Identifying Hypertension and Diabetes by Mastering IT

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Altarum Institute Overview

- A Michigan company since 1946
- Deep connections to the University of Michigan College of Engineering, Medical School and School of Public Health
- Nonprofit, focused solely on health and healthcare, headquartered in Ann Arbor
- Today, we balance “think-tank” work for the Federal government with direct interventions to improve health and healthcare
M-CEITA, Michigan’s Regional Extension Center

The Michigan Center for Effective Information Technology Adoption (M-CEITA) was originally a $21M, 5 year, ONC investment to accelerate the selection, adoption, and meaningful use of health information technology to improve the quality and efficiency of care delivered in our state.

▲ Helped over 5,700 healthcare providers across the state adopt and use EHRs, impacting 1.6 million patients annually.

▲ 1/4 of all Michigan physicians paid for Meaningful Use were M-CEITA clients.

▲ Recognized by The Department of Health and Human Services (HHS) as the 5th best performing REC (out of 62) nationally.

▲ Now also funded by the State of Michigan - Medicaid
M-CEITA Services

Services are highly subsidized for qualified providers. Our Health IT services include:

- Meaningful Use Support
- Security Risk Assessment
- Targeted Process Optimization (Lean)
- Attestation/Audit Preparation
Presentation Outline

▲ What are the Health Problems?
  – Focus on: Hypertension and Diabetes

▲ Leveraging Health IT to Identify:
  – Chronic Care Model
  – Team-Based Care
  – Health IT Patient Management Model
  – Proper Blood Pressure Measurement
  – Structured vs. Unstructured Data
  – Direct/P2P vs. Health Information Exchange
  – Clinical Decision Support (CDS)
  – Analyze Existing Data to Identify Hypertension and Diabetes
What are the Health Problems?

DIABETES and HYPERTENSION: Chronic conditions with serious medical and financial repercussions
What are the Health Problems?

Heart Disease and Stroke
▲ Heart Disease and Stroke: 1st and 4th leading causes of death in the US.
▲ More than 2 million heart attacks and strokes each year.

Diabetes
▲ 29.1 million people or 9.3% of the population have diabetes.
▲ In 2011, an estimated 10% of Michigan adults (758,300 people) were diagnosed with diabetes. An additional 250,200 are thought to have undiagnosed diabetes.

Hypertension
▲ Approximately 70 million (1 out of 3) American adults have high blood pressure.
▲ About 16% of Michigan’s adult population has uncontrolled hypertension.
What’s being done?

Paradigm shift to the Chronic Care Model

▲ Six elements working together to create productive interactions between an informed, activated patient and a prepared, proactive practice team:

– the community
– the health system
– self-management support
– delivery system design
– decision support
– clinical information systems
Team-Based Care:  
A Vital Component to Improved Outcomes

▲ Clinical settings have many moving parts

▲ It can be a real challenge to work together

▲ Key areas of focus are:
  – Effective communication and coordination
  – Use of evidence-based guidelines
  – Structured follow-up and monitoring
  – Engaging patients and team members in an interpersonal continuum of care

▲ Incorporate a multidisciplinary team

Leverage Health IT to:
- Identify
- Engage
- Monitor
- Analyze
- Improve

A Plan-Do-Study-Act cycle to improve the health of your patients
Leveraging your Health IT to:

**Identify**
How to take a blood pressure:

▲ Posture/Circumstances
   – Sitting, calm environment without stimuli

▲ Equipment
   – Proper cuff size
   – Properly calibrated

▲ Technique
   – Number of readings
   – Location
   – Inflate cuff quickly and Deflate 2mm/second

▲ Record all pertinent information (as structured data)
Using Health IT to help you: **Identify**

▲ **Structured data fields are essential to identification**
  - What is structured data?
  - Why is it important?
  - Challenges in capturing
  - Work with vendor to improve usability

▲ **Lab Results entered as structured data**
  - Paper results scanned into EHR
  - Manual data entry of results
  - Lab interface
  - Costs
Using Health IT to help you: **Identify**

▲ **Data sharing with/from other providers**

- **Embedded Direct / P2P technology**
  - Essentially just secure email from EHR to EHR
  - Complicated and often challenging
  - Sometimes multiple direct addresses needed
  - No database of addresses

- **Health Information Exchange (HIE)**
  - MiHIN
    - Michigan Health Information Network
    - Shared network for exchanging health information statewide
Health Information Exchange in Michigan

Health Information Exchange

[Diagram showing the connections between Health Information Exchange (HIE) and various health-related entities such as patients, physicians, public health, specialty providers, insurance companies, and more.]
Health Information Exchange in Michigan

Network of Networks:

MiHIN

State-wide Shared Services

HIE QOs (Qualified sub-state HIEs)

Virtual QOs

Doctors & Community Providers

Pharmacies (more coming)

