Improving Ohio's Health Series

Effectively Using EHR Functionality to Manage Patients with Hypertension & Diabetes[1]

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> *This article is the second in a series devoted to hypertension and diabetes in Ohio and the prevalence of these chronic conditions. It explores the use of advanced Electronic Health Record (EHR) functions to better manage patients with these conditions.*

Many documents, articles and scientific literature outline overall strategies and best practices to implement for improving outcomes and managing patients with hypertension and diabetes. One of the often overlooked and underutilized tools in the treatment of hypertension and diabetes is the Electronic Health Record (EHR). This article will focus specifically on the use of advanced EHR functions to manage patients with these conditions as one tool in the larger toolbox.

EHR functions linked to interoperability have the potential to dramatically increase the overall health of patients as a result of improved access to patient clinical data. The EHR also is central to coordination of care in the community. This discussion will include information on the following EHR tools:

- Clinical Decision Support (CDS) rules
- Problem-based order sets
- Patient lists/reminders
- Other useful EHR functions, including patient portal

These higher-level functions of the EHR are often overlooked or not used because of competing priorities within the practice. However, these useful tools can greatly enhance care management for chronic conditions such as hypertension and diabetes.

The tools described above are typically found in all EHRs, thanks in part to the Meaningful Use (MU) incentive program. The MU certification requirements for EHRs outline a standard set of required functions that can be leveraged to assist healthcare

providers in the care and treatment of patients. A national study of providers who were successful in the MU program found that:

- 94% of providers reported that their EHR made records readily available at the point of care;
- 88% reported that their EHR produced clinical benefits to the practice and patients;
- 75% of providers believed that their EHR allowed them to deliver higher-quality patient care.[2]

While the actual implementation of these tools may vary because of the development of the EHR by different vendors, the concepts discussed below can be applied universally.

In all cases, the key is for EHR tools to provide the right information to the right people through the right communication channels at the right point within the workflow.

This functionality is reliant upon discrete patient data collected by the care team and through interfaces built into the EHR system to receive outside data. Recording data will not improve the quality of care and the health of patients by itself. Having the data, however, *will* trigger features within the EHR that are specifically built using best

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[2] Jamoom, E., Patel, V., King, J., & Furukawa, M. (2012, August). *National perceptions of EHR adoption: Barriers, impacts, and federal policies.* National conference on health statistics.

practices and proven guidelines. This functionality is designed for managing the health of chronic care patients such as those with hypertension and/or diabetes.

Clinical Decision Support (CDS) Rule

Clinical Decision Support, also called the CDS rule, was traditionally thought to be an alert, reminder or pop-up that signals the provider to enter additional data. CDS also can flag an out-of-range data element, such as a lab test, immunization, blood pressure reading or any other number of items collected during the patient visit. In the past few years, the definition of CDS has expanded to include many methods of clinical support found in the EHR that can minimize errors and adverse events, improve efficiency and reinforce best practices.

> *Clinical Decision Support is a process for enhancing health-related decisions and actions with pertinent, organized clinical knowledge and patient information to improve health and healthcare delivery. Information recipients can include patients, clinicians and others involved in patient care delivery; information delivered can include general clinical knowledge and guidance, intelligently processed patient data, or a mixture of both; and information delivery formats can be drawn from a rich palette of options that includes data and order entry facilitators, filtered data displays, reference information, alerts, and others.[3]*

CDS interventions can be very simple in that they are reliant upon or triggered by a single clinical data element or they can be extremely complex. Many EHRs include health maintenance alerts that remind physicians about a patient's preventive and chronic care gaps during the visit. The key to successful CDS intervention development to support hypertension and diabetes programs are interventions that are:[3]

- *Actionable* – Suggests an action such as ordering a lab test or that patient education be provided.
- *Visible* – Highlights an item that needs addressed in red or through the use of another visual cue to the appropriate member of the care team.
- *Consistent* – Utilizes structured data elements to query, record or relay information.

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[3] HIMSS. (n.d.). *Select the Right CDS Intervention*. Retrieved April 28, 2016, from http://www.himss.org/ResourceLibrary/VSarticleDEV.aspx?ItemNumber=37654

- *Flexible* – Allows for the use of varying national guidelines, local initiatives and other information with the ability to make modifications at any time.
- *Reliable* – Has extremely low false positives so that trust is not impacted causing all alerts to be ignored.

When implementing CDS rules, the key is to be mindful of the delicate balance between truly helpful reminders and alert fatigue.

Generally, CDS interventions are developed so the triggers are one or more data elements found throughout the patient records. These elements could include demographic information, such as race or family history, problems, medications, blood pressure readings, weight, BMI and lab test results.

