

Using Artificial Intelligence to assist with NHS Breast Screening

Capacity, Care, Confidence

What?



The East Midlands Radiology Consortium ([emrad](#)) is an alliance of seven NHS Trusts who have joined together and share diagnostic imaging, (X-Rays, CTs, MRIs etc) for the purposes of enhancing patient care and supporting operational capacity.

The consortium is leading a [nationally funded 18-month project](#) to develop and test Artificial Intelligence (AI) software within Breast Screening Services in our region. Our NHS consortium has partnered with two small UK start-up companies: [Faculty AI](#) and [Kheiron Medical](#) to jointly develop AI tools that aim to maximise operational and capacity aspects of the Breast service as well as assisting with clinical and workforce pressures.

Our vision is simply: **Capacity, Care, Confidence**

Through delivering this project we hope to optimise NHS Breast Screening **Capacity**. We believe by doing this we will help enhance the **Care** that every woman attending Breast Screening receives. Finally we want to increase NHS and public **Confidence** in the use of AI and the potential benefits it can bring.

Why?



- Almost a quarter of radiologists (Imaging doctors) plan to retire within five years
- Consultant radiologist vacancies [remain unfilled in breast screening](#)
- Demand for imaging (such as X-Rays, MRIs etc) is growing
- Radiology departments struggle to meet reporting requirements in the required timescales
- There is an increase of women accessing breast screening services year on year and not enough staff across our region to universally support the high quality care expected from our services.

Where?



We are initially developing the AI in partnership with two of our seven emrad Trusts or 'testbed' sites. These are the [Nottingham Breast Institute](#) and [United Lincolnshire Breast Screening Services](#).

Both sites provide excellent care to their clients and patients but both experience challenges when it comes to having the right numbers of staff in the right roles to keep the service running. This is a national problem and not just confined to these two sites.

How?



The process undertaken is that we have copied and anonymised historic mammograms (breast X-Rays) as well as clinical diagnosis results. We will combine these with information about service capacity and will use the outputs to calibrate and train the two pieces of AI. We are working in adherence to strict Information Governance protocols and in line with the [General Data Protection Regulation \(GDPR\)](#). We are duty bound to ensure that there are no data breaches and that this is entire process is done lawfully and ethically.

When?



This project started in October 2018 and will last for 18 months until April 2020. When the AI software has been proven, we plan to make it available throughout NHS Trusts in the East Midlands and the wider NHS to use in their Breast Screening Services.

Who?



As we are using historic data during our test bed period, no one who currently accesses our breast screening services will be affected. As we approach the end of the project we will be in a position to move to a full clinical trial, running parallel to normal services.