

**Forthcoming publication:**

**BJR Supplement 29: The current state of molecular radiotherapy in the UK, with recommendations for further investigation**

**A report from The British Institute of Radiology Working Party on Molecular Radiotherapy**

**“Uncovering the radionuclide raffle”**

Radiopharmaceuticals have been used to treat cancer for more than 70 years. This report reviews the current status and evidence base of Molecular Radiotherapy (MRT) in the UK and provides recommendations to improve its use and effectiveness.

The main clinical application of MRT has been the ablation and treatment of differentiated thyroid cancer (DTC) with I-131 NaI (radioiodine). MRT has also been extensively used to treat adult and paediatric neuroendocrine tumours and bone metastases from prostate and breast cancer. Radiolabelled antibodies have been widely used as radioimmunotherapy (RIT) for the treatment of haematological malignancies, primarily non-Hodgkin's lymphoma (NHL), and more recent applications have included the treatment of neuroendocrine cancers with radiolabelled peptides and liver cancer via intra-arterial infusion.

The motivation for this report stems from the general perception within the community that scientific developments, support for infrastructure and the availability of MRT in the UK have not kept pace with that seen in external beam radiotherapy and chemotherapy. However, an increasing number of radiopharmaceuticals are becoming available for a range of treatments and the market is expected to grow significantly in the next decade. To support this report a survey of UK centres was carried out to ascertain the range and number of treatments administered.

The report concentrates on therapy procedures that are prevalent in the UK. Issues of support for MRT are focussed on the radiopharmacy, for routine preparation and further development of radiopharmaceuticals, and on physics for imaging and internal dosimetry.

It is hoped that this report will encourage further investigation into the treatment of cancer with radiopharmaceuticals and will stimulate the clinical and scientific developments necessary to support cost-effective growth in this area.

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