The Need for Electronic Health Records in Long-Term Care

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Abstract. Long-term care (LTC) settings serve an important proportion of seniors and vulnerable populations that require 24-hour nursing care. Deployment of interoperable electronic health records (iEHRs) to these settings lag. There is little evidence on the availability of patient information from across the continuum of care. To fill this knowledge gap this study examines the prevalence and nature of information gaps experienced in LTC during patient encounters (n=1050). Overall, more than one-third (34%) of all LTC patient encounters were missing at least one item of information that was needed for the encounter. Approximately 59% of missing information during patient encounters was documented or ordered by a clinician external to the LTC facility; 41% were within the LTC facility itself. These information gaps have an adverse consequence for nearly 3 out of every 10 (31%) patient encounters in LTC. Extending iEHRs to LTC has the potential to support timely, appropriate, and better quality of patient care and improve provider experience.

Keywords. Electronic health records, health information exchange, long term care, interoperability, information gaps, benefits

1. Introduction

Nearly 6 million Canadians are seniors (65 years and older) and make up 13% of the Canadian population [1]. By 2024, seniors will account for 20% of the population [1]. In 2011, approximately 4.5% seniors lived in nursing homes, chronic care, or long-term care hospitals (4.5%) [2]. The CLHIA[2] estimates that by 2036, over 750,000 Canadian seniors will reside in healthcare institutions [3].Long-term care (LTC) facilities serve seniors and other individuals who require 24-hour nursing care which can include assistance with daily living activities as well as medical and non-medical care. There are approximately 1800 LTC facilities across Canada [4]. The extent to which clinicians in LTC have access to necessary information about their patients is not well understood. A growing number of clinicians in Canada can now access important information about their patients outside of their practice settings through interoperable electronic health records (iEHRs) [5, 6]. Authorized users have access to information such as lab results, medications, diagnostic images, clinical reports and immunization profiles. However, the reported availability and adoption of iEHRs have been limited to acute, ambulatory and primary care settings. Limited access to electronic patient information in the LTC environment has been noted as a concern by some and seen as

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a necessary capacity for clinicians in LTC [7, 8, 9]. In a national survey of nurses, 62% of nurses working in LTC reported inadequate access to electronic clinical information systems and tools and in their practice [10]. Responding to this current knowledge gap, this study assesses the impact of not having access to iEHRs in the LTC setting.

2. Methods

The methodology used is adapted from a previous study of information gaps in the ambulatory care setting [11]. In this study, a sample of 21 clinicians providing care in LTC settings were recruited from a healthcare provider research panel. An algorithm was designed to recruit a sample of clinicians who primarily provided care in LTC and were considered 'unconnected' (Figure 1). Clinicians with electronic access [3] to no more than one of the following iEHR components were classified as unconnected:
- All medications taken by a patient (regardless of prescriber)
- Lab test results ordered by another care provider
- Diagnostic imaging results for a patient ordered by another care provider
- Hospital visit and discharge information
- Clinical notes/ consultation letters on care received outside of the LTC facility
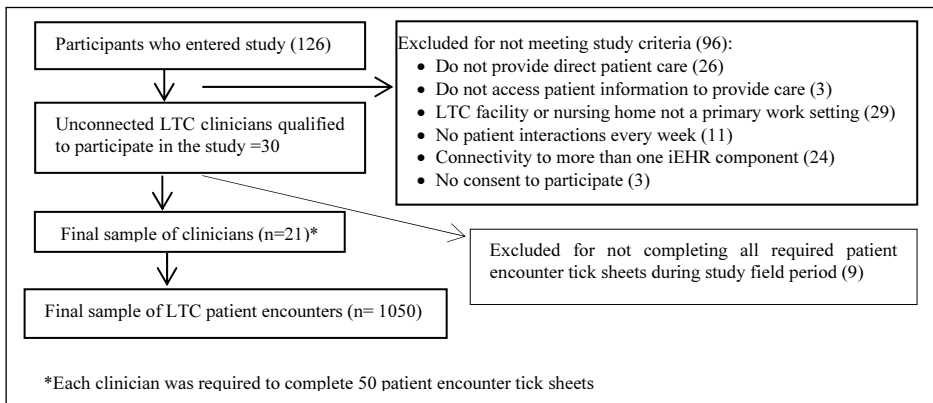- Immunizations administered outside of this LTC facility

