Moving Healthcare Upstream: Using Quality Improvement to Improve Social Determinants of Health and Clinical Care

Rishi Manchanda MD MPH

@RishiManchanda
Social determinants of health, like food insecurity, impact the Triple Aim

**Food insecurity**

“a household-level economic and social condition of limited or uncertain access to adequate food”

Hunger is an individual-level physiological condition that may result from food insecurity.

One in seven Americans cannot reliably afford food

USDA definition
Costs

Among low-income diabetics, food insecurity linked to 27% increase in hospital admissions at end-of-month vs beginning of month.
Poor Outcomes

17 million Food insecure children

91% more likely to be in fair or poor health

31% more likely to require hospitalization

Quality of Care

90% of patients report higher satisfaction if unmet social needs are addressed

2013 Market Research, Healthify.us
“Why did none of my doctors ask about my home before?”
Health Care
Individual Level Disease Research & Intervention

Integration?

Public Health
SDOH research & intervention
“The best bathroom on the block”

business model
US has a lopsided health: social services ratio.
Social Determinants of Health:
Most physicians believe addressing patients’ social needs is as important as dealing with medical conditions

Total:
- Strongly disagree: 3%
- Somewhat disagree: 12%
- Somewhat agree: 52%
- Strongly agree: 33%

PCPs:
- Strongly disagree: 4%
- Somewhat disagree: 12%
- Somewhat agree: 52%
- Strongly agree: 32%

Pediatricians:
- Strongly disagree: 3%
- Somewhat disagree: 10%
- Somewhat agree: 50%
- Strongly agree: 37%

Agree: 85%

U.S. doctors equipped to address patients' social needs

Robert Wood Johnson Foundation
“Health Care’s Blind Side” December 2011
Quality Improvement in healthcare

• Late 1990s: Shift from QA to QI
  Measuring mistakes → process redesign
  • Rapid assessment, dynamic implementation, & simpler techniques to measure progress in closing quality gaps

• Less academic, more results-oriented and ‘lean’

• Core idea = maximize patient “value” while minimizing waste

Volume-based, biomedical views have limited sphere of influence for QI

Where do we focus?

Here?

Here?

Or here?
How many healthcare Plan-Do-Study-Act cycles (PDSAs) address social factors?
‘Social determinants! We’re barely keeping our head above water. We don’t have the time or resources to address social determinants!’

- Anxious doctor
Not integrating social determinants in healthcare already costs us too much

- Preventable illness & health disparities
- Less effective interventions
- Patient distrust
- Poor workforce recruitment & retention
- Wasteful spending

In 2009, 5% of the population accounted for nearly 50% of overall US health care spending.

Figure 1. Concentration of health care expenditures, U.S. civilian noninstitutionalized population, 2009

The social determinants are coming...
e.g. NCQA’s PCMH 2014 standards

1. Health Literacy Assessments
2. Behavioral health conditions
3. High cost/high utilization
4. Poorly controlled or complex conditions
5. Barriers to Self Care
6. Social determinants of health
7. Community Resource lists
8. Referrals by outside organizations, practice staff or patient/family/caregiver
PCMH 2014 Upstream-related updates

PCMH 3: Population Health Management

Element 3C: Comprehensive Health Assessment
  • NEW: Health literacy assessment

Element 3D: Use Data for Population Management
PCMH 2014 Upstream-related updates
PCMH 4: Care Management and Support
• 4A: Identify Patients for Care Management

Includes consideration of:

1. Behavioral health conditions
2. High cost/high utilization
3. Poorly controlled or complex conditions
4. Social determinants of health
5. Referrals by outside organizations, practice staff or patient/family/caregiver
6. The practice monitors the percentage of the total patient population identified through its process and criteria.
PCMH 2014 Upstream-related updates

PCMH 4: Care Management and Support

• 4B: Care Planning and Self-Care Support
  Expanded to include caregivers and evaluate collaboration to develop and update individualized care plans.

