Clinical Decision Support-enabled Quality Improvement for Meaningful Use

February 20, 2013
Learning and Action Network
Welcome/Speaker Introductions

• **Lisa Gall, DNP, RN, CFNP, LHIT**
  – HIT Consultant MN/ND REACH (REC)
  – SME for Stratis Health
  – Family Nurse Practitioner

• **Jerome A. Osheroff, MD, FACP, FACMI**
  – Principal, TMIT Consulting
  – Faculty, University of Pennsylvania Health System
  – SME for ONC “CDS4MU Project”

• **Paul Kleeberg, MD, FAAFP, FHIMSS**
  – CMIO Stratis Health
  – Clinical Director MN/ND REACH (REC)
  – SME for ONC “CDS4MU Project”
Webinar Sponsors

• Stratis Health – Minnesota QIO

• North Dakota Healthcare Review Inc. – North Dakota QIO

• REACH – Regional Extension Center for Minnesota and North Dakota
Session Goals

Help You:

✓ Improve workflows, information flow
✓ Improve patient care and reduce errors
✓ Address performance incentives and mandates
✓ Make your EHR more helpful
Warm-up Questions

1. What are top clinical quality improvement targets for your facility? How do you measure progress?

2. How are you supporting patient and clinician decisions/actions to drive improvement?

3. Which approaches work well? What are the pain points?

4. How might you leverage your EHR (or other technologies) to improve efforts for these targets?
Session Agenda

• Case example: Clinical Decision Support in action
  • CDS is not what you're thinking
• Better care/information flow/workflow
  - Key concepts, tools and approaches
  - Core capabilities
  - Achieving targeted improvements
• Do it yourself (post-session exercise)
  – Applying the strategy in your facility
Leveraging CDS and the EHR to Improve Care: A Case Example

- Rural critical access hospital
- 1 main clinic – 9 providers
  - MD, NP, PA
  - FP, IM, OB/GYN
- 3 satellite clinics – 1-2 providers
- Primary care, convenience care
- EHR Implemented in 2010
Choosing a Target

Patient Needs

Minnesota: Community Measure

CMS: Meaningful Use

Third Party Payers: Pay 4 Performance

Patient: Improved Outcomes

Foundations  Building Capacity  Implementation

Vascular Disease - Blood Pressure

Rate: 47%
(* Avg: 54%)

Rate: 44%
2009 Report (2008 DOS)
(* Avg: 58%)

Rate: 63%
2011 Report (2010 DOS)
(* Avg: 67%)

Rate: 83%
2012 Report (2011 DOS)
(* Avg: 84%)
Using the EHR and Clinic Processes To Improve Care

Key clinical processes
1. Patient flow in clinic
2. Order entry
3. Documentation
4. Results review
5. Flow sheets
6. Alerts, reminders
7. Appointment scheduling
8. Clinical summaries
9. Patient education
10. Clinical references

Capacity and Capabilities
1. Preferences
2. Attitudes, skills
3. EHR capabilities
## Leveraging the EHR to Improve Care

### BP monitoring and control

<table>
<thead>
<tr>
<th><strong>Barriers</strong></th>
<th><strong>How we Met Challenge</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>BP rechecks</td>
<td>Educate nurses</td>
</tr>
<tr>
<td></td>
<td>Clinic Protocols</td>
</tr>
<tr>
<td>Stakeholder buy-in</td>
<td>Early involvement</td>
</tr>
<tr>
<td></td>
<td>Communication</td>
</tr>
<tr>
<td></td>
<td>Best Practices</td>
</tr>
<tr>
<td>Documentation inefficiency</td>
<td>HTN templates</td>
</tr>
<tr>
<td>Access to key clinical information</td>
<td>Smart clinical information</td>
</tr>
<tr>
<td>Order sets</td>
<td>Smart order sets</td>
</tr>
<tr>
<td>Flow sheets not user friendly</td>
<td>Redesign with provider input</td>
</tr>
</tbody>
</table>
A tool such as this can be mocked up in your EHR and sent with patient after visit.


Source: New York City Department of Health and Mental Hygiene (www.nyc.gov)
Leveraging the EHR to Improve Care BP monitoring and control (cont.)

