

# Midlands Imaging Training Academy (MITA)

A celebration of innovation: 29 November  
2023



## Contents

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	1
<b>Midlands Imaging Training Academy (MITA)</b>	<b>1</b>
<b>Foreword</b>	<b>3</b>
<b>Introduction</b>	<b>4</b>
<b>The Midlands Imaging Academy</b>	<b>5</b>
<b>Progress Updates</b>	<b>7</b>
<b>Site specific progress</b>	<b>9</b>
<b>Innovation at County Hospital</b>	<b>14</b>
<b>Digital Innovation within the Academy</b>	<b>14</b>
The case for immersive simulation	14
Facility equipment and linking across the Midlands	17
Website and booking portal	19
<b>Evaluation</b>	<b>19</b>
<b>Future Development Opportunities</b>	<b>20</b>
<b>Conclusion</b>	<b>22</b>

## Foreword

The [Long Term Workforce Plan](#) was published in June 2023. In this, the plan determined the direction of travel to “put staffing on a sustainable footing and improve patient care”. One of the strands that will help to deliver this aim is to ensure that high quality education and learning is maintained, reducing inefficiencies where possible whilst maximising the medical and non-medical workforce who can confidently address patients and their needs.

Imaging Academies provide scale and scope to achieve ambitions under the Plan’s three pillars of train, retain and reform:

**Train.** The investment in the Academy maximises capacity, increasing training, within the delegated budget.

**Retain.** Innovation in training relies initially on simulation to get trainees work ready before reaching the clinical environment. Training previously commenced in high volume clinical environments with the basics of knowledge and procedural skills being delivered in “clinical prime time”, delaying clinical through put. Getting trainees work ready through simulation enables trainers to train while maintaining clinical throughput. Taking trainees off to immersive simulation training environments with higher trainee to trainer ratios also frees up trainers to carry out their normal duties. It also preserves trainer capacity to pass on high level skills, rather than the basics of knowledge and procedure to naive trainees. This improves both the patient experience, who sits at the centre of the consultation, and the trainer experience who previously had the added pressure of maintaining throughput and patient experience in a pressured clinical environment.

**Reform.** Education is necessary but expensive. By reviewing delivery methods and using digital innovation where possible, training can be adjusted to trainee needs, reduce travel time, support onboarding of international recruits and in the long term, reduce costs in unnecessary administration and duplication of training.

The Midlands Imaging Training Academy (MITA) is working towards all these priorities to produce a high-quality environment for training and learning. Pivotal to this is the digital Hub at County Hospital in Stafford, which is in its pilot stage and aims to form an educationally sustainable model, not just for imaging, but has potential to improve healthcare training in multiple disciplines.

## Introduction

The Midlands Imaging Training Academy (MITA) is one of two diagnostic Academies in the Midlands (the other being the Midlands Endoscopy Academy (META)). Imaging Training Academies are operational in the South East, South West, East of England, London, Midlands, North East & Yorkshire, and North West regions.

The Imaging Training Academies have the potential to provide greater health system value than traditional education models as they have the potential to:

- Enable innovation in training through rapid at scale adoption of technology enhanced learning and new multi-disciplinary learning models
- Accelerate independent working and service delivery productivity of trainees
- Enable more geographical equity in the distribution of training across rural and coastal geographies in addition to large conurbations and hence improve geographic equity in development of the health professional workforce
- Enable training and supervision capacity to be expanded quickly and much more cost effectively, by delivering underpinning knowledge across larger networks and larger trainee to trainer ratios in supervised clinical placements.

