Optimizing Data Integrity through Validation

PCA AND HCCN CONFERENCE
NOVEMBER 15, 2016
Moderator/Speaker:
Meg Meador, MPH, C-PHI
Director, Clinical Integration and Education
National Association of Community Health Centers

Speakers:
Terry Wilcox
Manager of Special Projects
Health Center Partners of Southern California

Susan Wilson, MBA
Chief Operating Officer
Missouri Primary Care Association
& Director, Missouri Quality Improvement Network
Meg Meador joined NACHC in 2014, where she directs efforts and initiatives focused on the integration of quality improvement strategies and health information technology to improve clinical, quality, and cost outcomes. She currently serves as the NACHC lead for a national collaborative Million Hearts project focused on self-measured blood pressure monitoring, in which she works closely with CDC, YMCA, ASTHO, primary care associations, health center-controlled networks, and health centers. Previously, she served as Clinical QI Coordinator for the Health Center Network of New York, as a QI Project Manager for Blue Cross and Blue Shield of North Carolina, and as a Medical Service Corps Officer for the U.S. Army. Meg earned her BA in Human Biology from Stanford University, her Master of Public Health from the University of North Carolina-Chapel Hill, and completed a graduate certificate in Public Health Informatics from Johns Hopkins University.
Terry joined Health Quality Partners in 2003. She has over 30 years of IT experience which includes project management, system implementation, application support, and data warehouse and decision support solutions. Since joining HQP, she has been instrumental in supporting both the network and member health centers in their data analysis and quality improvement activities. Through the California Technical Assistance Program (CTAP), she provides assistance to eligible professionals to adopt and implement EHRs to attain Meaningful Use in the Medi-Cal EHR Incentive Program. In addition, she is the Privacy & Security Officer for HCP. Terry played a key role in connecting member health centers to San Diego Health Connect, San Diego’s regional HIE. She managed the onboarding activities to connect 14 clinic organizations and 5 separate EHR systems representing over 798,000 unique patient lives and approximately 2.3 million annual visits. She continues to support members with utilization of the HIE. Terry has a BS in Information Systems from San Diego State University.
Susan Wilson joined the MPCA in September 2008 as Chief Operating Officer. Prior to beginning her work at the MPCA, she gained over twenty years of hands-on health center experience during her tenure as Finance Director and then CEO at Northwest Health Services, a multi-site, multi-specialty Community Health Center (FQHC) serving northwest Missouri. She led MPCA’s creation of the Missouri Quality Improvement Network that provides data warehousing and clinical quality reporting for Missouri’s FQHCs. She is active in the National Association of Community Health Centers, immediate past chair of the NACHC Health Center Controlled Networks Task Force, and currently serves as Chair of the governing board of the Missouri Health Connection health information exchange. Susan has a BA in Business and Public Administration from the University of Missouri-Columbia and an Executive MBA from the University of Nebraska-Omaha. She was in the inaugural class of the University of California-Los Angeles and Johnson & Johnson Health Care Executive Program.
What do we Use Healthcare Data for?

Traditional Data Uses

- Research & Public Health
- Quality Reporting
- Claims
- Referrals
- Primary Care
What do we Use Healthcare Data for?

Current Data Uses

- Research & Public Health
- Primary Care/Medical Home
  - Clinical Decision Support
  - e-Referrals
  - Claims
  - Quality Reporting – EHR Universe
    - Incentive Program Requirements (MU & PCMH)
    - Value-based Care
      - Population Management
      - QI
      - HIE

Are you producing data that everyone trusts?
The Larger Health Center Dynamic

**Processes**
- Analyze Workflows/Identify Improvement Opportunities
- Design/Configure Interventions
- Measure and Benchmark
- Standardize Workflows
- Spread Successful practices

**People**
- Partner Solicitation/Selection
- Stakeholder Engagement
- Team Preparation & Training
- Transformation Culture
- QI Coaching
- Peer Learning Opportunities
- Financial Incentives

**Data & Technology**
- Population Management Data Reporting & Analytics
- Web-based Collaborative Workspace
- Other HIT Systems & Tools (EHRs, Registries, CDS, HIE)
What is Data Integrity?

Data Integrity

Accurate/Reliable

Complete

Retrievable

Verifiable
# Checklist for Validating & Analyzing Performance Measure Data

## Are the Numbers Right? (Is there Data Integrity?)

<table>
<thead>
<tr>
<th>Data Integrity Category</th>
<th>Definition</th>
<th>What to Look for</th>
</tr>
</thead>
</table>
| Verifiable              | The same result can be generated from calculating the measure or numerator/denominator using different data sources. | - Is the measure result (e.g., BP control rate) the same using your EHR management software?  
- When you do a chart sample from the reported data, do the numbers records match those reported? |
| Accurate/Reliable       | Numerators and denominators are correct, and based on the measure specifications; consistent results are generated from the same reporting tool. | Documentation Issues  
- Are data entered into proper EHR fields (e.g., are staff documented correct sequence or field vs. diastolic BP?)  
- Are EHR data fields free of text elements that could nullify data? Systolic and diastolic BP readings is entered backwards or text in the EHR, resulting in a zero value |

The Four Categories of Data Integrity

- Accurate/Reliable
- Verifiable
- Complete
- retrievable
Ask yourself:

• Is the measure result the same using your EHR registry vs. population management software?

