Ultimate precision is here
GenesisCare is a global organisation and the UK’s leading independent provider of innovative radiotherapy and other cancer treatments. We collaborate with health professionals who share our vision of ensuring fast access to world-class cancer care. Our strategy is to invest early in new evidence-based modalities that hold potential for improved life outcomes – no technology exemplifies this better than MRIdian, the world’s first MR linac.

MRIdian. The first in the UK
MRIdian. A new paradigm in radiation oncology
More than 5,000 patients treated worldwide with MRIdian
Cancers treated
Delivering clinical excellence
The MRIdian service pathway
Our centres
Refer for MRIdian
Magnetic resonance image-guided radiotherapy, or MRIdian, is the most exciting development in advanced radiotherapy for years. By combining a linear accelerator with a high definition MR scanner, MRIdian allows clinicians to see as they treat – adjusting the beam to allow for movements and anatomical changes. It provides a step-change in accurate stereotactic ablative radiotherapy (SABR), bringing a new level of control and confidence with tumour targeting and sparing of healthy tissue. MRIdian makes truly adaptive SABR possible for the first time.

With 5,000 patients treated to date worldwide, MRIdian has been widely used for gastrointestinal, lung and prostate cancer, and is increasingly recognised as a possible platform for partial breast treatments and safer re-irradiation. The possibility of incorporating on-table functional MRI into treatment pathways is just around the corner.

GenesisCare is the first to introduce MRIdian technology to the UK at our centre in Oxford. It is the foundation for an emerging MRIdian network that will put us at the forefront of exploring the possibilities of this innovative approach. We are excited to be partnering with the University of Oxford and a team of expert SABR clinicians who will work with us to build a UK body of evidence that will impact the lives of many patients.
MRIdian. A new paradigm in radiation oncology

Real-time on-table adaptive radiotherapy brings a new level of confidence to SABR delivery

MRI-guided radiotherapy improves on conventional image-guided radiotherapy (IGRT) by providing improved soft tissue definition without additional radiation exposure through high-quality MR images.

By capturing MR images of the target many times a second, the MRIdian provides real-time moving images that capture the anatomical positional changes that occur naturally within the body. Uniquely, the MRIdian allows tracking of the target position in real time, coupled with a gating facility that prevents beam delivery when the target is outside the treatment boundaries. This level of accuracy means that uncertainty is reduced, eliminating the need for large margins around the target.

The MRIdian has opened up new avenues of treatment, particularly tumours that move and are within close proximity of organs at risk (OAR) such as tumours of the liver and pancreas, where high doses are achievable while keeping the doses to OARs within tolerance.

How it works

The MRIdian allows clinicians to provide true on-line adaptive radiotherapy. The treatment planning system is clear and intuitive making daily re-contouring of tumour and normal tissues straightforward. The updated plans are rapidly re-optimised providing a personalised radiation treatment on every patient, every fraction.

- The MRIdian uses a patented split-magnet MR design, so that the radiation beam is not distorted by the magnetic field and is at the optimum distance for exceptionally sharp, high dose-rate SABR.
- The MR set-up captures multiple high-definition, high-quality images many times a second, seeing even the tiniest movement of the tumour and surrounding organs.
- The MRIdian performs real-time on-table plan adjustments to reflect both inter- and intra-fraction anatomical changes or movements.
- The gating target and gating boundary are visualised on the display. When the gating target moves outside the pre-specified gating boundary, the radiation beam automatically stops until the target returns back inside the gating boundary.
- Some patients benefit from being able to view this while inside the MRIdian – enabling them to take an active role in gated delivery with adjustments to their breathing.
- Coupled with the unique target tracking and gating system is a precise stereotactic radiation beam, giving the clinician greater control and confidence in delivering maximal dose to the tumour target while preserving critical structures.

The evidence base suggests that the MRIdian makes it possible to achieve ablative doses without reaching prohibitive levels of toxicity, particularly in the abdomen. This offers the prospect of improving clinical outcomes for previously hard-to-treat cancers such as locally advanced or recurrent pancreatic cancer and inoperable liver tumours.

Specialist outpatient oncology centres
Building a UK body of evidence

Through our academic collaboration with the University of Oxford, we will build on the body of evidence for MRIdian with an ongoing programme of clinical evaluation in the UK.

Our strategy for the introduction of MRIgRT is to align with international best practice based on evidence-based protocols. There is an increasing international evidence base for MR linac and notably the MRIdian system. Here are some of the pivotal studies that have informed our approach.

Prostate

A clinical study from Amsterdam demonstrated a low incidence of early gastrointestinal and urinary toxicity in hypofractionation for prostate cancer. SABR is increasingly used for the treatment of localised prostate cancer. However, with any hypofractionation, concerns remain about early and late toxicity. MRIdian makes it possible to deliver SABR with reduced uncertainty margins and daily, real-time adaptive planning to reduce toxicity. Both clinician-reported and patient-reported outcomes were better than historical controls in this well-designed phase 2 study.¹

Pancreas

A retrospective study of 44 patients with inoperable pancreatic cancer evaluated the overall survival benefit of higher dose, adaptive MR-guided SABR versus standard, low-dose SABR.² High-dose MRIgRT patients (n = 24) had a statistically significant improvement in 2-year overall survival (OS) (49% vs 30%, P = 0.03) and trended towards significance for 2-year freedom from local failure (FFLF) (77% vs 57%, P = 0.15) compared to standard-dose patients (n = 20, 45%). This improved OS was achieved without any increased toxicity in the high-dose group. MRIgRT is now being tested in a prospective trial, which through our academic partners at the University of Oxford, GenesisCare will be supporting.