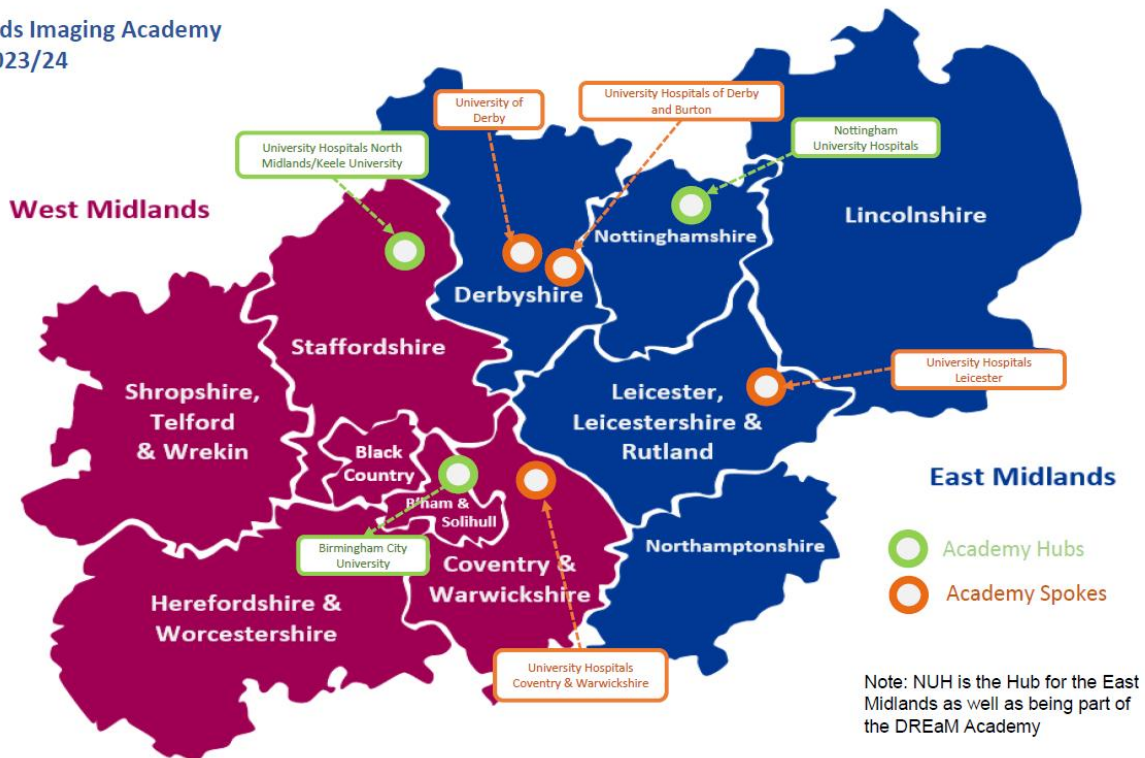
In 2021, following the publication of [Diagnostics: Recovery and Renewal – Report of the Independent Review of Diagnostic Services for NHS England](#), by Professor Sir Mike Richards, a team made up of senior imaging clinicians, workforce leads in trusts, universities involved in imaging training, cancer alliance workforce leads, and NHS England (including the then Health Education England (HEE)) came together to collaboratively design the model for a new Midlands Imaging Training Academy supported by national funding of £750,000.

## The Midlands Imaging Academy

The current MITA model comprises a mix of Trusts and Universities (Higher Educational Institutes (HEIs)) to enable a balance between the knowledge of the clinical skills required for patient facing services and the expertise of accredited imaging training. Over and above the initial objectives that were set for the Academy, there has been additional innovation. These are building towards a delivery model that will continue to educate and train imaging professionals, reforming training in accordance with the Long Term Workforce Plan, and provide the right conditions to increase the workforce efficiently alongside tackling waiting times.

The Academy is operated using a Hub and spoke model<sup>1</sup> (fig. 1) All sites were selected after an Expression of Interest process based on their ability to manage and deliver multi-professional training at a scalable rate (depending on the size of the site). The Midlands is unique as it initially selected Higher Education Institutions (HEIs) in partnership with Trusts, to understand and deliver undergraduate as well as postgraduate and medical learning and training.

Midlands Imaging Academy sites 2023/24



Although the region is treated as a whole, the pre-existing facilities and geographical size necessitated an initial separation into east and west. Both were required to develop training and learning in line with Academy aims, providing a stable base, before developing further

<sup>1</sup> The academy runs on a Hub and Spoke model. Hubs can operate outside of their ICS area and provide the administration and support for Spokes. Spokes may be able to reach outside of their ICS area and tend to be specialised in one specific area of imaging, supporting the Hub in that sphere of training.

module and technology for both sub-regions to simultaneously benefit. The Midlands region is a disproportionately large Academy containing 26% of England's Integrated Care Boards (ICBs) and 19% of the population of England, with varying areas of inequality.

The vision of MITA is to establish a pan-Midlands Academy, reaching out to ICB areas where currently no Hub or Spoke has been established. This is challenging in terms of the project budget; solutions include mutually beneficial training and Memoranda of Understanding. We have recently started to put this in place with Coventry University and are in discussions with the University of Lincoln.

## Progress Updates

Progress so far, in general:

