QI for Social Needs Interventions in Health Care

Session Objectives

- **Ned Mossman, OCHIN**
  Define a role for hospitals, clinics, and health care providers in addressing “upstream” social needs

- **Andrew Beck, Cincinnati Children’s Hospital Medical Center**
  **Rishi Manchanda, HealthBegins**
  Describe how leading organizations identify and act on social needs in order to optimize patient and population health

- **Zach Goldstein, Health Leads**
  Identify current knowledge gaps on how to best measure and enhance the efficiency, efficacy, and scalability of such services

- **Q&A and Discussion**
Why is it important to collect social needs data?

Proportional Contribution to Premature Death

- Genetic predisposition: 30%
- Social circumstances: 15%
- Environmental exposure: 5%
- Behavioral patterns: 40%
- Health care: 10%

Social Determinants of Health (SDH): 60%

McGinnis et al. The case for more active policy attention to health promotion. Health Affairs. 2002;21(2):78-93.
Conceptual Model for SDH in Primary Care


SDH are Measures of Social Complexity

Community-level
- % of community living in poverty
- % high school or college graduates
- Built environment
- Walkability of neighborhood
- Crime

Individual-level
- Household income
- Education
- Housing status
- Food security
- Social connection / isolation
Uses for Social Needs Data in Community Health Centers

1. Connecting individual patients to community resources
2. Data to provide direction for advocacy and investment
3. Segmentation of patient populations
4. Risk stratification

1. Connections to Community Resources

- Patient-Centered Medical Home as hub of medical and extra-medical care coordination (Medical Neighborhood)
- Strengthen or formalize partnerships with community resources; help build capacity
- Address upstream issues affecting patient’s health directly
### The Medical Neighborhood – Logic Model

**Assumptions**
- PCMHs function as the core of the medical neighborhood
- Health is a community issue and medical neighborhoods can impact community health
- Financial incentives may improve care coordination
- Effective use of health IT may improve flow of information across the neighborhood

**Patients and their families**
- Providers and health card systems
- Community and social service organizations
- State and local public health agencies
- Financial incentives by purchaser/payers
- Health IT
- Dedicated staff for care coordination
- Patient decision aids
- Community and social services
- Multi-payer databases

**Activities**
- Clarify respective roles and responsibilities for systems in the system
- Facilitate and enhance information flow within the neighborhood
- Develop protocols for communication and coordination of patient care across providers (i.e., care coordination agreements)
- Engage in referral behaviors that promote good neighbor behavior
- Train providers in coordination, communication, and team-based care
- Systematic care coordination activities within the PCMH
- Educate patients on PCMH and the medical neighborhood and their rights and responsibilities within it
- Promote the medical neighborhood concept through educational activities

**Outputs**
- Increased information flow among clinicians
- Improved (e.g., equitable, timely) communication between clinicians
- Improved communication between clinicians and community/social services
- More appropriate referrals
- Increased accountability in terms of who is responsible for increased patient and family engagement; shared decision making
- Increased clinician understanding of patient needs and preferences
- Increased use of public data (e.g., from multi-payer databases) to focus on population health

**Outcomes**
- Short-term
  - Improved care coordination
  - Improved patient safety
  - Improved patient experience
  - Reduced costs through reduced hospitalizations and waste
- Long-term
  - Improved clinical outcomes
  - Reduced costs through reduced hospitalizations and waste
  - Improved population health management

*Source: ahrq.gov*

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### 2. Advocacy and Demonstrating Areas of Need

- SDH represent data to identify and encourage action to address inequality and disparities in communities and beyond

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**Moving Upstream: How Interventions that Address the Social Determinants of Health can Improve Health and Reduce Disparities**

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1Department of Society, Human Development and Health, Harvard School of Public Health, Boston, MA
2Departments of African and African American Studies and Sociology, Harvard University, Cambridge, MA

Abstract

There is considerable scientific and policy interest in reducing socioeconomic and racial/ethnic disparities in healthcare and health status. Currently, much of the policy focus around reducing health disparities has been geared towards improving access, coverage, quality and the intensity of healthcare. However, health is more a function of lifefactors linked to income and workforce.
3. Segmenting Patient Populations