• When you do a chart sample from the reported data, do the numbers in individual patient records match those reported?
Health Center EHRs

- NextGen
- GE Centricity
- Greenway Intergy
- eClinicalWorks
- Allscripts
- Athena

Population Health Management System/Data Warehouse

Clinical quality reports, registries, etc.

Is your Data Verifiable?
Is your Data Accurate/Reliable?

- Face Validity
- Logic
- Documentation

Accurate & Reliable
Is there a logical relationship between numerators and denominators of related measures?

Hypertension Prevalence:
\[ \frac{300}{1,000} = 30\% \]

Blood Pressure Control:
\[ \frac{182}{280} = 65\% \]

**YES!** Patients must be diagnosed for at least 6 months to be part of the blood pressure control denominator – thus, I would expect my denominator to be just a little less than my hypertension prevalence numerator.
Are rates relatively consistent over time? If not, is there a logical explanation?

Have pertinent codes (e.g., LOINC) changed or become unmapped?
Importance of Proper Documentation – Blood Pressure Example

- Start the field with the number; any additional notes should be added after the BP.
- Usage of a qualifier for sitting, standing, etc.,...before the BP MUST end with a :

<table>
<thead>
<tr>
<th>Correct</th>
<th>Incorrect</th>
</tr>
</thead>
<tbody>
<tr>
<td>sitting:106/66</td>
<td>sitting:123/77</td>
</tr>
<tr>
<td>170/95 RA manually</td>
<td>128/67</td>
</tr>
<tr>
<td>142/73, 112/70</td>
<td>131.89</td>
</tr>
<tr>
<td>149/78 Out of Bp med x 4 days</td>
<td>160/62 at 12:20 p.m.</td>
</tr>
</tbody>
</table>
FOBT/FIT tests are considered “completed” for reporting purposes based on text being in the results field. However, this logic doesn’t match the practice workflow.
Ask yourself:

• Are data consistently documented in structured fields or standardized free text?

• Are critical data elements documented in a telephone encounter or housed in another place in the EHR that can’t be queried?
Example Causes of Non-Retrievable Data

Data housed in a Telephone Encounter

Data housed in a scanned patient document
Is your Data Complete?

Ask yourself:

- Are all data elements, including any repeat or re-analysis performed, included?
- Are we asking about this data element for all patients?
- Do start dates and end dates align with measure specifications? Do a quick sort!
- Are any sites or providers missing?

Complete
Example Causes of Incomplete Data

Using non-reportable fields for the clinically relevant value

Reportable Fields

Not recording data for all patients

Non-reportable Fields

<table>
<thead>
<tr>
<th>C</th>
<th>D</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sex</td>
<td>Race</td>
</tr>
<tr>
<td>M</td>
<td></td>
</tr>
<tr>
<td>M</td>
<td></td>
</tr>
<tr>
<td>M</td>
<td>Unknown/Not Reported</td>
</tr>
<tr>
<td>F</td>
<td>Unknown/Not Reported</td>
</tr>
<tr>
<td>F</td>
<td>Declined to specify</td>
</tr>
<tr>
<td>M</td>
<td>Declined to specify</td>
</tr>
<tr>
<td>F</td>
<td>Declined to specify</td>
</tr>
</tbody>
</table>
“In God we trust . . . and all others must bring data.”

– W. Edwards Deming
Data Validation and Integrity Presentation
November 15, 2016
Integrated Health Partners of Southern California (IHP) is a network that unites community health centers for the common purpose of advancing standards of quality care, improving health outcomes and reducing costs.

- Managed Care Contracting
- Quality & Performance Improvement
- Data Informatics & Analysis

Health Quality Partners of Southern California (HQP) helps improve health outcomes by implementing progressive and collaborative programs to support community health centers caring for the safety net population.

- Program Development and Implementation
- Research and Development
- Shared Services

A nationwide group purchasing organization, CNECT leverages the collective power of its 6,000+ members to seamlessly negotiate contracts, saving members money and improving supply chain efficiencies.

