Online Research @ Cardiff

information services
gwasanaethau gwybodaeth

Editorial

The future role of radiographers

K.M.Knapp

College of Medicine and Health, University of Exeter, South Cloisters, St Luke's Campus, Heavitree Road, Exeter, EX1 2LU, UK

N.Courtier

School of Healthcare Sciences, Cardiff University, Eastgate House, Cardiff, CF24 0AB, UK

With the introduction of artificial intelligence (AI), and major practice developments such as community diagnostic hubs[1] and online adaptive radiotherapy,[2] radiography is a rapidly advancing profession.[3,4] Person-centred, compassionate care must remain the foundation for our profession alongside technological advances,[5] as both facets can maintain/improve patient experience as well as diagnoses, treatments and ultimately patient outcomes.[6] Radiographers have always needed to embrace change, but flexibility becomes an essential attribute as new technology and ways of working are introduced; or when a pandemic hits. There are already well-developed enhanced, and advanced and consultant practice roles, but further opportunities will emerge in the near future, for example supporting the integration and monitoring of AI within our services.[7] We include a second guest editorial that points to the need for clarity regarding the concepts of enhanced and advanced practice and moves for greater parity across health professions. This special issue offers a mix of empirical research that provides insight into the future alongside position and opinion papers, which provide a vision from those working in innovative areas and leaders in their field.

This issue recognises that radiographers will need to continue working across the four pillars of *clinical practice, research, education and leadership* in practitioner, advanced and consultant roles that support clinical practice developments.[8,9]

Crystal ball gazing is an invidious task in many regards but AI, including related areas of genomics, big data and machine learning, is widely considered to be transformational to *clinical practice*. Healthcare professionals will need to be rapidly trained in AI in line with Topol review recommendations.[3] Radiographers will need to understand how AI systems are created, tested and used in imaging and therapy along with how and when to identify issues. How this education and training is best delivered remains unclear. Indeed many questions arise regarding legal, philosophical, and practical aspects of this application. We have sought a range of perspectives, including experts from other professions, to start addressing some of these questions.[10–12] Data that takes the temperature of radiographers current attitudes towards AI is also included.[13,14]

The need for radiographers to be both engaged in and leading *research* is increasingly important to support service developments and to assess the effectiveness of new technologies in imaging and therapeutic practice.[15]

Radiography is still a relatively young academic profession, which needs to develop a wide base of researchers, academics and practitioners at all levels who undertake high quality research aimed at improving patient outcomes.[16] Radiographers working at the practitioner level must be research users, but may also engage with research in the wider context and across all stages of their career. The updated College of Radiographers research strategy [17] provides a framework within which

radiographers can develop. It envisions an increasing proportion of the profession will be educated to a doctoral level. This would mean that more of the profession can develop as research leaders, ensuring a strong evidence-base to support practice and influence our own collective future.

Hogg and Creswell[18] valuably discuss the importance of inter-disciplinary research, as different but complimentary perspectives and expertise is where big steps forward can be made. It will also be essential that radiographers engage with industry to ensure that the development of new equipment and technology is fit for purpose and can be integrated within care pathways to enhance diagnostics and therapy.

Academic radiographers can be excellent research leaders in their field – educational and/or collaborative clinical research – as well as the educators who provide the professional capacity from within higher education. The clinical academic role will become increasingly common and we include a paper led by a National Institute of Health Research (NIHR) supported radiographer at the start of their clinical academic career.[19]

Education is a professional enabler and more radiographers will be educated to Masters level. The rationale being to ensure sufficient theoretical underpinning for developing clinical roles, particularly those moving into advanced practice and beyond. All radiographers should expect to be involved in the education and development of others, including training support workers, assistant practitioners, supervising undergraduate students and degree apprentices through to developing advanced practitioners and teaching other professionals.

Radiographers will also learn from others as roles extend, sometimes overlapping or extending into roles traditionally undertaken by other professions (including blurring of imaging and therapy with the rollout of MR-Linacs.) An example outlined in this issue is radiographers working in fracture liaison services.[20] Radiographers working within integrated care systems to support complex needs requires effective communication with patients and carers, and other healthcare professionals. The development of community diagnostic hubs as outlined by Heales et al.[1] will see new roles for radiographers working outside of acute hospitals and the potential for radiographer-led services, with an increasing number of advanced and consultant practitioners needed to deliver these.[1] Covid-19 has seen innovations such as diagnostic radiographers working in the community to deliver imaging in social care settings. New working environments require changes in the professional mindset – imaging is no longer solely within secondary care – but afford exciting opportunities for our future roles. An evaluation of therapeutic radiographers supporting cancer patients to stop smoking provides another example of a broadening professional remit.[21]

Leadership will tie all four professional pillars together. Radiographers at every level of practice can lead in some capacity, but strong leaders in the profession are essential to provide the strategic vision and direction for change. The value of leadership currently highlighted during the pandemic must not be underestimated afterwards. In addition to workforce development and planning to ensure sufficient, skilled radiographers to deliver safe and high-quality care, engagement in governance, patient voice in service design and playing a role in reducing health inequalities are all focal areas for our leaders.

