Towards routine use of national electronic health records in Australian emergency departments

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My Health Record can support emergency department clinicians by providing timely and secure access to patients' clinical histories

The nature of emergency medicine demands immediate access to health information.[1] Emergency department (ED) clinicians often require additional data that are external to the hospital's in-house clinical information system (CIS), such as medication history, allergies and previous diagnostic information, to ensure health care is safe and appropriate for an individual's needs. However, it is widely recognised that communication channels between health care providers and across different settings are often suboptimal.[2] This leaves a potential gap in which accurate details of a presenting patient's history may not be readily available at the point of care.[3]

The Australian Digital Health Agency, in conjunction with the Australian Commission on Safety and Quality in Health Care (ACSQHC), is undertaking the My Health Record in EDs project. The overall purpose of the project is to establish the use of My Health Record by clinicians in Australian EDs, thereby improving access to and availability of accurate health data of patients who intersect with the health care system at this level. With almost 7.8 million individual ED presentations across Australia in 2016–2017,[4] the project presents an opportunity to capture a valuable snapshot of clinician and patient interactions with electronic health records (EHRs).

In the context of this project, EHRs are online electronic applications or repositories through which individuals can access, manage and share their health information in a private and secure environment.[5] EHRs can be accessed by all treating health care professionals, providing one avenue for improving timely access to current and clinically relevant information — in Australia, this is the My Health Record.

In early 2016, concurrent My Health Record opt-out trials were conducted in participating hospitals across parts of Northern Queensland and the Nepean Blue Mountains region of New South Wales. The trials were run by the Australian Government Department of Health in partnership with Primary Health Networks and jurisdictional health departments of the respective state or territory where each hospital was located. The aim was to explore clinician utilisation and access patterns when a large portion of the patient cohort has a My Health Record.[6]

Previously, it had been established that high numbers of registered consumers can improve the volume of clinical content in My Health Record, enhancing clinical utility.[7] This was also true of both trial locations, showing that about 2% of the population actively chose to opt-out of keeping their My Health Record. This opt-out rate is also consistent with international experiences.[6] EHR's, such as My Health Record, typically feature a patient summary to support delivery of emergency care — a feature also consistent with EHR's in the United Kingdom, Canada, Denmark and the United States.[8]

In September 2016, the ACSQHC reviewed the impact and safety of My Health Record use in EDs.[9] The review concluded that after significant investment in recent years, jurisdictions have made progress in building the technical capability to upload and view information held in the My Health Record system in the ED setting. However, awareness and use of this capability by ED clinicians was low. This review subsequently formed the basis of the My Health Record in EDs project, which aims to produce an implementation and adoption model for increasing the use of My Health Record among ED clinicians. The project is further examining how information is being shared across health care providers and settings in real time to better support the management of clinical emergencies.

The project consists of an observational study across four sites from early 2019, in alignment with the My Health Record opt-out period, which concluded on 31 January 2019. The sites were selected to represent the broad range of geographical, demographic and CIS or information technology platform variation. An essential component for the sites was technical readiness to participate. Likewise, the presence or absence of existing local and/or state-based viewing platforms, which typically feature patient information from hospitals within a jurisdiction, was also considered. In this way, the project aims to establish a degree of generalisability that may assist with national translation across health jurisdictions' public and private EDs.

The ACSQHC conducted a literature review[10] examining the benefits of using EHRs in an ED setting to inform this project and identify potential barriers to successful implementation. Evidence was drawn from a range of study designs, including systematic reviews, meta-analyses and prospective and retrospective, cross-sectional, longitudinal or observational studies. Findings of the literature review are summarised in the Box. Furthermore, in stakeholder consultation workshops held from November 2017 to June 2018, qualitative evidence was gathered through focus groups, surveys of ED clinical staff from the My Health Record opt-out trial sites, and telephone interviews with ED directors and Australian and international health information technology experts. ED staff feedback from the My Health Record opt-out trial sites was consistent with that extracted from the literature review.

