

Demystifying the Electronic Health Record

Introduction

Nurses work in an increasingly information-intensive environment. Much of what nurses do involves information – from assessing patients to communicating with health professionals and other health service organization, to analysing test results and the evidence from research. Advances in information technology have created significant opportunities for nurses to improve their clinical, administrative, education and research functions. One of these advances has been the creation of the electronic health record.

This article will review some of the basic principles related to the electronic health record and highlight recent Canadian initiatives designed to accelerate efforts to develop and implement electronic health record solutions across the country. This article is the second in a series of articles on topics relating to nursing informatics (see *Nursing Now*, September 2001).

The Electronic Health Record: What is it?

Discussions on the electronic health record inevitably reveal confusion regarding its definition. Terms such as 'patient record' and 'personal health record' are often used interchangeably with electronic health record; however, these terms have different meanings.

An electronic health record (EHR) has recently been defined by the Federal/Provincial/Territorial Advisory Committee on Health Infostructure (2001) as,

A longitudinal collection of personal health information of a single individual, entered or accepted by health care providers, and stored electronically. The record may be made available at any time to providers, who have been authorized by the individual, as a tool in the provision of health care services. The individual has access to the record

and can request changes to its content. The transmission and storage of the record is under strict security.

A patient record (PR), on the other hand, is generally viewed as a record (paper or electronic) containing a patient's demographic data (name, date of birth, etc.), the patient's diagnosis or health condition and details about the treatment/assessments delivered by health professionals during an episode of care from one health organization.

Finally, a personal health record (PHR) is defined as the consumers' copy of their health data that is either stored on their personal computers or a web site. It may include data they enter themselves and data downloaded directly from various web sites.

While these terms are related, the distinguishing attributes of the electronic health record are that it is:

- electronic – voice, video, images and data related to the client/patient are available electronically;
- longitudinal – data on the client/patient is collected and stored over time;
- accessible – authorized health professionals can access the record to support the delivery of care;

- available to the client/patient – the recipient of health services can electronically access his or her own record; and
- comprehensive – the record includes service encounter data from various health professionals and across the continuum of health service delivery (Health Canada, 2001).

What does an electronic health record include?

An individual’s electronic health record includes data on his/her encounters with the health care system over a period of time. The successful development and implementation of the electronic health record is dependent on the ability to collect standardized patient/client service encounter data from across health service organizations and professionals. A service encounter is defined as, “a health service provided by a service provider to a service recipient to address a health condition at a delivery site at a point or period in time” (Health Canada, 2001). In the context of the electronic health record, it is important to collect standardized data of the following dimensions of the service encounter:

- the *recipient* of health services;
- the *provider* of health services;
- the nature of the *service* provided;
- the *health condition* of the service recipient;
- the *site* at which the service is provided; and
- the *date and time* the service is provided.