1. In the first year of the implementation of MITA, additional lecturers, practice placement educators and administrative support have been funded to enhance the level of training and to enable a greater flow of learners to access courses. We strive for sustainability in the Academy and in this sense, there needs to be sustainable funding for lecturers and trainers to absorb and increase in imaging learners.
2. Intelligent planning has enabled swifter release of funding for additional courses (such as sonography) which has been matched with available accredited courses within Academy Higher Education Institutes to reduce planning burden on Trusts, ICBs and Integrated Care Systems (ICSs).
3. The Midlands was an early adopter of the National computed tomography (CT) colonography and accreditation co-professional programme and has trained 61 Radiographers across the Midlands at the Royal Stoke and County centres of excellence. A second centre is due to open in Nottingham in April 2024. The Midlands also funded access for all UK Radiology registrars. One hundred and fifty ST4 and 5 learners have enrolled on the online programme to date, with roll out to ST3 and 2 in next year's cohorts.
4. The radiology function has been heavily supported and enhanced to provide multi-disciplinary learning for radiology as well as for radiographers and sonographers. This is becoming more sustainable in terms of streamlining suitable courses for all three disciplines; more work is needed with the post graduate medical and dental education teams as the Academy moves from a project to a business as usual (BAU) training facility.
5. A [website](#) is in development to capture all available MITA courses in one place, saving time and duplication of effort for education and workforce planning staff in our systems. Linked with this is an online booking portal to enable all learners to easily book lectures, rooms and equipment. The advantage of this system is that there is only requirement for administration of only one platform, compared to the current duplication of booking function at multiple sites across the Midlands. This also facilitates tracking of utilisation to ensure expensive equipment is optimally available and accessed. This is explained further in this document below.
6. Radiology lectures have been developed to provide high quality, standardised, hybrid learning. In development with the British Society of Gastrointestinal and Abdominal Radiology (BSGAR), these courses can be accessed live streamed throughout the country at an annual cost of £17,000, or £2 per lecture, per trainee. This is now being evaluated to include radiography training, introducing co-professional standardisation and reducing the training cost further. The National Cross Regional Academies team is proposing that each region champions a specialist interest group to provide teaching across 7 imaging sub specialities. This has the potential to enable one

lecture programme for each discipline for the whole country, again cutting out duplication and reducing cost and time of trainers. Although this may seem complicated, it is an initiative taken from India, where all radiology students are programmed for the same training and lectures on the same days throughout the country. In order to sustain the Academy, we are now looking at areas where we can reasonably disinvest (for example, where training has already been set up and where electronic systems can reduce admin burden). We have also opened the Academy to other clinical disciplines when the Academy is not is use by our learners. We will continue to look at areas to increase efficiency and maintain safe training at reasonable costs. With the increase in digital technology, the Academy will need to identify and use other appropriate funding streams to maintain and/or create sustainable learning. The advantage of the MITA system is that it can be replicated for the majority of other training, reducing NHSE education expenditure nationally.



## Site specific progress

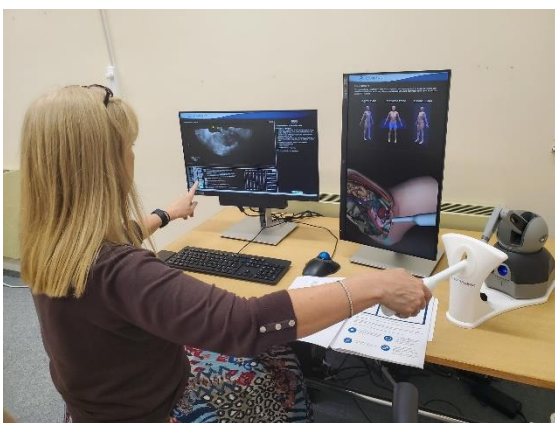
### University Hospitals Coventry and Warwickshire NHS Trust (UHCW)

University Hospitals Coventry and Warwickshire NHS Trust (UHCW) was nominated as a Midlands Imaging Training Academy “Spoke Site” and have established an “Imaging Academy Simulation Suite” at Rugby St Cross Hospital.

As part of the initial pump-priming for the Imaging Academy, they were allocated funding to install a cloud-based image sharing platform called CIMAR™ which stores anonymised teaching imaging cases for the whole Academy to share and use. This can hold 15,000 cases with the ability to upload cases from multiple sites across the region. Training Programme Directors & Academy Sub-Specialty Leads spent much of the first year uploading cases for all sites in the West Midlands to use. We are currently investigating methods to free up Consultant time, using Large Language Models (LLM) to check sample reports, written by trainees, with the gold standard report, written by trainers. This is discussed further in this document. UHCW provide the ICT support for the ongoing management of the CIMAR image library.

UHCW are one of the sites in the West Midlands providing radiology registrar training including bespoke courses such as RESIST, STAR and X-IT.

RESIST, “Rugby Endovascular Simulator and Interventional Skills Training”, provides basic interventional radiology, US guided vascular access, catheter/wire manipulation skills and endovascular simulation such as angioplasty & stenting. This course is open to radiologists, radiographers and nurses and runs every week in small groups of up to 4 attendees. So far in 2023, over 150 trainees have attended the RESIST Course, with excellent feedback.



STAR, “Sonography Training At Rugby”, consists of three-day courses in abdominal, gynaecological or musculoskeletal ultrasound. This course runs every week and is open to radiologists and sonographers. So far in 2023, over 100 trainees have attended a STAR course, with excellent feedback.