Direct resources to targeted, high-leverage activities in patient subpopulations

IllustrationCourtesy of Oregon Primary Care Association

4. Risk Stratification

• Use SDH as measures to stratify patients by social complexity
• Allow comparisons between patients, panels, and populations
• May be used as basis for differential reimbursement
OCHIN: Health-Center Controlled Network With a National Footprint

OCHIN and its partners have one of the largest data sets on the safety net in the Nation

<table>
<thead>
<tr>
<th></th>
<th>OCHIN Epic (Active)</th>
<th>ADVANCE (Active)</th>
<th>Acuere (Active)</th>
<th>All Patients (active and inactive)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of Unique Patients</td>
<td>1.71 Million</td>
<td>2.79 Million</td>
<td>3.1 Million</td>
<td>6.5 Million</td>
</tr>
<tr>
<td>% Female</td>
<td>57%</td>
<td>57%</td>
<td>56%</td>
<td>54%</td>
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<tr>
<td>Race</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>White</td>
<td>70%</td>
<td>67%</td>
<td>66%</td>
<td>57%</td>
</tr>
<tr>
<td>Black</td>
<td>15%</td>
<td>19%</td>
<td>17%</td>
<td>13%</td>
</tr>
<tr>
<td>Asian</td>
<td>4%</td>
<td>3%</td>
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<tr>
<td>American Indian/Alaska Native</td>
<td>1%</td>
<td>1%</td>
<td>1%</td>
<td>1%</td>
</tr>
<tr>
<td>Not Collected/Unknown</td>
<td>9%</td>
<td>8%</td>
<td>8%</td>
<td>12%</td>
</tr>
<tr>
<td>Spanish as Primary Language</td>
<td>21%</td>
<td>20%</td>
<td>17%</td>
<td>14%</td>
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<tr>
<td>At or Below 100% of FPL</td>
<td>48%</td>
<td>51%</td>
<td>50%</td>
<td>53%</td>
</tr>
<tr>
<td>Federally Insured</td>
<td>57%</td>
<td>45%</td>
<td>~52%</td>
<td>n/a</td>
</tr>
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</table>
OCHIN’s Role in Health Center Social Needs Efforts

- As a Health-Center Controlled Network, OCHIN’s role is to support the use of data for these purposes
  - Provide means to collect patient-level data in the EHR
  - Provide geo-coded community-level data based on patient locations automatically

- Piloting programs at patient and population level to test, iterate, and scale these uses of the data

Patient-Level EHR Social Needs Tools

Data collected into (1) SDH data flowsheet via multiple input options...

- Paper form, hand-entered
- Front desk / rooming staff enters data into EHR
- Patient Portal (pre-visit or at visit)

(2) SDH data summarization

- SDH Summary navigator section
- SDH Synopsis

(3) Act on SDH

- AVS & other patient information
- SDH referrals preference list

Provide patient information
Link to orders
Track prior referrals
Population Health Tools - Community Vital Signs

Acuere Population Health Management Tool
CVS Examples available at Census Tract and Zip Code level

Median Household Income: 53793
# with Bachelor’s Degree or Higher: 672
# of persons in managerial, professional, or executive occupations: 342
% with Bachelor’s Degree or Higher: 16.25
% of persons in managerial, professional, or executive occupations: 12.83
% Below 100% of Federal Poverty Level: 16.42
% Below 200% of Federal Poverty Level: 30.12
Unemployment Rate (2012): 16.35
Modified Retail Food Environment Index: 8.7
Urban Classification Code: Metro - 1 million population or more
USDA Low Food Access (1/2 mile urban/10 miles rural): true
USDA Low Food Access II (1 mile urban/20 miles rural): false
Population Density per Square Mile: 3154.0669656

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QI for Social Needs Interventions in Health Care: The Cincinnati Experience

