



NHS Evidence: Providing Comprehensive Access to Clinical Information and Best Practice with Microsoft's FAST Search

Background – Search Becomes Part of UK's 'High Quality Care for All' Health Agenda

The intention to create a National Evidence Portal was originally announced in Lord Ara Darzi's 2008 review of the National Health Service entitled 'High Quality Care for All'. This report, which marked the 60th anniversary of the NHS, established a 10 year vision for the service and identified the need to help NHS professionals navigate the current maze of available sources of evidence and best practice.

Lord Darzi stated that "All NHS Staff will have access to a new NHS Evidence service where they will be able to get, through a single web-based portal, authoritative clinical and non-clinical evidence and best practices."

The task of delivering NHS Evidence was given to the National Institute for Health and Clinical Excellence (NICE) due to its significant international reputation for developing high quality independent evidence-based guidance. When Andrew Fenton, CTO for NHS Evidence, joined in October 2008 he had six months to deliver the Evidence portal.

"Armed with my experience of previous search projects, we sought recommendations from the National Library for Health and external advisors on available search solutions. We unanimously agreed that Microsoft's FAST Enterprise Search offered the right balance of search sophistication, scalability and ease of deployment to deliver the NHS Evidence portal project," says Andrew Fenton. With the software in place and the clock ticking, NICE also engaged the expertise and experience of Microsoft's Search Business Consulting team to capture initial end-user requirements and influence the direction of search by mapping

best practices into a compelling HTML prototype that was used to evangelize the future solution. This vision of search acted as a blueprint for Mongoose IT, a specialist search consultancy, to advise on the design of the search architecture and support the complex content aggregation challenge ahead.

Benefits

Delivering Innovation

The amount of biomedical research information doubles every 20 years*. This makes the task of using resources efficiently increasingly difficult for health care professionals. NHS Evidence's search capability is designed to address the problem of too much information in too many different places. This project offers health professionals and the public, searchable access to a range of information including primary research literature, practical implementation tools, guidelines and policy documents, for the first time.

Research on doctors' use of information has highlighted that, although there is still reliance on paper copies and the opinion of colleagues, use of electronic media is accelerating as it becomes faster and easier. Health professionals are increasingly using online search as a way of finding information. The project team understood that NHS Evidence needed to be as fast as web search but wanted to add value to search results with improved accuracy, quality and relevancy.

Selective Aggregation of Content Driven by User Requirements

NHS Evidence gives comprehensive access to a diverse range of information sources by bringing them into a central, indexed repository. Creating this repository was a challenging task as the data sources differed wildly in the

Technical Solution

FAST Enterprise Search Platform

Objective of the NHS Evidence Portal

To create a comprehensive, searchable online evidence base for health and social care professionals including clinicians, pharmacists, public health and special care staff, commissioners, service managers, information specialists and the UK public.

Benefits

- **Delivering Innovation** – NHS Evidence brings hundreds of diverse, dynamic third party data sources and over 140,000 documents together into a single search interface for the first time.
- **Selective Aggregation of Content** – configurable indexing enables discerning aggregation of content to match agreed user requirements.
- **Search Relevancy** – flexible ranking model and the use of navigators help to filter, prioritise and add value to search results.
- **Rapid Implementation** – project was completed on time and to budget despite a development timeframe of just four months.

* Wyatt JC Sullivan F ABC of Health Informatics – Keeping up: learning in the workplace (BMJ. 2005)

richness of the content, taxonomy and available metadata. Significant discussions took place with information providers to overcome these anomalies wherever possible. However, the goal was always to be highly discerning about the quality of any content aggregated and indexed.

Part of the NHS Evidence work programme is to accredit key content sources, beginning with formal guidance products. All information submitted for accreditation will be assessed by an independent advisory committee, against a pre-defined set of criteria. The aim of this process is to ensure that users can readily identify information from trusted, high quality sources.

In some instances, NHS Evidence's focus on providing access to the most relevant information meant only crawling and extracting specific parts of web pages and being careful to remove irrelevant content. All content decisions were made in close consultation with the various user communities and stakeholders, in specifically structured sessions facilitated by Mongoose IT. This helped the project team to define preferred, reliable sources and build contextual relationships in the data by relating various concepts and terminology.

Mongoose IT proved an invaluable asset to the Evidence team throughout this process. "As a complex data aggregation project involving hundreds of diverse data sources, and with an accelerated project delivery plan and aggressive timeframe, we have very much appreciated the support from Mongoose IT for specialist search, integration and architecture skills input into the solution design and delivery. Mongoose IT has proved to be a highly professional organisation and worked flexibly with internal staff to ensure that the NHS Evidence portal was delivered on time and on budget," says Andrew Fenton.

Search Relevancy – Not All Content Is Equal

NHS Evidence has a clean, easy to use search interface but this apparent simplicity conceals a high degree of search sophistication within its architecture.

Using the flexible ranking capabilities of

NHS Evidence can be found at <http://www.evidence.nhs.uk/>

Microsoft's FAST Search, NHS Evidence's ranking model was informed by an independent advisory committee rather than relying solely on fixed computer algorithms. This investment in the ranking model means that content that is felt to be of higher value will appear first in search results rather than leaving this to chance.

For example, in some search applications the freshest content may have a higher ranking – in other cases, the most recent content may add weight to the existing evidence base but will not necessarily challenge or overturn current practice. Therefore content dated most recently will not necessarily appear at the top of the search results, but users can choose to re-order results in date order if they wish to. The application also allows whole sources to be boosted, such as NICE guidance, or publication types such as systematic reviews.

The team also wanted to help users filter results by providing navigators. These navigators, which appear on the left of the results page alongside a user's initial search results, group results into various areas of interest. A search for asthma produces a set of results. Navigators then show how many results for asthma appear in specific areas such as 'medicines and devices' to treat the condition, or name the specific 'content source' where results have come from. These navigators enable health professionals to sort, sift and prioritise information so that they can quickly get to the most relevant content.

Rapid implementation

NHS Evidence was delivered on time and on budget – the technical solution from license procurement to live was completed in just four months. Launched on 30th April 2009 to the health community, press and public, it has been widely welcomed, receiving excellent user feedback.

Future Plans for NHS Evidence

NHS Evidence is still being developed and will continue to respond to user feedback and demand. Over the coming months the team has planned a number of improvements and additions – including the inclusion of personalisation and recommendation techniques to help users receive the most relevant information for them. There will be further accreditation of reliable sources and access will be provided to local examples of best practice and commissioning guides. User feedback is being continually encouraged and incorporated to improve the user experience of the site.

"The implementation of Microsoft's FAST Search by Mongoose IT for the NHS Evidence Portal has been a huge success and has received very positive user, senior management and DH sponsor feedback,"

*—Andrew Fenton
CTO, NHS Evidence*