Failure to recognise the positive impact research, leadership and education can have on service re-development may stem from target operating demands coupled with years of austerity, but not from a lack of patient-centred strategic vision for the future.

References

1. C.J. Heales, K. Mills and E. Ladd. *Radiographer advanced and consultant practice and community diagnostic hubs – a vision for the future*, Radiography, doi:10.1016/j.radi.2021.05.004.

2. D. Routsis and Y. Tsang. Adapting for Adaptive Radiotherapy (ART): the need to adapt our roles as therapeutic radiographers. Radiography, doi: 10.1016/j.radi.2021.08.004

3. E. Topel. The Topol Review. Preparing the healthcare workforce to deliver the digital future: an independent report on behalf of the Secretary of State for Health and Social Care, 2019, Health Education England.

4. M. Richards. Diagnostics: recovery and renewal, 2020, Health Education England.

5. A. Taylor, J. Bleiker and D. Hodgson. Compassionate communication: keeping patients at the heart of practice in an advancing radiographic workforce, *Radiography*, doi:10.1016/j.radi.2021.07.014.

6. J. Bleiker, K. Knapp, S. Morgan-Trimmer and S. Hopkins. "It's what's behind the mask": psychological diversity in compassionate patient care, *Radiography*, 24, 2018, S28–S32.

7. Y.W.S. Tsang, H. Nisbet, L. Skermer, S. Wickers and J. McConnell. Consultant radiographers in the United Kingdom the society and College of radiographers (SCoR) and consultant radiographers advisory group (CRAG) position paper. Imaging and oncology, 2020, Deeson; London, SoR.

8. Department of Health. Radiography skills mix: a report on the four-tier service delivery model, 2003.

9. H.E. England. Facing the Facts, Shaping the Future. A draft health and care workforce strategy for England to 2027, In: *Health Education England*, 2020.

10. C. Malamateniou, K.M. Knapp, M. Pergola, N. Woznitzsa and M. Hardy. Artificial Intelligence in radiography: where are we now and what does the future hold?, *Radiography*, doi:10.1016/j.radi.2021.07.015.

11. C. Parkinson, C. Matthams, K. Foley and E. Spezi. Artificial intelligence in radiation oncology: a review of its current status and potential application for the radiotherapy workforce, *Radiography*, doi:10.1016/j.radi.2021.07.012.

12. A.R. Wuni, B.O. Botwe and T.N. Akudjedu. Impact of artificial intelligence on clinical radiography practice: futuristic prospects in a low resource setting, *Radiography*, doi:10.1016/j.radi.2021.07.021.

13. M.M. Abuzaid, H.O. Tekin, M. Reza, I.R. Elhag and W. Elshami. *Assessment of MRI technologists in acceptance and willingness to integrate artificial intelligence into practice*, Radiography, doi:10.1016/j.radi.2021.07.007.

14. M.L. Ryan, T. O'Donovan and J.P. McNulty. Artificial intelligence: the opinions of radiographers and radiation therapists in Ireland, *Radiography*, doi:10.1016/j.radi.2021.07.022.

15. A. Taylor and P. Shuttleworth. Supporting the development of the research and clinical trials therapeutic radiographers workforce: the RaCTTR survey. Radiography, doi: 10.1016/j.radi.2021.07.025

16. B.A. Snaith, An evaluation of author productivity in international radiography journals 2004–2011, *Journal of medical radiation sciences*, 60 (3), 2013, 93–99.

17. R. Strudwick, M. Harris, H. McAlinney, P. Plant, P. Shuttleworth, J. Woodley, et al., The College of radiographers research strategy for the next five years, *Radiography*, doi:10.1016/j.radi.2021.06.010.

18. P. Hogg, J. Cresswell. Interprofessional research teams in radiography - where the magic happens. Radiography, doi: 10.1016/j.radi.2021.05.00519.

19. I.C. Simcock, R.Reeve, C. Burnett, c. Costigan, H. McNair, C. Robinson, and O.J. Arthurs. Clinical Academic Radiographers – a challenging but rewarding career. Radiography, doi: 10.1016/j.radi.2021.06.008

20. R. James, J.G.L. Griffin and C. Senior, The role of the Radiographer in osteoporosis and fracture prevention services – a narrative review, *Radiography*, doi:10.1016/j.radi.2021.07.020.

21. L. Charlesworth, D. Hutton, H. Hussain and H. Wong, Therapeutic radiographers supporting individuals undergoing radiotherapy to stop smoking: testing a training resource in clinical practice, *Radiography*, doi:10.1016/j.radi.2021.05.007.