Andrew F. Beck, MD MPH
IHI National Forum
December 6, 2016

Outline

• Using QI to develop and optimize community partnerships around social needs
• Development of institutional goals around population health improvement
  • Example of using QI to reduce inpatient bed-days in one high risk neighborhood
What Many Patients Experience

- Unemployment; lack of high school degree; ex-offender reentry issues
- Overwhelmed new parents; lack of parenting role models
- Domestic violence; mental health issues; inadequate education services
- Food insecurity; benefits issues; utility shut offs; poor housing

Maslow’s Hierarchy of Needs

- Physiologic
- Safety
- Belonging
- Esteem & Respect
- Achieving potential

How We Respond

Cincinnati Child Health-Law Partnership

- MLP between Cincinnati Children’s three primary care centers and Legal Aid Society of Greater Cincinnati
  - In-clinic office staffed by attorneys and paralegals 5 days/week
- Assists clients with housing concerns, benefit denials/delays, etc.
- Interdisciplinary child advocacy training teaches residents to screen, identify and refer
  - Monthly didactics and experiential learning

www.cincinnatichildrens.org/childhelp
Process

Screening in EHR

Provider discuss case with legal advocate and connects family

Legal advocate provides appropriate service

Tracking progress

Trends in referral reason

Handoff success
Results to date

• Since August 2008:
  • Referred over ~5,000 patient-families
  • Recovered >$300,000 in back public benefits
  • Trained 450+ residents and social workers

• Informed development of other partnerships
  • Foodbank around food insecurity
  • Health Department around housing code violations

• Illustrated how important partnerships are to population health improvement

Developing goals around population health improvement:
The Avondale Neighborhood Experience
Neighborhood Average Annual Inpatient Days, 2012-2014, per 1,000 population ages 0-18, Hamilton County (Excludes patients whose address is at JFS)

Bed-day rate = \frac{\# \text{ inpatient days}}{\# \text{ children}}

- "Avondale Officer of the Day"
- Condition-based epidemiology guiding outreach and testing
- Focus on higher risk patients and temporarily high risk patients
- Enhance community connectedness by focusing on social determinants

**KEY DRIVERS**

1. "Keep kids healthy" (Preservation of Health - Chronic and Acute Diseases)
2. "Kids don't fall through the cracks" (Proactive and Reactive Health System)
3. Community / Family Activation
4. Empathy and understanding of family needs and views
5. Learning from Failure
6. Appropriate inpatient utilization (LOS and admissions)
7. Mitigating social determinants of health

**SMART AIM**

For General Pediatrics patients in Avondale, sustain the inpatient bed day rate of 98.6 per 1000 by 6/30/17

**GLOBAL AIM**

Make Cincinnati’s children the healthiest in the nation
Housing and Health

- Overlaying health and housing data spurs pattern recognition
  - Cincinnati Child Health Law Partnership (Child HeLP)

Healthcare data alone

Housing data alone

Merged data

44 children (25% asthma)

45 children (36% asthma)

33 children (24% asthma)

Modified run-chart to track progress
Conclusions

• QI methods can be used to optimize, evaluate, and disseminate:
  • Community partnerships focused on social needs
  • Population health programs

• Social needs can be platform for health promotion and cross-agency collaboration

• Data sharing can illuminate potential areas amenable to action and partnership
1) **Get Ready**
Assess the maturity of your clinic processes & environment to address social determinants of health (Self-Assessment)

2) **Get Set**
Engage colleagues, key stakeholders, and community partners to plan (Staff & stakeholders)

3) **Go Upstream**
Launch targeted campaigns using ‘Upstream Quality Improvement’ (Systems/Process Design)

Implement robust tools/best practices to address patients’ social needs & connect to resources (Solutions)

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**Example: Upstream QI project**
“FoodRx: A campaign to reduce hospital admissions among our patients”

- **Improve Screening of Food Insecurity** among diabetics by 30% within 6 months
- **Improve Provider Confidence** to address Food Insecurity by 30% within 6 months
- **Reduce Hospital admissions** among food-insecure patients by 30% within 18 months
### Upstream QI matrix