<table>
<thead>
<tr>
<th>Barriers</th>
<th>How we Met Challenge</th>
</tr>
</thead>
<tbody>
<tr>
<td>Inconsistent, inefficient workflows</td>
<td>Standardize workflows</td>
</tr>
<tr>
<td>• Duplicate results</td>
<td>• Results review</td>
</tr>
<tr>
<td>Access to Home BP logs</td>
<td>Flow sheet column</td>
</tr>
<tr>
<td>Appointment scheduling</td>
<td>After visit (clinical) summary</td>
</tr>
<tr>
<td>Patient understanding, compliance</td>
<td>Verbal, printed, electronic</td>
</tr>
<tr>
<td>Clinical references</td>
<td>Provider education</td>
</tr>
<tr>
<td>Pop-up Alerts</td>
<td>VS medications</td>
</tr>
</tbody>
</table>

*Use pop-up alerts sparingly!*
Provider Challenges

- Trust
  - “Paper” favorites
- Knowledge
  - Where and how to find content
- Time

Resolutions

- Inform
  - What (resources)
  - Why (sources)
  - How to access
  - Add to favorites
- Practice
  - Electronic vs. paper
- Optimize
  - Order sets
  - Utilize staff

Available online at:
Leveraging the EHR to Improve Care: Patient Education and Engagement

• **Provider Benefits**
  – Picture is worth 1,000 words
  – Saves time, quick access
  – Up to date reliable information
  – Modifiable and easy to print

• **Patient Benefits**
  – Patient specific plan of care
  – Clinical summary
  – Patients more involved
  – Enhances follow up care
Target Measure: % of patients 18-85, BP<140/90 (MU CQM: CMS165v1)

Below is sample CDS Configuration for this target

<table>
<thead>
<tr>
<th>Who?</th>
<th>Provider; nurse; Patient/caregiver</th>
</tr>
</thead>
</table>
| What? | 1. Abnormal VS displayed in bold red letters:  
2. Key clinical data displayed on EHR face sheet  
3. Flow sheets for key clinical information, Links from main screen  
4. Smart order sets: recommended labs, diagnostics, medications  
5. Medication classes and interactions with dosing calculations  
6. Patient education: written, verbal, electronic  
7. Clinical (after visit) summary:  
8. Schedule follow up appointment  
9. HTN Documentation templates |
Any questions from the case study?
Step 1: Foundations

Improving Information Flow/Workflow/Care

- Understand key concepts, tools, and approaches
- Build capability to improve many targets
- Achieve measurable improvements
Clinical Decision Support (CDS): A Fresh Look

**Meaningful Use Definition:**

“HIT functionality that builds upon the foundation of an EHR to provide persons involved in care processes with general and person-specific, information, intelligently filtered and organized, at the appropriate times, to enhance health and health care.”

**Improving Outcomes with CDS. HIMSS. 2012:**

“A process for enhancing health-related decisions and actions with pertinent, organized clinical knowledge and patient information to improve health and healthcare delivery.”

CDS is about quality and process improvement, NOT about interrupting workflow or a MU checkbox!
Improvement Approach: “CDS Five Rights”

To improve targeted healthcare decisions and outcomes, well developed and deployed CDS interventions must provide:

- the *right information* (evidence-based, actionable…) [what]
- to the *right people* (clinicians *and* patients…) [who]
- in the *right intervention types* (answers, documentation tools, data display, alerts…) [how]
- through the *right channels* (EHR, internet, smartphones, smart pill bottles…) [where]
- at the *right points in workflow* (decision/action …) [when]
Tools in the CDS Toolkit

CDS Intervention Types ('How' Options)

• Documentation forms or templates
• Situation-specific flow sheets, dashboards
• Relevant data presentation
• Referential information
• Order sets
• Alerts and reminders
• Others
Relevant Data

- Relevant lab, age or weight display when writing orders
- Creatinine when ordering metformin
- Last filled date when renewing medications
- Suggested medication list showing generics first
- Targeted patient lists based on diagnosis
- Bed availability and tracking
Orders based on disease, procedure, problem type or function

Can be built based on best practice, convenience, common practice or a combination

Allow you to guide your users to best practice and a standard of care

Successful adoption requires user buy in

Can convert currently existing order sets or buy from a content vendor

Can link to reference info
Albuterol
(al byoo’ ter ole)

Why is this medication prescribed?
Albuterol is used to prevent and treat wheezing, difficulty breathing and chest tightness caused by lung diseases such as asthma and chronic obstructive pulmonary disease (COPD; a group of diseases that affect the lungs and airways). Albuterol is in a class of medications called bronchodilators. It works by relaxing and opening the air passages to the lungs to make breathing easier.

