Harnessing the EMR to Improve Diabetic Patient Management

Can the EMR Make You Smarter About Diabetes Care

Adam Stewart M. D. and Julie Page RN BScN MSc MHS

Central Hastings Family Health Team

Ontario

Background

Patients with diabetes account for a significant percentage of visits to family practices in Ontario and an even higher percentage in our LHIN. Currently we have 7317 rostered patients, with 756 (10.3 %) identified as diabetic. With the publication of the 2013 CDA guidelines, our numbers will increase as we identify those who meet the new diagnostic criteria. Our EMR is a key tool in our Diabetic Management Program. EMR systems are becoming common place within FHTs however; many teams are not realizing their full potential. In order to more efficiently and effectively manage our patients with diabetes, we have developed strategies using advanced features of our EMR system and team resources. These approaches will serve as a model that can be translated to patients with other chronic diseases in our FHT.

Objectives

- How can an EMR system be used to measure and track population data?
- How can an EMR system be used to assist in the identification, recalling and management of patients with diabetes?
- How do we use process and outcome measure to develop strategies to improve care?
- Is there a role for private sector collaboration in quality improvement initiatives?

Example of Measures

- A1C testing in past 6 months
- LDL testing in past 12 months
- BP recorded in past 6 months
- Visit with providers for diabetes visit in past 6 moths
- A1C target of ≤ 0.07
- LDL target of ≤ 2.0 mmol/L
- BP target of ≤ 130/80

Change Concepts

Over the past 2 years we have worked hard to harness the power of our EMR system as a tool to help us:

- develop an accurate diabetes patient registry by identifying both coded and non-coded patients in the EMR
- identify sub-populations using searches and reminders, that can be targeted for low effort, high impact interventions
- provide more coordinated and efficient care utilizing team resources
- assessing impact of interventions on team results by performing regular data extraction and analysis
- develop in house tools (stamps/encounter records) to improve documentation and assist with standardization for data extraction

Our ongoing performance assessments have allowed us to identify areas for continued improvement, and systematically create targeted interventions to address the needs of our FHT. Sustainability is maintained through ongoing evaluation and change management using the PDSA cycle.

Outcomes and Results

As a result of our quality improvement interventions we have successfully demonstrated improvement in our diabetes process and outcome measures. Starting January 2011 we embarked on a structured approach using advanced features of our EMR system and FHT resources to improve the care of the patients with diabetes. These improvements include (for diabetic patients 18 – 85 years old):

- A1C testing in past 6 months = 96%
- LDL testing in past 12 months = 85%
- BP recorded in past 6 months = 92%
- Visit with providers for diabetes visit in past 6 months = 98%
- A1C target of ≤ 0.07 = 56%
- LDL target of ≤ 2.0 mmol/L = 60%
- BP target of ≤ 130/80 mmHg = 67%

Change Concepts at Work

About our Patient Population

10.3 % of our patients are diabetic
23.2 % of our total patients are over the age of 65 (LHIN 18.9%, ON 14.6%)
47.3% of our patients completed post secondary education (LHIN 57%, ON 61.4%)
12.2 % of our patients live below the low- income cut-off (LHIN 11.9%)

Interventions Using the EMR

Standardized Coding	Quarterly EMR search of diagnosis DM and coded to ICD 9 250
Registry Update	Quarterly search using set parameters identifying potential undiagnosed DM patients
DM Recalls	Monthly search for patients who are lost to recall – overdue by 3 or more months. BW and visit are then scheduled
Appointment Alert	Alerts are left in chart if receptionist cannot not reach patient to book. This triggers front staff to book if patient calls in for other reasons.
Reminders	Parameters set to auto generate a reminders for the practitioner e.g. overdue for DM visit
Standardized Template DM Visit	Adopted by all practitioners and used with each DM visit and only for DM visits (improves efficiency and data quality)
Formal QI Process	Assisted by external 3rd party (Merck), using Ontario's Chronic Disease Prevention and Management Framework (MoHLTC), identified and set goals for DM management
Regular Focus Group Meetings	Physician champion, 2 NPs, RD and RN Program Coordinator meet regularly to discuss target data, strategize, develop tools and report to the Practitioner Committee monthly
Target Data	Monthly searches to create data for target monitoring.
Report Card	EMR generated report card individualized to the patient given at each visit including self management goals past visit and current visit

Example of Data Used for DM Recall Search Specific to Last DM Visit > 3 months

	Patient #	Age	Date A1C	Hb A1C	Md Initials	Next Appointment Date
2	1001	69	26-Aug-13	0.076	AS	28-Aug-13
3	1002	60	31-Jul-13	0.065	AS	29-Aug-13
4	1003	81	8-Mar-13	0.077	AS	30-Aug-13
5	1004	67	5-Mar-13	0.063	AS	never done
6	1005	46	14-Mar-13	0.097	AS	never done
7	1006	66	24-Jul-12	0.08	AS	never done
8						

EMR Generated Patient Diabetic Report Card

Central Hastings Family Health Team

Diabetes Report Card for [redacted] Sep 4, 2013

A1C
"Average blood sugar over last 3 months"
Your A1C: 0.069
Target: Less than 0.070 (7%)

