Meaningfully Incorporating Social Determinants into EHRs

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Agenda

- The Meaningful Use context
- Not all data are the same
- The makings of ‘good’ EHR data
- Example social determinant domain
American Recovery and Reinvestment Act (ARRA) of 2009

- HR 1 signed by President Obama Feb 17, 2009
- HITECH (Health Information Technology for Economic and Clinical Health) provisions of the Recovery Act included
  - ≈$9.7-27.4B in Medicare and Medicaid incentives
  - $2B in ONC programs
EARLY RETURNS
STAGE 1 MU
Adoption of Electronic Health Records by Physicians and Other Providers
Adoption of Electronic Health Records by Eligible Hospitals
HIT Support of Patient Care
Systematic Review

Qualifying for EHR Incentives

Meaningful Use Components

• An eligible professional or hospital shall be a ‘meaningful user’ of the EHR if:
  • Uses a ‘certified EHR’…
  • … in a ‘meaningful manner’ (including eRx)
  • … and exchanges health information to improve the quality of health care, such as promoting care coordination…
  • … and submits information on ‘clinical quality measures’
• Requirements become ‘more stringent’ over time
Principles for MU Recommendations

- Supports **new model of care** (e.g., team-based, outcomes-oriented, population management)
- Addresses **national health priorities** (e.g., NQS, prevention, Partnerships for Patients, Million Hearts)
- **Broad applicability** (since MU is a floor)
  - Provider specialties (e.g., primary care, specialty care)
  - Patient health needs
  - Areas of the country
- Address key gaps (e.g., information exchange, patient engagement, reducing disparities) in EHR functionality that the market will not drive alone, but are essential for all providers
- Not "topped out" or **not already driven by market forces**
- **Mature standards** widely adopted or could be widely adopted by 2017 (for stage 3)
Focus HIT on Health Priorities

*Meaningful Use Categories*

- Meaningful Use categories address key health goals:
  - Improve quality, safety, efficiency, & reduce disparities
  - Engage patients & their families
  - Improve care coordination
  - Improve population and public health
  - Ensure privacy and security protections
Current Social Determinants in MU

- Age
- Sex
- Gender
- Preferred language
- Race
- Ethnicity (OMB categories)
- Functional status (including ADL, cognitive, disability)
Draft Timetable for Stage 3 Recommendations and Rule Making

- Mar 2014: HITPC to approve recommendations for stage 3 to CMS and ONC
- Fall 2014: NPRM for stage 3
- 1st half 2015: Final Rule for stage 3
- Effective: 2017
Not All Data are Equal: Workflow Matters

Comparing Claims-Based Methods with EHR-Based Methods

Methods

• Randomly selected charts of Medicare patients reviewed for presence of diabetes by 3 methods
  • Gold standard chart review (to identify 125 diabetics)
  • Claims-based definitions used in CMS DOQ project (2 visits with encounter diagnosis of diabetes)
  • Query of coded information in EHR
    • Problem list, medication list, lab results (and not progress notes)
• Apply DOQ quality measures using standard definition vs. clinical definition
Results

• 98% of gold-standard diabetics identified using EHR coded data (sens=97.6%, spec=99.6%)
  • 94% identified using problem list alone
• 25% of gold-standard confirmed diabetics “missed” by administrative claims-based definition
• Statistically significant difference for 50% of diabetic performance measures when comparing those identified using administrative definition vs. those missed by administrative definition
## Results

**Performance Measure Differences in Subgroups**

Table 5 - DOQ Diabetes Measures Calculated From Expert Review Data for all Patients Identified as Having Diabetes: Comparison of Patients With Two Visits for Diabetes Vs. Patients With Zero or One Visit