1. Incorporates patient preferences and functional/lifestyle goals
2. Identifies treatment goals
3. **Assesses and addresses potential barriers to meeting goals**
4. Includes a self-management plan
PCMH 2014 Upstream-related updates

PCMH 4: Care Management and Support

• **4E:** Support Self-Care and Shared Decision Making

5. Offers or refers patients to structured health education programs such as group classes and peer support

6. **Maintains a current resource list** on five topics or key community service areas of importance to the patient population including services offered outside the practice and its affiliates

7. **Assesses usefulness of identified community resources.**
PCMH 2014 Upstream-related updates

PCMH 5: Coordination and Care Transitions

5B Referral Tracking and Follow-Up

3. Maintains agreements with behavioral healthcare providers

4. Integrates behavioral healthcare providers within the practice site

5C: Coordinate Care Transitions

6. Obtains proper consent for release of information and has a process for secure exchange of information and for coordination of care with community partners
How do we move to the NEW way while getting paid for the OLD way?
Upstreamists optimize value and happiness by systematically improving the ability of clinics to address upstream problems.
A workforce model for US healthcare by 2020

By 2020,
- 25,000 Upstreamist
- 260,000 Comprehensivist
- 450,000 Partialist

Population-level Impact of healthcare
Mobilize
An online network - over 1200 members & growing

Equip
Upstream Quality Improvement & Practice Redesign
Community Health Detailing Campaigns

Design
Identify Tools and Create Opportunities
With partners: Providers, Payers, AMCs, Clinics, Health Tech
<table>
<thead>
<tr>
<th><strong>Our Team</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Doctors</strong></td>
</tr>
<tr>
<td>who have dedicated their careers to helping those in need</td>
</tr>
<tr>
<td><strong>Educators</strong></td>
</tr>
<tr>
<td>who have tripled clinicians’ ability to tackle social determinants of health</td>
</tr>
<tr>
<td><strong>Innovators</strong></td>
</tr>
<tr>
<td>who have leveraged technology and community power to solve big problems at the intersection of health care &amp; social determinants</td>
</tr>
<tr>
<td><strong>Do-Gooders</strong></td>
</tr>
<tr>
<td>who love coffee almost as much as we love our families and making the world better</td>
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Clinical opportunities to leverage upstream interventions and achieve the Triple Aim

- **Community-Centered Health Home**
  - Clinic, public health, policy and community stakeholders coordinate to address upstream social and environmental conditions. **Upstream Rx** → Engage clinic staff and patients in data-driven advocacy

- **Accountable Care Organizations (ACOs)/Medical Neighborhood**
  - Clinical “neighbors” share costs and/or savings to coordinate care for a population. **Upstream Rx** → Include social service providers in ACOs.

- **Patient-Centered Medical Home (PCMH)**
  - Clinic primary care redesign to improve access, continuity, and coordination. **Upstream Rx** → Use QI framework to integrate upstream data and interventions in redesign

- **Ambulatory Intensive Caring Unit (AICU)**
  - Intensive multidisciplinary outpatient care management for complex, high-utilizer patients. **Upstream Rx** → Use QI framework to integrate upstream data and interventions in redesign
PDSAs & QI Tools can and should be repurposed to address upstream problems

• Some tools are useful in planning stage
  • **Upstreamist Project Canvas**
  • Process mapping
  • Pareto
  • Cause and effect diagrams
• Others help you implement QI project
  • Check lists
• Others help you study the impact of your QI project
  • Run charts
An ‘Upstreamist Project Canvas’ to develop Upstream QI solutions