CDS rule functions and alerts should be designed to support <u>not only the physician,</u> but all members of the care team including administrative support staff, nursing staff, and others. For example, a CDS rule could be developed to alert a practice about various situations where intervention could help with a patient's chronic condition. Here are some common situations where a CDS rule can be activated to help fill in the gaps in a patient's care:

- A patient has diabetes on their active problem list and is due or overdue for an A1c test. A reminder can be sent to the patient about scheduling for an A1c.
- A patient is not identified as hypertensive on the active problem list, but has had two blood pressure readings in the last year that were above 140/90 mm Hg (i.e., undiagnosed hypertension). CDS can alert the provider to the abnormal history of blood pressure readings so an additional reading can be taken and an appropriate treatment plan is put in place.
- A patient has been identified as a tobacco user, but no cessation counseling has been documented. CDS can remind the provider to counsel the patient as to options for tobacco cessation or to enroll the patient in a tobacco cessation support program.

CDS reminders for overdue preventive care screening *can* look like this in an EHR:

Measure Name	Due Date	Result		Schedule	
▸ Adults' access to preventive health services	Past Due	0 preventative health visits found; 1 required.		Once	Options▸
▸ Breast Cancer Screening	Past Due	☐ Breast cancer screening performed [ ] [📅] or Generate order		Every 2 years	Options▸
▸ Cervical Cancer Screening (with co-testing)	Past Due	[⌄] or Generate order		By Order Type	Options▸
▸ Colorectal Cancer Screening	Past Due	[⌄] or Generate order		Mixed	Options▸
▸ Comprehensive Diabetic Foot Exam	Past Due	☐ Patient was given a foot exam during reporting period		Once	Options▸
▸ Dilated Eye Exam	Past Due	[⌄]		Mixed	Options▸
▸ HbA1c Control	Past Due	Most recent HbA1c value: [ ] % [ ] [📅] Generate order		N/A	Options▸
▸ HbA1c Control < 7%	Past Due	Most recent HbA1c value: [ ] % [ ] [📅] Generate order		N/A	Options▸
▸ HbA1c Screening 2x/year	Past Due	0 results found; 2 required Generate order		N/A	Options▸
▸ Hep C Screening	Past Due	☐ Hepatitis C screening performed [ ] [📅] or Generate order		Mixed	Options▸
▸ Hemoglobin A1c <8%	Past Due	Most recent HbA1c value: [ ] % [ ] [📅]		N/A	Options▸

CDS interventions are a critical tool for identifying gaps in patient care and testing that may prevent the progression of hypertension and/or diabetes. With some EHRs, it is possible to develop a CDS intervention to identify patients who may have prediabetes or be at risk for type 2 diabetes and alert the provider to refer their patient to a Diabetes Prevention Program (DPP).[4] Theoretically, this CDS rule would be complex and would consider the:

- Patient's age,
- Family health history,
- Lack of an active diabetes diagnosis,
- Recent A1c or other lab results,
- Other factors putting the patient at a higher risk for diabetes.

Some EHRs are designed to provide a pop-up notification to include a shortcut or link to a corrective action when a CDS rule is identified; in this example, the action would be a referral to a DPP. Also, guidance on how to use EHR data to retrospectively identify patients with prediabetes can be found at http://www.ama-assn.org/sub/prevent-diabetes-stat/toolkit.html.

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[4] Centers for Disease Control and Prevention National Diabetes Prevention Program, January, 2016 [Online]. Available: http://www.cdc.gov/diabetes/prevention/index.html.

CDS rules should be continually refined and improved based on end-user feedback. A full review should be performed yearly to make adjustments as necessary, in the event that best practices for the treatment of hypertension and diabetes or associated quality measures need modified.

There are numerous resources related to CDS available at no cost. The Healthcare Information and Management Systems Society (HIMSS) has one of the most extensive online resources for CDS available ranging from case studies, toolboxes and guidelines at http://www.himss.org/library/clinical-decision-support.

Another extensive collection of How-To Guides for CDS Implementation can be found on the HealthIT.gov site: https://www.healthit.gov/policy-researchers-implementers/cds-implementation.

Problem-Based Order Sets
Problem-based order sets, sometimes referred to as evidence-based order sets, have been in use for many years, although only recently have they transitioned from a paper form or document to an electronic function within nearly all EHRs. Problem-based order sets are nothing more than a logical grouping of pre-established orderable items that are related to a specific diagnosis, or what the physician typically orders for a patient with that particular condition. Order sets reinforce best practices and recommended treatment guidelines while also increasing the efficiency of physicians and other care team members. Order sets that include comprehensive checklists also have the potential to enhance physician documentation and reduce variation of disease treatment through standardized formatting and clear presentation of orderable items.

