KnowledgeShare: A web-based tool to connect people with evidence and to connect people with people

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Abstract

Introduction

A need was identified for a system to allow library and knowledge services (LKS) to manage core services, to increase access to evidence, and to aid collaborative working. *KnowledgeShare* was developed to meet these needs and is currently being extended across the South East of England.

Background

Aside from providing information resources, library and knowledge services in the NHS deliver three core services. They offer evidence reviews; they teach staff to find and evaluate evidence; and they help colleagues to stay up-to-date. Whereas there are systems to manage library resources there is little available to help manage searching, teaching and updating.

A system designed to manage these services could benefit LKS members by increasing accessibility of evidence and allow the sharing of knowledge.

Methods

KnowledgeShare, a web-based application, was produced to assist in the management of core services. The system enables LKS staff to collaborate on and deliver personalised, targeted updates to members about healthcare topics in their field. It also allows LKS teams to manage requests for evidence reviews and teaching and report on uptake. Through *KnowledgeShare*, members can connect with one another based on shared professional interests.

From October 2013 KnowledgeShare was implemented at Brighton and Sussex NHS Library and Knowledge Service and then extended to other LKS teams in the South East of England.

Conclusion

KnowledgeShare has enabled the creation of an extended network of LKS teams who can standardise quality, spread the workload of current awareness provision and share evidence reviews more widely than ever before. It provides a model of technology-enhanced evidence provision.

With each LKS team that joins, the benefit to healthcare staff grows and efficiency is increased; our aim is to continue to extend *KnowledgeShare* across England.

Introduction

This paper describes the development of a web-based system to manage and provide core library and knowledge services to health care staff in the UK. The system, called *KnowledgeShare*, was created at Brighton and Sussex University Hospitals NHS Trust over a number of years and has recently made the transition from an off-line database to an online application.

The aims of *KnowledgeShare* are wide ranging and include improved collaboration between LKS teams, increased accessibility of services to LKS members and the facilitation of staff networking. The need for such a system is explained and the various areas of functionality are described.

KnowledgeShare is currently being extended to LKS teams across the South East coast of England and the paper concludes with an overview of its impact and the lessons learnt in its implementation.

Background

Aside from providing books, journals and information resources, library and knowledge services (LKS) in the NHS provide three core services. They offer evidence reviews to inform research and patient care; they teach staff to find and evaluate evidence; and they help colleagues to stay up-to-date in their field. Application of the right evidence, at the right time, helps to ensure that clinical and managerial colleagues can continue to improve the health services they provide. Working with the best available evidence enables health care to be safer, more effective and better suited to patients' needs.

In delivering these core services to colleagues, LKS teams need to adapt to changing expectations and a rapidly changing environment. As technology advances, health care colleagues benefit from easier access to information (although not necessarily the best information) and become more familiar with online tools and resources. To remain relevant, LKS must focus on providing added value, which they can do through increased summarisation and analysis of evidence search results and by capitalising on local knowledge and understanding of their members' individual needs. The rise of social media and Web 2.0 mean that colleagues expect to be able to access and interact with sources of information, including their library and knowledge service, more easily than ever before.

At the same time, as financial constraints increase throughout health care, library and knowledge services must also learn to provide services more efficiently. Increased collaboration enables LKS teams to work together to do more with less, and there is a growing requirement to have evidence of activity and impact available to justify costs.

Many of these requirements – personalisation, accessibility, value-added information, simplified administration and reporting, collaboration across LKS

teams – are solved in the case of book and journal provision through the ubiquitous use of library management systems (from suppliers such as Talis, SirsiDynix, etc.). However, there are no commonly used systems to enhance the provision of searching, teaching and evidence updates.

Building a system for personalised, targeted current awareness

The *KnowledgeShare* system began life as an off-line database focused on providing evidence updates in a more targeted and personalised format than had previously been possible. LKS teams have traditionally produced bulletins on broad topics, for example cancer or mental health, which have been sent to all members with an interest in the same topic. Whether you are a colorectal cancer surgeon working in an acute environment or a hospice nurse working in the community you would receive the same impersonal update. *KnowledgeShare* aimed to avoid this by asking members their specific professional interests, classifying those members according to their interests, and matching resources to members based on individual combinations of categories.

