

Featured customer



The NHS is working with Ultromics to streamline cardiovascular disease diagnosis and help save up to 150,000 lives



Objectives



Reducing backlogs of echocardiograms by processing exams in a fraction of the time



Early detection of cardiac disease will prevent 150,000 deaths



Helping clinicians spend more time on patient care and less time on analysis

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Background

The National Health System (NHS) in the UK has evolved to become one of the largest healthcare systems in the world. Ultromics has been working with the NHS since 2017 to train, pilot and validate its AI algorithm, EchoGo, across 30 NHS sites in one of the largest echo studies of its kind.

EchoGo aims to improve and streamline the diagnosis of cardiovascular disease, the number one global killer, by automating echocardiogram analysis as part of a cloud AI service and providing diagnostic reports in a matter of minutes. This will replace manual methods, such as analysing scans by eye or using on-site software, to eliminate time required to interpret analysis, so doctors can focus on other valuable work and treating more patients.

In 2020, NHSx, a United Kingdom Government unit with responsibility for setting national policy and developing best practice for NHS technology, digital and data, including data sharing and transparency, awarded Ultromics a £2.7 million grant to fast-track EchoGo into Trusts and make it commercially available across the UK. The goal is to save the NHS valuable time, resource and costs, whilst ensuring accuracy and eliminating variability, one of the main issues with echo diagnosis.

Programme Objectives

Following successful trials across 30 NHS sites and a grant from NHSx, EchoGo has been made commercially available to all trusts and is now on the NHS Supply Chain Framework.

The programme aims:

- Seamless diagnostic reporting through the cloud, to help manage the shortage of resources.
- Faster turnaround times of echo exams. Current existing on-site software solutions can take up time out of the doctors day due to the manual manipulation of images and contouring.
- Consistent and accurate analysis for doctors of any skill levels, across all locations across the UK.
- Eliminate variability issues. Existing diagnostic tools require manual operation, which can be open to varying interpretation and suffer inter-operator variability.
- Greater consistency in using Strain as a measure to analyse cardiovascular disease. Strain is proven to have greater sensitivity than Ejection Fraction in detecting heart injury but is not widely adopted in the NHS due to its limitations with variability, time and resource. When paired with AI, these limitations are no longer a problem.

What cloud offers



Fully Managed Automation



Near real time reports



Zero variability analysis



Processing high volumes of data



Scale up easily



Reduced costs

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The Ultromics Approach

The NHS saw the vast potential in using AI to reduce burden on the system by automating some tasks using automated algorithms. AI will not replace doctors, instead it will increase productivity and save time.

The NHS were keen to find a state-of-the-art solution which could be set-up easily with minimal day-to-day impact on clinician's workflow and underlying infrastructure. They liked the idea of trying a cloud service, where infrastructure was managed off-site. This would make the most time, resource and cost savings and help drive a significant return on investment.

Ultromics understands that one of the barriers to adoption of new technology, is the lack of resources to get it implemented. As a result, they offered a solution which could be installed quickly over PACS with minimum disruption and cost.

EchoGo was hosted on the Health and Social Care Network (HSCN), the standard, approved set-up in the NHS for Trusts to send data. The Sectra Image Exchange (IEP) was the chosen connectivity platform to allow secure data exchange between the NHS and Ultromics. This uses DICOM images and pseudonymises patient data to and from site.

The Image Exchange Portal (IEP) is a natural fit. The ubiquitous nature of the IEP provides access across the NHS, as well as relevant data sharing agreements, sitting behind the IEP provides access to any site wishing to use Ultromics' services.

Ultromics complied with both the NHS Data Security Protection Toolkit (DSPT) and GDPR to process data, as well as obtaining an ISO 27001 certification (industry standard certification for the highest level of data security standards).

The connectivity choices allow a single point of reference, so any NHS site can be rapidly integrated and fit seamlessly into clinical workflow. Doctors just select Ultromics as an IEP node and their studies will be automatically routed to the EchoGo cloud. EchoGo then takes care of processing analysis and sends a report back in a matter of minutes.

The implementation of EchoGo as the single, standard service for diagnostic reports hopes to present a powerful opportunity to the NHS. It will help to resolve critical business issues and increase productivity with clinicians.

Key Benefits

Artificial Intelligence has an enormous potential for the NHS, to reduce the burden on the overall system by automating cardiovascular disease analysis and improve patient outcomes by helping doctors spot signs of disease earlier and faster.

Cloud can add value by automating analysis off-site, so doctors do not need to spend time manipulating images in local software, including having to be trained and manage it. It also eliminates variability, since there's no room for human error.

It is important to note that whilst EchoGo can't replace a Cardiologist, it can provide an indicator of disease that is not possible to detect with the human eye. The transformative nature of this technology will help shape heart disease pathways for years to come.

Ultromics continues to work with the NHS and NHSx to implement EchoGo in hospital sites across the UK and support the NHS's Long Term Plan. The plan sets out several actions to improve detection and care for people with cardiovascular disease (CVD) and respiratory disease, prevent diabetes and improve stroke services. The aim is to prevent up to 150,000 cases of heart attack, stroke and dementia over the next 10 years.