Single point of entry/exit for state

MDCH Data Hub

State LABS

Data Warehouse

MSSS

MDIIR

Costco

Walgreens

CVS

meijer

Michigan Center for Effective IT Adoption
Using HIE to help you: Identify

▲ Current Michigan HIEs
- ANTS (Administrative Network Technology Solutions)
- Great Lakes Health Connect
- Ingenium
- Jackson Community Medical Record
- MHIN (Michiana Health Information Network)
- Northern Physicians Organization
- PatientPing
- Southeastern Michigan Health Association
- Southeast Michigan HIE
- Upper Peninsula HIE

http://mihin.org/exchanges/
Using HIE to help you: \textit{Identify}

\textbf{Benefits of HIE}

- Better patient information
- Less guesswork
- Lower costs and time to find, transmit, and use information
- Improved patient safety & outcomes
- Fewer adverse events
- Automated alerts when consenting patients receive care from other providers
- Reduced unnecessary utilization
- Reduced total admissions
- Shorten time in the hospital
- Fewer duplicate diagnostic tests
Clinical Decision Support (CDS)

▲ CDS provides the health care team with knowledge and information intelligently filtered or presented at appropriate times to improve health and health care delivery.

▲ Includes, but not limited to:

- Computerized alerts and reminders for providers and patients
- Clinical guidelines
- Condition-specific order sets
- Focused patient data reports and summaries
- Documentation templates
- Diagnostic support
- Contextually relevant reference information
CDS for Prevention: Risk Factor Identification

▲ Hypertension
- Advancing Age
- Obesity
- Family History
- Race/Ethnicity
- High Sodium Diet
- Excessive Alcohol Consumption
- Smoking
- Physical Inactivity
- Personality Traits (hostility, impatience) and Depression
- Hypovitaminosis D
- Comorbidities (e.g. Diabetes and Dyslipidemia)

▲ Diabetes
- Obesity
- Family History
- Race/Ethnicity
- Birth Weight (U-shaped relationship)
- Alcohol consumption
- Smoking
- Physical Inactivity
- Short Sleep Duration Dietary Patterns
- Hypovitaminosis D
- Comorbidities (gestational DM, cardiovascular disease, PCOS, Metabolic Syndrome, depression)

Apply focused interventions for those with modifiable risk factors to prevent development of disease
CDS Alert Fatigue

▲ Over-alerting can be a barrier to effective utilization of CDS
▲ Alerts should be designed to deliver the right information at the right time – when it can be used to make a decision
  – For example, alert providers about potential medication issues only when the drug in question is about to be prescribed
Making CDS Work for You

▲ Institutional Plan
  – Starter Conversations with key stakeholders
  – Define the problem and whether or not CDS is appropriate
  – Cultural Readiness

▲ Assemble a team
  – Stakeholders/planning team
  – Champions
  – Outside help?
Making CDS Work for You

▲ CDS Development
  – Clinical Goals
  – Guidelines to be used
  – Workflow assessment
  – Hardware
  – Software

▲ CDS Deployment
  – Testing
  – Roll-Out

▲ Analyze and Improve
EHR-Specific CDS Examples

▲ EPIC Templates
  – SmartForms
  – SmartTexts

▲ NextGen
  – Protocols
  – Order Sets

▲ Cerner has order sets, protocols, and also event based alerts
  – Protocols
  – Order Sets
  – iPOC (interdisciplinary plans of care)
  – Registry-like work lists
Real World Example: Diabetes

▲ Patients with depression have higher rates of diabetes (and vice versa)

▲ Behavioral health providers used their EHR to automatically prompt diabetes screening for patients with depression (CDS)

▲ This resulted in improved rates of screening and provision of helpful interventions to patients

Gote, C and Bruce, RD. “Effectiveness of a reminder prompt to screen for diabetes in individuals with depression” Journal for Nurse Practitioners. 2014;10(7):456-464
Real World Example: Hypertension

▲ A children’s hospital implemented CDS to aid in detection of pediatric hypertension

▲ Custom CDS rule was developed to identify pediatric patients with prehypertension and hypertension

▲ Clinicians received training to reinforce proper BP measurement techniques and received automated alerts from the EHR

▲ The algorithm automatically accounted for patient height percentile and combined with age and blood pressure to determine appropriateness of blood pressure as measured

▲ Identification of hypertensive patients improved by 25%

Using Health IT tools to help you: **Identify**

▲ Use your existing EHR data to find undiagnosed and at-risk patients

- Identifying Hypertension Protocol
- Identifying Diabetes Protocol
Identifying Type 2 Diabetes by Leveraging Health IT

1. FBG \geq 126 \text{mg/dL} \text{ on 2 different days}
2. HgbA1C \geq 6.5 \text{% on 2 different days}
3. 2h Plasma Glucose (on OGTT) \geq 200 \text{mg/dL}
4. 2h PPG \geq 200 \text{mg/dL} \text{ in the presence of symptoms of diabetes}

Making the Connection

**BENEFITS:**

- Improve the identification of target populations
- Improve quality and convenience of patient care
- Improve accuracy of diagnoses and health outcomes
- Improve care coordination
- Maximize team effectiveness
- Increase practice efficiencies and cost savings
Questions?

Additional webinars in the series
Managing Hypertension and Diabetes by Mastering IT:

Engage & Monitor
Analyze & Improve

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