APPG for Radiotherapy inquiry

About the Institute of Physics and Engineering in Medicine (IPEM)

- IPEM is a professional association and Learned Society with around 4,700 members working in hospitals, academia and industry, who are medical physicists, clinical and biomedical engineers and technologists working with applications of physics and engineering applied to medicine.
- Our mission is to constantly improve human health by the application of physics and engineering to the prevention, diagnosis and treatment of disease through research, innovation, education and clinical practice.
- As a charity, IPEM's aim is to promote for the public benefit the advancement of physics and engineering applied to medicine and to advance public education in the field. We do so by supporting and publishing research and supporting the dissemination of knowledge and innovation through project funding and scientific meetings; and by setting standards for education, training and continuing professional development for healthcare scientists and clinical engineers.

We need to ensure an adequate and secure supply of medical radionuclides, for both diagnostic and therapeutic purposes. For example, many cancer therapies have been cancelled or significantly delayed due to vulnerabilities in I-131 supplies. Diagnostic imaging using Tc-99m was limited on occasions in the last year due to shortages of Mo-99. The suggestion is to expand production capacity for medical radionuclides by supporting development of a new research reactor in the UK.

Ensure new radionuclide treatments, for example, Lu-177 PSMA for treatment of prostate cancer, can be delivered across the country (that is, local to patients) at a high standard and with suitable pre- and post-therapy imaging to tailor the treatment to the individual and ensure safety of treatment. This will require increased staffing, increased investment in training, possibly the creation or expansion of facilities for local delivery of molecular radiotherapies.

IPEM would support centralised funding for a country-wide replacement programme for radiotherapy equipment that should include Estates enabling works where required. It would be worth exploring the model employed in NHS Scotland where a comprehensive and fully funded radiotherapy equipment replacement programme has existed for a number of years.

Although there were a small number of Linear accelerators purchased using centralised funds recently, these were purchased via a last minute, non-transparent and relatively unorganised process due to very short timescales. The purchases came with a mountain of bureaucracy, and the application process was hugely oversubscribed. Decisions taken on which hospitals were successful, and how those decisions were made, were not made widely available to providers.

Looking forward, there is still no commitment for radiotherapy equipment replacement, which makes it very difficult to plan a replacement programme within a NHS Trust while delivering a clinical service.

The rollout of Proknow has largely been successful in England and should be able to support the communication between clinical colleagues, enabling peer review of rare tumour sites, thereby improving standardisation and quality of treatment for patients. It is critical, however, that services are suitably resourced to take maximum advantage of the software.

Building on this, there should be an initiative to increase access to new Artificial Intelligence technologies that will enable auto-contouring and auto-planning for radiotherapy. Both will potentially bring much needed efficiencies to radiotherapy workflow. This should be done at the same time as longer-term investment in the training of the radiotherapy workforce, so there is sufficient expertise in place to gain the most benefit from AI advances. IT infrastructure and network capacity needs to be fit for this purpose.

A review of patient access to services should also be made. The pandemic has highlighted how critical it is for patients to have good local access to radiotherapy facilities.

There should be adequate scientific resource (for example, MR Physics) input into the design, delivery and translation of clinical imaging research trials for cancer. Also having the expertise to enable and optimise the findings from such trials once they become accepted clinical practice. Ensuring these techniques are available to as wide a range of the population as possible (that is, not just very specialist centres) may well involve our input across our networks, as CDCs are established - including having appropriately specified scanners and support for sequence optimisation etc.

However, IPEM has major concerns that scientific and engineering professionals specialising in radiotherapy are not being considered in any Cancer Workforce plan.

Clinical Scientists, Clinical Technologists and Radiotherapy Engineers are all an essential part of the workforce enabling delivery of radiotherapy to patients with cancer - indeed, Clinical Scientists with sufficient additional knowledge and experience to be formally certified as Medical Physics Experts (MPEs) are a requirement by law (reference: IR(ME)R17).

In a recent radiotherapy workforce survey, the vacancy rates were confirmed for each of these professions at between 7% and 10%. This clearly indicates major investment is needed to get the radiotherapy physics workforce up to establishment, and yet more to increase capacity for the backlog created by the pandemic. However, there have been no commitments made to resource an increase in any of the specialisms, via any training routes.

In addition to this, recent research by IPEM has shown the Diagnostic Radiology and Radiation Protection (DR&RP) workforce in medical physics is less than half the level recommended by established staffing models, with some services working at less than one-third of what is recommended.

Almost 800 additional Clinical Scientists and technologists are needed to meet both the existing workforce need and the planned growth in the NHS diagnostic capacity. This figure includes an extra 220 medical physicists as recommended by the Richards Report in 2020 to NHS England on Diagnostic Services to keep pace with patient demand.

The DR&RP workforce has a high vacancy rate, with a 9% vacancy among Clinical Scientist posts and 7% among technologist posts. To meet the required staffing levels in future, the number of scientists and technologists recruited annually to training posts needs to increase significantly to five times the current intake.

The backlog caused by the Covid-19 pandemic is adding to delays to patients being seen and the lack of adequate staffing levels is also contributing to difficulties in implementing community diagnostic centres, or ‘one stop shops’ for diagnostic services, promised as part of the Richards Report. However, there needs to be proper long-term planning carried out to increase the workforce in a managed way.

Radiotherapy UK, supported by IPEM, carried out a survey of radiotherapy professionals to understand the current issues being faced in radiotherapy services.

The survey, carried out in August and September 2022, was the fourth of its kind since 2020 and showed a worrying trend that the situation in the service is getting worse.

It signals the worst ever workforce crisis within the radiotherapy community. The radiotherapy workforce is highly specialised and technical, and hugely important for a functioning cancer service, but there is currently not sufficient trainees or training in place. Survey results point to serious concerns amongst the respondents on machine and workforce capacity, and a significant worry over future demand.

Despite the importance of radiotherapy as a vital cancer treatment service, more than 90 per cent of survey respondents felt the Government did not understand the impact of current issues within radiotherapy on cancer patients or on the workforce themselves.

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