Abstract

In January 2008, preparations were begun to investigate the possibility of developing an Australian-based resource (portal/gateway) for evidence-based medicine resources. Existing needs were identified, as well as current resources. Philosophically, the portal/gateway would be all encompassing, not only promoting EBM (Evidence-based Medicine) but offering 'must have' online EBM, learning and collaboration resources for clinicians (and those who work with them) across Australia. This Report describes the progress of the initiative, the partnerships sought and obtained, and the mechanisms for pooling existing resources. It also outlines possible future directions for the project and how the project as a whole might have considerable influence on the direction of medicine, medical practice, and governance in Australia.
Important note: this paper is about a working (evolving) project and any presentation based upon it will be updated to reflect more recent developments.

Introduction

It has long been accepted that clinical practice based on evidence-based medicine (EBM) is a core requirement for modern healthcare. Many clinicians require training in evidence-based practice (EBP) and all require access to evidence-based resources and facilities to communicate and collaborate with colleagues on evidence-based healthcare. In addition, there is an increasing need for consumers, when they so desire, to have resources available to learn about EBP, and to learn how to search and appraise relevant healthcare information for themselves. Major centres for EBM exist in the UK – at Oxford (1) and in Canada – at Toronto (2). The role of these centres is to promote EBM/EBP, to provide teaching and learning resources and to facilitate EBM/EBP knowledge sharing. In Australia there are no such centres at present.

In early 2008, three Royal Melbourne Hospital (3) senior clinicians and I investigated the possibility of an Australia-centred EBP social networking initiative, which we called the ‘EBP Australia Initiative’. It was hoped that this Initiative would eventually see the development of a virtual Centre for Evidence Based Practice Australia (CEBPA). It was also envisaged that such a virtual CEBPA would offer EBP tools as well as online teaching/learning resources and state-of-the-art collaboration facilities – all with an emphasis on Australian content. The CEBPA, however, would differ in that the administration of the centre would be dispersed. Moreover, such a centre could see a working collaboration between clinicians from all disciplines (both in community and institutional settings), academics, teachers, researchers, administrators and health consumers, to better inform their individual and collective knowledge (and, hence, practice).

EBP in Australia: a current mapping

Australia is at the forefront of medical research and possesses some of the most modern hospitals and medical facilities in the world. Australia also has a number of world-class centres offering evidence-based resources. These include the Australasian Cochrane Centre (4), the National Institute of Clinical Studies/NHMRC (5), the Centre for Clinical Effectiveness (6), and the Global Evidence Mapping Initiative (7). Universities also play a major role in the generation, teaching and transfer of clinical knowledge. Also, until March of this year, Flinders University had a Centre for evidence based clinical practice. Although there is access to evidence based resources, this is not always equitable or comprehensive. Resources vary from state to state and from institution to institution and in some cases are minimal. The situation is worse when it comes to training and collaboration facilities. EBP training for clinicians is provided by a small number of institutions, often on a face-to-face basis only. Where online collaboration is possible, this is usually limited to
members of a professional body, or to clinicians and students within particular institutions. In short, it is clear there is no nationwide collaboration facility to assist in the sharing of evidence-based clinical knowledge resources. Moreover, local up-to-date clinical evidence often remains local. Thus, there are many opportunities for improvement in the interests of all stakeholders and especially in developing novel structures for the sharing of evidence-based clinical knowledge.

**Knowledge sharing/collaboration**

Clinical organisations require timely and easy access to clinical evidence. Clinicians do not always have the skills necessary to access such resources effectively and that they do not have the time to do so. But the question remains, can a purely local, or even regional, resource meet these needs? The answer, of course, is a very big ‘no’. In a perfect world EBP would place all stakeholders directly in the driving seat, to offer expertise and to share concerns: a democratic process, based on transparency and accountability and, hence, inclusive.

So why is knowledge sharing, especially for EBM/EBP, so critical? This question probably does not need an answer, but is given anyway:

Knowledge sharing as a process can only effectively work if everything that is needed to know is made available to everyone who needs to know.

A simple answer, but one that needs to be examined more closely. Let us divide this statement in two.

First, “everything that is needed to know”. For EBM/EBP, this means the entire body of evidence about all aspects of all medical conditions. Of course, there are many gaps in research and clinical evidence, and not all evidence is up-to-date; moreover, the need to know is modified by current concerns, so there is a ‘time’ element involved.