X-IT, “X-ray Interpretation Training”, includes different sessions focusing on Appendicular, Axial or Chest/Abdominal x-ray interpretation. As the Imaging Simulation Suite at Rugby St Cross

Hospital is quite small, UHCW formed a memorandum of understanding with Coventry University to use their Alison Gingell PACS Suite to expand the course to enable up to 20 attendees to each session. The course is open for radiologists & radiographers and so far in 2023, over 100 trainees have attended an X-IT Course, with excellent feedback. The relationship with Coventry University is progressing well and could be an efficient way in the



future of forming mutually beneficial relationships to enable training expansion or alleviate placement issues, supporting newly formed Community Diagnostic Centres.

Work is well underway to establish another UHCW course focusing on “Interventional Radiology Nurse Training” which is due to start in 2024.

## West Midlands School of Radiology



The West Midlands School of Radiology is not officially part of the Academy Hub and Spoke structure. However, its core function aligns with Academy development. Prior to the inception of the Academy, the Midlands already had 256 trainees, and Academy investment in PA funding has enabled the increase of radiology expansion places. To date, the West Midlands has increased its intake by 20% each year (currently 296 learners). Whilst there is an appetite to continue this trend, there needs to be a solution to ensure that there are suitable facilities in the region to adequately train the influx of learners to the end of their five-year training programme in 2029.

## University Hospitals of North Midlands

UHM applied for and was successful for being the Hub in the West Midlands, in partnership with Keele University. Responsible for the administration and support of the area and with the Academy Director also subsequently based at UHM, the site has been enhanced with a



radiographer trainer to deliver advanced practice clinical training and diagnostic reporting training to radiology trainees and radiographer advanced practice trainees. The administrative arm has worked on a Midlands-wide project to produce a ‘brochure’ for all of the academy learning, training and continuous personal development (CPD) courses, which is hosted via the Keele website. This provides a ‘one stop shop’ of all up to date courses and means that systems under

pressure have a single point of information for their imaging courses. Within the site is the

booking portal (in final build phase), enabling learners to book rooms, lectures, and equipment efficiently, reducing duplication and admin burden. UHNM have also received investment for a practice educator in sonography (outside of the academy budget) to support sonography learning and placements. This facilitated a doubling in numbers training from two a year previously, to five a year. UHNM was within one of two regions which piloted CT-colonoscopy training for radiologists and radiographers. After two years of a successful pilot, this has now been rolled out nationally, funded this year by NHS England and Fortitude Charity. In 2023 UHNM Radiology succeeded in a grant application for to deliver west midlands wide linked classroom physics training for Radiologists and Physicists, interventional simulation training for Radiology learners, nurses and Radiographers, and University funding to develop CPD accredited interventional nurse training.

## **Keele University**

Keele University works in partnership with UHNM as one of the administrative Hubs in the West Midlands. By aligning with an HEI, the Academy has been able to understand the placement and learning needs of radiography and sonography learners and to add weight to new modules or courses being developed by the Academy. Keele have also been instrumental in developing the role of the Practice Educator (PE) and sharing knowledge with other areas. In partnership with UHNM, the PE is able to engage with apprenticeships, analyse placement rotations to deconflict with placement capacity and academic calendars, encourage patient care and staff engagement and support a Preceptorship programme. This has benefitted the HEI through supporting learners, building closer links with Trusts and improved placement experience, and the Trust through recruitment and retention.

## **Birmingham City University**

BCU has benefitted from facility development for both the Imaging and Endoscopy Academy since the inception of the project. In terms of imaging, this has enabled them to increase the amount of learning and education for radiography reporting, medical ultrasound and they have been able to provide a linked classroom for Medical Physics training for the radiology registrars delivered by a network of medical physicists led by UHNM from the County Postgraduate Facility. An increased confidence in the quality of training delivered through BCU's new facilities was reported by system colleagues following the open day of the training suites in 2022.

Work is underway to complete the governance that will enable them to be linked up digitally to the County Hub for training.

## The University of Derby



As the sonography spoke for the East Midlands, UoD have been able to successfully pilot SHIFT, Sonography High Intensity Focused Training, for radiologists. This has supported 46 learners since the pilot started. The course runs for a week and allows focus on skills development in abdominal ultrasound using short teaching sessions, case studies, simulated practice and scanning of normal

volunteers. It is designed to enable trainees to enter clinical placement with minimal disruption to service delivery, reducing impact on supervising staff. The pilot has been evaluated and its success has been presented as an abstract at the United Kingdom Imaging and Oncology Congress (UKIO) and will be presented again at the British Medical Ultrasound (BMUS) conference in December 2023. SHIFT has now been rolled out to the west of the region based at the County postgraduate facility.

