completes their scan first time around can literally save hundreds of pounds, thousands in some cases. For instance, if you have a paediatric patient, someone who is between 2 and 12 years old, if they cannot go ahead with the scan they then have to join a long waiting list to have the scan under general anaesthetic where it can cost thousands because you need the bed space and the whole of the General Anaesthetic team with the waiting in between."

Bruno said it was too early to gauge the true impact of the scanner at present but said in a three-month audit of patients, 90% of patients reported that being able to listen to music and watch videos helped them to complete their scan.

Paul White, Director of Communications and Impact at ACT, said:

"Our amazing supporters at ACT have already helped transform numerous staff and patient waiting areas around Addenbrooke's and the Rosie and continue to do so. Areas like the Oncology Department as well as the X-Ray waiting room where a lot of stressed patients and family members have to sit and wait." "It is really heartening to hear the huge impact this work is having on both patients and staff alike – not just in providing them with a nicer environment to be in but also how these relatively small changes can go as far as saving patients' lives as well as all the costs associated with first time around treatments."

Ilse Patterson, Lead R&D MRI Radiographer, said being able to see scan results on a first visit effectively allows diagnosis and treatment or surgery to happen sooner, therefore helping to save patients' lives in some cases. The artwork on the wrap had also helped transform her day to day working life too she said:

"I have worked in a few hospitals and I think there is nothing worse than walking into a hospital that looks like a hospital and smells like a hospital, it's just not pleasant. I was on holiday when the waiting area was transformed and when I returned to work, I was amazed. It definitely changes the mood for the patients." "With the old scanner, it was narrow, it was a bit dark in that room, it was a narrow bore (tunnel), it was quite old and it wasn't very pleasant. I really didn't enjoy putting patients in there. But now it's new, it's light, it's bigger, it's got lovely pictures. Just to be able to make it that little bit easier for the patients, in any way we can, is a really positive thing for us."

Cath Mills, President of the British Association of MR Radiographers (BAMRR), said:

"It's great to see the amazing work at Addenbrooke's that is helping to make their patients' experience as positive as possible. The unique 'one of a kind' MRI scanner wrap is the first in the UK that we have seen at the British Association of MR Radiographers and we think it's great!" "The MR environment can be very daunting to patients, especially paediatrics and those who suffer with severe claustrophobia so it is so important that we do everything we can to help our patients to feel relaxed. MR departments provide as much information as possible prior to appointments to help their patients to prepare, and the clinical staff on scan day offer support to the patient to help them to feel relaxed during their scan. In the past few years manufacturers have made changes to scanner design which has resulted in modern scanners looking a lot less scary than they used to. It is great to see the work at Addenbrookes that has addressed another dimension in scanner design by the addition of the wrap."

Erica D Scurr

MSc MRSO (MRSCTM)

Lead MRI Superintendent Radiographer

The Royal Marsden NHS Foundation Trust.



Erica is the lead Superintendent Radiographer for magnetic resonance imaging services at The Royal Marsden. Erica has over 35 years' experience in planning, commissioning and delivering clinical MRI services, and over 20 years of specialist oncology expertise.

Whilst clinically based, Erica is responsible for the strategic and safe provision of MRI across three hospital sites and eight MR systems, embedding clinical trials and imaging led research activities into a busy clinical MRI service.

Erica teaches widely on many aspects of cancer imaging, with a specific interest in whole body diffusion weighted imaging, MR guided radiotherapy planning, MRI safety and risk management.

Erica has been a BAMRR member since 1992 and has been a policy board member in the past, including a presidential year in 2005!

Erica.Scurr@rmh.nhs.uk

While the “Bitesize Physics” section typically delves into the core physics behind MRI, this edition takes a different approach by exploring the role medical physicists play in implementing new technologies like AI-based MRI reconstruction. Rather than focusing on complex phenomena, this article highlights how physicists work with radiographers and radiologists to safely and effectively integrate new tools into clinical practice.

Implementing AI in MRI scans: A case study

Owen White

MRI Clinical Scientist, The Royal Marsden Hospital

MRI units are constantly under pressure to scan more patients in less time. Emerging AI-based reconstruction techniques offer the potential to accelerate imaging and enhance image quality. However, integrating AI into real-world clinical practice is challenging. Medical physicists can assist radiographers and radiologists at every stage of this implementation process.

It can be tempting to rush into implementing new technologies as quickly as possible, but it is also important to ensure that it works consistently, without a reduction in quality.

As with any complex new technology, careful consideration must be given when deploying AI techniques. There is no standard approach to implementing these methods, and we’ve found it helpful to hear the experiences from other sites. By sharing experiences and

staying informed on best practices, radiographers can harness these technologies to improve patient care and operational efficiency.

This case study is an example of the experience from a cancer centre in London, but there are many other ways of doing this. Every site is different! Always follow best practice guidelines and advice from the manufacturer.

