The NSW Health Clinical Information Access Project (CIAP) Web site: Leaping the Boundary Fence via the Internet

Michelle Wensley

5th National Rural Health Conference
Adelaide, South Australia, 14-17th March 1999
Proceedings
BACKGROUND
New South Wales has the largest and most complex public health system in Australia. Hospitals range from highly technological, metropolitan-based tertiary referral facilities to rural and remote community hospitals, many hours’ drive from their nearest large health centre. Regardless of the location, medical, nursing and allied health professionals (clinicians) require quality information on which to base clinical management decisions to achieve positive health outcomes for their patients and to remain up-to-date in their profession. The project is managed centrally by the NSW Health Department with input from the clinicians of the NSW public health system. The web site was launched on July 4, 1997 for an initial trial period of 12 months. The success of the project and the enthusiastic response from clinicians and librarians has ensured there is a future for the CIAP. This web site at http://www.clininfo.health.nsw.gov.au is known as the Clinical Information Access Project (CIAP) and is a world first in using the Internet to bring clinical information to the point of care for all clinicians across an entire State to support clinical practice, education and research.

LEAPING THE BOUNDARIES VIA THE CIAP: A TOOL OF MODERN HEALTH CARE
The Internet and the Web are the most powerful and accessible media for the creation and dissemination of information across all geographical boundaries. The number of health web sites and the sources of health information are increasing on the Web at an extraordinary rate. Coiera (1997) writes "the rapid rate with which different sectors of healthcare have adopted these technologies is, as much evidence of a large unmet need as it is of the technologies ability to satisfy that need." A significant need identified in NSW was for easy access to clinical decision support information which crosses all health facility boundaries including hospitals, general practice, community health centres, home nursing and specialists rooms. Currently, providers of health care spend much of their time seeking information to enable decisions to be made that will lead to the appropriate health outcome for their patients. The present system overburdens clinicians with uncoordinated, inaccessible information making it difficult to locate needed information in a timely or efficient manner. This is neither productive nor cost-effective for clinicians and health care organisations (Ayres and Perks, 1999).
The information resources for the CIAP were identified through consultation with clinical representatives, librarians and the CIAP Committee, which was convened to oversee the project. In addition, a pre-implementation survey was conducted to ascertain the long term needs for information resources on the CIAP web site. The survey generated 2,795 responses and demonstrated that there is a high level of computer literacy amongst clinicians and that information sources identified by the CIAP representatives and the project team were consistent with the needs of clinicians. This website is constantly evolving as health professionals utilising the publishing guidelines posted on the CIAP website submit new sources of information. On-line information available via the CIAP include the following:

- Medline and CINAHL with over 12 million citations and links to 30 full text journal articles;
- the Full Cochrane Library with 200 evidence-based reviews;
- PsycINFO linked to 10 full text journals;
- MIMS for prescription decision-support;
- HealthStar for health services, technology and research literature;
- Antibiotic Guidelines –10th Edition (from February 1999);
- Micromedex: Poisindex, and DrugDex databases;
- on-line tutorials;
- policies, procedures, protocols, clinical practice guidelines and clinical pathways from contributing Area Health Services in NSW;
- NSW Health policies and guidelines (via the Intranet);
- links to International and National clinical web sites; and
- Listservers – an e-mail facility that enables communications between users with similar interests.

Clinical representatives were then established in each of the 17 Area Health Services to liaise with the project team and assist in communications, marketing and education. This network of clinicians was an essential element in the success of the project and the enthusiastic uptake of the Internet, particularly in rural and remote areas.

**BENEFITS**

Klein, Ross, Adams and Gilbert (1997) write that effectiveness of care is influenced by diagnostic and treatment decisions based on the availability of substantive current information from the most recent literature found in on-line knowledge databases. A number of studies on the effect of literature searching have shown that the information has changed the way cases were managed, contributed to better informed decisions and resulted in improved quality of care. Aspects of care that were influenced included diagnosis, medication
prescription, length of stay and patient education (Ayres and Perks, 1999). These findings are consistent with the CIAP model, which has the following benefits:

- health professionals have reliable and rapid access, 24 hours a day, to relevant information necessary to support evidence-based care delivery;
- best practice is promoted by providing on-line access to clinical information from national and international sources;
- access to quality information is provided from a single source at the point of care which will contribute to better-informed decisions and improve the quality of care;
- sources of accredited information to support research that will contribute to the delivery of evidence based health care is provided;
- the tyranny of distance, a barrier to information access for clinicians in rural and remote locations is addressed; and
- an information culture is developing, which encourages health professionals to use information technology as an essential tool of modern medicine.