How should this medicine be used?
Albuterol comes as a tablet, a syrup, and an extended-release (long-acting) tablet to take by mouth. The tablets and syrup are usually taken three or four times a day. The extended-release tablets are usually taken once every 12 hours. Take albuterol at around the same times every day. Follow the directions on your prescription label carefully, and ask your doctor or pharmacist to explain any part you do not understand. Take albuterol exactly as directed. Do not take more or less of it or take it more often than prescribed by your doctor.

What side effects can this medication cause?

What storage conditions are needed for this medicine?

In case of emergency/overdose

What other information should I know?

Brand names

Other names
Alerts and Reminders

- Can be passive highlights or interruptive “pop-ups” to alert user to a problem (allergy alert), new data (lab result) or passage of time without a specified event.

- Important to strike a balance between desired outcomes and interruption of workflow.
Step 1 Summary: Understanding the Foundation of CDS

• **Broad CDS Definition:**
  - A *process* for enhancing information flow to improve decisions/actions/outcomes

• **Strategy for Success:**
  - Apply CDS Five Rights framework
  - Address benefits, challenges, driving forces

• **Robust Toolkit:**
  - Consider full set of options for who, what, when, where, how
Step 2: Building Capabilities

Improving Information Flow/Workflow/Care

- Understand key concepts, tools, and approaches
- Build capability to improve many targets
- Achieve measurable improvements
Key Capabilities Overview

• Engage key stakeholders (‘Who’ options)
• Understand/improve workflows (‘When’ options)
• Leverage EHRs/HIT (‘Where/How’ options)
• Manage CDS content (‘What’ options)
• Measure processes and outcomes
• Make decisions and manage processes systematically

A poor farmer produces weeds.
A good farmer produces crops.
A wise farmer produces soil.
~Zen saying
Stakeholder Engagement

- Do CDS with stakeholders, not to them
  - “enhancing decisions and actions with pertinent information to improve health and healthcare” is a team sport!
Governance/Management

• Determine people/processes for
  – Accountability for outcomes
  – Selecting/prioritizing targets
  – Planning and implementing new target-related information flow
  – Monitoring/enhancing results
  – Maintaining content

• Leverage staff, EHR/HIT vendor(s), REC, others
Understanding and Improving Workflow (‘When’ Options)

During Office Visit

Pre/Post Visit → Check-in, waiting → Exam Room → After Exam Room → Outside Encounters [Population Activities]
Workflow Analysis

• What are people currently doing?
  – Supposed to be doing (policy)
  – Think they’re doing (ask)
  – Actually doing (look!)

• What’s working?
  – Problematic?
  – Ripe for improvement?
Step 2: Capabilities Summary

• Engage stakeholders early and often
  – Workflow, systems, measurement, content management

• Communicate with stakeholders early and often
  – Address why, what, how, who and when

• Strive to achieve ‘METRIC’ mnemonic:
  – Measure Everything That Really Impacts Customers
    • (e.g., patients, clinicians, staff, business owners)
Step 3: Improving Targets

Improving Information Flow/Workflow/Care

- Understand key concepts, tools, and approaches
- Build capability to improve many targets
- Achieve measurable improvements
Key Steps with Stakeholders (Pt. 1)

- Select appropriate targets
  - Major benefit opportunities for patient health, provider efficiency, business strength, etc.
- Examine target-related information flow and workflow
  - CDS 5 Rights-based template
- Consider/prioritize improvement opportunities
  - Draw from full option palette
    - (Who, What, When, Where, How)
## Template: Current Processes And Enhancements

### Patient-specific, Encounter-oriented Activities

<table>
<thead>
<tr>
<th>When (workflow)</th>
<th>Pre/Post Office Visit</th>
<th>During Office Visit</th>
<th>Outside Patient-specific Encounters</th>
</tr>
</thead>
<tbody>
<tr>
<td>Activities</td>
<td></td>
<td>Check in, waiting</td>
<td>In exam room</td>
</tr>
<tr>
<td>Setting</td>
<td></td>
<td>After exam room</td>
<td></td>
</tr>
</tbody>
</table>
Sample CDS Strategy Options for HTN