The basic principles of AI in MRI have already been nicely covered in the early 2023 edition of the BAMRR newsletter by Rob Wilson.

More examples and case studies can be found in the BAMRR website News & Events section and on the IPEM website. These are well worth a read!



Case study

We are in the process of implementing AI-based reconstruction techniques (Siemens Deep Resolve) for lots of different protocols. This case study focuses on just one (rectal exams). This specific project was completed over the course of approximately 2-months in 2023.

Process

The process was very similar to our normal image optimisation workflow and has roughly 5 stages. One really important point is that the wider team was involved from the start, including radiographers, radiologists, and physicists.

1 Identify aims

We wanted to reduce acquisition time while maintaining image quality, prioritising protocols where time savings would be significant. For us, this meant pelvic protocols, as they are long, have lots of sequences that can have AI-reconstruction applied (TSE in this case), and have lots of patient referrals.

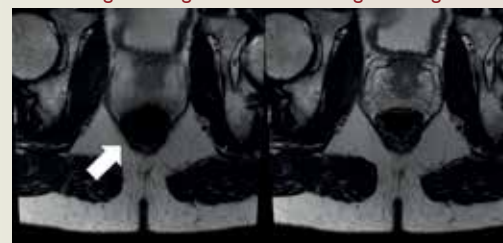
2 Initial testing

In order to make the most of the technology, we explored options for reducing acquisition time. How much can we accelerate it? Are there common artifacts? What are the limitations? These questions were explored in a systematic way in volunteers. See the examples for some artifacts!

Example: Image quality issues found during the initial testing, which were addressed before patient tests.

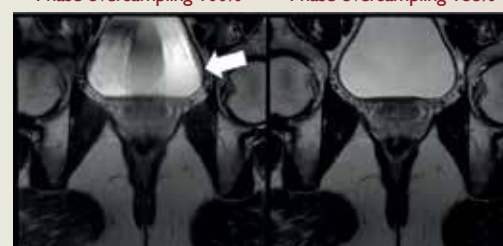
1 signal average

2 signal averages



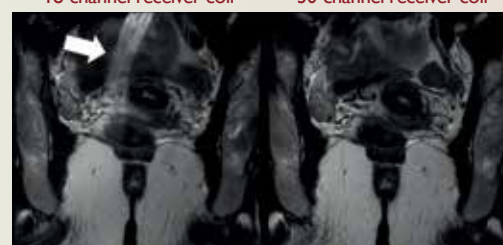
Phase oversampling 100%

Phase oversampling 188%

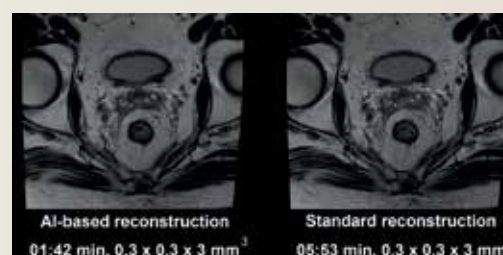


18-channel receiver coil

30-channel receiver coil

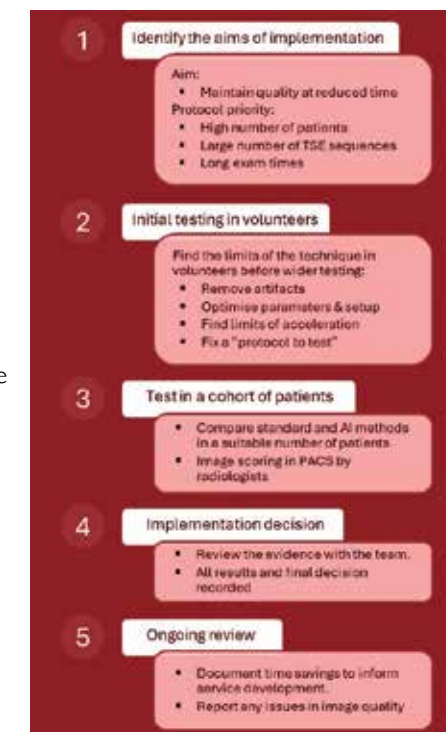


Example: T2-weighted TSE images with (left) and without (right) AI-reconstruction techniques for a 70-year-old male patient with rectal adenocarcinoma.



AI-based reconstruction
01:42 min, 0.3 x 0.3 x 3 mm³

Standard reconstruction
05:53 min, 0.3 x 0.3 x 3 mm³



3 Patient testing

Once we had a decent protocol to work with, we systematically compared standard and AI-based sequences in a cohort of patients at 1.5T and 3T.

One key decision was the level of evidence required before implementing the technology into clinical use. Using 20 patient examples gave us statistical confidence that the protocol was performing consistently, while balancing the resources needed to undertake the study.

Radiologists used Likert scoring to assess the images. The results showed that we did not have any reduction in image quality (with backing of statistics).