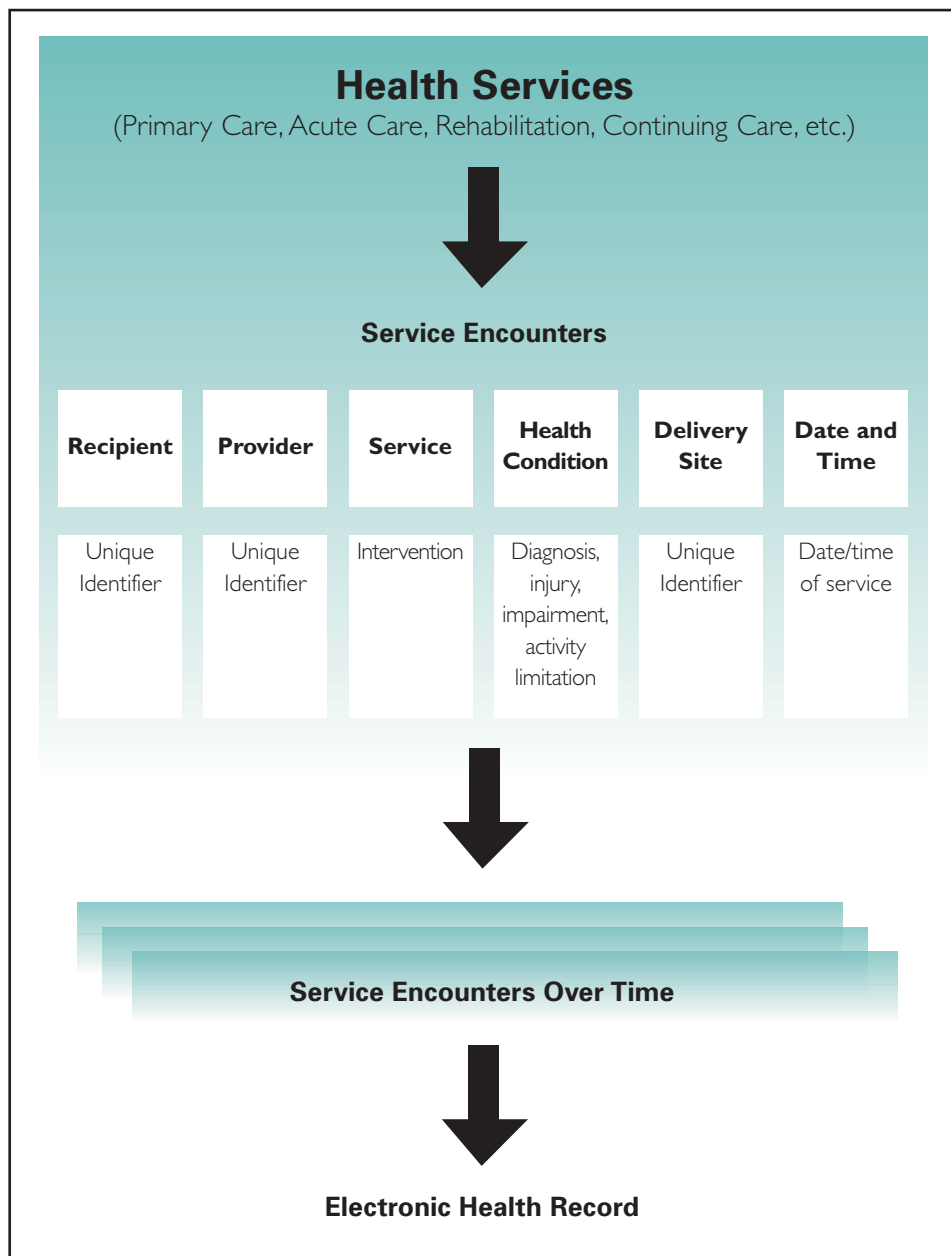
The figure below depicts the relationship between service encounters and the electronic health record.

One of the critical standards required for the effective deployment of electronic health record solutions are unique identifiers – for health professionals, patients and health organizations. Unique identifiers are essential for linking service encounters of individuals across the continuum of health service delivery.

Why do we need electronic health records?

Health records should enable nurses and other health professionals to effectively plan for and deliver their activities in order to provide quality health services. The records should allow nurses to:

- audit and monitor the care provided;
- enable nurses to review previous episodes of patients’ care;



- provide information to support administrative functions as a by-product of the planning and care delivery process;
- supply information to support research and analysis to improve the knowledge of nursing practice;
- and finally, be subject to appropriate access controls to safeguard the privacy of the patient/client data.
- Availability of comprehensive information on the care of clients/patients covering the continuum of health service delivery, across health professionals and over time
- Convenience and ease of access, transfer and retrieval of information, for example, workload and intervention data can be easily retrieved and aggregated for administration purposes
- Improved continuity of client/patient care through the sharing of information between health organizations and health professionals

Unfortunately, many health record systems across the country are still paper based. As a result, it is difficult to find information or effectively interpret information; patient/client records are fragmented and incomplete; and patients/clients are often frustrated due to the lack of coordination and sharing of information between health professionals and organizations.

In addition to these limitations, there is a lack of standardization in common data sets used across information systems. As a result, there is little integration between an individual's health record and potential 'feeder systems' (e.g., clinical laboratory, pharmacy, home care and physician offices).

What are the benefits of the electronic health record for nurses?

The development and implementation of electronic health record solutions are a long, complex and expensive journey that will involve the efforts of a variety of stakeholders including nurses. While the move to the electronic health record is a significant investment for the Canadian health care system, its benefits outweigh the development and implementation costs. So what are the benefits for nurses?