**Example: Diabetes & Food Insecurity**

<table>
<thead>
<tr>
<th></th>
<th>Patient/Team Level</th>
<th>Health Care Organization Population-Level</th>
<th>General Population-Level</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Primary Prevention</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Financial literacy, support, &amp; nutrition programs for low-income families with strong family history of DM</td>
<td>Provide on-site Farmers’ Market, gym, walking trails, or financial counseling for families at risk for DM</td>
<td>Advocate for local increase in minimum wage and supports for low-income families, particularly those at risk of DM</td>
<td></td>
</tr>
<tr>
<td><strong>Secondary Prevention</strong></td>
<td>Poverty screening &amp; financial assistance for DM patients at-risk of end-of-month hypoglycemia</td>
<td>Subsidize vouchers to local Farmer’s Market or hire a financial counselor for low-income DM patients</td>
<td>Change timing and content WIC &amp; school food programs to avoid food insecurity among DM</td>
</tr>
<tr>
<td><strong>Tertiary Prevention</strong></td>
<td>Reduce hospital use among high-utilizer severe diabetics using food and income support</td>
<td>Coordinate with local banks, collectors, lenders, to reduce debt burden for utilizer diabetics</td>
<td>Support legislation/regulations to provide financial and “hotspotter” services to severe diabetics</td>
</tr>
</tbody>
</table>

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### Upstream QI Workflow for Mr. M

<table>
<thead>
<tr>
<th>Upstream QI Workflow for Mr. M</th>
<th>Care Team Member</th>
<th>Role/Process</th>
<th>Tools/Data Source</th>
<th>Metric</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Food insecurity</strong></td>
<td>Upstream QI committee</td>
<td>Project Team oversees &amp; tracks PDSAs</td>
<td>“Upstream Project Canvas”</td>
<td># QI team participation &amp; PDSAs</td>
</tr>
<tr>
<td><strong>Screen</strong></td>
<td>Medical Assistant</td>
<td>Ask during vitals of diabetics</td>
<td>2-item food insecurity screener</td>
<td>% screened</td>
</tr>
<tr>
<td><strong>Triage</strong></td>
<td>Medical Assistant</td>
<td>Flag in EMR</td>
<td>Triage Protocol</td>
<td>% positive flagged</td>
</tr>
<tr>
<td><strong>Exam</strong></td>
<td>PCP</td>
<td>Adjust / create treatment plan</td>
<td>EMR care plan</td>
<td>% plans updated</td>
</tr>
<tr>
<td><strong>Chart/Code</strong></td>
<td>Medical Assistant</td>
<td>Scribe, standing order to refer to SW</td>
<td>EMR</td>
<td>% internal referrals</td>
</tr>
<tr>
<td><strong>Refer</strong></td>
<td>Social Worker or RN</td>
<td>Assess / Food bank referral</td>
<td>Resource database (e.g. Healthify)</td>
<td>% referred</td>
</tr>
<tr>
<td><strong>Follow-up</strong></td>
<td>Social Worker or RN</td>
<td>Q1month or more check-in based on risk</td>
<td>EMR CRM (e.g. Healthify)</td>
<td>% decrease in food insecurity &amp; utilization</td>
</tr>
</tbody>
</table>
A Hospital based ‘Food Pharmacy’

Proof of concept: ‘Moving upstream’ to the worksite to identify upstream risks

- Biometrics nationally
  - Across the US, half of large employers either offer employees the opportunity or require them to complete biometric screening.

- Biometrics screenings completed 2016
  - California Central Valley employees screened: 87%

- Biological Risk identified
  - Medium to high risk identified: 22% with at least one risk
    - Diabetes 11%

- Social risk identified
  - 4 questions -> Financial, Food and Housing Insecurity
  - At least one social risk identified: 31%
  - Those with identified biological and social risk: 8-11%
Our approach to ending diabetes and creating a culture of health & wellness

**Engagement**
- Clinics
- Worksite
- Community
- Home
- Media

**Education**
- Wellness Seminars
- Worksite communication

**Skill Mastery**
- Diabetes Self-Management Skills

**Environment**
- La Cocina/ Halos Café
- Check your Health Station
- Kitchen Audit
- Farmer’s Market
- Schools
- Parks
- Community
- Vouchers
- Social Resources