Being within the Academy infrastructure, Keele, BCU and UoD have been able to respond swiftly to short notice education offers, such as sonography Post Graduate Certificate and Post Graduate Diploma qualifications and match courses with system requirements, reducing planning time and burden for Trusts. As MITA supports the interests of undergraduate and postgraduate learning, the role of the Higher Education Institutes is key.

## Nottingham University Hospitals

NUH is the Hub for the eastern part of MITA. It also forms the administrative centre for the east as proscribed in the Academy Hub and Spoke model. NUH is also part of the DREaM Academy (Diagnostic Radiology in the East Midlands), one of the original pilots that was set up to test the idea of more efficient working within radiology-only academies. It was this initial pilot that has led to the Richards Review and the implementation of multi-disciplinary imaging academies.

## University Hospitals Leicester

UHL forms another part of the radiology section of DREaM Academy, working with University Hospitals of Derby and Burton. The success of prior radiology training activity through DREaM gives its own unique challenges in aligning undergraduate sonography and radiography training with specialist registrar training. To date, the academy has increased their registrar intake by 20%. NHS England has heavily invested in infrastructure to create fit-for purpose multi-disciplinary imaging facilities. This means that there is the capacity to increase radiography and sonography training. This year, UHL have doubled their numbers with the addition of a dedicated ultrasound trainer, they have 17 apprenticeship learners (Assistant Practitioners and learners taking bridging modules to complete level 6 courses.)



The UHL degree for radiography is now live and Practice Educators are involved in teaching outside clinical settings. There is a drive to continue to increase the radiography and sonography element and the uplift of these Practice Educators in the Midlands now means that learners can make use of the training at UHL. This includes a new cohort of 23 radiography preceptees within imaging at the Trust.

It is recognised that the Academy structure does not have reach into all ICSs yet. Now that a stable base has been established, there is the potential to form mutually beneficial relationships with other Trusts to enable training in more rural communities. Conversations are being held with Coventry University, Lincoln University, Hereford and Worcestershire ICB and Shropshire Telford and Wrekin to provide equity to the region.

## Innovation at County Hospital

Historically, West Midlands, has lacked facilities that can provide a permanent base for imaging training and learning. The post graduate medical centre at County Hospital Stafford is optimally located, in terms of travel distance, between Birmingham (1hr) Coventry (1hr) Shrewsbury (1 hr) and Stoke (45 mins). Worcester post graduate centre is currently being upgraded with a private highspeed network similar to Stafford allowing live streaming of training events. Transport links are good from the M6 and mainline railway station (six minutes), access to the building is free, and free parking is available for trainees for maximum flexibility of travel.

The location allows easier training for those from more rural areas, which often have the greater needs for training facilities.

## Digital Innovation within the Academy

### The case for immersive simulation

Simulation as a training tool has long been used by several industries with well documented evidence of its effectiveness in both individual and team-based disciplines. Its use in aviation is arguably the most prolific, with pilots spending most of their pre-certification hours in a simulator and thereafter mandated to reskill every six months in a simulator.

Its use in medical training is less prolific. Most simulation scenes in medicine today take one of two forms, either in-situ within the normal hospital environment, or in a ward type setting or blank room away from the hospital. Unfortunately, in many busy hospitals, in-situ simulation is either not practical or happens infrequently.

Immersive simulation is intended to deliver an in-situ experience away from the busy hospital environment whilst maintaining all the mental stimulus of the normal workplace. Feedback has also shown that this needs to be a relevant medical environment to the procedure being taught.

There are three main technologies used to provide immersive simulation, these being Virtual Reality (VR), Augmented Reality (AR) and extended reality (XR). VR & AR are well documented and normally involve some type of headwear to be worn, with VR being predominantly useful for single person, skill based, training, whilst AR can give a broader immersion experience. XR is a term first developed within medicine by Sim4Med<sup>2</sup> in 2018 to mix both the physical and AR worlds and is available today in the Extended Reality Lab (ERL).

The ERL essentially redefines medical simulation by taking in-situ simulation out of the busy hospital and into the education centres. Feedback has shown that clinicians feel less likely to engage in simulations in non-descript rooms where their brain cannot connect with familiar

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<sup>2</sup> ERL, XRNET, EPACS are registered trademarks of Sim4Med.

expected surroundings. Feedback from courses in the ERL has shown that seasoned consultants experience the feeling of being in the hospital but that during procedures they lose sense of being in a simulator entirely. Additionally, trainees who have never set foot in a busy emergency department feel they have experienced the real-life hospital environment despite the fact they were in a simulation. They come away with a level of confidence and training recall that they do not from a traditional simulation space or VR session.

