IPEM response to Health Education England's Cancer Workforce Plan call for evidence

- The Institute of Physics and Engineering in Medicine (IPEM) is a professional association and Learned Society with more than 5,000 members who are physicists, engineers and technologists working with applications of physics and engineering applied to medicine and biology. Our members work in hospitals, academia and industry, and IPEM has a unique role in linking the three areas.

- As a charity, IPEM's aim is to advance the application of physics and engineering to medicine for the public benefit and to advance public education in this 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.
- In preparing this response, we have consulted with members of IPEM's Radiotherapy Professional Standards Group.

IPEM welcomes this report from HEE and the Cancer Task Force and its focus on the actions needed to ensure we have sufficient staff with the right skills to deliver the funded activity set out in the Cancer Taskforce Strategy by 2021.

We agree that the prevalence of cancer is to increase, and scientific and technological innovations offer the potential to transform our ability to prevent, diagnose, treat and care for people affected. However, we ask that a greater emphasis is given to the training requirements for the scientists, technologists and engineers, who will have key roles in making the necessary transformations and innovations happen.

In addition to the priority areas highlighted in the report for initial national action (p17), we ask that the scientific and technology workforce is also included in these priorities, with specific targets and action plans defined for investment and expansion in training. This reflects the shortage, for example, in the cancer treatment domain, specifically radiotherapy. Workforce analysis carried out by the IPEM Workforce Intelligence Unit[1] has shown there is a current vacancy rate of 9% in scientist and practitioner positions and has led to the inclusion of key medical physics professions on the government's national shortage occupation list. The 'significant shortage of key staff groups, such as medical physics' was also noted in the NHS England Modernisation proposals for Radiotherapy in England[2].

[1] https://www.ipem.ac.uk/TrainingWorkforce/WorkforceIntelligence.aspx
[2] https://www.engage.england.nhs.uk/consultation_finder/?sort_on=iconsultable_modifieddate&sort_order=descending&advanced=&keyword=radiotherapy

In radiotherapy, the medical physics workforce is acknowledged as being one of the three main professional groups, together with therapeutic radiography and clinical oncology, that are key to the safe and effective delivery of services[3,4]. The importance of a fully integrated multi-disciplinary team is crucial in the avoidance of treatment errors, untoward incidents and the promotion of an effective safety culture. Therefore to prioritise the training of only two out of these three groups in the strategy runs the risk of a future workforce imbalance that may hinder the goals for service transformation, innovation and improvement.

We agree that expanding the numbers of consultant Clinical Scientists through STP and Higher Specialist Scientist Training (HSST) programmes is vital (p44). However, this is only one part of the training that will be needed to produce the future workforce. For example, IPEM have made recommendations[5] that include:

- Restoring the number of Scientist Training Programme (STP) place commissions to 2015 levels.
- Use of alternative routes to Clinical Scientist registration for those coming through non-traditional career paths such as from industry or academia.
- Commissioning (and funding) of Practitioner Training Programme (PTP) places
- Expansion in the number of PTP-compliant courses
- Apprenticeship programmes to be rapidly implemented to provide support staff below clinical technologist/Practitioner level who could undertake more routine work, and providing a PTP-compliant route for in-service progress of these staff to technologist/Practitioner roles

IPEM have previously produced guidance and recommendations on:

- The key principles of effective and productive leadership and management of medical physics and clinical engineering services in the context of healthcare delivery[6].
- The role of Medical Physics and Clinical Engineering in Health Informatics and Computing[7]
- The Role of the Clinical Scientist in MRI units conducting human diagnostic imaging[8]

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[3] Standard 5/12, Manual of Cancer Services Standards (2000) (NHS Executive publication)

[4] Towards Safer Radiotherapy. Joint Report by RCR,SCoR, IPEM, NPSA, and BIR. RCR: London BFCO(08)1,2008.

[5] https://www.ipem.ac.uk/Portals/0/UPDATED%20POSITION%20STATEMENT%20on%20the%20Radiotherapy%20Physics%20Workforce%20FINAL.pdf

[6] https://www.ipem.ac.uk/Portals/0/Documents/Publications/Policy%20Statements/Leading%20MPCE%20Services%20Policy%20Statement%20v2%20July%202015.pdf

[7] https://www.ipem.ac.uk/Portals/0/Documents/Publications/Policy%20Statements/Informatics%20The%20Role%20of%20Medical%20Physics%20and%20Clinical%20Engineering%20in%20Health%20Informatics%20and%20Computing%20Oct%202016.pdf

[8] https://www.ipem.ac.uk/Portals/0/Documents/Publications/Policy%20Statements/MRI%20The%20role%20of%20the%20Clinical%20Scientist%20in%20Magnetic%20Resonance%20Imaging%20units%20conducting%20human%20diagnostic%20imaging%20March%202017.pdf?ver=2017-03-17-113302-223

- The Roles of the Scientist and Technologist in Radiotherapy Physics[9]
- The provision of a physics service to radiotherapy[10]

These have helped define roles and responsibilities that will contribute to all cancer pathways: Prevention, Diagnosis, Treatment and living with and beyond cancer. They have also highlighted areas for skill-mix, service innovation, as well as the role the medical physics workforce will have in training and developing other staff groups.

The recent CRUK commissioned report 'Full Team ahead: understanding the UK non-surgical cancer treatments workforce'[11] concluded that there are workforce shortages across the entire workforce, with likely underestimates of the true workforce gaps. These workforce shortages are having both direct and indirect implications for the workforce and the treatments they are able to deliver, with the lack of staff acting as a barrier to the skills mix interventions being implemented. Therefore a balanced strategy including scientists and technologists as priority groups is crucial.

[9] https://www.ipem.ac.uk/Portals/0/Documents/Publications/Policy%20Statements/Role%20of%20Scientists%20%20and%20Technologists%20in%20Radiotherapy%20June%202017.pdf?ver=2017-06-28-125654-053

[10] https://www.ipem.ac.uk/Portals/0/Documents/Publications/Policy%20Statements/Policy%20Statement%20-%20Recommendations%20for%20a%20physics%20service%20to%20radiotherapy%20-%20Nov%202017.pdf?ver=2017-11-22-125913-860

[11] http://www.cancerresearchuk.org/sites/default/files/full_team_ahead-full_report.pdf