By improving the delivery of SABR, there is increased confidence for hypofractionation, reducing the treatment time for early stage prostate cancer to five fractions

Cancers treated

The evidence base for SABR is growing and there is currently a range of clinical scenarios into which it can be integrated. At GenesisCare, we offer SABR in the following situations:

- Localised prostate cancer, where hypofractionated treatment offers an alternative to conventional therapy
- Early stage lung cancer
- Hepatobiliary cancer, including primary liver cancers and inoperable/recurrent pancreatic cancer
- Pelvic re-irradiation
- Selected cases of oligometastatic and oligo-progressive cancers

We have defined SABR referral criteria based on the experience of our SABR clinical expert team, published clinical studies and international best practice. All SABR referrals will be assessed for a possible benefit of treatment on MRIdian. For example:

- Tumours where there is significant movement, e.g. in the upper abdomen and lung
- Tumours that are in close proximity to organs at risk (OARs), e.g. in the prostate, upper abdomen and central lung

For other tumour sites, please refer to our MRIdian team or referral criteria via the MOSAIQ tool available on our referral portal.

“Inoperable pancreatic cancer is a new indication for high-dose SABR – it’s only possible because of MR linac”

James Good
Clinical Director of Stereotactic Radiotherapy, GenesisCare UK
Delivering clinical excellence

We are committed to an environment of clinical excellence, objectivity and accountability. Our processes are adapted from international best practice and our team has undertaken training with centres including Amsterdam UMC, Miami Cancer Institute, Henry Ford Cancer Centre (University of Wisconsin) and Heidelberg University Centre.

The introduction of MRIdian has been overseen by Specialist Reference Groups in both urological cancers and SABR. The groups are comprised of clinicians who have undergone extensive MRIdian training and have a vast cumulative experience of delivering highly technical radiotherapy. The groups work closely together in a robust forum to guide all aspects of clinical governance, patient selection, peer review, education and credentialing. The groups also oversee research activity, developing joint protocols with our academic partners. GenesisCare will treat more patients with MRigRT than any other institute globally, and will therefore be at the vanguard of translating research into everyday precision radiation medicine.

MRIdian specialists:

- **Dr James Good**
  Clinical Director of Stereotactic Radiotherapy, GenesisCare UK
  Birmingham, Oxford
  Special interests: colorectal, HPB and head/neck cancers

- **Dr Nicola Dallas**
  Clinical Oncologist
  Oxford, Windsor
  Special interests: urological and head/neck cancers

- **Dr Veni Ezhil**
  Clinical Oncologist
  Guildford, Oxford
  Special interests: thoracic cancers and lymphoma

- **Dr Carla Perna**
  Clinical Oncologist
  Guildford, Oxford
  Special interests: urological cancers

- **Dr Philip Camilleri**
  Clinical Director of Urological Cancers, GenesisCare UK, Oxford
  Special interests: urological cancers

- **Dr Prantik Das**
  Clinical Oncologist
  Nottingham, Oxford
  Special interests: urological cancers

- **Dr Andy Gaya**
  Clinical Oncologist
  London, Oxford
  Special interests: upper and lower GI and HPB cancers

- **Dr Ami Sabharwal**
  Clinical Oncologist
  Oxford
  Special interests: urological cancers
The MRIdian service is consultant-delivered – a MRIdian-credentialed consultant is on site for every treatment and a team will peer review all referrals.

We have created a straightforward referral and treatment pathway with detailed criteria so that time-to-treatment is minimised.

The MRIdian service pathway

Referrals from clinical oncologists, medical oncologists and surgeons

Review referral guidelines and patient selection criteria. Available from our portal, your local referrer engagement manager (REM) or a GenesisCare MRIdian specialist consultant
Submit patient details (MOSAIQ data capture)

Patient referred back to own clinician with rationale

IF YES MRIdian Advisory Team review all referrals
Referring clinician informed of decision

IF NO Patient referred back to own clinician with rationale

Patient simulation scan – involving MR, CT and safety questionnaire
Planning conducted by a MRIdian-credentialed consultant clinical oncologist and peer reviewed by SABR Advisory Team
Treatment commenced with a MRIdian specialist undertaking daily treatment adaptation. Each treatment takes 60–90 minutes and typically on alternate days – depending on indication and plan

Patient discharged to own clinician – treatment notes available on MOSAIQ or separate letter
Follow-up with MRIdian-credentialed clinician
Follow-up with MRIdian-credentialed clinician
Patient Reported Outcomes collected

Every Thursday
Within four days
Following week
Up to one week
Up to one week
Subject to treatment time
Seven to ten days
Four to six weeks
Our centres

We provide free transport for radiotherapy patients to and from all areas in the UK, including the Channel Islands. We can also arrange accommodation if needed.

GenesisCare is recognised by all private medical insurers including Bupa, AXA PPP, Aviva and Vitality.

Patients can be referred to our MRIdian service from anywhere in the UK or overseas.

GenesisCare MRIdian MR linac Service

On site at GenesisCare  Coming soon

GenesisCare MRIdian MRlinac Service

CT  STMR  PET/CT  MRIdian MR linac  Radiotherapy - VMAT, IGRT, SRT, SABR, SRS  Chemotherapy  Exercise, Medicine

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Windsor  9
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Guildford  11
Maidstone  12
Southampton  13
Portsmouth  14

Specialist outpatient oncology centres
Refer for MRIdian

We welcome enquiries and referrals. Any patient referred for MRIdian treatment will be returned to the care of the referrer once treatment has been completed.

To refer to one of our MRIdian specialists

01865 224 864
oxford.enquiries@genesiscare.co.uk

Download a referral form:
genesiscare.com/uk/refer-for-oncology

If you would like to gain GenesisCare practising privileges, please contact rem@genesiscare.com

Our GenesisCare centre in Oxford is rated ‘Outstanding’ by the Care Quality Commission (CQC)