**Biomarkers**
- Hba1c
- Lipids
- BP
- BMI

**Psychological**
- PHQ-2 & 9
- Provider Joy

**Social**
- Food, Financial & Housing Security
- Social Support

**Treatment & Prevent**
- Risk Screening
- Medications
- Exercise Rx
- Food Rx
- Mental Health
- Physical Therapy
- Social Care
- Referrals

**Population Health Status**
- Lower Costs
- More Equity

**Quality of life**

**Wellness**
- Environment
- Biomarkers
- Psychological
- Social

**Activate**

**Build capability**

**Behavior Change**

**Clinical Improvement**

**Wellness**

Quality Improvement for Social Needs Interventions

Zach Goldstein
Principal, Innovation
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December 2016
How many people...

Are you currently addressing social needs (or planning to address) in your healthcare system?

Are you collecting data in your EHR on social needs screenings and interventions?

Are you using formal QI methods or PDSA cycles to improve your social needs screenings and interventions?

Big Scale is Coming Soon...

CMS Accountable Health Communities
44 orgs x ~75,000 patients = \(\sim 3.3M\) patients screened annually

CMS Comprehensive Primary Care Plus
2,500 practices x 5,000+ patients = \(12.5M+\) patients screened annually

Health Leads Partners
167 hospitals with \(18M\) patients screened annually

~30M patients screened annually
Big Scale is Coming Soon...

~30M patients screened annually

~15M identify at least one social need annually

~10M patients request help annually

Typical HL site:
30-70% of patients screen positive

Typical HL site:
40-90% of patients request help

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Social Needs QI Challenges

What are the social needs of my patients?

How do we know if we are addressing those needs?

What impact can we have by addressing these needs?

Is our program efficient and scalable?

Challenge #1: Screening Patients

Many ways to screen for financial resource strain:

Please indicate how often this describes you: I don’t have enough money to pay my bills.

☐ Always  ☐ Often  ☐ Sometimes  ☐ Rarely  ☐ Never

In the last 12 months, was there a time when you needed to see a doctor but could not because of cost?

☐ Yes  ☐ No  ☐ Don’t Know

What is your annual household income?

$______________
Challenge #2: Measuring Success

Did our social needs intervention successfully resolve a patient’s food insecurity?

Scenario 1:
Healthcare system provided an information sheet listing nearby food pantries.

Scenario 2:
The food pantry notified the healthcare system that the patient came to visit.

Scenario 3:
The patient told the healthcare system they received food 6 months later patient is still food secure.

Challenge #3: Measuring Impact

How long do effects last?

- No show rates
- ED utilization
- Blood pressure, HbA1c, LDL, BMI
- Total cost of care
- Patient well-being and activation
- Patient and staff NPS
Challenge #4: Cost & Scalability

Tradeoff between cost, volume, and outcomes:

**Success rate* in connecting to resources**

<table>
<thead>
<tr>
<th>Intervention Type</th>
<th>Success Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Light Intervention</td>
<td>15%</td>
</tr>
<tr>
<td>Rapid resource, no follow up</td>
<td></td>
</tr>
<tr>
<td>Deep Intervention</td>
<td>83%</td>
</tr>
<tr>
<td>Follow up every 10 days</td>
<td></td>
</tr>
</tbody>
</table>

* Success rate includes successful and equipped connections; preliminary data

Social Needs QI Challenges

- What are the social needs of my patients?
- How do we know if we are addressing those needs?
- What impact can we have by addressing these needs?
- Is our program efficient and scalable?

Share more findings!
- Faster learning & improvement

Clear, shared definitions enable:
- Better understanding of impact
- Comparison of interventions

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Discussion

1. What methods are you using to do QI for social needs?

2. How might we establish standards for data collection around social needs?

3. What could you or your organization do tomorrow to incorporate social needs assessment (and action) into day-to-day activities?

Other questions? Comments?

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