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<tr>
<th>POPULATION</th>
<th>PROBLEM</th>
<th>UPSTREAM VALUE PROPOSITION (UVP)</th>
<th>UPSTREAM QI SOLUTION</th>
<th>KEY PARTNERS</th>
<th>KEY METRICS</th>
<th>TEAM</th>
<th>FINANCING: Estimate Annual Cost/Benefits</th>
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<td>Identify your target population</td>
<td>List the problems facing your target population. Then identify an Addressable upstream cause</td>
<td>A single clear compelling upstream-aligned message that turns an unaware person into an interested stakeholder.</td>
<td>Outline a clinically-integrated, QI-based solution for the addressable upstream cause</td>
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<td>Reflect on Clinic and Community interests</td>
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<td>Is an economic and/or business case helpful?</td>
<td>How will the clinic help?</td>
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<td>Whose needs are you not meeting to achieve the Triple Aim?</td>
<td>List upstream causes: Proximate; Underlying; Principal; Addressable;</td>
<td>MAKE YOUR UVP SMART</td>
<td></td>
<td>Does it have major potential? Is it feasible?</td>
<td>How will you reach the target population?</td>
<td></td>
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<tr>
<td>EARLY ADOPTERS</td>
<td>EXISTING ALTERNATIVES</td>
<td>A single sentence that turns UVP into a SMART objective</td>
<td></td>
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<td>Split broad population segments into smaller ones to hone in on target group. Review “Bridges to Health” approach.</td>
<td>How is the health problem currently addressed? How is the addressable upstream cause of that problem currently addressed by and for patients?</td>
<td>Specific – Measurable – Achievable – Relevant – Time-dated –</td>
<td></td>
<td></td>
<td>Clinic</td>
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<td>What do they do? What do they prefer? Where do they live, work, eat, learn or play?</td>
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<td>Community</td>
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<td>GOOB</td>
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<td>Within healthcare system? Within community-based organization(s)? What motivates each team member and what type of power can they leverage?</td>
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FINANCING:
A) Estimate Total Annual Project Costs (Fixed & Variable)
B) Estimate multi-level benefits of SMART objective (Step 4) in terms of a) costs avoided; b) added revenue; c) value created.
C) List funding sources. Consider Net Costs, Benefits, and Breakeven Point
Framework for Upstream QI Projects

1. Identify Areas for Improvement in Patient Population
2. Team formation
3. Set Team Goals
4. Analyze Current State & define Problems
5. Root Cause Analysis
6. Upstream Solution Quality Improvement Plan
7. Implementation
8. Evaluation & Monitoring
9. Scale
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5. **Root Cause Analysis**
6. Upstream Quality Improvement Plan
7. Implementation
8. Evaluation & Monitoring
9. Scale
Changing Perspective on Root Cause Analysis

Upstreamist

Comprehensivist

Partialist
<table>
<thead>
<tr>
<th>Problem</th>
<th>Frequent ER visits due to migraines and URIs</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Proximate Cause</strong></td>
<td>Viral Infection,</td>
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<tr>
<td><strong>Underlying Cause</strong></td>
<td>Chronic Sinus Congestion, stress, lack of sleep</td>
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<tr>
<td><strong>Underlying Cause of Underlying Cause (Principal)</strong></td>
<td>Allergen exposures in damp, moldy, roach-filled apartment</td>
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<tr>
<td><strong>Root Cause</strong></td>
<td>Landlord fails to fix water leaks or improve ventilation</td>
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<tr>
<td><strong>Secondary Cause</strong></td>
<td>Outdoor air pollution</td>
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<tr>
<td><strong>Addressable Cause</strong></td>
<td>Damp, moldy housing</td>
</tr>
<tr>
<td><strong>Non-Addressable Cause</strong></td>
<td>Air pollution</td>
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</tbody>
</table>
Example: Improving diabetes and food insecurity

- Improve Screening of Food Insecurity by 30% within 1 year
- Improve Provider Confidence and Patient Satisfaction by 30% within 12 months
- Improve Outcomes for Food-Insecure diabetic patients by 30% within 12 months
Social Screening Tools

- Actionable data?
- Paper, iPad, and/or EMR-based
- Self-reported vs staff-assisted
- Evidence basis?
- Data sharing and tracking
- Frequency/setting
- Workforce & workflow
<table>
<thead>
<tr>
<th>UPSTREAM TOOLS</th>
<th>Screen</th>
<th>Find Resource</th>
<th>Referral Manage</th>
<th>EMR Integration</th>
<th>Community/Patient Participation</th>
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<td><strong>SAAS</strong></td>
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<td>• Healthify</td>
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<td>• Health Leads</td>
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<td>• Help Steps</td>
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<td>• Purple Binder</td>
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<td>• Aunt Bertha/OneDegree</td>
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<tr>
<td>• Community Detailing- HB</td>
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<td>• HealtheRX</td>
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<td><strong>Enterprise - Built</strong></td>
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<td><strong>County / Other</strong></td>
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HealthBegins developed a composite social screening tool based on IOM recommendations.