The ERL was designed with interest from HEE (now NHS England) Technology Enhanced Learning (TEL) and alongside clinicians at University Hospitals North Midlands (UHM) Teaching Trust, it has since gathered national interest with appetite to drive a meshing of immersive simulation centres within many teaching hospitals across the county.

The ERL is unique in a number of ways. Primarily, it was designed to provide an immersive room(s) for connected simulation across the NHS. The ERL presents the trainees with real life environments that they are either familiar with from their normal working life or that they need to experience for the next level in their training. The essential component of the ERL is its ability to link with other ERLs to provide collaborative simulation. Cases for connected simulation range from mass incident training to college run exam sessions across many hospital sites.

Collaborative simulation within the ERL is a new concept with the NHS with several workflows looking at how this can enhance national training.<sup>3</sup> AR is very much complimented in the ERL and one work strand is looking at how a remote surgeon(s) can not only interact with a remote operating theatre through HoloLens but also feel they are in that same operating theatre as part of the ERL.

This connected nature of the ERL can also play a role outside of the national environment. International trainees can participate in team-based simulations before they arrive in the UK. In addition, it gives travelling doctors' visibility and situation awareness training before being deployed in remote unfamiliar surroundings. Trainees have more flexibility in their schedules and in the case of Royal Colleges such as the Royal College of Surgeons, the ability to participate and deliver remote real-time courses and support in a way never seen in the NHS.

The ERL uses a number of cutting-edge technologies to deliver real-time low latency data elements. These elements range from visual and audio stimulus, motion tracking, eye tracking, haptics and even trainee vital signs to not only provide high fidelity training solutions for students but to also understand how effective that training is so that the trainers can adapt better ways to teach. The ERL not only immerses the student, it tries to understand what support the student may need to develop faster more efficient training material.

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<sup>3</sup> There are multiple simulation ideas in Trusts but they are limited to the Trust and therefore are at risk of being duplicated at additional unnecessary cost. Using the facilities at Stafford, we aim for a co-ordinated approach, upscaling training to produce high quality, affordable and sustainable learning.

A major limiting factor in deploying any high fidelity, low latency solution within the NHS today is the lack of suitable connectivity and technology infra structure. Most hospital networks already struggle to provide the necessary stability needed to support clinical function so any diversification to provide education support is extremely limited and understandably may have limited support from hospital IT teams. XRNET has been developed to meet the needs of ERL, VR, AR and other developing technologies and comprises an air-gapped 10Gig/sec low latency redundant network architecture which is completely separate from clinical system.<sup>4</sup> This system has the potential to reach across regions and to deliver international simulation training.

As a result of the work within the ERL there have been several cross-speciality projects to look at ways to deliver greater patient safety whilst accelerating clinician training. MITA uses the high-speed network together with eye tracking and educational picture archiving and communication systems (EPACS) to deliver a new radiology teaching framework. By linking six Midlands hospitals this removes the need for trainee/trainer travel and allows a remote trainer to see where and how trainees are analysing scans in real time.

Initial pilot trials are very encouraging with the centres going live in September.



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<sup>4</sup> The network is ultra-high speed and independent of any Trust network. It also has redundancy built into the system to combat any power outages or other faults, keeping the system working at optimum speed for high definition scanning training.



## Facility equipment and linking across the Midlands

In addition to the ERL and EPACS, the MITA Hub at County Post Graduate Medical Centre (PGMC) has the following resources:

### CIMAR™



NHS England funded a CIMAR library of cases with licences across 17 trusts. The links to this facilitate live reporting sessions in large group teaching, as well as more unusual or apposite historical cases. The suite also uses eye tracking software as mentioned earlier in this document. This can accelerate the training of advanced visual search strategies and perceptual expertise in radiology. Normally developed through experience and knowledge over time, this is delivered by enhancing

feedback to trainees through the use of heat maps of eye tracking and early identification of gaps in image scanning and review areas. Digital eye tracking bars are fixed to the PACS workstations, enabling trainee assessment at each film viewing session.

### Ultrasound Simulation training suite.



Simulation training in USS is essential as one of the most challenged areas of modality placement capacity in the Midlands Imaging Academy. Multiple phantoms facilitate large group teaching and provide an efficiency of trainer deployment, but also develop hand eye coordination in the trainee prior to patient contact. Improving the trainee to a more work ready level prior to patient contact improves the patient, trainee, and trainer experience. This also mitigates the need to compromise service capacity with multiple less heavily booked training lists, where absolute beginners require longer appointment slots.

Trainees are left in the room alone with the “patient” with a 2-way microphone to the trainer, and a viewing gallery which observes the trainee/“patient” interaction, the USS screen real time, and the hand skills of the trainee on large teaching screens. Large group teaching and peer to peer feedback in this environment avoids compromising the simulation surrounded by crowds of trainees, the clinical capacity or the teaching environment. The equipment can also be used on cardiac echo training and Acute Trauma Life Support (ATLS) Focused Assessment with Sonography in Trauma (FAST) training courses.