While accessible to all clinicians across NSW, this project has been of major benefit to rural clinicians as the quantity and quality of information resources are not always available where and when required. For the clinicians in rural and remote areas that have limited or no access to a library, the CIAP has provided a valuable information resource decreasing the sense of professional isolation and reducing the ‘tyranny of distance’.

**BARRIERS**

The CIAP provides the content and utilises the existing telecommunications infrastructure to deliver information to clinicians. However, the adoption of this technology across a large geographic area has been problematical. The main barriers which have been identified are:

- low penetration of PCs in clinical areas;
- inadequate telecommunications infrastructure;
- negative attitude to Internet access;
- inadequate IT resources; and
- speed of the Internet.

The need for information is critical and the absence of an adequate infrastructure, particularly in rural health services, has impeded progress in rolling out the CIAP in some areas. The acceptance of the Internet as a communications tool has surpassed the ability of the health system to provide the PCs and Internet connectivity to access the CIAP. However, there are a number of initiatives underway to resolve the telecommunications infrastructure issues such as the adoption of frame relay and the upgrading of ISDN lines.
The penetration of PCs is still low in clinical areas but this project has created an enthusiasm and a thirst for quality information that can only support the need to invest in the technology. Access to information that can improve prescribing practices, reduce the number of adverse drug reactions, deliver the most up to date protocols for medical care and promote the use of evidence based medicine will ultimately reduce the costs of health care and improve the quality of patient care. Medical knowledge changes at such a rapid rate that it is almost impossible to keep up to date with the latest treatment protocols. For rural areas, the tyranny of distance is less of an issue when that information can be accessed from an Internet enabled PC in any location at any time of the day or night (Ayres, August 1998).

Addressing these barriers is evolutionary. The increasing demand for efficient delivery of information using the Internet will be the catalyst to overcome the barriers. The telecommunications infrastructure will be upgraded and PCs will be purchased as the adoption of information technology increases to manage clinical care. Attitude to Internet access will improve as an information culture evolves.

COMMUNICATION AND MARKETING

Communication of information on a large scale is difficult to achieve when the target group comprises an estimated 70,000 clinicians throughout NSW and recognising this, the CIAP has adopted an intensive marketing strategy. In partnership with the vendors supplying the information resources for the CIAP, Health Communication Network (HCN) and Ovid Technologies, many 'live' web demonstrations have been undertaken to promote the CIAP in all NSW Area Health Services since the inception of the project in July 1997. To date, over 130 visits have been undertaken by this team. As rural health have fewer resources, each health service received funding to establish Internet training programs. The aim was to teach clinicians how to achieve maximum benefit from the CIAP information resources. The communications plan also includes the following marketing strategies:

- distribution of flyers promoting the information provided on the CIAP;
- distribution of posters depicting the key information provided on the CIAP;
- information kits providing training material and quick reference guides;
- articles in professional journals and newsletters;
- presentations at health Informatics conferences;
- teaching of undergraduate and post graduate nursing students;
- videoconferences and lasercasts to outlying areas;
- publication of a *Clinical Bytes* newsletter is being developed; and
- correspondence to professional nursing, medical and allied health associations to inform of them of the CIAP.
COMMUNICATIONS NETWORK

Additionally, a communications network was established to ensure that the dissemination of CIAP information was optimal and that a sense of user ownership was created. Diagram 1 depicts the Clinical Systems Committee structure:

Communications Network

Diagram 1: NSW Health Clinical Systems Committee Structure (Ayres, August 1998)

EVALUATION

In a dynamic environment, evaluation must be an on-going process to constantly monitor the impact of change. As well, evaluation is critical to continue to provide a standard of excellence where clinicians information needs are met. The CIAP Committee has developed a number of evaluation tools including:

1. A Pre-implementation Survey to ascertain computer literacy, availability of the Internet, information needs, benefits and critical success factors.
2. An electronic feedback form available on the CIAP Web site - e-mail is answered within 24 hours.
3. An on-line customer survey.
4. A post implementation survey is scheduled for April 1999 to determine the impact of the project to date, to ascertain future on-line clinical information requirements and to identify issues associated with implementation of the CIAP.

SUMMARY

The CIAP has been widely acclaimed by NSW clinicians as a valuable clinical information resource to support clinical practice, research and education. The project was initiated to meet some of the information requirements of clinicians at the point-of-care in the public hospital system. This Web site has contributed to improved communications across the continuum of care by enabling access to all health care providers, bridged the communications gap between hospitals, general practice and community services and reduced the sense of professional isolation experienced by rural and remote practitioners. In 1998, the CIAP received the Data Management Association (DAMA) Australia Achievement Award for Excellence in Information Management and the Australian Library and Information Association (ALIA) NSW Branch Merit Award for Services to Rural and Remote Users and the Community.

REFERENCES