Figure 1. Algorithm to classify unconnected LTC patient encounters

Qualified LTC clinicians were asked to collect data about information needs, gaps, and impacts during 50 distinct patient visits randomly selected using a Patient Data collection form. During each encounter, the form was used to capture the need for and availability of patient information such as clinical or referral notes, lab results, diagnostic imaging, medications, discharge/emergency department reports from the hospital, allergies, immunizations, care plan, and complete list of patient's medical conditions. Clinicians were also asked about the consequence of any information gaps in the form. Data was collected between March 11 and June 6, 2016. Clinicians were

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[3] Electronic Access (such as online, through an EMR or through an electronic interface to an external information system) and does not include other methods such as fax, email, printed or scanned documents, or telephone calls.

offered an incentive of CAN$300 for 50 completed patient encounter sheets. Ethics approval for this study was obtained from Veritas IRB. All responses were analyzed using descriptive statistics (Frequencies, Means, etc.) using SPSS Version 20.

3. Results

Characteristics of LTC Clinicians and Patient Encounters

A total of 21 clinicians who worked primarily in LTC across 6 Canadian provinces[4] participated in the study. They reported capturing patient information through a combination of paper and electronic records in their practice (86%) and paper charts only (14%). Clinicians were in practice for over 10 years (62%); between 5-10 years (33%) or less than 5 years. Nurses (67%), physicians (29%); and nurse practitioners (5%) made up the sample. Clinicians reported median of 20 [IQR=10-40] distinct patient interactions per week relating to transitions of care.

A total of 1050 LTC patient interactions were examined in this study. Most patients (88%) were 65 and over. Patient encounters ranged from initial transition into LTC facility from hospital or community (35%); routine clinical assessment (26%); permanent discharge from LTC facility (12%); the remaining related to either transfers out of LTC for care in community/ hospital or readmission following care outside.

Information needs, gaps and consequences in LTC patient encounters

In 95% or more of encounters, patient medications, medical conditions, allergies, and clinical/referral notes information was required. Patient visits also required lab results (87%), care plan (86%), immunizations (81%), and diagnostic imaging (75%). Information from hospitals or outpatient appointments was required in 65% of encounters. Overall, 34% of all LTC patient encounters were missing at least one item of information that was needed. Most commonly missing information related to care received outside of the LTC facility (Figure 2). For example, 18% all visits were missing notes related to outpatient care or emergency care.
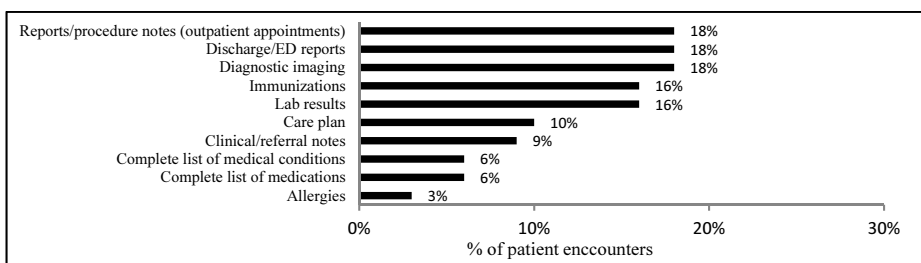

Figure 2. Patient encounters missing required information

Clinicians identified 59% of information gaps as ordered or documented by someone external to their facility (21% was the clinician themselves; 20% was other clinicians within the same facility).