The suite consists of general pathology haptic pelvic, obstetric, and abdomen simulators, probes, and abdominal aortic aneurysm, Scrotal, Musculoskeletal, foreign body identification, paracentesis, Thoracocentesis and abscess drainage USS training models. There are also models for thyroid and breast biopsies.

### Vascular training suite.



Training in venous access is required for band 3 to band 8, and all Radiologists in Radiology, as well as Nursing, Medicine and Surgery. Interventional Radiology requires one-to-one teaching with fine motor movement skill development and situational judgement, currently delivered on patients under direct supervision. The opportunities are limited by patient case availability, risk, and the urgency of a large number of indications which preclude the slowed pace required for trainees. Simulation training helps develop the basics at an accelerated rate.

Simulation training is also valuable for interventional radiology (IR) nurse training and IR Radiographer training.

Since the inception of MITA, a record of all simulation equipment has been gathered and maintained, both inside and outside of the Academy, working with valuable partners. This has helped the Academy understand how much equipment could be linked together to increase capacity in supervision and to reduce unnecessary spend of additional equipment. It also holds a value in understanding which Trusts or sites outside of the Academy could be linked into training at little or no cost.

## Website and booking portal

The website brochure and booking portal has been outlined within the work completed at UHNM. We believe that this model reduces inefficiency in a number of ways. It brings together all available courses in one place, reducing the time and effort that systems need to spend on searching for suitable training, especially in an environment where short notice funding becomes available to a system already under pressure to deliver front line healthcare. The booking portal enables maximum usage of equipment and prevents wasted time and travel for learning.

There will always be a need for some administration to ensure that the sites are up to date and monitored but this would take just one person, as opposed to multiple staff duplicating effort across the Midlands (or the country if rolled out further) as well as freeing up staff to take on other duties.

## Evaluation

We are using a number of different metrics to evaluate the learning and training as a whole in the Academy. The majority of this is qualitative as this is still a pilot although data collected from courses piloted over the past few months show a positive trend. We are evaluating quantitative and qualitative data in terms of:

- Ease of access
- Numbers using the services offered
- Success using the equipment and learning as opposed to preferring traditional methods
- Pass rates
- Confidence with using the equipment and ER/AR/VR methods
- Satisfaction with training
- Improvement in procedural skills
- Resistance to change (expanding into different areas)
- The impact on service delivery in the future

## Future Development Opportunities

The project first started as a Hub and Spoke model, with a view to becoming a virtual Academy. As time and understanding has progressed, it is clear that physical sites remain necessary to training but that virtual tools can replace some of the training at no greater, and usually lesser cost. MITA is piloting a linked-up system throughout the Midlands, with County Hospital as its virtual Hub (see Fig. 3).