Second, “everyone who needs to know”. With EBM/EBP, this means not just clinicians, information experts, policy makers and academics, but also health consumers and the broader community. Often on Internet-based ‘knowledge sites’, health consumers are treated as an extra item: a separate tab to click on; patient leaflets are a separate section too, etc. For health consumers, knowledge is invariably seen as an ‘output’ and rarely as an ‘input’. Real clinical knowledge sharing is about an amalgamation of the contributions of researchers with the practices of clinicians and the experiences of health consumers. If we take evidence-based summaries as an example: these rarely consider question prioritisation and many are quickly out of date; also methods and appraisal of such summaries can vary from source to source; overall, there is little coordination beyond individual institutions/experts.
Fortunately, however, there is a range of technologies available that can provide for dynamic knowledge sharing (and possibly assist in streamlining the evidence summaries process too!).

**EBP Australia Initiative**

Within the “Parkville Precinct” in Victoria – currently includes Melbourne Health (8), The University of Melbourne (9), NICTA (10), the Human Variome Project (11), BioGrid (12), the University of Melbourne Health Informatics Network (13), etc - the above ideas were discussed. As a result, the ‘EBP Australia Initiative’ was established and subsequently, in April 2009, as a ‘blog’ to publicise these ideas more widely across Australia. Via this ‘blog’ it was proposed that a collaborative, inclusive web facility be developed – nothing less than a *virtual* Centre for Evidence Based Practice, Australia (CEBPA) and with a notional launch date of October, 2009.

Co-operation, together with the pooling of resources and expertise, was seen as the key to success in the development of such a CEBPA and once the ‘blog’ was launched emails were sent out to key contacts, seeking their endorsement and support for the Initiative. An invitation to join the ‘blog’ was also sent out on request. Within a few days of sending out the first emails, endorsements began to roll in. These included expressions of support from senior clinicians and academics, as well as from major teaching and research establishments across and beyond Australia.

[Note: as of writing this paper, the full listing of those individuals and organisations endorsing the Initiative is yet to be published on the blog.]

**Developing a virtual CEBPA model**

The traditional model for a centre for evidence-based medicine is one that is a) nationally funded, b) has a physical base, and c) involves collaboration between a leading university with a medical school and a teaching hospital. The same could apply to an Australian centre. But why keep it local, or even statewide, when clinical knowledge by its very nature abhors boundaries? Furthermore, as with any major project, funding would always remain a central issue – unless, that is, no funding was sought at all. In other words, we began to see the possibility of an entirely new and radical approach: a CEBPA that would be not only virtual, inclusive and accessible by all stakeholders, but which would see a pooling of resources. This approach would also mean that the timetable for developing such a ‘centre’ would not be limited or defined by funding requirements, that ‘ownership’ of the centre would be dispersed, and that 21st Century social networking and other cutting-edge technologies could be deployed to ensure that the CEBPA would remain both dynamic in its knowledge capital and democratic in its knowledge sharing.

In short, the model we were proposing was a ‘virtual extranet’. My own view, however, was that such a model more accurately mimics what is known as ‘cloud computing’ (14) – or, rather, a hybrid of cloud computing.
CEBPA as ‘cloud computing’?

Cloud computing is a 21st Century approach to networking, often deploying web-based social networking and knowledge aggregation technologies. I suggest that our model is a hybrid variation because it is a mix of traditional web networking and the conventional computer cloud.

Here is a visual depiction of cloud computing, adapted from a Wikipedia site (14). It shows a cut-down version of an envisaged CEBPA cloud with generic collaborators.

Here are some examples of cloud computing technologies and web 2.0 social networking technologies that might apply to the CEBPA (most of these are free):

- Open ID (15) for logging on to communities of practice and/or a virtual learning environment (perhaps via Moodle (16))
- Payments direct to training providers (e.g. for online courses) via Paypal (17)
- Links (bookmarks) available and shared via Delicious (18)
- Knowledge summaries via wiki(s) (19)
- News updates via RSS feeds (20) and mashups (21)
- Comments/discussions via blogs (22)
- Searching via Google Custom search (23)
- Mapping via Google Maps (24)
- Polls via widgets (25)
- Interactive journals via Issuu (26)
- Mailing lists via JISCmail (27)
- Synchronous chat via Google Talk (28)

The CEBPA would also need a hub – a ‘portal’ – from which the range of resources that are hosted on other sites, or via virtual servers, can be accessed.
Here, then, is how the CEBPA cloud (much truncated) could look in terms of technologies:

![Diagram of CEBPA cloud]

CEBPA resources

The following are examples of some of the resources that might contribute to a CEBPA cloud:

- Evidence Repository Australia (ERA): a new development, or an update of an existing facility, to link locally generated Australian evidence summaries.
- Online EBM Australia journal, providing for contributions from all stakeholders
- EBM training resources, within a virtual learning environment (VLE). Courses could include Introduction to EBP, Statistics for EBM, Searching the evidence, Critical appraisal, Translating evidence into practice, etc
- EBM Toolbox: Australian derived tools on clinical audit, appraisal methodologies, etc
- EBM news, dynamically updated (including Australian content)
- Central repository for Australian-published research papers on EBP
- Australia-wide online journal club(s).
- Search engine for Australia-wide guidelines, evaluated health consumer information, and health organisations
- Knowledge forums, offering online collaboration for Australian health consumers, policy-makers, medical academics and clinicians, with the possibility of users grouped by clinical profession (and sub-specialty, where appropriate), locality, interest, status (e.g. student, trainee, professional development), etc.
The CEBPA could also organise/host Australia-wide EBM/EBP Conferences, workshops and events, including international symposia.

Here is how the CEBPA cloud could look in terms of resources:

A further possibility is for the ‘A’ in CEBPA to be widened to ‘Australasian’, as there have already been expressions of interest received from key players in New Zealand.

Of course, there will be other, equally viable, models that will, in time, be suggested by endorsers of the Initiative. Whichever model appears to be the most workable, in the end it will be our collective co-operation and goodwill that will determine the success or otherwise of the Initiative.

Where next?

This paper reports on the state of affairs of the EBP Australia Initiative, as of mid-May, 2009, and over the following months it is intended that work will commence on the CEBPA network and its core resources. This will involve contacting endorsers of the Initiative to audit the resources they are happy to contribute, either from an existing pool or ones that will be specially developed. After that, it will be a matter of linking those resources together to form the networked site. It is still hoped that the CEBPA – as a ‘cloud’ or otherwise – will be ready in some form for launching by mid-October 2009.

It is my view that the imaginative use of cloud-specific and social networking technologies could liberate and transform the way evidence based practice is generated and referenced and how clinical knowledge is shared. It could also assist in the way practitioners (clinicians, academics, policy-makers, health consumers, etc.) collaborate at various levels within an inclusive environment. Such a model, particularly where there are funding constraints, may also impact upon how major projects of the future are both developed and realised.
Summary

Clinicians and those who work closely with them require access to the latest clinical evidence, the skills to appraise that evidence and relate it to clinical practice. Clinicians, associated healthcare colleagues, health consumers and the broader community are also likely to benefit from collaboration with colleagues, locally, nationally and globally. Health consumers can also learn how to seek, appraise and apply healthcare evidence. A Centre for Evidence-Based Practice Australia would assist in all of this.

The EBP Initiative Australia is an ambitious proposal. If it fails, then lessons will be learned. If it succeeds, then perhaps the model we eventually adopt can be exported to similar initiatives elsewhere, so impacting on the processes and technologies applied to generate and distribute clinical evidence and its practice.

Website references

1. Royal Melbourne Hospital. URL: http://www.mh.org.au/Royal_Melbourne_Hospital/
2. Centre for Evidence Based Medicine, Oxford. URL: http://www.cebm.net/
3. Centre for Evidence Based Medicine, Toronto. URL: http://www.cebm.utoronto.ca/
6. Centre for Clinical Effectiveness. URL: http://www.mhsr.monash.org/cce/
8. Melbourne Health. URL: http://www.mh.org.au
11. Human Variome Project. URL: http://www.humanvariomeproject.org/
15. Open ID. URL: http://openid.net/
18. Delicious. URL: http://delicious.com/
20. RSS feeds. URL: http://en.wikipedia.org/wiki/RSS_(file_format)
23. Google Custom Search. URL: http://www.google.com/coop/cse/
25. Widgets. URL: http://www.widgetbox.com/
27. JISCmail. URL: http://www.jiscmail.ac.uk/

Declared interests of author
- Manages Evidence Direct service and website (http://www.evidence-direct.net), based at Melbourne Health
- Contributes to EBM/EBP courses at University of Melbourne
- Steering group member, Global Evidence Mapping Initiative
- Member, Human Variome Project