Through this automated, categorised approach we were able to provide regular, short, individually addressed email updates to thousands of members, each one unique to the specific interests of that member. Information about a national cancer strategy would go to both the colorectal surgeon and the hospice nurse but each of them would receive notification of additional publications specific to their own settings.

Our evidence updates included publications from three broad groups. Firstly, we focused on research evidence from high-impact study designs: national guidance, systematic reviews and evidence-based summaries. Secondly, we included a range of articles, reports and websites on governance topics such as patient safety, staff education, health care finance, research methods, and so on. Finally, we localised the service through the inclusion of policies and guidelines from the organisations we support and details of workshops and conferences being run locally.

The system was designed flexibly, allowing us to automatically generate newsletters for wider distribution, in addition to the personalised, targeted email updates.

Expanding *KnolwedgeShare* Mark I

Beyond improving our evidence updates, we also needed to manage an increasing number of requests for evidence searches. Carrying out evidence searches on behalf of members is one of the most valued and high impact services that the LKS provides and the results are used by clinical and managerial staff to develop guidelines, policies, research proposals and business cases, to teach colleagues and to inform direct patient care. *KnowledgeShare* was therefore extended to allow us to log search requests and assign them to LKS staff, to record information about search strategies and results, and to store and analyse members' evaluation of the service.

As discussed, library and knowledge services are increasingly expected to provide value-added services; not simply retrieving results to satisfy a search request, but adding an element of structure and summarisation to those results. LKS staff focus on the higher levels of evidence in their output where possible

and we developed *KnowledgeShare* to facilitate provision of results in this more structured format.

Finally, administration of information skills teaching was integrated into *KnowledgeShare* so that attendance at skills sessions could be booked through the system, LKS staff could communicate efficiently with participants and could store and analyse evaluative data.

Once this stage of the project was complete we had developed a single integrated system to manage searching, teaching and evidence updates. *KnowledgeShare* gave LKS staff the ability to find an individual member and see their professional interests, the targeted updates they had received, the searches they had requested (and the status of these) and the skills sessions they were attending. It also simplified the process of producing activity and evaluative reports for each of our core services across the whole service or focused on a particular organisation, department, or staff group.

However, for all its benefits, *KnowledgeShare* remained an off-line system accessible only by LKS staff. Opportunities for collaboration between LKS teams, for improved access to services and for staff networking were the next steps.

Promoting LKS collaboration via a web-based application

In 2013 we began a complete redevelopment of *KnowledgeShare* as a web-based application. The reasons for doing so were two-fold: on the one hand, other LKS teams were showing interest in being able to benefit from *KnowledgeShare* and the benefits that could come from collaboration; on the other, we wanted to allow our members to interact more directly with the services we provide, and with each other.

Providing evidence updates can be a time-consuming role for LKS teams. Setting up automated news feeds of journal articles can be simple but the more that resources are selected for quality, summarised and targeted, the more time-consuming the service becomes.   Other models of collaboration on the provision of such updates have been attempted in the UK, such as the Current Awareness Service for Health (CASH) service run by the Trent Improvement Network, however they have not allowed for the highly targeted approach used by *KnowledgeShare*.

The extension of *KnowledgeShare* via the web allows multiple LKS teams and their members to benefit from the work carried out in one team to select and categorise appropriate publications. An NHS colleague whose interests have been added to the system by their local librarians in Oxford will receive targetted notifications containing resources that have been added and categorised by LKS staff in Brighton. Regardless of who has entered the resource information, members always receive updates from their local librarians, thus cementing the personal relationship between LKS professionals and their colleagues.

The new "*KnowledgeShare* Web" also allows LKS staff to generate newsletters on any topic or combination of topics by drawing from the publications contained in the system. And if members prefer to receive the full tables of contents of favourite journals as they are published, the system caters for this as well.