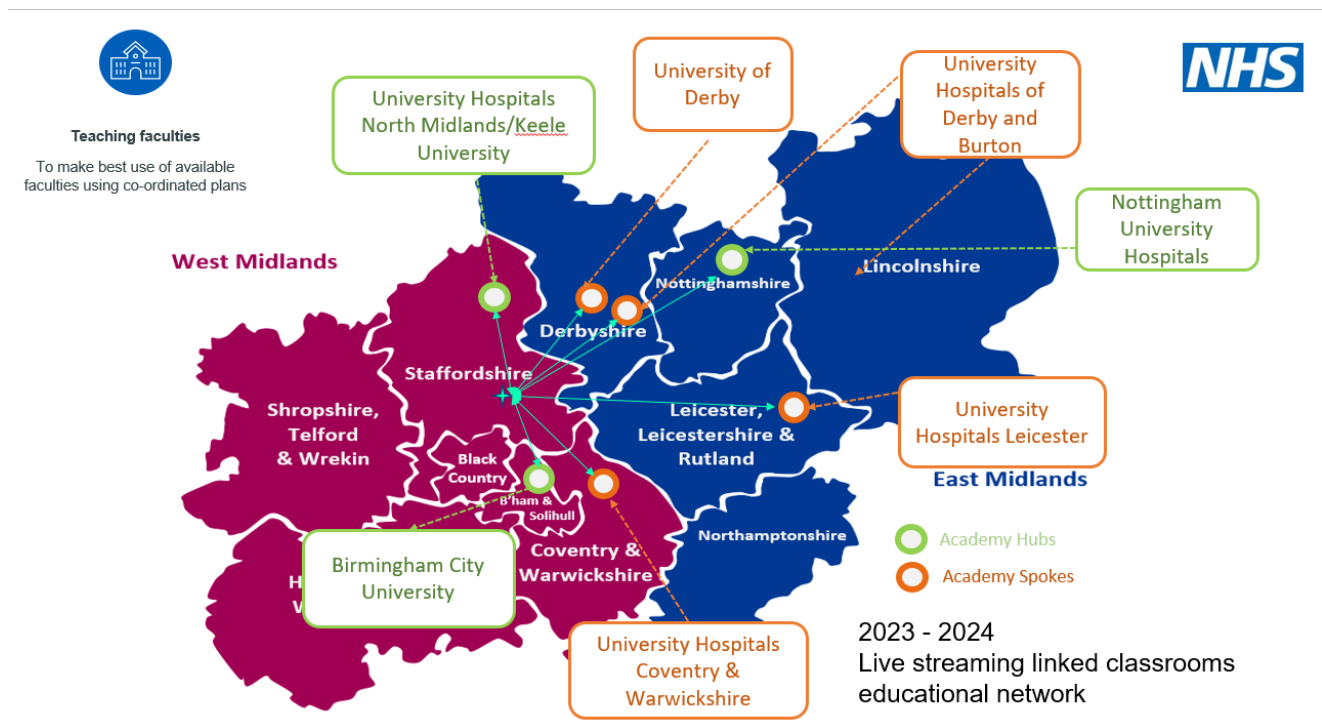
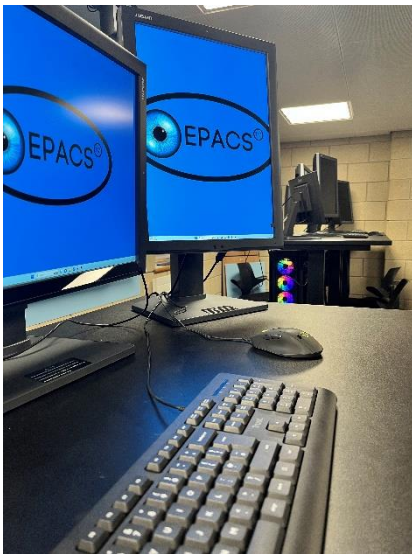


Fig. 3: Linked up training system

The plan is to enable learner sessions to take place in any of the sites and to be virtually accessible in the other sites. As an example, a vascular training session could be run in County Hospital, with learners either observing and participating in peer discussions, or in the case of UHCW and NUH, which have their own vascular training equipment, practical learner sessions. This would require just one trainer to oversee training in all sites, reducing the requirement of trainer time, and reducing time and travel costs for learners and trainers alike.

All sites have now been networked and the infrastructure is in place to conduct this type of learning. The team are now working with Trusts and HEIs to submit data protection paperwork in order to enable full streaming. At present Zoom links enable some training and once the GDPR requirement have been met, full evaluation of this pilot will be recorded. It is expected that savings in time and travel resources will outweigh licence and infrastructure maintains costs.



At present this innovation in the Academy has relied on funding from within and outside of the allocated annual budget. After initial evaluation it was calculated that an initial lump spend (similar to the pump-priming given to the Academy prior to the first year of running) was necessary to establish a streamlined system. When fully running, there is less cost required for administrative personnel as well as consultants. The purpose here is to use the investment more wisely in upskilling, learning and training. Future innovation, when budgets would permit, would include the provision of HoloLenses and haptic gloves, enabling a single trainer to see and feel how multiple learners are improving, in multiple sites.

This initiative lends itself to other opportunities. The NHS relies heavily on international recruitment, not just in Imaging, but in nursing and other healthcare strands. Much of the alignment of these recruits is done in the UK. This brings about a lot of time spent on recruits needing to familiarise themselves with a new country, hospital, training system and health guidelines. The simulation equipment system at County is ideal for running familiarisation training to great detail, even being able to simulation the exact surroundings that a recruit will be going into. This training could take place prior to the recruit moving to the UK, saving time and resource of trainers, building confidence in the recruits and helping with retention of overseas staff.

There is also a Corporate Social Responsibility element to this system. Aligned with international recruitment, it is recognised that the NHS draw heavily from overseas healthcare staff, potentially draining their systems of available clinicians. If upscaled, this system is an excellent way of delivering training and education overseas at less cost in terms of finance and time of NHS staff, whilst still providing a (albeit reduced) funding stream that can contribute to the upkeep and sustainability of the system. This initiative is not limited to Imaging; this could be used in a multitude of other disciplines (Medical, Nursing, Paramedics etc.).

## Conclusion

This brochure has been designed to give an overview of the planning and implementation of MITA, in line with the Richards Review. It has also been an opportunity to demonstrate the additional innovation that has been introduced, aligned with the Long term Workforce Plan, to produce a stable platform for education trading and learning to continue after the project completes in March 2025 and this becomes a business as usual education pipeline.

