**Meeting future diagnostic radiography workforce needs through a collaborative approach: the Cheshire and Merseyside approach.**

**\*Mackay S, \*\*Holroyd G, \*Anderson H, \*Hussain Z, \*Manning-Stanley A, \*Hughes V**

**\*University of Liverpool, \*\* Cheshire and Merseyside Radiology Imaging Network.**

**Background**

The diagnostic radiography workforce is in crisis with a 15% vacancy rate1 and several strategic documents predicting increases in the need for diagnostic radiography services over the coming years. These increases are across the range of medical imaging areas including CT scanning, forecast to be up 7%, and MRI scanning, also up by 6%1. There is a transformation of cancer services planned with new Cancer Alliances and new cancer pathways being introduced across the NHS with Rapid Treatment Centres & new diagnostic stroke pathways2 in development.In turn, these innovations willrequire greater cross-sectional imaging capacity from already overstretched imaging resources. In addition, the Richards report recommended the development of Community Diagnostic Hubs3 or ‘one stop shops’ for imaging, to be created across the country, away from hospitals, so that patients can receive life-saving checks close to their homes. This too will require an expansion of the imaging workforce with predictions of a need for 4,000 more radiographers and a doubling of CT scanning capacity.

It is predicted that the use of these modalities will continue to increase markedly, with a steep upward demand trajectory over the next ten years. Data from NHS England and NHS Improvement (T1520)4 highlights that by 2030, an additional 6,723 diagnostic radiographers specifically trained in the use of MRI and CT will be required, in order to fulfil NHS demand.

Therefore, there needs to be a significant response to this challenge to enable the planned improvements to be implemented and the patient to enjoy the benefits of this provision. In response to this challenge, the Cheshire and Merseyside Radiology Imaging Network (CAMRIN) and the University of Liverpool worked together in partnership, securing funding to develop additional human resource to address future workforce requirements.

**Collaboration in the Northwest of England**

The forerunner of the Cheshire and Merseyside Radiology Imaging Network was set up in 2016 to make radiology services sustainable across the region5. This group has been given various titles since then but became CAMRIN in January 2019 following the publication of the NHS Long Term Plan6. Gill Holroyd is the Clinical Collaboration Lead at CAMRIN and her role is to act as subject matter expert for the CAMRIN Project Management Office work streams, leading specifically on imaging workforce and liaising with the clinical managers to promote partnership working across the whole network.

The University of Liverpool is a Russell group university which was founded in 1881. It provides undergraduate and post graduate education for both therapeutic and diagnostic radiographers. It is a traditional university with a hierarchical organisational structure, which can make it difficult to adapt to local changes in service need.

Dr Stuart Mackay is head of Diagnostic Radiography, he and his team are keen to promote the profession and meet the educational needs of the radiography workforce.

Gill was instrumental in promoting a collaborative approach between the organisations to try and solve the radiography workforce challenge and in August 2020 led preliminary discussion between CAMRIN and the University of Liverpool regarding the need for targeted CPD for the diagnostic radiography workforce. This resulted in a bid to Health Education England (HEE) for money to help develop two new modules targeting Computed Tomography Scanning and Magnetic Resonance Imaging. The bid was aimed at a particular workforce niche identified in clinical scanning teams in the current service. It was felt that radiographers who joined these scanning teams had completed undergraduate training but had little further knowledge of the modalities. They tended to learn the modalities ‘on the job’ which meant a largely practical training with little theory and no transferable credit for the learning.

The CAMRIN/UoL bid was designed to develop university masters level, credited modules giving practitioners sufficient knowledge and skills to enable them to become better informed and capable members of the modality teams. It stopped short of making them a ‘clinical expert’ which was an area already catered for through postgraduate diploma or an MSc level study in CT or MRI at other universities in the Northwest and Nationally.

The collaborative bid to HEE was successful and Helen Anderson, the clinical lead in MRI from Warrington and Halton NHS Trust, was appointed on a year’s secondment to help support the development of these new modules. Helen also brought her own up-to-date clinical expertise in MRI and CT. A module development team was created with radiology service managers, clinical leads in MRI and CT, educational experts from the university radiography team, and Gill Holroyd steered the work for the CAMRIN.

