CASE STUDY

Arezzo

Arezzo is changing the world of healthcare and transforming clinical practice with England’s NHS Direct online Health and Symptom Checkers (HaSCs) service that has exceeded expectations and has delivered cost savings with its new IT platforms.

EXECUTIVE SUMMARY

Elsevier Arezzo technology has been chosen to support clinicians in choosing the most appropriate treatment path for each patient. Arezzo matches appropriate evidence-based guidelines with patient information and dynamically evaluates best-practice options in the light of current patient and disease information. The key focus was to enhance the NHS Direct online Health and Symptom Checkers (HaSCs) service, using Arezzo. Arezzo helps physicians improve care outcomes while taking unnecessary costs out of the system and has helped the service saved the NHS £57m in one year.
An NHS Direct for the future

Since a re-organisation in April 2014, NHS Direct itself has been closed and its digital service now transferred to NHS Choices. However, since 1997 NHS Direct provided people in England with expert health advice, information and reassurance to help them care for themselves at home, or to access appropriate healthcare using world-class telephone and web services. Each year around 5 million calls were made to its health information and advice line and its web services used over 18 million times. NHS Direct aimed to give patients access to the best quality clinical care and deliver information in the most user-friendly way, adding value to the National Health Service by providing this remote care 24 hours a day. With an ever increasing demand from patients and the public to access services and information over the internet, and other mobile channels, NHS Direct realised in 2009 there was a need for a significantly enhanced, efficient and cost-effective web offering.

NHS Direct objectives

NHS Direct wanted to:

- understand the health needs and behaviours of individuals, and provide high quality services, in flexible ways, that respond to those needs
- develop more efficient and innovative ways of delivering services, in order to address the twin challenges of increasing demand and economic constraints
- enable and support people to do more for themselves
- challenge, empower and support staff to deliver safe and valued healthcare services
- encourage collaborative work amongst health service providers, both across and outside the NHS, to share expertise and avoid duplication

To achieve these objectives NHS Direct required significant improvements to its online presence, specifically to allow quicker deployment and upgrade of advice personalised to each site visitor and also to increase capacity and resilience during major peaks in usage. For this it sought new service delivery partners.
Arezzo technology chosen to drive NHS Direct web offering

The Arezzo Solution

Elsevier acquired the company InferMed, a supplier of Clinical Decision Support technology in 2015.

In December 2009 InferMed was chosen as the Prime Contractor and Managed Service Provider of a vendor consortium made up of UK partners Rackspace, Sitecore, and Eduserv, to provide a fully managed service and rebuild, enhance and host the NHS Direct web and digital health services.

The key focus of InferMed’s proposal was to enhance the NHS Direct online health and symptom checker service, using the Arezzo clinical decision support technology. NHS Direct staff immediately understood the potential for much more flexible advice giving, and the ability to tailor responses to individual cases coupled with an ability to rapidly evolve and/or redeploy as a situation evolves.

Patients made 700,000 visits to the website to access the core NHS Direct services every month, and any doubts about Arezzo’s ability to manage such numbers were put to rest by an extensive scalability and capacity test. InferMed was then tasked with developing a new platform for the NHS Direct website to support the health and symptom checker service.

The initial pilot of the symptom checker service saw a significant reduction in cost to serve each patient and resulted in a request for the deployment of over 30 new HaSCs (health and symptom checkers).

As expected, Arezzo enabled rapid development, maintenance and expansion of the online symptom checker service, while the Sitecore content management system allowed the NHS Direct editorial team to update the website content more easily.

The system went live in July 2010 and by Q4 2011 40 Health and Symptom Checkers covering a wide variety of symptoms and conditions were live with new HaSCs regularly being added.

In December 2010 the HaSCs were accessed 700,000 times, and at its peak, following the introduction of the service on mobile device apps in May 2011, the service was accessed by 20,000 users in one hour, thus meeting an increasingly important demand from patients and the public in a safe and effective way.
The decision-making logic of Arezzo® underpins these tools

The key role of Arezzo technology

Arezzo technology at the heart of the online self-assessment service helps patients to identify the course of action or treatment appropriate for their own personal symptoms. A patient is asked a series of interactive questions relating to his or her condition, and Arezzo generates a recommendation as to the action the patient should take next. Multiple outcomes are possible and the most appropriate is presented to the patient, along with the reasons for that recommendation.

Arezzo uses powerful logic to ensure that patients are only presented with the information and asked the questions that are relevant to them. For example, questions about pregnancy are not put to male patients.

Arezzo-powered health and symptom checkers on the NHS Direct website are changing the way in which people interact with the National Health Service in England and are a major step towards enabling individuals to take charge of their own care.

The NHS Digital Assessment Service, formerly operated by NHS Direct, was transferred to NHS Choices in 2014. The online health and symptom checker service is now available at:

www.nhs.uk/symptomcheckers/Pages/ Symptoms.aspx

providing information and advice to users on a wide variety of symptoms and conditions.
New online service proving very popular with patients

Achievements of the new service

- Patients can assess their condition online and receive advice as to the appropriate course of action they should take.
- The health and symptom checkers include topics covering a wide range of medical problems from nosebleeds, colds and flu, male and female sexual health to mental health conditions.
- NHS Direct’s telephone and online services were used over 830,000 times during the 14-day 2010 Christmas period and over half of those contacts were via the online health and symptom checkers. NHS Direct was able to achieve its goal of becoming a ‘Web First service’.
- In the first year the use of the website health and symptom checkers resulted in 1.3m fewer visits to other healthcare professionals, including 0.7m visits to GPs, saving the NHS an annual total of £57m.
- Costs to the NHS were reduced as web interactions cost just pennies compared to around £32 for each GP interaction⁹ or £220 for an emergency ambulance.
- The service received extended exposure through syndication via NHS Choices, Directgov and a number of selected consumer health sites (and was fully transferred to NHS Choices in 2014).

Robert Dunlop, previous Clinical Director for InferMed and now Elsevier said: “NHS Direct led the way in the adoption of advanced online services. These new clinical assessment tools were the forerunner of the way in which people will interact with the NHS in the future, and were the foundation of digital remote care. Having first been made available via the web these new services became accessible on mobile devices and soon on wider channels such as IPTV and even games consoles.”

Roger Donald, Associate Director of (NHS Direct) Multi Channel: “Our new web services for NHS Direct’s patients laid the foundation for a new wave of patient self-help tools. From this solid base patients were able to quickly and effectively self-assess an increasing number of common ailments from anywhere in the UK where there is access to the internet. We changed the way people interact with NHS Direct.”

THE AREZZO ADVANTAGE

The Arezzo technology has been supporting best practice in the medicine since 1999. In April 2012 developers of the technology received the Queen’s Award for Enterprise in Innovation for work done in developing and deploying decision support systems for healthcare.
About Elsevier
Elsevier is a world-leading provider of information solutions that enhance the performance of science, health, and technology professionals, empowering them to make better decisions, deliver better care, and sometimes make groundbreaking discoveries that advance the boundaries of knowledge and human progress. Elsevier provides web-based, digital solutions — among them ScienceDirect, Scopus, Elsevier Research Intelligence and ClinicalKey — and publishes more than 2,500 journals, including The Lancet and Cell, and more than 33,000 book titles, including a number of iconic reference works. Elsevier is part of RELX Group plc, a world-leading provider of information solutions for professional customers across industries.