Knowledge for Health:

a whole-systems approach to using knowledge effectively for the benefit of NHS patients and staff

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Describes a knowledge management system at North Bristol NHS Trust. This allows people to search across discrete categories of resources stored on the library catalogue and databases, the Trust Intranet and selected, validated Web resources.

Rhetoric to reality

'The gap between the rhetoric found in the mission and the vision of the organisation, and the reality of putting it into practice, still poses the biggest challenge to progress in the NHS'.[1]

Access for NHS patients and staff to timely, up to date and relevant evidence-based information is a key element in the provision of best possible healthcare. We are challenged to achieve this vision.

The difficulty is that our knowledge can be limited by the artificial boundaries within which information is contained – either electronically or on paper. We see the 'parts', the discrete categories into which the information has been structured, but we cannot see the 'whole' that makes sense of and adds value to the parts.

The solution is to introduce a different way of working and a 'whole-systems' approach[2] to the delivery of healthcare services. Using the principles of business process re-engineering, we can adopt a 'holistic, customer-focused systems view' of organisational change,[3] with the goal of achieving synergy and focus in organisational activity.[4] This approach has been effectively deployed in the private sector, leading to improved communication and knowledge sharing in support of organisational aims and objectives.

Knowledge management at North Bristol NHS Trust

This paper describes a project within North Bristol NHS Trust to procure and implement a knowledge management system as a catalyst for organisational synergy and focus. The project has involved partnership working between the Trust's Knowledge Services Manager and Patient Information Manager and over the last two years has sown the seeds to enable reshaping of the clinical governance agenda within the Trust.

The project is about enabling knowledge to be shared between individuals – healthcare staff and patients – and organisations to facilitate evidence-based decision-making. It involves much more than systems, indeed knowledge management requires a 'holistic approach that integrates people issues and system issues to create a knowledge architecture'.[5] Yet at the heart of the implementation is a robust and flexible system – meshing the features of traditional library management with knowledge management, and facilitating knowledge exchange between individuals and organisations.

Drivers for knowledge management in the NHS

The implementation of the knowledge management system had a number of drivers, both national and local, which collectively were critical in obtaining funding for a replacement library management system from the four confederations across the south and west of England. National drivers include:

- the NHS Plan[6] with its focus on 'patient centred delivery of the best possible healthcare and services'
- Information for Health,[7] challenging local NHS organisations 'to incorporate national generic material with material specific to the local delivery of care, and to make sure it is available to patients in a convenient manner using a variety of media'
- the Kennedy Report,[8] emphasising that 'quality of care depends on systems and facilities, as well as on individual healthcare professionals'.

At a local level, the need to replace the Trust's outdated library management systems coincided with the development of a shared vision between the Knowledge Services Manager and Patient Information Manager of a new approach to the management and exploitation of knowledge resources, including those not traditionally stored within a library management system.

Project aims

The project aims to:

- bring together customised health and healthcare information through the Trust's unique knowledge resources and validated external knowledge resources

- **improve** the Trust's management of risk
- **facilitate** evidence-based practice by providing clinicians and managers with access to key internal and external information resources
- **provide** a single point of access to the evidence base and Trust patient information. This will facilitate Trust staff in updating their professional knowledge and skills, and reflecting this learning in their clinical practice and the information they produce for patients
- **enable** patients to participate in decisions about their health and healthcare
- **contribute** towards 'trust-wide systems and processes'[9] to ensure that clinical treatment and care are based on up to date evidence
- **enable** local, regional and national sharing of knowledge and good practice.

In addition, the project will *'help us learn important lessons on how we can use technology to present a more integrated and customised information service to our users...[including] the possibility of linking the knowledge portal with the integrated care records service'*.[10]

Procurement process

In spring 2002, procurement of the knowledge management system was taken up by the Knowledge Resources Development Unit, working across the South West of England. Over 110,000 potential users will be eligible to register to use the system. North Bristol NHS Trust is the lead organisation and an innovator within the project, bringing together patient information and other knowledge resources through the new system. At North Bristol NHS Trust, we see the inclusion of patient information within the knowledge management system and the addition of a portal as a development opportunity for our Trust, extendable to the South West region and beyond.