**The Clinical Computed Tomography and Clinical Magnetic Resonance Imaging modules**

The modules have similar design features aimed at the needs of the workforce. There will be an initial three-day block at the university with face-to-face teaching followed by synchronous and asynchronous online learning for 10 half days. This Hybrid Teaching and learning design used what we had learned from teaching online during a pandemic.

**Work based learning** **developing valuable relevant clinical skills.**

The clinical skills are developed through a 10-week continuous block of clinical practice in the relevant area. A university approved mentor is appointed to oversee the clinical training and would normally be the clinical lead in that modality. A competency framework was developed from existing practice and provided learning objectives for the development and assessment of clinical skills.

**Authentic assessment**

The modules are assessed through three separate assessments. An examination which will test students’ knowledge of the modality. A case study was chosen to enable students to understand the clinical pathway in which the modality sits giving them an appreciation of how the modality interfaces with the wider hospital services. The mentor assessed clinical competencies ensure that the skills remain relevant and the students competent in the niche identified above.

**Building of academic Credit**

There is an option for the students to undertake both modules. Each carries 30 post graduate credits7 ensuring that students receive academic credit for the learning they have undertaken. This is something that does not happen in many departments undertaking this training in house. This credit can be taken forward and added to other UK university credits to progress to postgraduate diploma (120 credits) or the full MSc (180 credits). There are plans to combine the two modules and create a University of Liverpool Postgraduate certificate in cross sectional imaging.

**Relevant clinical and theoretical content**

This was assured through the team approach with clinical experts who lead the teams providing advice on what was valuable in a team member in the scanning department. Physics expertise was also incorporated to ensure the inclusion of up-to-date technical content.

**Peer support and Action Learning**

A key feature of this educational provision is the online peer-support that is offered. Weekly online meetings will be set up to provide students with an action learning framework8 for them to both share their learning and development experience but also to provide support for each other. Working and undertaking formal learning in the health service can be incredibly stressful and action learning is an opportunity to promote learning behaviours and enable support from peers. This will take the form of weekly evening online action learning sets7 facilitated by a member of staff and self-facilitated.

**Conclusion**

So, what have we learned from doing this activity? That there is a significant challenge ahead for the radiography workforce and that continuing to do things the same way we have always done them is no longer viable. Collaboration with CAMRIN, RSMs, clinical and educational experts brings rewards through clinically relevant, high quality educational provision. In the busy lives that we all inhabit it can be difficult to attend meetings and link up with colleagues, but this is vital if we are together to move forward and meet the workforce challenge. The CAMRIN and Gill Holroyd were a catalyst for this development and demonstrated leadership skills that are vital if we are to move forward together. Working seamlessly across the academic/practice interface is the means by which the DR workforce of the future will be developed, and this is wholly reliant upon robust analysis of both current and future workforce needs, development of effective communication channels and genuine partnership working.

References

1. Howlett A, Working with the National Guidance to deliver Imaging Services of tomorrow, NHS England & NHS Improvement [Diagnostics, Medicines & Pharmacy Improvement] 17 June 2020
2. NHS (2019) Rapid Diagnostic Centres Vision and 2019/20 Implementation Specification <https://www.england.nhs.uk/publication/rapid-diagnostic-centres-vision-and-2019-20-implementation-specification/>
3. Richards M., (Oct 2020) Diagnostics: Recovery and Renewal, <https://www.england.nhs.uk/publication/diagnostics-recovery-and-renewal-report-of-the-independent-review-of-diagnostic-services-for-nhs-england/>
4. NHS Improvement (T1520), <https://www.england.nhs.uk/>
5. The Cheshire and Mersey Radiology Imaging Network (CAMRIN) https://www.cheshireandmerseysidepartnership.co.uk/our-work/radiology-imaging-network/
6. NHS (2019) The NHS Long term plan <https://www.longtermplan.nhs.uk/>
7. Higher education credit framework for England <https://www.qaa.ac.uk/quality-code/higher-education-credit-framework-for-england>
8. Brook C., Pedler M & Burgoyne J (2012) Some debates and challenges in the literature on action learning: the state of the art since Revans, *Human Resource Development International*, Volume 15, 2012 - Issue 3