Blood Pressure
Your blood pressure: 122 / 66
Target: Less than 130 / 80

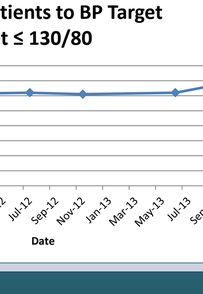
LDL
"Bad Cholesterol"
Your LDL: 1.56
Target LDL: Less than 2.0

Albumin Creatinine Ratio (ACR)
"amount of protein in urine"
"a measure of kidney function"
Your ratio: 1.0
Target: Less than 2.0

Foot Assessment
Last done: Jun 3, 2013
Target: at least once per year
Your Foot Risk: high

Eye Assessment
Last optometry: Aug 12, 2013
Last opthamology: Jun 15, 2011
Target: once per year

Weight
Your weight: 122 kg
Your BMI: 39.4 Target 25 or less
Note: "BMI" measures a person's weight compared to height

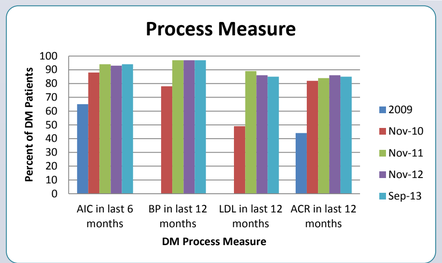


GOALS

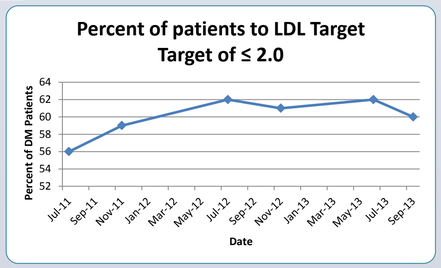
from LAST visit:	Goals met?	for NEXT visit:
try to lose weight	☑ YES ☐ NO	keep working on losing weight

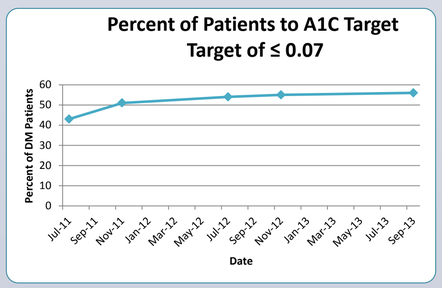
REMEMBER FOR NEXT VIST: Blood work approximately 1 week before.

Process and Outcome Measures



Both process and outcome measures are monitored on a monthly basis. This monitoring allows for ongoing quality improvement.

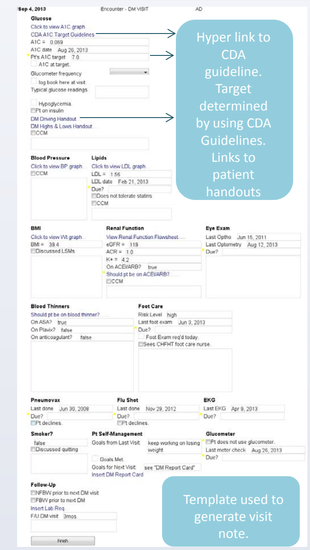




Conclusion

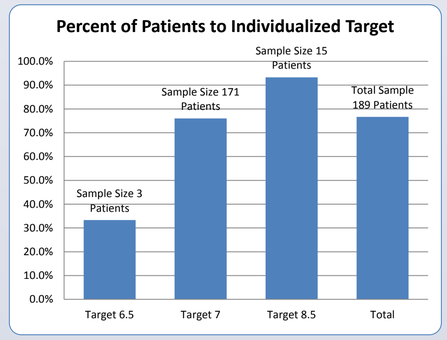
The process we have taken in improving care for our diabetic patients has resulted in improved process measures and demonstrable improvement in patient outcomes.

Harnessing the EMR: Moving Forward



The 2013 CDA guidelines allow for some variation in what is considered "to target" for each patient. We are working towards individualizing each DM patients "to target" using the "Individualizing your patients AIC target tool" available on the CDA website. Our early findings show that when individualized we go from 56% at target to as high as 76.7 % clinic average based on sample size of 189 patients. Searches have been developed to identify the number of at target patients with target range of 0.065, ≤0.070 and ≤ 0.085.

Patients to Target When Care Plan is Individualized



Sample size is 189/553 (34%) of DM patients at the Madoc clinic. When individualized, 76.7% of the sample are to target.

References

Canadian Diabetes Association Clinical Practice Guidelines Expert Committee. Canadian Diabetes Association. (2013). *Clinical Practice Guidelines for the Prevention and Management of Diabetes in Canada*. Can J Diabetes 2013;37(suppl 1):S1-S212.

MOHLTC. (2007). Preventing and managing chronic disease: Ontario's framework, pg. 8. http://www.health.gov.on.ca/en/pro/programs/cdpm/pdf/framework_full.pdf

MOHLTC. (January 2013). Rural Hastings health link; Preliminary demographic, census, and utilization profile.

Acknowledgement and Contacts

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For further information or demonstrations of EMR (PSS) contact
Dr. Stewart – 613 473 4134
Julie Page – 613 473 4134 ext. 219 – julie.page@chfht.com