- Group Purchasing Organization
- Consulting Services
- Premier Contracted Affiliate
Million Hearts HIPS Validation

- Worked closely with vendor during report development and validation
- Hypertension diagnosis appropriately mapped
- Multiple BP’s at a visit being recorded and most recent reported on
- Alerts added to identify potential HIPS patients as consideration for a HTN dx
# HIPS Alert on Morning Huddle Report

<table>
<thead>
<tr>
<th>Time</th>
<th>Provider</th>
<th>Resource</th>
<th>Type</th>
<th>Patient</th>
<th>Age</th>
<th>Sex</th>
<th>Language</th>
<th>Race</th>
<th>PCP</th>
<th>Acuity</th>
</tr>
</thead>
<tbody>
<tr>
<td>1:45 PM</td>
<td>Cantu-Reyna MD, Guillermo</td>
<td>Dr. Cantu Reyna</td>
<td>FU Urgent</td>
<td>Jarvis PAC, Kelly</td>
<td>0.45</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2:00 PM</td>
<td>Cantu-Reyna MD, Guillermo</td>
<td>Dr. Cantu Reyna</td>
<td>New Patient</td>
<td>Castilian</td>
<td>Spanish;</td>
<td>White (uds)</td>
<td>Schumaker DO, Edward W</td>
<td>0.48</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Reason: History (12 Mo.): No Shows: 0 Canceled: 0 Visits: 0 ER: 0 Admits: 0 Last Visit DR: Outstanding Referrals: 0</td>
<td>Last BMI:</td>
<td>Weight Change (6 Mo.): Last BP: Last PHQ:</td>
<td>Smoker: Framingham Risk Factor:</td>
<td>Due: Education: Diet (22), Education: Exercise (22)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2:15 PM</td>
<td>Cantu-Reyna MD, Guillermo</td>
<td>Dr. Cantu Reyna</td>
<td>ER Follow Up</td>
<td>Castilian</td>
<td>Spanish;</td>
<td>White (uds)</td>
<td>Cantu-Reyna MD, Guillermo</td>
<td>0.95</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Reason: History (12 Mo.): No Shows: 0 Canceled: 0 Visits: 0 ER: 0 Admits: 0 Last Visit DR: Cantu-Reyna MD, Guillermo Outstanding Referrals: 1</td>
<td>Last BMI: 33.65 (10/30/15) Weight Change (6 Mo.): -3.9 lbs Last BP: Last PHQ: 8 (7/6/15)</td>
<td>Last LMP: Last Mammo: Last Colon Cancer Screening: smoker: No Framingham Risk Factor:</td>
<td>Due: Education: Exercise (22)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2:45 PM</td>
<td>Cantu-Reyna MD, Guillermo</td>
<td>Dr. Cantu Reyna</td>
<td>New Patient</td>
<td>Castilian</td>
<td>Spanish;</td>
<td>White (uds)</td>
<td>Cantu-Reyna MD, Guillermo</td>
<td>0.28</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Reason: History (12 Mo.): No Shows: 0 Canceled: 2 Visits: 2 ER: 0 Admits: 0 Last Visit DR: Gonzalez, PA, Margarita Outstanding Referrals: 0</td>
<td>Weight Change (6 Mo.): Last BP: Last PHQ:</td>
<td>Last BMI: 29.34 (6/19/15) Weight Change (6 Mo.): Last BP: 131/81 (6/1/15) Last PHQ:</td>
<td>Due: Education: Diet (22), Education: Exercise (22)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
HIPS Alert added to Tool sitting on top of eCW

2+ visits in last 180 days with BP >140/90, no HTN dx
HTN Pts with BP in Control at the Network level
Blood Pressure Control by Health Center
DM Pts with HbA1c >9 or no HbA1c at the Network Level
DM Pts with HbA1c > 9 or no HbA1c by Health Center
Diabetes Patients with HbA1c > 9
Diabetes Patients with no HbA1c Test
Another Example

<table>
<thead>
<tr>
<th>Item</th>
<th>Target</th>
<th>RISE Report</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>All Value</td>
<td>All %</td>
</tr>
<tr>
<td>1. Total # of adults with diabetes aged 18-75 with 2 or more primary care visits during measurement year</td>
<td>867 100.0 %</td>
<td>3,695 100.0 %</td>
</tr>
<tr>
<td>a. Exclusions from diabetes diagnosis need to be validated</td>
<td></td>
<td></td>
</tr>
<tr>
<td>b. Patients with HbA1c test in reporting period</td>
<td>775 89.5 %</td>
<td>3,222 87.2 %</td>
</tr>
<tr>
<td>c. HbA1c &lt; 7</td>
<td>351 40.5 %</td>
<td>1,259 34.1 %</td>
</tr>
<tr>
<td>d. HbA1c &gt;=7 and &lt;=9</td>
<td>277 31.9 %</td>
<td>1,006 27.2 %</td>
</tr>
<tr>
<td>e. HbA1c &gt; 9</td>
<td>148 17.1 %</td>
<td>957 25.6 %</td>
</tr>
<tr>
<td>f. Patients missing HbA1c test</td>
<td>91 10.5 %</td>
<td>473 12.8 %</td>
</tr>
<tr>
<td>g. Patients with most recent LDL test in reporting period</td>
<td>699 80.6 %</td>
<td>2,902 78.5 %</td>
</tr>
<tr>
<td>h. LDL is &lt; 100</td>
<td>403 46.5 %</td>
<td>1,439 38.9 %</td>
</tr>
<tr>
<td>i. LDL is &gt;=100 and &lt;=130</td>
<td>179 20.6 %</td>
<td>695 24.2 %</td>
</tr>
<tr>
<td>j. LDL is &gt; 130</td>
<td>117 13.5 %</td>
<td>568 15.4 %</td>
</tr>
<tr>
<td>k. Patients missing LDL test</td>
<td>168 19.4 %</td>
<td>793 21.5 %</td>
</tr>
</tbody>
</table>
Validation a Key Role in Organization

