Artificial intelligence for chest xray interpretation

Dr Sarah Blake, Dr Neelan Das, East Kent Hospitals University Trust

AI CENTRE for Value Based Healthcare

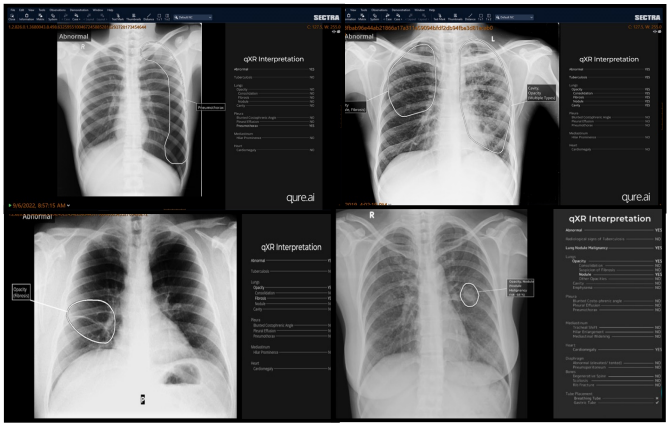
The project

A deep learning algorithm called qXR developed by Qure.AI

Provides automated report of chest x-rays (CXR) classifying into normal vs abnormal scans

Trained on 2.3 million chest x-rays

The aim was to deploy qXR in East Kent Hospital University Trust (EKHUT) to improve accuracy of reporting in ED



Examples of qXR images and reports

Evaluation

The deployment date is set for 1st May 2023

qXR will require ongoing monitoring to assess discrepancies. This involves weekly audit of reports and self-reporting to a dedicated email. Selected Scans will then be discussed at a monthly meeting.

Validating qXR

An audit of CXRs in ED showed evidence of misinterpretation of CXR resulting in incorrect patient care

A validation study on 1000 chest x-rays taken at EKHUT was performed

Ground truth is the radiologists report

It shows acceptable accuracy for use, with a sensitivity 98% and a specificity 65%

Deployment

We created a survey for clinical staff to evaluate perceptions of AI and improve engagement with qXR

I ran training sessions on using qXR for the Emergency (ED) and Radiology departments

Deploying qXR required close working with procurement, legal, IT and clinical safety teams to approve use of qXR in a pilot study in ED on 2 scanners

Scan to read more about qXR at EKHUT

The future of qXR...

"Superusers" will be trained to continue evaluation after wider deployment.

The clinical impact of qXR will be measured to evaluate changes in patient outcomes

If evaluation of qXR performance is good, the software will be integrated into all scanners in the trust.

NHS Guy's and St Thomas' NHS Foundation Trust