Improving Population Health Outcomes and Public Health Practice with Data

Nedra Y. Garrett, MS
Director, Division of Informatics Practice, Policy & Coordination
Public Health Surveillance and Informatics Program Office

National Association of Health Data Organization Meeting
October 23, 2012
Overview

• Public Health Data Challenges – and Opportunities!
• Health Indicator Warehouse
• Community Health Record
• Meaningful Use of Electronic Health Record Data
Public Health Information Management Challenges

- Identifying the important questions to solve, not just document, report, and archive
- Aligning policy, standards, technology
- Using the analytics to innovate, not just inform
Monitoring Population Outcomes: Measuring population health in clinical setting
Promoting Health Outcomes with Quality Measures

Controlling High Blood Pressure (NQF 0018)

<table>
<thead>
<tr>
<th>EMeasure Name</th>
<th>Controlling High Blood Pressure</th>
<th>EMeasure Id</th>
<th>Pending</th>
</tr>
</thead>
<tbody>
<tr>
<td>Version Number</td>
<td>1</td>
<td>Set Id</td>
<td>Pending</td>
</tr>
<tr>
<td>Available Date</td>
<td>No information</td>
<td>Measurement Period</td>
<td>January 1, 20xx through December 31, 20xx</td>
</tr>
<tr>
<td>Measure Steward</td>
<td>National Committee for Quality Assurance</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Endorsed by</td>
<td>National Quality Forum</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Description</td>
<td>The percentage of patients 18-85 years of age who had a diagnosis and whose BP was adequately controlled during the measurement period</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Measure scoring</td>
<td>Proportion</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Measure type</td>
<td>Process</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rationale</td>
<td>This measure assesses the percentage of patients demonstrating systolic and diastolic blood pressure levels. Over 50 million American adults have high blood pressure, according to the NHANES survey. Financially, hypertension and associated disorders and health conditions such as coronary heart disease and congestive heart failure, cost the US $1 million billion each year. The United States Preventive Services Task Force (USPSTF) recommends that clinicians screen adults 18 and older for high blood pressure (2007). This guideline is further endorsed by research trials that have demonstrated decline in costly health outcomes related to lower blood pressure. This measure is important in promoting blood pressure control and improving quality of life.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Improvement notation</td>
<td>Higher score indicates better quality</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Measurement duration</td>
<td>12 months</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Reference</td>
<td>U.S. Preventive Services Task Force. Screening for high blood pressure. Preventive Services Task Force reaffirmation recommendation: JNC-7: Treating SBP and DBP to targets that are &lt;140/90 mmHg decrease in CVD complications.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Preventive Care and Screening Measure Pair: b. Tobacco Cessation Intervention (NQF 0028b)

<table>
<thead>
<tr>
<th>EMeasure Name</th>
<th>Preventive Care and Screening Measure Pair: b. Tobacco Cessation Intervention</th>
<th>EMeasure Id</th>
<th>Pending</th>
</tr>
</thead>
<tbody>
<tr>
<td>Version Number</td>
<td>1</td>
<td>Set Id</td>
<td>Pending</td>
</tr>
<tr>
<td>Available Date</td>
<td>No information</td>
<td>Measurement Period</td>
<td>January 1, 20xx through December 31, 20xx</td>
</tr>
<tr>
<td>Measure Steward</td>
<td>American Medical Association – Physician Consortium for Performance Improvement</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Endorsed By</td>
<td>National Quality Forum</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Description</td>
<td>Percentage of patients aged 18 years and older identified as tobacco users within the past 24 months and have been seen for at least 2 office visits, who received cessation intervention.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Measure scoring</td>
<td>Proportion</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Measure type</td>
<td>Process</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rationale</td>
<td>The USPSTF strongly recommends that clinicians screen all adults for tobacco use and provide tobacco cessation interventions for those who use tobacco products.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Clinical Recommendation Statement</td>
<td>The USPSTF strongly recommends that clinicians screen all adults for tobacco use and provide tobacco cessation interventions for those who use tobacco products. (A Recommendation) (USPSTF, 2003).</td>
<td></td>
<td></td>
</tr>
<tr>
<td>References</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Definitions</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Quality Measure Data Elements

• Aggregate data derived from certified EHR, including age, diagnosis, procedures, vital signs, social history captures population indicators for specific clinical issues

• Limited insight into what contributes to performance variation and what solutions or interventions are effective

• Multiple determinants that contribute to disease including individual biologic factors and behaviors, social, family, environment, and community characteristics
Health Indicators Warehouse: 
Managing and Promoting Population Health Data
Welcome to the Health Indicators Warehouse (HIW)

Indicators in the HIW are categorized by topic, geography, and initiative. Select your starting point for exploring indicators in the HIW.

by Topic
Each indicator in the HIW is associated with one or more topic areas, such as disease, condition, age group or sociodemographic characteristics.

Select a topic

by Geography
Most of the indicators in the HIW have national level data. Many indicators also have data available by state, county, and hospital referral regions.

Select a state

by Initiative
The HIW contains indicators derived from and in support of several state and federal health indicator initiatives.