While LKS staff are sharing the work of providing evidence updates through the system, they can also share their evidence searches more widely. Currently, when NHS staff request an evidence search the results of that search generally benefit only them and the small number of colleagues they choose to share the results with. Countless hours of expert searching by librarians to create up-to-date reviews of the latest evidence go towards benefiting a very few staff. By creating and storing their searches on *KnowledgeShare* librarians can standardise their output, build on each others' work, and make the results of their searches significantly more accessible. Search results can be included in evidence updates alongside other sources of published evidence.

KnowledgeShare **Web: Benefits for LKS members**

Just as library management systems allow LKS members to interract with their library resources via the web - locating full text online, renewing loans, making reservations, checking their account - the web-based version of *KnowledgeShare* allows them to interract with library services. A dashboard shows newly published resources that match their interests, lists their recent and current search requests, and gives details of forthcoming teaching sessions run by the library. From here, members can update their professional interests, make new search requests or book to attend teaching.

As well as increasing and personalising access to evidence, *KnowledgeShare* allows members to connect with one another in order to collaborate and share knowledge. The system forms a semi-managed social network based around categorised professional interests. Even those staff who are uninterested in online networking will have been added to the system by their librarians and become potentially findable (subject to privacy permissions) by health care colleagues with overlapping interests.

A commissioner recently employed in Sussex and seeking the views of community urology nurses to inform developing care pathways can select those interests on *KnowledgeShare* and find local nurses, whether those nurses have logged on to the system or not. Provided they are receiving targetted current awareness and have given permission to be found, they can be.

Impact and implementation of *KnowledgeShare*

From the point-of-view of LKS members, the impact of evidence searches and information skills teaching provided via *KnowledgeShare* is no different to the impact of those services without *KnowledgeShare*. The impact is on the ease with which LKS staff can manage and report on those services. However, it is possible to measure the impact of the highly targeted *KnowledgeShare* evidence updates as these are unique.

Between 2004 and 2014 the number of Brighton and Sussex LKS members receiving targeted updates rose steadily from 350 to 1800. Feedback was overwhelmingly positive, with comments such as: "Without this update I would have missed some very pertinent NICE guidance" and "I work in a specialised area so it is good to keep up with news outside my speciality. You find sources I would never have looked into." A survey carried out recently showed that 53% of recipients said most or everything they received through the system was new to them. 75% had accessed the full text of a resource included in their evidence updates within the last few months. Most interestingly, 60% said that they had been prompted to contact the LKS for

additional assistance (e.g. evidence search, document supply, information skills teaching) as a result of receiving the evidence update. This is supported by our evidence search activity data, which has risen rapidly since 2004 as membership of *KnowledgeShare* has increased.

At the time of writing, the new web-based *KnowledgeShare* system has not been launched to members. When this happens in the next few months it will be possible to evaluate the impact of increased access to evidence services and the facilities for staff networking.

Implementation of the new web-based *KnowledgeShare* system across an increasing number of library and knowledge service has taken place over the past six months. To aid this process, request and evaluation forms for evidence search services and information skills teaching were developed jointly through the use of existing regional collaborative schemes. Interest in licensing *KnowledgeShare* was gauged via the regional LKS Managers' Group and this group was regularly updated as development progressed. The Library and Knowledge Services team for Kent, Surrey and Sussex supported and championed the project and is currently subsidising costs for teams in the region to license the system.

As each local team agreed to license *KnowledgeShare* we travelled to meet them and provide a day's training on the system, setting them up with an administrator and the ability to add their own members and resources. We have continued to offer regular support via web conferencing and we have recently expanded to encompass a team outside of our initial region. As each new LKS team joins *KnowledgeShare* the potential for sharing work and broadening access to evidence increases.

Conclusions

KnowledgeShare allows LKS teams to facilitate collaborative working among their members and improve the quality of evidence updates and evidence search outputs. It enables the creation of an extended network of LKS teams who can spread the workload of current awareness provision and share evidence reviews more widely than ever before. It provides a model of technology-enhanced evidence provision that is driven by LKS staff, rather than introduced from the top-down via a national initiative. Most importantly, *KnowledgeShare* preserves the strengths of local library and knowledge service provision while capitalising on the potential for collaboration on an ever-increasing scale.