- Data Steward working with team
- Full-time role
- Involvement in process and workflow changes
- Involvement when systems are upgraded
- Regular monitoring of data quality
- Involve staff responsible for data input
Connect:
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Missouri and Million Hearts HIPS (Hiding in Plain Sight)

Susan Wilson
November 15, 2016
Pasadena, California
Missouri Quality Improvement Network (MOQuIN)

* 29 FQHCs, multiple EHR platforms
* **Clinical Measures**
  * Uniform Data System (UDS)
  * Meaningful Use
  * Primary Care Health Home
  * Missouri Health+ (Independent Practice Association)
* We thought we were doing pretty well!
Million Hearts HIPS Experience

* Three health centers – 2 NextGen, one Intergy
* **Data Validity - Making sure any data element means the same thing to all who access it.**
* Measuring and recording hypertension
  * EHR design
  * Clinician use
  * Data aggregator assumptions
We Discovered...

- Varying degrees of data governance at FQHCs
- Variability of workflow
  - OB/GYN example
- Variability in staff capacity and ability
- Still some spreadsheets floating around!
- Variability in measure definition and logic
- SOMEONE NEEDS TO BE RESPONSIBLE!!
We Learned...

* Hypertension is complicated
  * Chronic by definition to clinicians (and NACHC/CDC), no matter where it is recorded (updated history, assessment, problem list)
  * Chronic only if on problem list to data aggregator; if recorded in other places (history, assessment, billing), not counted after first year (one-year lookback for most measures)
  * Is hypertension a permanent diagnosis, or a chronic condition that can be resolved and removed from a problem list?
We Improved…

* Blood pressure measurement techniques
* Proper recording of blood pressure
* Workflow
* Reminders and follow-up
Three Ways to Use DRVS to Work Diagnosed and Undiagnosed HTN:

1. Million Hearts Scorecard
2. Hypertension Registry
3. Visit Planning Report
Why It’s Important

* Credibility
* Opportunity beyond “the right thing to do”
  * Managed care incentives
  * Meaningful Use incentives
  * Service contracts
  * Independent Practice Association clinical integration foundation
  * Accountable Care Organization performance incentives
  * Research
**Accountable Care Organization Measures**

- *Fall Risk*
- *Depression Screening and Follow-Up*
- *Breast Cancer Screening*
- *Pneumonia Vaccination for Older Adults*
- *Statin Therapy for Prevention and Treatment of Cardiovascular Disease*
- *High Blood Pressure and Follow-Up*
- *Colorectal Cancer Screening*
Excel template with measure definition and detailed instructions.

Run the patient detail for the measure and export to Excel.

Select 10 patients (5 patients that meet the measure and have a numerator of “Yes” and 5 patients that do not meet the measure and have a numerator of “No”). For measures with Exclusions, you will also need to select 5 additional patients that have a “Yes” in the exclusion column. Copy the patient detail for these 10-15 patients into the appropriate areas of the attached Excel file.

Verify if the details in the DRVS report match with your review of the EMR and mark your findings by placing a Pass/Fail in Excel column Q. If the patient detail Fails (DRVS does not match EMR), make notes of what is missing and where this information is located within your EMR.

Report detail via secure method to MPCA and Azara.
The Health Center Data Team

- Medical Director
- Clinicians
- Clinical Support, Nurses, Medical Assistants
- Quality Improvement
- Health Information Technology
- Find the people who understand both clinical practice and data – aptitude may be more important than title
Thank You!

* Credit to: Shannon Bafaro, Quality Coach and Lead Staff on NACHC Million Hearts HIPS, and Sam Joseph, Director, Center for Health Care Quality

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  * Sam Joseph sjoseph@mo-pca.org
  * Noelle Parker nparker@mo-pca.org

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