4 Implementation decision

Based on the radiologist feedback, the group concluded that we had enough evidence to implement the protocol into clinical practice. The protocol was shown to perform consistently for our patients and our scanners.

5 Ongoing review

Using this technology has allowed us to reduce the acquisition time for an MRI rectum exam from 40-45 minutes to 20-25 minutes. This equates to around 300 hours of acquisition time saved in 1-year of scanning (837 exams).

Pros and cons

This workflow has allowed us to successfully achieve meaningful time savings in clinical practice, while maintaining confidence in image quality. However, it does take time to implement optimisation projects in this way. As mentioned at the start, there is no “right” way. There is always a balance between local resources and clinical requirements.

With careful planning and testing, AI-based reconstruction can significantly enhance efficiency without sacrificing image quality. The initial investment in time and resources pays off in the long term. Slow and steady wins the race?

For several years at my site (the Royal Bournemouth Hospital) we have used MR Safety Week to highlight pertinent issues within our service, but this year we decided to give it some extra attention. This was our schedule...

Monday

In the morning handed out forms to verify the personal safety of our staff. We checked if anything had changed with them that we were unaware of, or that they had not thought about, that might affect their ability to work in and around MRI.

In the afternoon we blocked some scanner time on one magnet to allow for practical MRI evacuation training. Also, we did an emergency procedure quiz to establish what staff would do for a cardiac arrest situation with regards to removing the patient and when they would start basic life support.

Tuesday

Lunchtime presentation - How to Investigate Implants – Sharon McDermott, MRI Lead

This was delivered a couple of times such that the scanners could continue to operate whilst colleagues attended. She covered the range of data that manufacturers of implants supply for us to consider when making an investigation, and, how we use this data to make our decision. She then went on to describe our local Unlabelled / Off-Label policy and how this might be implemented for metal objects of unknown nature, or those that are in some way known but remain untested for MRI conditionality.



Wednesday

MRI Safety Quiz for radiographers and RDAs. The questions reflected those found in the MRI sections of e-Learning for Health. We gave a prize for the highest score and also a prize for just having a go.

In the afternoon we hosted a session for the ITU nursing team to rehearse an ITU > MRI patient transfer to department, and, on and off the scanner bed. They were taught on the safety implications of MRI and what their role should be if attending MRI with a patient.

Thursday

We handed out packs to all the radiographers and asked them to perform a mock implant investigation. It was for a patient fitted with a pacemaker; the question being whether the scan should not happen, or to go ahead with conditions.

Firstly, whilst the system and leads were confirmed to be conditional, the referral was for a cardiac examination, and one of the leads was only classed as conditional if scanning with the isocentre 10cm above the eyes, or below L4. So for a cardiac scan this was clearly not the case, and so the system overall for this examination had conditions that could not be met. Therefore based on this alone it was a 'no scan'.

Secondly the implantation date was 30th June and the particular device has a 6 week post-implantation period when scans should not occur. Today's date was 25th July, so this also failed to meet conditions.

Thirdly, the pacemaker manufacturer stipulated that the patient's arms must be at his or her sides. But on the supplied vetting note the radiologist had asked for 'patient's left arm to be raised to clear pacemaker position', i.e. to try to avoid metal artefacts from compromising the images. Therefore, this again was contra to the conditions imposed for scanning.



MRI Safety Week at the Royal Bournemouth

However, having noted all three issues above, the fact remained that it was a device that could be programmed into an MRI scan mode, i.e. it could be placed into an MRI scanner. So whilst it was definitely the case that the radiographers' decision was correctly to not perform this scan, maybe if the clinical question was considered crucial enough, it could be possible to re-consider under our 'Off-Label' scanning policy. However, crucially this would have to involve the referrer, radiologist, medical physics team, radiographer and patient to jointly have input in deciding if the benefit of scanning outweighed the risk. To proceed, our policy would have to be strictly followed and relevant documentation produced before any scan could be justified. Even then, mitigations and strategies to reduce risk would be planned prior to any scan being performed. Therefore this exercise went very nicely with the presentation Sharon had delivered on Monday.

We gave a prize for the best filled out implant check form. Yep – this was wine.

Friday

Lunchtime presentation - Burns Risk – Matthew Benbow, Supt Radiog

I presented on the reasons patient may heat up during a scan and what could be done around sequence choice, patient positioning, positioning of leads and use of stand-off pads and to reduce the risk. I also described the patients most at risk and what to do if a burn did occur; presenting the very well designed BAMRR burns flow chart.

Summary

It was a really positive week. Whilst everyone was busy scanning our usual lists, they took lunch during the presentations and took part in the other activities and challenges when they could between patients. Several clearly learned a good deal and it most certainly raised awareness of the potential hazards that could be faced at any time.

A massive thanks to Deputy Superintendent Sarah Chinn and MRI Lead Radiographer Sharon McDermott for doing most of the work to arrange this excellent week.

Matthew Benbow
BAMRR Editor

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