A whole-systems approach to supporting clinical governance

We have selected the name *Knowledge for Health* 'Knowledge4Health' for the North Bristol project, to signal its role as a catalyst for organisational synergy and focus.

Knowledge for Health will harness both internal and selected external validated resources, and thus North Bristol NHS Trust will be better equipped to manage risk, ensure evidence-based practice and empower patients and the public to access high-quality patient information. This is illustrated in Figure 1.

The library management system

A rigorous procurement exercise has resulted in our securing the OLIB 7 library management system from Fretwell Downing Informatics (FDI). This offers a number of interrelated modules:

- cataloguing
- web OPAC
- library management
- circulation
- acquisitions
- serials' management
- inter-library loans.

As far as resources allow, we are providing FDI training for Library and North Bristol Patient Information staff in the use of the core modules, rather than relying on cascade training, as both a sign of commitment to our staff and an investment for user training in the future.

Bringing together unique and discrete Trust resources

The North Bristol Patient Information Database is being merged with OLIB 7 to create a unique resource which will contribute towards essential Trust-wide systems and processes. The database supports the approval, production and review of Trust patient information and includes the Trust catalogue of validated leaflets. A formal process is similarly being applied to clinical guidelines produced within the Trust.

Adding a portal

Initially, only North Bristol NHS Trust will be extending the scope of the project by adding a portal, also from FDI. The product, ZPORTAL, will enable us to maximise relevance whilst minimising recall, searching across OLIB 7 and external resources which professionally qualified staff within the Library and Information Service and the Patient Information Department have selected and validated as high quality and relevant targets. A portal is *'grander and wider than a gateway, often forming an architectural structure in its own right, rather than simply being an entrance to somewhere else....Portals attempt to bring ... information to the user within a single environment which the user, to an extent, can personalise and control. This information could be aggregated by means of a cross search of information databases, or by an alerting service announcing new resources on a particular topic, or by a multi-channel newsfeed'*.[11]

Linking to national electronic resources

Combining the portal with the core system enables us to link to and search any Z39.50 target and also to link to non-Z39.50 targets, using Z2Web software. North Bristol NHS Trust will initially link to NELH, NHS Direct Online and Dialog Datastar. This enables us to link to the search functionality of the target Web site, which is not possible with a conventional search engine.

We are currently assessing the feasibility of a partnership project with NHS Direct Avon, Gloucestershire and Wiltshire to link *Knowledge for Health* with the NHS Direct *Directory of Organisations, Information and Services* (DORIS). DORIS includes a catalogue of validated patient information leaflets and other paper resources and details of support organisations.

One of the key benefits of ZPORTAL is the ability to search across discrete categories of resources stored on OLIB 7, the Trust Intranet and selected validated Web resources. For example, a search

on 'hip replacement' could retrieve current NICE guidelines, Trust patient information leaflets (catalogued on OLIB 7 and with hypertext links to full text), the relevant Trust policy (also on OLIB 7), patient information from NHS Direct Online and evidence-based health and healthcare resources from the Cochrane Library, together with electronic journal articles from Dialog Datastar. Staff can then update their clinical knowledge and check that the Trust policy and patient information leaflets remain accurate, up-to-date and consistent with the NICE guidelines and validated NHS Direct patient information. They could then begin the process of reviewing the internal documents if required.

The Effective Practice Facilitator

North Bristol NHS Trust has created the innovative post of Effective Practice Facilitator. This post will support the Library and Information Service and the Patient Information Department in facilitating effective use of the knowledge management system to support evidence-based healthcare:

- **working with** Trust staff to ensure the effective use of *Knowledge for Health* in support of

evidence-based practice, patient empowerment and the management of risk

- **providing training** for Trust staff in the creation and validation of high-quality patient information

- **providing training** for library staff and healthcare professionals in the use of external knowledge resources (*e.g.* National Core Contract resources)

- **engendering a culture** in which healthcare staff see the skills of effective literature searching and the creation of high quality patient information leaflets as mutually beneficial and central to both a robust clinical governance strategy and lifelong learning for individuals.

## Future developments for Knowledge for Health

At North Bristol NHS Trust we see the 'whole-systems' approach to knowledge management as a development opportunity for our own Trust, extendable to the South West region and beyond, and several trusts in the South West region have already expressed an interest in this approach.