Benefits of My Heath Record in the emergency department

ED staff note that an EHR can be a more efficient substitute to accessing patient information external to the ED, compared with existing time-consuming, conventional methods (fax, telephone).[23] Summarised EHR content can improve workflow efficiency and can reduce a patient's ED length of stay by 10%.[24]

Routine EHR use by ED clinicians has been found to improve timely access to previous patient information and reduce the time taken for clinical decision making.[1,3,11,13,16] It has been documented that the transition of care across multiple health care providers can be better coordinated through EHR use.[14,25] EHR clinician use is particularly motivated by repeat and complex patients who present to the ED.

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Summary of evidence: literature review. Benefits, patient outcomes and barriers to the use of electronic health records (EHRs) in the emergency department (ED)

Benefits to ED staff	Patient outcomes	Barriers to use
• Access to critical information in an emergency situation[1,11] • Reduced duplication of diagnostic imaging[12] • Reduced duplication of pathology[12] • Improved and timely access to information for complex patients with multiple comorbidities[12] • Improved decision making[13] • Improved workflow[14,15] • Improved sourcing and documenting of a patient's history[3,16]	• Reduced inappropriate admissions[1,13] • Reduced adverse drug reactions[17] • Reduced radiation exposure[18] • Improved communication between interdisciplinary teams and external health networks[12] • Reduced readmissions to ED[5,13,16]	• Poor training and awareness[19] • Poor system interface between EHR and ED CIS[20] • Lack of trust with content[19] • Poor accessibility[21] • Poor integration with clinical workflows[2] • Poor usability and navigation of content[2,11] • Lack of overall content[22]

CIS = clinical information system. ◆

Barriers

ED clinicians in the My Health Record opt-out trial sites indicated there was minimal awareness of how My Health Record can be applied to clinical workflows. Of those ED clinicians who had used My Health Record, a lack of content was often cited as why My Health Record was not regularly accessed as part of patient care. Despite this observation, ED staff remained positive about My Health Record and its utility to patient care.

The variety of clinical information systems and interfaces highlighted the complexity of establishing routine My Health Record use across different hospital ED settings and jurisdictions. ED clinicians advocated for visual cues, such as flags and badge icons to indicate whether a patient had a My Health Record and the amount of clinical content. Multiple logins across multiple clinical information systems can be an impediment to clinical workflows.[25] Therefore, a single sign-on to My Health Record from the ED clinical information system was considered a critical success factor for use. Face to face education by ED "clinical champions" was the preferred approach to enhancing My Health Record awareness. Dedicated clinical champions that support staff with integrating EHRs into clinical workflows have been shown to contribute to successful implementations and change management in an international context.[26]

ED clinicians from the My Health Record opt-out trial sites highlighted how interface access and design can affect My Health Record usability. For example, keystrokes and mouse clicks must be kept to a minimum and alerts should be used sparingly to avoid alert fatigue.[21,27]

Next steps

The project's observational study will be conducted across the four selected pilot sites. Quantitative and qualitative data will be gathered to ascertain which elements of My Health Record usage and interface configuration are most conducive to translate My Health Record into improved patient care in the acute care setting.

The study will examine all aspects of My Health Record use, including training, awareness, viewing platform integration, workflow integration and how staff are able to best access My Health Record.

An additional component of the pilot site study phase will be the testing of metrics that demonstrate the expected benefits of the My Health Record expansion and, subsequently, any barriers. The expected EHR benefits that will be measured include a reduced ED length of stay,[1] the avoided duplication of pathology and diagnostic imaging,[1] and a reduced ED admission (and readmission) rate.[1,5,13,16] In addition to examining benefits realisation, the project measures may support hospitals in demonstrating achievement against My Health Record-related criteria in the National Safety and Quality Health Service Standards.[28]

Conclusion

My Health Record has the potential to support health care providers in EDs by providing timely and secure access to a patient's clinical history. Moreover, the My Health Record in ED project is likely scalable for use in other clinical disciplines in the acute setting, as a number of the barriers and enablers of EHR use experienced by ED clinicians are common to other health care providers.

Competing interests: Paul Miles and Andrew Hugman work for the Australian Commission on Safety and Quality in Health Care and are Project Manager and Project Clinical Lead for the My Health Record in EDs project, respectively. Angela Ryan is Acting Chief Clinical Information Officer at the Australian Digital Health Agency and President of the Australasian College of Health Informatics.

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