

Primary care data sharing (PCDS) is a limited term, small-scale regional initiative in south west Ontario (SWO) to explore the value, challenges and feasibility of sharing a pre-defined dataset from primary care electronic medical records (EMRs) to be shared amongst health service providers within the patients' circle of care through the electronic health record (EHR). This proof of concept will inform the evolving provincial primary care data sharing strategy.

The evaluation and realization of value is an important component of the cSWO Program that supports and delivers the adoption of the integrated EHR across SWO. By pursuing the measurement of organizational value (i.e. reduction in health care professional time required to find information) and clinical value (i.e. reduction in potential adverse drug events, PADEs) we can learn about how patients benefit from better informed clinical decision-making.

The PCDS proof of concept project team works with primary care teams to improve the quality of EMR data in the Cumulative Patient Profile (CPP) and shares that data to a clinical data repository (CDR). Clinicians along the continuum of care will be able to view CPP data as part of the integrated EHR via the cSWO Regional Clinical Viewer, ClinicalConnect™.

Value statement

Patients with complex medical needs, specifically older age, multiple conditions and taking multiple medications, commonly have discrepancies between the medications listed in their EMR and the medications they are taking, and are more likely to suffer from adverse drug events (ADEs) [1]. Using data from the primary care EMR to identify these patients and having a pharmacist conduct a medication reconciliation (MedRec) with them reduces medication discrepancies and may reduce ADEs [2].

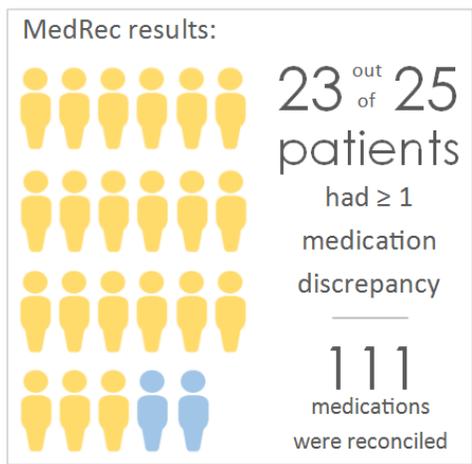
Clinical benefits of conducting medication reconciliations

Patients taking five or more medications, denoted as polypharmacy, are more likely to have discrepancies between the medications listed in their EMR and the medications they are actively taking [3]. These discrepancies increase their chances of having an ADE [1] and being admitted to the hospital [5]. Patients with polypharmacy also tend to be older and have multiple chronic conditions [1], which are both associated with high healthcare system use in Ontario [6].

Identification of these patients with complex medical needs (i.e., those with polypharmacy, multiple conditions and older age) enables clinicians to provide them with proactive care. Evidence suggests that conducting a MedRec can reduce polypharmacy [7], the number of medication discrepancies within the EMR [8], and ADEs [2]. There is conflicting evidence whether this leads to reduced hospital use [9, 10].

Medication reconciliation within a Family Health Team

At the Centre for Family Medicine Family Health Team (CFFM FHT), standardized EMR data was used to identify patients with complex medical needs. This process, described in detail in a previous case study [11], used the number and type of chronic conditions, polypharmacy, age, sex and smoking status to identify a listing of complex patients. Each of the patients identified were then offered the opportunity to attend the clinic and participate in a MedRec with a FHT pharmacist. This process was completed with 23 of the patients.



The most common reasons for discrepancy:

- ✎ Discontinued medications
- ✎ Prescribed medications missing from the EMR
- ✎ Incorrect dosage
- ✎ Treatments listed as medications that were not medications (e.g. wrist splint)

Benefits of the MedRec:

- ✎ The literature suggests 0.9% of medication discrepancies result in an ADE [4]. Therefore, CFFM FHT potentially **avoided one ADE**.
- ✎ Improved accuracy of EMR medication list for sharing to ClinicalConnect.

This process can be replicated in other primary care clinics. Having complete, up-to-date and standardized EMR data increases the ease at which these patient searches can be built and reduces the likelihood that eligible patients will be missed by the search. For instructions on how to build these searches to identify complex patients, refer to the Benefits Realization case study that outlines how this was done at CFFM FHT [11]. Once this patient list is generated, clinicians can make decisions around proactive care options for these patients.

Testimonial

“As a pharmacist, I commonly see medication errors made simply due to the fact that health care providers do not have an up to date medication list for the patients they see. Patients with multiple chronic health conditions who are on multiple medications are at an increased risk of adverse drug events and an inaccurate medication list is one factor that may increase the risk of this. Medication Reconciliation should be done at all points of care including in primary care. By ensuring that medication information is accurate and up to date in the primary care EMR, this information can then be shared more widely across the health care system. Pharmacists working in primary care and FHTs can have a role in reducing the number of adverse drug events by ensuring that medication lists of kept up to date in EMRs.”

Jillian Bauer, Pharmacist, CFFM FHT

Questions

For questions, comments, or to participate in cSWO’s Benefits Realization program, please contact: Billy Bostad, Benefits Realization Specialist, Change Management and Adoption Delivery Partner, eHealth Centre of Excellence: Billy.Bostad@ehealthCE.ca

Sources

1. Field, T.S., et al., *Risk factors for adverse drug events among older adults in the ambulatory setting*. J Am Geriatr Soc, 2004. **52**(8): p. 1349-54.
2. Boockvar, K.S., et al., *Medication reconciliation for reducing drug-discrepancy adverse events*. Am J Geriatr Pharmacother, 2006. **4**(3): p. 236-43.
3. Coleman, E.A., et al., *Posthospital medication discrepancies: prevalence and contributing factors*. Archives of internal medicine, 2005. **165**(16): p. 1842-1847.
4. Bates, D.W., et al., *Relationship between medication errors and adverse drug events*. J Gen Intern Med, 1995. **10**(4): p. 199-205.
5. Allin, S., D. Rudoler, and A. Laporte, *Does Increased Medication Use among Seniors Increase Risk of Hospitalization and Emergency Department Visits?* Health Serv Res, 2016.
6. Rosella, L.C., et al., *High-cost health care users in Ontario, Canada: demographic, socio-economic, and health status characteristics*. BMC Health Serv Res, 2014. **14**: p. 532.
7. Kwan, D., *Polypharmacy: optimizing medication use in elderly patients*. Practice, 2013. **20**: p. 25.
8. Feldman, L.S., et al., *Nurse-pharmacist collaboration on medication reconciliation prevents potential harm*. J Hosp Med, 2012. **7**(5): p. 396-401.
9. Kilcup, M., et al., *Postdischarge pharmacist medication reconciliation: impact on readmission rates and financial savings*. J Am Pharm Assoc (2003), 2013. **53**(1): p. 78-84.
10. Holland, R., et al., *Does pharmacist - led medication review help to reduce hospital admissions and deaths in older people? A systematic review and meta - analysis*. British journal of clinical pharmacology, 2008. **65**(3): p. 303-316.
11. *Benefits Realization case study. Primary Care Data Sharing: Using electronic medical record data to identify complex patients likely to access acute care services*. 2017. Link: <http://ehealthce.ca/userContent/documents/Benefits%20Realization/cSWO%20BR%20PCDS%20Predictive%20Analytics%20-%202017-05.pdf>.