<table>
<thead>
<tr>
<th>Measure (Probability, Fisher’s Exact Test)</th>
<th>Zero or One Visit For Diabetes</th>
<th>Two visits For Diabetes</th>
</tr>
</thead>
<tbody>
<tr>
<td>DM1: HbA1c Management (p&lt;.001)</td>
<td>21 (67.7%)</td>
<td>91 (96.8%)</td>
</tr>
<tr>
<td>DM2: HbA1c Management Control (measure of poor control) (p=0.27)</td>
<td>0 (0.0%)</td>
<td>6 (6.6%)</td>
</tr>
<tr>
<td>DM3: Blood Pressure Management (p=0.05)</td>
<td>14 (45.2%)</td>
<td>57 (60.6%)</td>
</tr>
<tr>
<td>DM4: Lipid Measurement (p=(0.06)</td>
<td>22 (71.0%)</td>
<td>78 (83.9%)</td>
</tr>
<tr>
<td>DM5: LDL Cholesterol Level (p=0.23)</td>
<td>21 (95.5%)</td>
<td>69 (88.5%)</td>
</tr>
<tr>
<td>DM6: Urine Protein Testing (p&lt;.001)</td>
<td>17 (54.8%)</td>
<td>80 (85.1%)</td>
</tr>
<tr>
<td>DM7: Eye Exam (p=0.03)</td>
<td>12 (41.4%)</td>
<td>55 (61.8%)</td>
</tr>
<tr>
<td>DM8: Foot Exam (p=0.13)</td>
<td>2 (7.1%)</td>
<td>15 (16.5%)</td>
</tr>
</tbody>
</table>
### Implications

<table>
<thead>
<tr>
<th>Claims-Based Measures</th>
<th>EHR-Based Measures</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Underestimates target population (denominator)</td>
<td>• Accurately identifies target population (subject to policies)</td>
</tr>
<tr>
<td>• Biased toward spuriously higher scores (self-fulfilling prophesy)</td>
<td>• More accurate, though lower scores may disincent EHR adoption</td>
</tr>
<tr>
<td>• Potential to misdirect quality-improvement efforts</td>
<td>• More accurate tool to manage clinical QI initiatives</td>
</tr>
<tr>
<td>• Subject to “gaming” (no clinical downside)</td>
<td>• Clinical record less subject to “gaming” due to clinical reuse</td>
</tr>
</tbody>
</table>

**Implications for Capturing Social Determinants?**
EHR Data Desiderata

Attributes of ‘Good’ EHR Data

• Meaningful information – to source and user
• Standard definitions
• Captured in workflow by authoritative source
EHR Data Desiderata

Meaningful Information

- Data of high value to both source and user
  - Value – drives decision making and/or efficiency of user
    - Figure of merit - # of views/reuse
  - Increases data integrity (e.g., accuracy, precision, maintenance)
  - Overcomes data entry cost to source

- Example – problem-list diagnosis
  - Valuable to source and user (often the same)
  - Drives clinical decision support, billing, documentation, information display, reporting
EHR Data Desiderata

*Standard Definitions*

- Conceptually well understood by professional
- Precise definitions for humans and machines
- Standard terminology
  - Supports use in clinical decision support
  - Supports aggregation and reporting
- Concise
  - Affects cost of entry
- Examples
  - Lab result
  - Meds
EHR Data Desiderata

*Fits Workflow of Data Source*

- “Every click counts”
- Byproduct of *valued* activity by data source
- Method of data capture is efficient and not error-prone
- Ideally, data source is also beneficiary of accurate data capture
JOURNEY OF AN EMERGING SOCIAL DETERMINANT TO THE EHR AGING OF AMERICA
WHAT DOESN’T YOUR DOCTOR KNOW ABOUT YOU (BUT SHOULD)?
Predictor of Premature Mortality?

Lonliness - Perceived Social Isolation

- National survey: seniors 60+ years old (mean 70.9 yrs), followed 6 years
  - 43.2% reported feeling lonely
    - Most are married
    - Most are not depressed
  - Adjusting for health conditions (e.g., diabetes, heart disease, lung disease)
  - 45% increased 6-year mortality
  - 2x rate of disability

Perissinotto CM, Arch Int Med online, Jun 18, 2012
Personal Profile
Assessed Against EHR Data Desiderata

• Loneliness as an example social determinant question

• Assessing against EHR data desiderata
  • Meaningful – impact on mortality and disability
  • Standards-based – HRS (3 standardized questions)
  • Captured in workflow – outsourced to patient

• PAMF working to incorporate in EHR
Summary
Capturing Important Social Determinants

• Suitability for EHR data capture is a function of:
  • Perceived value to data source and data user
  • Efficiency of data capture workflow (byproduct of valued activity)
  • Standard definitions
• To increase buy-in, impact of social determinant data must be made more visible