Electronic Medical Records

Current status of implementation across Ontario

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An electronic medical record (EMR) is a digital version of a paper chart that contains a patient's medical information from one practice, used by health care providers for patient care. EMRs have been widely implemented across the Province of Ontario, with more than 9,000 physicians and specialists employing such systems in both primary and secondary care settings;¹ however, problems with interoperability of various EMR systems as well as legal and funding issues have limited the uptake of EMRs.² Understanding how to further improve implementation and efficacy of EMRs across Ontario requires an understanding of barriers to implementation and the current solutions to these barriers, how EMRs are currently implemented and used in both in Ontario and across the country, and the current ongoing programs to improve implementation and uptake.

EMRs have some benefits to physician practice.³ It has also recently been estimated that EMR systems in primary care centres throughout the country have saved the Canadian health care system approximately \$1.3 billion over the past 3 years.² EMRs have been shown to reduce the number of duplicate tests ordered, benefiting not only the patient but the health care system.² EMRs also reduce the number of adverse drug events, thereby improving patient safety.² Further, EMRs reduce time spent on administrative tasks, improving efficiency within the physician's office or hospital,^{2,3} and have also been shown to decrease wait times for patients with urgent concerns to see their family physician.⁴ EMRs also improve both disease management and preventative care.³ In addition to these benefits, EMRs can be used to identify patients who are due for a screening or preventative visit, or patients who have been flagged with abnormal test results and cue to schedule an appointment.⁵ Further, EMRs can be used to track blood pressure, weight or other health indicators over time, displaying them graphically for both the physician and the patient.⁵

Despite the many benefits of EMR systems, enabling province-wide implementation has proven challenging. Barriers such as the time involved for a practice to convert to EMRs from paper records, the training of health care professionals on the new systems, and computer literacy have slowed the implementation of EMR systems in many practices.^{6,7} Other barriers also include the financial cost associated with purchasing the new EMR system and availability of technical support.⁷ To encourage physicians across the province to use EMRs, the provincial government has introduced programs such as the New EMR Adopter Funding Program which provides funding to physicians in the transition from paper-based records to EMRs.⁸ While this program reduces the financial burden of switching from paper to electronic records, training and computer literacy continue to be a challenge.

In addition to the above barriers, legal concerns have also come to light. These issues include who owns the records, who has access to the records and how the records can be secured to ensure privacy. Before electronic records, the physician was responsible for accurately documenting every patient encounter, storing the records securely and retaining these records for 10 years after the last entry.⁹ With the advent of EMR this has not changed; however, it does become more complicated. If one patient sees multiple physicians, each will be altering the patient's EMR. Who, then, is responsible for ensuring the record's accuracy? The College of Physicians and Surgeons of Ontario (CPSO) has clarified this point by stating that physicians are accountable for all of their own entries into a shared record.⁹ The CPSO has also set out requirements for ensuring security of EMR. These include keeping track of all medical and non-medical staff who have access to the EMR system, ensuring user identification be used to keep track of who has accessed which records, controls to restrict access based on user's role, encrypting any data stored on a mobile or external device, and ensuring that all wired and wireless connections are secure.⁹ Requirements for retention of records are not stated to be any different with EMR as opposed to paper records, except that a physician is required to regularly backup their records and store them securely.⁹

Progress has been made in Canada towards more physicians and health care practices using EMRs instead of paper records. The Health Council of Canada reports that 57% of primary care physicians now use EMR, compared to only 37% in 2009.¹⁰ This progress, however, is not evenly distributed across the country. British Columbia has the highest adoption rate, with over 70% of physicians using EMR; New Brunswick, on the other hand, has only a 26% adoption rate.¹⁰ It was found that an important factor in increasing adoption in a province is the provision of technical support.¹⁰ Support staff allow novice users to move forward and overcome the time and computer literacy barriers, thus making the implementation process smoother.^{6,10} Canada Health Infoway is an organization created by the Government of Canada to plan a strategic approach to a Canada-wide electronic health system.² This organization has a number of projects underway to create this nation-wide system, including programs to guide and assist provinces and territories in implementing technologically based health care systems, programs which improve the interoperability of various EMR systems and programs which set guidelines and standards for emerging technological solutions, all designed to improve EMR adoption rates across the country.²

To improve not only implementation of EMRs, but also the effect of EMRs on patient care and the health care system, the Prov-

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inice of Ontario created the eHealth Ontario program.¹ Past spending and oversight scandals within this program and its predecessor, Smart Systems for Health Agency, have slowed the progress of the implementation of EMRs within Ontario¹¹ and resulted in some public wariness of a province wide Electronic Health Record system linking all of the EMRs and other patient health information.¹² eHealth Ontario, however, does currently have a number of initiatives designed to improve the uptake of EMRs as well as to improve interconnectivity of these records, further increasing efficiency within the health care system.¹ These include the New Adopter program mentioned above, as well as the Regional Integration program, designed to increase interconnectivity within South West Ontario, Greater Toronto and North East Ontario regions, and the Ontario Laboratories Information System, designed to allow physicians to access laboratory test results online.¹ These programs, along with a number of other initiatives, have the potential to improve EMR adoption, use and health information connectivity in Ontario.

Research evidence has shown EMR systems have the potential not only to decrease health care spending, but also to improve patient outcomes and workplace efficiency. While the shown benefits are impressive, progress towards a fully electronic province-wide system has been slow as a result of a number of identified implementation challenges including technological, legal and funding issues. eHealth Ontario is working on a provincial level while Canada Health Infoway works on a national level to overcome these barriers and produce an efficient and effective electronic health care system. To achieve this, programs which focus on improving computer literacy, EMR interoperability and financial burdens must be a priority.

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