Defining an electronic medical record

health

The Victorian perspective

Introduction

Document purpose and scope

This document describes an electronic medical record (EMR) and an EMR system that is comprehensive and fit for purpose, within the context of Victorian public health services.

Providing a standard definition for an EMR supports the Department of Health's objective to deliver the best possible healthcare to Victorians by utilising e-health and communications technology and enabling continuous improvements and innovations (Department of Health 2011).

Background

Medical records, whether electronic or not, are a collection of information about a patient's healthcare that are essential for his or her present and future care (WHO 2001) and are covered by s. 3 of the *Health Records Act 2001* (AustLII 2012).

As such, the medical record must contain sufficient information to identify the patient to whom it relates, as well as information relevant to the patient's treatment during current and future episodes of care, for example:

- the patient's medical history
- the orders and results of any physical examination or tests
- information relating to allergies
- other factors that may need special consideration.

Secure and guaranteed access to complete information collected in the medical record is essential to ensure that healthcare professionals have the right information available when and where they need it. This maximises the quality and efficiency of the treatments they can provide to their patients at the point of care.

An EMR replaces paper-based medical records by electronically documenting the information relevant to a patient's healthcare.

Despite growing recognition of an EMR internationally, there is currently no agreed standard definition at international, national or state levels. This lack of a common definition can cause misunderstanding as the same term is used to mean different things. For example, EMR has been used to refer to clinical information in any electronic form (such as scanned records), which simply replaces paper records. The term 'mini-EMR' has been used to describe individual hospital department systems, which do not provide a patient-focused approach.

A more sophisticated definition of an EMR encompasses the information and capabilities required to support healthcare service delivery, where the information is captured in a computer-readable form that supports interoperability and clinical decision support. In addition, it is likely that increasing numbers of consumers will have direct access to EMR systems.

This document focuses on describing: **a consumer-friendly and patient-focused system that staff can use to fulfil their patient-care duties without using paper; and which stores data in a structured, computable form, supports real-time active decision support, and meets legal requirements and best-practice standards for medical records.**