- Ability to dynamically view or display data from different views to support clinical, administrative and research functions; for example, nurses can easily request data on all of the patient's current medications or all of the patient's test results over a period of time across health organizations; nurses can request necessary data to support the clinical audit and measurement of patient outcomes
- Provision of a dynamic approach to nursing research and to the development of new nursing knowledge, e.g., the outcome of nursing interventions: what works and what doesn't work under what circumstances
- Improved data quality and standardization of clinical documentation; data is automatically verified as it is entered to ensure accuracy; data from feeder systems (e.g., admission, discharge and transfer, pharmacy, clinical laboratory and physician offices) can be entered directly eliminating data entry errors; information is structured and standardized facilitating more effective analysis and communications between health service providers and organizations

Privacy, confidentiality and security of health information

The protection of the confidentiality of personal health information has always been a fundamental principle of our health system. As electronic health record solutions are developed and implemented, issues of privacy, confidentiality and security must be carefully considered. CNA's position statement, *Privacy of personal health information* (2001) recommends that governments engage health care professionals and others in the development of a national framework for the protection of personal health information.

See "What is Nursing Informatics and Why is it so Important?" (*Nursing Now*, September 2001) for a discussion on privacy, confidentiality and security relating to the protection of personal health information.

What can nurses do to facilitate the development and implementation of electronic health records?

Clearly, the successful deployment of electronic health record solutions requires the active contribution of nurses. Nurses must play a leadership role in initiatives related to the electronic health record. This includes:

- ensuring an active presence of nurses on project steering and working committees;
- ensuring the information needs of nurses are explicitly articulated;
- ensuring the selection of standards includes work completed to date related to the Canadian Nurses Association's Health Information: Nursing Components (HI:NC);
- updating skills related to the use of electronic information and technology; and
- participating in efforts to implement a unique identifier for nurses.

Future Directions

A number of recent reports have acknowledged the need for better information to support the effective delivery of health care. The Advisory Council on Health Infostructure recommended a vision for Canada's health infostructure in their final report, *Canada Health Infoway – Paths to Better Health* that is founded on the integration and coordination of health services (Health Canada, 1999). The implementation of electronic health records is critical to the successful achievement of this vision.

To provide leadership and guidance in the implementation of an infostructure for Canada, the First Ministers of Health established Canada Health Infoway Inc. (Infoway). An independent,

not-for-profit corporation, Canada Health Infoway Inc. is committed to fostering and accelerating the development and implementation of effective, interoperable electronic health record solutions that ensure the right people have the right information at the right time (visit www.canadahealthinfoway.ca for more details). Infoway is currently finalizing its business plan and investment strategy and establishing the necessary processes that will be important to the successful implementation of electronic health record solutions across Canada. This includes the establishment of a National Registry of Electronic Health Record Initiatives across Canada.

National Registry of Electronic Health Record Initiatives in Canada

A number of electronic health record initiatives are currently underway across Canada. Unfortunately, as with many information systems-related projects, they are happening in isolation. In order to encourage greater collaboration and help identify partners and investment opportunities, Infoway is developing a national registry of electronic health record initiatives. The registry will contain information on the current state of developments across the country related to the implementation of electronic health records. This electronic registry will be

updated regularly as additional building blocks are created to develop the required infostructure. Infoway is currently surveying experts nationally to determine what information exists and should be included in the registry. It is also investigating how the registry should be structured so it is most useful in informing future investments in building the electronic health record solutions on a pan-Canadian basis. Infoway expects to report on the results of the first stage of the national registry in the spring of 2002.

Where can I get more information?

Watch CNA's web site! Articles focusing on classification of data and nursing resource intensity will be published on the web site (www.cna-nurses.ca) starting in fall 2002. Also listed are several other resources on the topics of nursing informatics and informatics in general.

Provincial/territorial nursing associations and the Canadian Nursing Informatics Association, listed on CNA's web site, are excellent sources for up-to-date information on nursing informatics.

Nursing Now is a series of short papers that explore issues and trends in Canadian Nursing. This is the 13th in the series.

Nursing Now is published by the Nursing Policy Division of the Canadian Nurses Association (CNA).

Free copies are available to all CNA members. For additional information and/or additional copies contact CNA Publications.

This publication is also available on CNA's web site at www.cna-nurses.ca

ISSN 1206-3878

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