For instance, an organization may have an order set for hypertension that might include the commonly prescribed anti-hypertensives grouped by type (diuretics, beta-blockers, ACE inhibitors), tests such as an ECG, lab tests (TSH, lipid profile, potassium), patient education (glucose management, weight loss, etc.), referral to a hypertension education program, and numerous other items defined within the EHR. Order sets should be developed so they reflect best practices (clinical practice guidelines), which result in better and less expensive care.

One limitation of problem-based order sets is that they are related to a problem that is generally linked to an ICD-10 code. This limitation precludes the creation of an order set for patients determined to have prediabetes as there is no ICD-10 code for this diagnosis. However, an order set could be created for the ICD-10 code R73.09 "Other abnormal glucose" that contains the necessary lab tests, patient education and referral to a DPP necessary to prevent the progression to active diabetes. It would be necessary to educate the physician and care team members that the use of the

abnormal glucose problem code may be used for prediabetes. Some EHRs do provide other means to create shortcuts outside of problem-based order sets that should be explored when considering a solution for patients with prediabetes.

While there may be some limitations, problem-based order sets encourage care providers to follow established guidelines for care by making the process for adherence more efficient. The order sets should be evaluated yearly by a clinical team to make necessary changes per any updated treatment guidelines and to fully understand the potential impact on existing workflows. Should changes be made to existing order sets or new order sets created, it is essential that a communication and education plan be developed to educate care teams on the new or updated order sets. This communication should also include the reasoning behind the updated or newly created order sets to ensure their adoption.

Here is an example of a problem-based order set:

Patient Lists/Reminders

Every EHR can generate a list of patients for a given problem because this base functionality is required in any certified system. The ability to generate lists of patients by specific conditions is intended to be utilized for quality improvement, reduction of disparities, research and/or outreach. This minimal required functionality has led to the patient list feature being undervalued as a viable tool. Thankfully, many vendors have surpassed the required functionality such that most EHRs can also consider additional data points such as age, race, ethnicity, family health history, date of last visit/encounter or other clinical data items when generating a list of patients.

The patient list functionality can be utilized to create a patient roster for:

- Identifying the total population of patients with hypertension, diabetes or both conditions.
- Creating an internal registry for hypertension, diabetes and other conditions for risk stratification.
- Identifying patients with hypertension and/or diabetes who are overdue for an office visit, contacting them, and scheduling an appointment.
- Enhancing care coordination by creating lists of patients with multiple conditions.
- Managing physician/patient relationships

For EHRs with limited patient list functionality, the list can be exported to an Excel file or other document type. The patient list becomes extremely valuable as it can be leveraged by other applications, physicians or patient registries. Something as simple as creating a list of patients and their mailing addresses to send diabetes educational material during Diabetes Awareness Month (November) can pay great dividends in improving patient engagement.

Here is an example of the patient list query screen to create a patient list for diabetes and hypertension:

Other Useful EHR Functions

There are many other tools within most EHRs that will assist with the management and improvement of patients with hypertension and diabetes such as patient reminders, patient portal, electronic referrals, transitions of care and others. EHR vendors continue to develop new functions as best practices change and new regulations or opportunities arise. For example, many vendors are now releasing functionality for chronic care management, expanded registry integration and numerous other tools. Regardless of the tool or function utilized, the key to success is maximizing the consistent use of discrete and structured data fields, including laboratory data through integration with the reporting source.

Resources for Additional Information on EHR Functions

Additional resources are available for configuring the tools within an EHR to manage patients with hypertension and diabetes. Often the EHR vendors themselves have created step-by-step guidelines outlining the workflows useful for managing these patients.

There are a number of free resources available on the Internet outlining the steps necessary to extend or fully develop available functions within an EHR to manage patients with diabetes and hypertension.

Below are links to several documents:
* MetroHealth Case Study: Ambulatory Diabetes Care: http://bit.ly/1SYBfPO
* Million Hearts Optimization Guides from HealthIT.gov: https://www.healthit.gov/providers-professionals/million-hearts

The Ohio Health Information Partnership has created a series of EHR-specific videos that provide an overview of various workflows and functionality that would be useful in the management of patients with chronic conditions. If you are interested in these videos, send your EHR vendor name to Cathy Rich at crich@ohiponline.org and she will send you the link to the appropriate vendor-specific video.

Words of Wisdom

Successful chronic care management occurs through optimizing use of the provider's EHR system to support patient interaction rather than hindering the interaction with the patient. For most effective use of the EHR, follow these simple steps:

1. Talk to your EHR vendor to identify all the potential tools within your system.
2. Create a workgroup within your practice that looks at ease of use and helpfulness of tools.
3. Regularly review the EHR's usage to address provider alert fatigue and benefit of reminders.