Among all LTC encounters, 69% of the time missing information did not impact the interaction (either because no necessary information was missing or the information

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[4] British Columbia, Alberta, Manitoba, Saskatchewan, Ontario and Quebec.

gap was inconsequential). However, information gaps did impact nearly 3 out of every 10 (31%) LTC patient encounters. The consequences of information gaps in the LTC impact providers' experience, patient safety or patient experience (Figure 3). The most common consequence (in 24% of LTC encounters) involved physicians being forced to seek out information from a secondary source outside of their organization. Additionally 19% encounters result in clinician's time being wasted (average of 26 minutes).
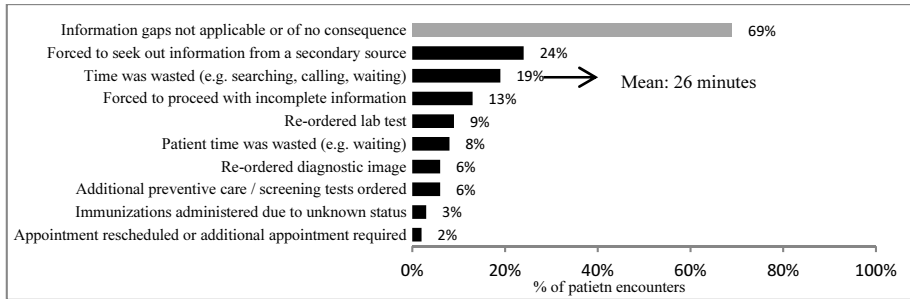

Figure 3. Impacts of missing information

4. Limitations

The sample size for this study involved 21 LTC clinicians and limits the understanding of national trends and provincial difference; however the total number of patient encounters studied (n=1050) provides a robust sample for analysis of patient interactions in the unconnected LTC setting. Information needs, gaps and consequences captured are based on clinician's perceptions and therefore subject to interpretation.

5. Discussion and Conclusions

Long-term care serves a vulnerable part of the Canadian population along the continuum of care. Approximately 74% of LTC patient encounters observed in this study related to transitions of care (admission, discharge, or transition in/out of LTC for care in another setting). Effective communication and appropriate transfer of information is necessary during care transitions to avoid patient safety risks and health care system costs [12]. A review of cases from 2008-2012 by the CMPA[5] identified communication problems between physicians and other health care professionals and documentation as some of the top medico-legal risks in LTC facilities [9, 13]. This study found that 31% of LTC encounters had some consequences to patients, clinicians and the healthcare system as a result of information gaps. In this study period alone, 4940 minutes (~ 4hour/clinician) of time wasted was observed due to information gaps. In 6% of encounters (~63 patients) additional preventive care/screening tests or diagnostic imaging tests were ordered which impact the patient's experience, causes delay in care and also poses unnecessary costs to the healthcare system.

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[5] Canadian Medical Protective Association

The use of technology for clear communication has been identified as a strategy to improve safety in LTC settings across Canada [7, 8]. A provincial study of over 628 nursing homes identified that transitions care can lead to problems and technology can be of great help in improving quality of care in LTC facilities. For example, when information about medications or care plans that patients were given at the hospital doesn't flow to providers in the LTC, it can result in patients getting sick and returning back to the hospital [8]. Likewise, in a focus group of LTC health care providers, the lack of integration of documentation and assessments by different clinicians was identified as a barrier to quality of care [14].

There is a growing body of evidence from acute, ambulatory and community care settings in Canada to suggest that electronic access to more comprehensive and complete patient information improves productivity and quality of care[11, 15, 16, 17, 18]. The lag in investment and adoption of iEHRs or other means of electronic health information exchange (HIE)s in LTC is not unique to Canada. Long-term and post-acute care (LTPAC) in the United States has also traditionally lagged in the investment of HIE [19, 8]. However, recent challenge grants by the ONC[6] to encourage nationwide health information exchange and interoperability in LTPAC has demonstrated benefits. For example, one study demonstrated that information exchange reduced 30 day readmission rates among LTC residents (from 33.6% readmission at baseline to 12.5% post implementation) and emergency department visits [20].

This study identifies information gaps that exist in LTC, and the need to improve information connectedness in this setting. Extending iEHRs into LTC can build capacity for clinicians to positively impact the quality of care for patients in this setting, particularly during transitions of care.

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