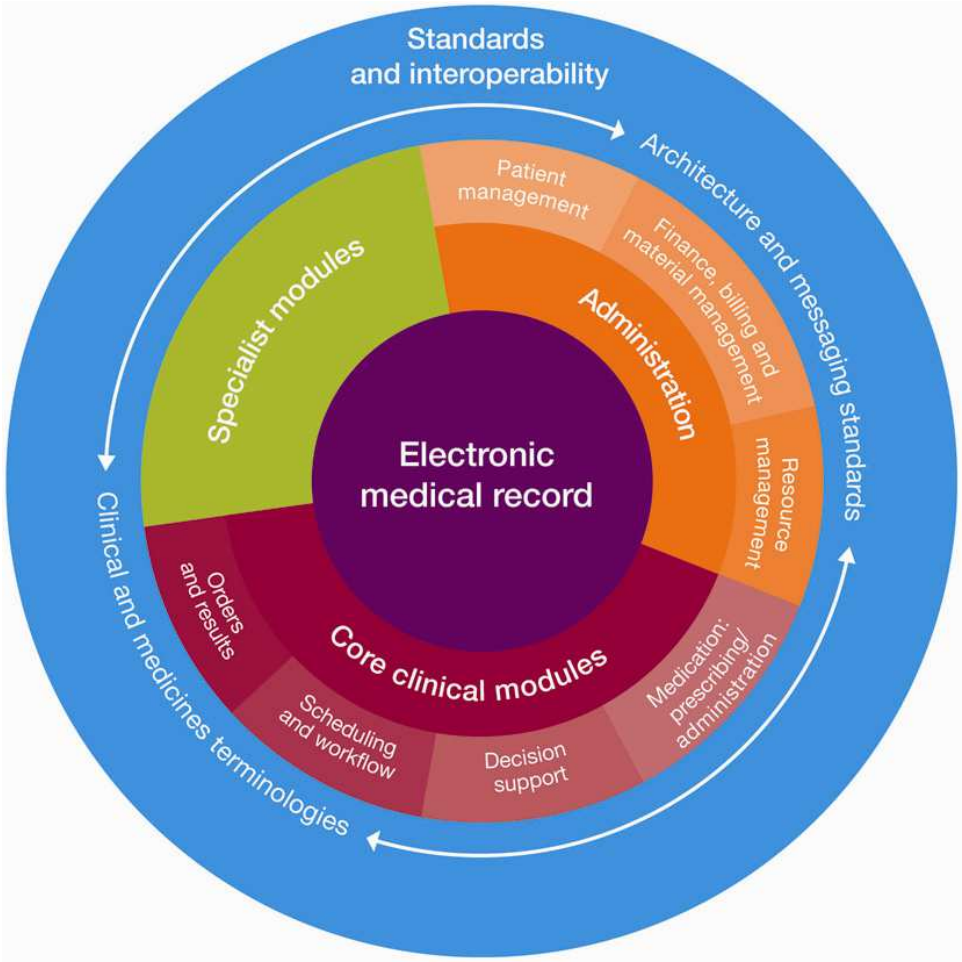
An EMR system

An EMR system comprises the clinical information and capabilities needed to deliver healthcare (Figure 1). An EMR system is used by healthcare providers for documentation, monitoring and management. At a minimum, the EMR system must conform to the legislative requirements for medical records.

A well-designed and implemented EMR system will enable timely access to patient information and the clinical evidence base to deliver benefits, such as:

- providing access to high quality information that is critical for clinical results
- improving the ability to develop and embed best-practice clinical guidelines and clinical pathways to optimise healthcare delivery processes that –
  - reduce risks
  - support a reduction in medical errors
  - support better clinical decision making
  - improve patient health outcomes
- enabling administrative and cost efficiencies to improve the capacity to manage demand
- sharing information across health services and primary care to support consumer-centred coordinated care.

Figure 1: EMR system comprising the EMR and supporting capabilities



To realise these benefits, an EMR system should at minimum provide the following capabilities:

- **Electronic medical record** – a repository of clinical information used in patient care, which is captured in a structured computer-readable form that supports interoperability and clinical decision support. Information

not directly related to the provision of care is not captured in the EMR, but is captured in other repositories not represented in Figure 1.

- **Administration** – providing functions to support patient management, resource management, financial management and other administrative processes, such as accepting referrals from external organisations. The administrative modules may also cater for direct consumer participation through, for example, access to managing registrations, bookings and other administrative tasks, or viewing their clinical information.
- **Clinical modules** – providing functions to support clinical care such as diagnosis, treatment, closed-loop medication management, real-time decision support and alerts. This must include access to historical clinical information such as scanned paper documents and other unstructured data. The clinical modules must also support standards-based communication with external organisations to enable, for example, the sending of standardised discharge summaries.
- **Specialist modules** – includes support for specialised clinical-care processes, such as modules to manage dialysis patients or transplantation surgery patients. These modules may also include extended support for clinical research and other discrete activities.

The EMR system aims to create a complete patient-centred view across a heterogeneous information and communication technology landscape. To do this, it must be standards-based, addressing current and evolving standards across areas such as:

- **Clinical terminology** – a structured vocabulary used in clinical practice to accurately describe the care and treatment of patients, covering complex concepts such as diseases, operations, treatments and medicines.[1]
- **Medicines terminology** – a terminology to identify medicines used in Australia, using unique codes to deliver unambiguous, accurate and standardised names for both branded (trade) and generic (medicinal) products.[2]
- **Messaging standards** – a combination of standards for unique identification, authorisation and message security to ensure information exchanged by healthcare providers is protected against malicious interference[3] and is semantically interoperable.
- **Architecture standards** – a business-oriented model that describes e-health business capabilities or services and allows health organisations to scope, plan and align their own capabilities and services better.[4] This ensures that these capabilities and services can be deployed in a timely manner, are interoperable, and can interact more effectively with solution sets.

Building on the foundations

It is proposed that within Victorian public health services, the term EMR refers to a patient-centred system that staff can use to fulfil their patient-care duties without using paper medical records, as described in above sections. This represents a sophisticated EMR system that supports closed-loop medication management and real-time decision support.

Victorian public health services have made significant progress by establishing solid foundations towards an EMR. It should, however, be acknowledged that health services are at different stages of EMR maturity and considerable time and effort is still required to achieve the desired target state.

National e-Health Transition Authority (NEHTA) sources accessed 15 August 2012 from:

[1] http://www.nehta.gov.au/connecting-australia/terminology-and-information/clinical-terminology/

[2] http://www.nehta.gov.au/connecting-australia/terminology-and-information/clinical-terminology/australian-medicines-terminology

[3] http://www.nehta.gov.au/connecting-australia/secure-messaging

[4] http://www.nehta.gov.au/connecting-australia/ehealth-architecture

References

Australasian Legal Information Institute (AustLII) 2012, *Health Records Act 2001*, s. 3(1), viewed 5 April 2012, <http://corrigan.austlii.edu.au/au/legis/vic/consol_act/hra2001144/s3.html>.

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