Select an initiative

What's New

12 Oct
Release of updated data in Version 1.5.2
We have recently updated the HIW database. The HIW now has estimates for 20 indicators using 2009 mortality data and two indicators using 2008 infant mortality data. In addition, we reformatied 17 indicators from the Behavioral Risk Factor Surveillance System so that estimates of a similar type are formatted the same for all data years. (more)

30 May
Release of Version 1.5.2
In this latest release of the HIW, on May 29, 2012, we have added the ability to download not only all data for each indicator, but indicator data by state. This will reduce download time as well as simplify use of data so a user only require information for a specific geography. In addition, the structure of the Excel and CSV download file metadata has been slightly modified for ease of use. Finally, we have added an Indicator Report in PDF format listing all of the indicators

For Developers
The HIW provides access to the underlying data through the use of an Application Programming Interface (API) which is designed to present information to systems with disparate architectures and underlying technologies.

More information for developers...
HIW: Methods for stroke death rates

Stroke deaths (per 100,000)

Numerator
Number of stroke deaths (ICD-10 codes E00-E09)

Population
Number of persons

Methodology
Death due to cerebrovascular diseases, ICD-9 codes: 430-438. ICD-10 codes: E00-E09.

FOR SINGLE DATA YEARS: Rates are calculated based on the April 1 census counts for the census years (e.g., 2000) and July 1 estimates from the Vintage matching the data year for the postcensal period. For example, for rates of data year 2004, the 2004 population estimates from Vintage 2004 are used as denominator.

FOR MULTIPLE DATA YEARS: Rates are calculated based on sum of data year populations from the Vintage matching the data years. For example, for rates of data years 2004-2006 combined, the sum of 2004 population from Vintage 2004, 2005 population from Vintage 2005, and 2006 population from Vintage 2006 are used as denominator.

At the National level this indicator uses Age-Adjustment Groups:
- Ethnicity: < 1, 1-4, 5-14, 15-24, 25-34, 35-44, 45-54, 55-64, 65-74, 75-84, 85+
- Gender: < 1, 1-4, 5-14, 15-24, 25-34, 35-44, 45-54, 55-64, 65-74, 75-84, 85+
- Marital Status: < 1, 1-4, 5-14, 15-24, 25-34, 35-44, 45-54, 55-64, 65-74, 75-84, 85+
- Metro Location: < 1, 1-4, 5-14, 15-24, 25-34, 35-44, 45-54, 55-64, 65-74, 75-84, 85+
- Other: < 1, 1-4, 5-17, 18-24, 25-34, 35-44, 45-54, 55-64, 65-74, 75+
- Total: < 1, 1-4, 5-14, 15-24, 25-34, 35-44, 45-54, 55-64, 65-74, 75-84, 85+

Related Keywords
- death
- mortality
- National Vital Statistics System-Mort...
- NVSS-M
- TIA
- cardiovascular

Indicator Information
Data Source
NVSS-M (CDC, NCHS)
Initiative
CHSI
HP2020
Geographic Levels
National, State and County
Data Years
HIW: Stroke death rates map
An Emerging Model - Community Health Record:

*Turning Data into Actionable Information*
Community Health Record

- **CHR Goals**
  - Combine and transform clinical, public health, and socioeconomic data
  - Transform into actionable information
  - Visualize and Analyze outcomes, risk factors & assets for local decision making

- **Pilot objectives**
  - Identify data & information needs for **heart disease**, stroke & obesity prevention
  - Develop the local methodologies, policies & expertise to capture the Million Hearts Clinical Quality Measures & obesity measures from local Electronic Health Records
Public Health Data Challenges – What’s Right?

Six Critical Rights¹

- The right data – identify, collect, link
- Into the right information – reliable, relevant, timely
- To the right stakeholders – public, PH, clinical, business, etc.
- In the right format – CHR/visualization, PH campaign, alert
- Through the right channel – web, mobile, media, meeting, e-mail
- Available at the right time – aid local decision making

¹ Adapted from CDS five rights - Osheroff JA, et al. 2009 Improving Outcomes With Clinical Decision Support. HIMSS.
Public Health Portal

Community Health e-Atlas
Decision support for public health's winnable battles

Clinical Portal

Community Portal

Urban EcoMap SAN FRANCISCO

Working Together to Improve San Francisco's Environment
Understanding the challenge. Become part of the solution.

What's the Problem

Joe Rides His Bike to Work

Transportation
Do I need...?

Energy
Are You Part of the Solution?

Waste

What's Happening in Your Neighborhood
Use our interactive map to better understand the environmental impact of your neighborhood, before it's too late. Compare two zip codes, or simply zoom in and out. This is San Francisco; isn't it great?

Community
Join the action by giving feedback on various actions that help reduce environmental impact.

Resources

The Future – Move from Hindsight to Foresight!

Foresight
Understand the signals being generated across the healthcare system to shape the future

Predictive and Prescriptive
- Optimization algorithms
- Simulation and modeling
- Quantitative analyses
- Advanced forecasting

Insight
Use data from within the organization to drive changes here and now

Descriptive
- Role-based performance metrics
- Exceptions and alerts
- Slice and dice queries and drill downs
- Management reporting
- Enterprise data management

Hindsight
Conduct “rear-view mirror” assessments based on data generated by operations

Increasing potential, population impact
Key Considerations for Public Health

- What data are now available from EHRs to public health?
- What are the analytic needs at state and local levels?
- What are the critical questions to be answered?
- What is the impact on public health information systems?
- What public health data can be made available to providers in EHRs?
- How does public health leverage clinical decision support?
Contact Information:
Nedra Garrett
Ngarrett@cdc.gov