<table>
<thead>
<tr>
<th>MU Target: BP Control (CMS165v1)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>When (workflow)</strong>: Pre/Post Office Visit</td>
</tr>
<tr>
<td><strong>Activities</strong>: Understand high blood pressure and its drug and non-drug treatment; take blood pressure medications and adhere to plan developed in collaboration with Provider on diet and exercise; keep appointments to monitor and manage blood pressure; document information as per plan (e.g., weight, diet/salt, exercise, etc.)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Check in, waiting</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Checking in, updating insurance and clinical information (e.g., upload patient data logs if not already done via patient portal); utilizing waiting time to familiarize patient with information about HTN/self-management, etc.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>During Office Visit</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Data gathering/history and exam (e.g., signs/symptoms of HTN complications, diet/exercise review, issues with medications), vital signs (correct method for taking BP), ordering (e.g., BP meds, testing related to meds and conditions/complications), teaching/shared decision making (e.g., around escalating medications and/or lifestyle changes for uncontrolled BP), develop/refine care plan (based on all the above)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>After exam room</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Further education (e.g., as listed under previous activities), checking out (receive summary of visit/encounters including BP measurement, meds/care plan/self-management), scheduling follow-up and consult appointments</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Outside Patient-specific Encounters</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Population based surveillance and management; e.g., information needed to optimize performance on target HTN measure above.</td>
</tr>
</tbody>
</table>

## CDS Strategy Template - with Hints

**Target Measure:**

<table>
<thead>
<tr>
<th>Patient-specific, Encounter-oriented Activities</th>
<th>Current Performance:</th>
<th>Population-oriented Activities</th>
</tr>
</thead>
</table>

### When (workflow)

<table>
<thead>
<tr>
<th>Pre/Post Office Visit</th>
<th>During Office Visit</th>
<th>Outside Patient-specific Encounters</th>
</tr>
</thead>
</table>

#### Activities

- **Understanding condition and treatment; take medications; keep appointments; document information (weight, blood sugar, food diary, etc.)**
- **Checking in, updating insurance and clinical information; utilizing waiting time to familiarize patient with conditions, etc.**
- **Data gathering/history and exam, vitals, ordering, teaching/shared decision making, care plan**
- **Further education, checking out, scheduling follow-up and consult appointments**
- **Population based surveillance and management**

#### Setting

- **Home**
- **Front office**
- **Exam room**
- **Front office, home**
- **Back office**

### Information below should be customized for each target

#### Who (people)

- **Patient, care manager, payer**
- **Patient, front desk staff**
- **MA/nurse, physician/NP, patient**
- **Patient, educators, front desk staff**
- **Patients, care managers, payers**

#### What (information)

- **Health status questionnaires, education about conditions/medications, reminders about medications/testing/follow-up**
- **Health status questionnaires, educational condition, treatments**
- **Smart documentation tools (prompts for key data), display relevant data (graph parameters, share with patient), education about medications/treatments, expert guidance on complex management/drug dosing/etc., specialist/consult communications**
- **After-visit summary, education about condition/treatments**
- **Lists of patients failing target measures**

#### Where (channels)

- **Documentation tools, reference materials, flow sheets, text messages**
- **Written materials**
- **EHR/CPOE/Results review**
- **EHR, written material, web/computer tools**
- **Registry/EHR, phone calls**

#### How (Formats)

- **Smartphone, PHR, mail, e-mail**
- **Documentation tools, reference materials**
- **Formats: documentation templates, relevant data display, reference information, smart consultation requests, order sets and order checking**
- **Format: relevant data display, reference information**
- **Relevant data display, verbal exchange**
Key Steps (Pt. 2)

- Design and implement improvements for priority targets
  - Use alerts sparingly – they are *guardrails* at best
  - Test interventions
  - Communicate, communicate, communicate

- Monitor results and continually improve
  - Is performance improving as expected?
  - Are there “unintended consequences”?
  - What enhancements need to be made?
Any questions from what was presented?
Homework

• Complete Blank CDS Template
  – Refer to examples, samples
  – Complete before next session March 20

• Consider:
  – What are your top priority quality measures (targets)?
  – What workflow processes will most likely impact your targets
  – What's working and not working?
  – How could you leverage technology to support these efforts?

• Good Luck!

Try this at home and give us feedback!
Team Contact Information

For more information regarding this presentation, please reach out to:

• Jerry Osheroff (josheroft@tmitconsulting.com)
• Paul Kleeberg (pkleeberg@stratishealth.org)
• QIO Learning and Action Network Contacts
  ➢ Jerri Hiniker – Stratis Health (jhiniker@stratishealth.org)
  ➢ Doug Kjos – ND Healthcare Review Inc. (dkjos@ndqio.sdps.org)
Thank You!

We want to hear your feedback. Please complete the short evaluation following today’s Webinar.