There is the option for the North Bristol NHS Trust to purchase additional functionality for ZPORTAL at a later date, for example, open URL linking and software to enable searching within PDF documents. We look forward to a continuing partnership with Fretwell Downing Informatics, bringing together technology and Library and Information skills to meet the expectations and anticipate the needs of healthcare staff and patients.

References

(Sites accessed 8 August 2003)

1. National Litigation Authority. CNST – a Route to Clinical Governance. *NHS Litigation Authority Rev* 2001; **22**: 12–13 <www.nhsla.com/>.
2. Department of Health. *Building the Information Core: implementing the NHS Plan*. London: DoH; 2001 <www.nhsia.nhs.uk/def/pages/info_core/overview.asp>.
3. Business Process Resource Centre/Related BPR sites. <http://bprc.warwick.ac.uk/bp-site.html>.
4. Business Process Management Journal/About the journal. <www.emeraldinsight.com/bpmj.htm>.
5. Rowley J. Knowledge management in pursuit of learning: the learning with knowledge cycle. *J Information Sci* 2001; **27**: 227–237 <www.ingenta.com/journals/browse/bks/jis>.
6. Department of Health. *The NHS Plan: a plan for investment, a plan for reform*. London: The Stationery Office; 2000 (Cm 4818) <www.doh.gov.uk/nhsplan/>.
7. NHS Executive. *Information for Health: an information strategy for the modern NHS, 1998–2005: a national strategy for local implementation*. London: NHS Executive; 1998 <www.nhsia.nhs.uk/def/pages/info4health/contents.asp>.
8. Bristol Royal Infirmary Inquiry. *Report of the Public Inquiry into Children's Heart Surgery at the Bristol Royal Infirmary*. London: The Stationery Office; 2001 (Cm 5207) <www.bristol-inquiry.org.uk/>.
9. Commission for Health Improvement. *Report of a Clinical Governance Review at North Bristol NHS Trust*. London: The Stationery Office; 2002 <www.chi.nhs.uk/eng/organisations/south_west/nth_bristol/index.shtml>.
10. Dexter M. In a Press Release issued by the NHS South West Workforce Development Confederations to announce the Knowledge Resources Management System project for the NHS South West; April 2003.
11. Martin R. Turning gateways into portals. *Library + Information Update* 2003; **2**: 52–53 <www.cilip.org.uk/update/>.
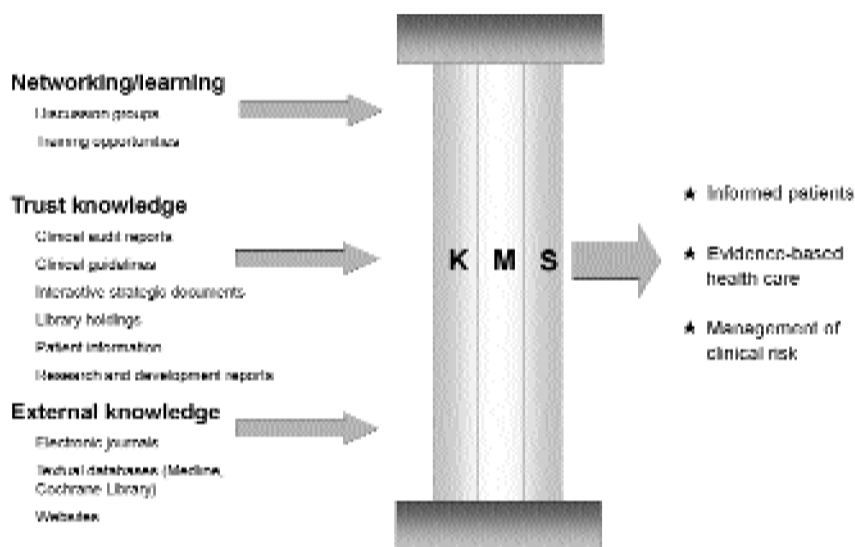
Fig. 1 Capturing and exploiting knowledge effectively. [*From*: Ollerenshaw H and Plaice C, July 2002, revised July 2003. First published in Plaice C, Kitch P. Embedding knowledge management in the NHS south-west: pragmatic first steps for a practical concept. *Health Information and Libraries Journal* 2003: **20**(2); 75–85]