Leveraging Health IT to Analyze Data and Improve Hypertensive and Diabetic Outcomes

Victoria Gallaty, MSN, RN
M-CEITA / Altarum Institute
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 A2
▲ 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 **Analyze and Improve**:
   – Data Management
   – Analyzing Data
   – Models for Improvement
   – PDSA
   – PDSA Real Life Examples
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.
Health IT Patient Management Model

▲ 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:

Analyze & Improve
Analyzing Data – Data Management

▲ Effective data management is key to performance improvement

– Data collection
  ▪ Standardize sources to ensure data integrity and accuracy
  ▪ Ensure documentation is completed within the EHR for a complete patient record

– Data analysis
  ▪ taking raw data and converting into useful information for decision making

– Improve based on the results
Analyzing Data – **Start with the Basics**

▲ **All data collection must start with a Plan**
   - Why are we collecting the data?
   - Who will collect the data?
   - What data will be collected?
   - How will the data be collected?
**Why are we collecting the data?**

- Improve the identification of target populations
- Improve quality and convenience of patient care
- Increase patient participation in their care
- Improve accuracy of diagnoses and health outcomes
- Improve care coordination
- Increase practice efficiencies and cost
Who will collect the data?

▲ Identification of individuals
  – Physician, nurse, front staff, MA etc.

▲ Everyone should have a clear and concrete understanding of their role and function
What data will be collected?

- Relevant to the Goal
- Easily Accessible
- Accurate
- Reliable
- Comprehensive

Examples:

- Demographics (age, race, ethnicity)
- Smoking/Tobacco use
- Family history
- Medications
- Lab Tests
How will the data be collected?

▲ Raw Data Sources
– Patient and/or family members
– Current EHR systems
– Registries
– Health Information Exchange

▲ Manual Collection

▲ EHR extraction via Reports
– ICD 9/10
– CPT
– HCPCS
– SNOMED
– Labs/Procedures
– Medications
Analyzing Data

▲ “But what does it mean?”
  – Data Analysis is taking raw data and converting it into useful information for decision making.

▲ Examples:
  – Trending blood pressure readings
  – Identifying at-risk populations
  – Examining Diagnoses vs. Medications vs. Labs

Identify Opportunities for Improvement!
Analyzing Data – Communicate Findings

▲ Formalize data in a visual display

– Reports (Dashboards & Benchmarks)
  ▪ Practice level (if multiple locations)
  ▪ Provider performance level
– Pivot Tables, Charts & Graphs

▲ Aim presentation for the proper audience
Act on the Results…**Improve!**

▲ **Model for improvement**

- Forming the right team
- Setting Aims
- Establishing Measures
- Selecting Changes
- Testing Changes
- Implementing Changes
- Spreading Changes
Model for Improvement

▲ Forming the right team
  – All team members familiar with the different parts of the process
    ▪ Physicians, nurses, front-end staff, MA, etc.
  – Select a leader who will be responsible for the success of the project

▲ Setting Aims
  – Clear intentions
  – Time-specific and measurable
  – Define specific population of patients
Model for Improvement

▲ Establishing Measures

– Measurements for research vs measurements for process improvement
  ▪ Purpose
  ▪ Tests
  ▪ Biases
  ▪ Data
  ▪ Duration

▲ Three types of Measures

– Outcome Measures
– Process Measures
– Balancing Measures
Model for Improvement

▲ Selecting Changes
- All improvement requires change
- All changes do not lead to improvement

▲ Change concept examples
- Eliminating waste
- Improving workflow
- Optimizing inventory
- Changing the work environment
- Managing time
- Focus on variation
Model for Improvement

▲ Testing Changes
  – Reasons to test changes

▲ PDSA Cycle
  – Plan
  – Do
  – Study
  – Act

Source: [http://www.ihi.org/resources/Pages/HowtoImprove/default.aspx](http://www.ihi.org/resources/Pages/HowtoImprove/default.aspx) (Accessed on 3/26/15)
PDSA Cycle

▲ Step 1: Plan
   – Plan the test or observation
   – State the objectives of the test
   – Make predictions about what will happen and why

▲ Step 2: Do
   – Try out the test on a small scale
   – Carry out the tests
   – Document problems etc.
   – Begin analysis of data
PDSA Cycle

▲ Step 3: Study
- Complete the analysis of the data
- Compare the data to your predictions
- Summarize and reflect on findings

▲ Step 4: Act
- Refine the change, based on what was learned from the test
- Determine what modifications should be made
- Prepare a plan for the next test
PDSA Real Life Example: Plan

Hypothesis: Is there a difference between blood pressures taken immediately on arrival versus blood pressures taken after patient sits for 5 minutes with feet on floor, arm supported at heart level

▲ Who will collect the data? Medical Assistant
▲ What? Blood pressure
▲ When? Clinic days for two weeks
▲ Data Collection? Blood pressure initially taken as soon as patient arrives. A second blood pressure is then taken after patient has had the chance to sit for 5 minutes, feet on the floor, and arm supported at heart level
PDSA Real Life Example: Do

**Hypothesis:** Is there a difference between blood pressures taken immediately on arrival versus blood pressures taken after patient sits for 5 minutes with feet on floor, arm supported at heart level

▲ **Carry out the plan**

- Patient brought into the room and blood pressure immediately taken
- After 5 minutes rest with feet on floor and arm at heart level, a second blood pressure is taken
- (Issues noted with having patients still available at the 5 minute interval disrupting workflow)
PDSA Real Life Example: Study

**Hypothesis:** Is there a difference between blood pressures taken immediately on arrival versus blood pressures taken after patient sits for 5 minutes with feet on floor, arm supported at heart level

▲ **45% of patient’s blood pressure measured lower at the second blood pressure compared to the initial blood pressure**

▲ **Of those 45%, 55% of those patients were measured hypertensive at the first reading and normal at the second reading**

Mean BP initial reading: 134/83
Mean BP second reading: 125/78
PDSA Real Life Example: Act

**Hypothesis:** Is there a difference between blood pressures taken immediately on arrival versus blood pressures taken after patient sits for 5 minutes with feet on floor, arm supported at heart level

▲ Small sample size indicated clinically significant difference
  – Could mean medication vs no medication

▲ Brainstorm!
  – Larger sample/study size?
  – Inclusion of more information about patients related to BP?
  – Implementation of change in clinics may be difficult?
PDSA Real Life Example: Leveraging IT

▲ IT Brainstorming Solutions

– Manual cuffs vs Automatic cuffs with data electronically transferred in the patient record
– Implement CDS (Clinical Decision Support) that is unique to this specific patient population
– Designing workflow around patient engagement which may include self-monitoring at home
– Running reports utilizing EHR data to identify at-risk patients prior to appointment time
Model for Improvement

▲ Implementing Change
  – Testing = small scaled vs. Implementing = broader scale

▲ Spreading Change
  – Process of taking a successful implementation process and replicating the change in other parts of the organization
  – Benefits from the use of PDSA cycle
  – Change management key for successful adaptation
How Healthcare IT can help… Analyze & Improve!

▲ Creating and Updating practice policies and protocols
  – Use of Models for Improvement
  – PDSA Cycle

▲ Creating and Updating Order Sets
  – Labs
  – Procedures
  – Consults

▲ Incorporating Algorithms or Clinical Pathways for treatment

▲ Monitoring progress towards goal(s)
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:*

- Identify HTN & DM
- Engage & Monitor

CONTACT INFO:

www.mceita.org
888-MICH-EHR
mceita@altarum.org

Victoria Gallaty, MSN, RN
734-302-4690
victoria.gallaty@altarum.org