

Primary care data sharing (PCDS) is a time-limited, small-scale regional initiative as part of the cSWO Program 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 south west Ontario (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 statements

Value within the primary care (PC) setting: by using available lab data in the PC EMR, it is possible to develop an electronic clinical decision support tool to stratify diabetic patients' level of kidney impairment, which would provide guidance for the physician for ongoing management and care for the chronic kidney disease (CKD) patient.

Value external to the PC setting: use of the risk predictor tool enables appropriate and timely CKD management and specialist referral, and opportunity for more proactive preventive care.

Internal value: clinical best practice for determining CKD in diabetic patients

The newest Kidney Disease – Improving Global Outcomes (KDIGO) guideline recommendations propose a risk stratification for patients with CKD, using both eGFR and ACR scores¹. It is acknowledged that CKD is under-recognized within the Canadian primary care context, which has the potential to lead to “late referral, missed opportunities for preventive care and inadvertent administration of potentially harmful interventions”².

As part of an early phase of PCDS, benefit realization resources sought to develop internal value propositions for primary care clinicians being asked to standardize some of the data within their EMR for the purpose of sharing in the clinical data repository. A report was created that used available lab data to stratify all diabetic patients for risk of kidney disease, using the KDIGO guidelines. In the first step, the patients were grouped using only their eGFR score, which is what has typically been used in the past as the lab result for determining risk for kidney disease. These patients were then reclassified using BOTH the eGFR and the ACR scores, as is recommended in the KDIGO guidelines. When this analysis was conducted with a Family Health Team (FHT)'s patient data, as can be seen in the table on the following page, by using both lab results, the level of risk increased for 15 patients.

The benefit realization (BR) team had opportunity to present this research to the physician who is overseeing diabetic patients within the FHT who are struggling to keep their A1Cs under control. The physician indicated they are not currently using this method to stratify their patients but sees great value in doing so. The BR team is still working with the clinician to look at how this recommendation could best be implemented into practice in order to aid in the care for diabetic patients and ensure timely and appropriate referrals for specialist care.

External value: Primary care data informing appropriate specialist referrals

Most CKD patients can have their care managed by their primary care physician, as not all patients need to be referred on to nephrology. However, for those patients who require specialist care, the risk stratification model provides guidance for making that clinical decision at the primary care level, enabling more appropriate and timely nephrology referrals.

CKD Risk Level	Diabetic Patients' Risk of CKD using eGFR Scores	Diabetic Patients' Risk of CKD using BOTH eGFR and ACR Scores	Difference
Green: low risk	68	53	↓ 15
Yellow: moderately increased risk	11	21	↑ 10
Orange: high risk	4	8	↑ 4
Red: very high risk	2	3	↑ 1

Many commonly prescribed medications for chronic conditions such as heart disease and osteoporosis can be potentially harmful in individuals with CKD because they are filtered through the kidney³. This issue is particularly prevalent in elderly patients, who tend to have multiple comorbidities. Therefore, providing care providers across the continuum of care with patient information through the sharing of primary care data will support a more informed prescription process and reduce the number of drug-related contraindications in this population.

Testimonial

“As a physician who has a special interest in diabetes and provides a consultation service to other physicians within the Centre for Family Medicine FHT, I often look at the eGFR to assess for any renal impairment. I also check the urine ACR as it is recommended by the [Canadian Diabetes Association] CDA as a parameter to check periodically as it may be a marker for diabetic nephropathy and require the addition/adjustment of agents like ACE-inhibitors or ARBs. With the report data that was provided by the cSWO team, I was surprised to see that I had more patients at moderately increased risk who I needed to monitor more carefully and especially several at high and very high risk who needed a referral to nephrology. The regular generation of this report combining eGFR and ACR every 3-6 months will help me identify patients requiring intensive monitoring or referral to nephrology that I may have missed when looking at these parameters separately. It would also allow me to identify those patients requiring counseling for sick day management, where withholding of drugs that may worsen renal function or increase the risk of hypoglycemia is recommended during times of volume constriction (such as gastroenteritis).”

Dr. Upender Mehan, Family Physician, Centre for Family Medicine

Questions

For questions, comments, or to participate in cSWO Program's Benefits Realization program, please contact: Lori-Anne Huebner, Benefits Realization Lead, cSWO Change Management and Adoption Delivery Partner, eHealth Centre of Excellence: lori-anne.huebner@ehealthce.ca

Sources

1. Levin, A. and P.E. Stevens, *Summary of KDIGO 2012 CKD Guideline: behind the scenes, need for guidance, and a framework for moving forward*. *Kidney Int*, 2014. **85**(1): p. 49-61.
2. Lloyd, A. and P. Komenda, *Optimizing care for Canadians with diabetic nephropathy in 2015*. *Can J Diabetes*, 2015. **39**(3): p. 221-8.
3. Sadowski, C.A., C. Lyder, and N. Yuksel, *Bisphosphonates for osteoporosis in patients with renal insufficiency: pharmacists' practices and beliefs*. *Canadian Journal of Hospital Pharmacy*, 2016. **69**(1).