- Modular...Food, Childcare, Education, Social Isolation.
- Long Form and Short Form
- Scoring System
- Adaptable
- Available on Request
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Social Determinants are coming to EMRs: IOM Phase 1 Recommendations

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<tr>
<th>Individual Factors</th>
<th>Psychological</th>
<th>Behavioral</th>
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<tbody>
<tr>
<td>Sociodemographic</td>
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<td>Sexual orientation</td>
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<tr>
<td>Race/ethnicity</td>
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<tr>
<td>Country of origin/U.S. born or non-U.S. born</td>
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<td>Education</td>
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<tr>
<td>Employment</td>
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<td>Financial resource strain: Food and housing insecurity</td>
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<td>Health literacy</td>
<td></td>
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<tr>
<td>Stress</td>
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<td>Negative mood and affect: Depression and anxiety</td>
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<td>Psychological assets: Conscientiousness, patient engagement/activation, optimism, and self efficacy</td>
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<tr>
<td>Dietary patterns</td>
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<td>Physical activity</td>
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<td>Nicotine use and exposure</td>
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<td>Alcohol use</td>
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<table>
<thead>
<tr>
<th>Individual-Level Social Relationships and Living Conditions</th>
<th>Neighborhoods/Communities</th>
</tr>
</thead>
<tbody>
<tr>
<td>Social connections and social isolation</td>
<td>Geocodable domains: Socioeconomic and race/ethnic characteristics</td>
</tr>
<tr>
<td>Exposure to violence</td>
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<tr>
<th><strong>Primary Prevention</strong></th>
<th><strong>Patient-Level</strong></th>
<th><strong>Health Care Organization Population-Level</strong></th>
<th><strong>General Population-Level</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Prevent the onset of disease or injury by reducing an <strong>upstream risk</strong> - via changing risky exposures, behaviors, or by enhancing resistance to the effects of unhealthy exposure</td>
<td>How can my clinic detect and reduce an upstream risk among at-risk patients in order to prevent the onset of disease for individual patients? What tools and referrals do we use for these patients?</td>
<td>How can my clinic prevent the onset of disease for at-risk patients with an approach that leverages internal resources to reduce an upstream risk factor for a clinic population?</td>
<td>How can my clinic system support policy or regulatory changes to reduce upstream risk factors for an at-risk population or community?</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Secondary Prevention</strong></th>
<th><strong>Patient-Level</strong></th>
<th><strong>Health Care Organization Population-Level</strong></th>
<th><strong>General Population-Level</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Halt or slow the progress of disease and/or upstream problem in its earliest stages, via procedures that detect and treat pre-clinical pathology</td>
<td>How can my clinic detect and reduce an upstream risk among patients with early stage disease? What screening tools and referrals do we use for these patients?</td>
<td>How can my clinic system use and leverage internal resources to halt or soften the impact of upstream problems for patients with early stage disease?</td>
<td>How can my clinic system support policy or program changes to halt or soften the impact of upstream problems for patients with early stage disease?</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Tertiary Prevention</strong></th>
<th><strong>Patient-Level</strong></th>
<th><strong>Health Care Organization Population-Level</strong></th>
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</tr>
</thead>
<tbody>
<tr>
<td>Soften the impact caused by a disease and/or upstream problem on a patient’s function, longevity, and quality of life</td>
<td>How can my clinic address an upstream problem to improve outcomes among severely ill, high-need and high-cost patients? How we do align our “hotspotting,” complex care management approaches to reduce upstream problems?</td>
<td>How can my clinic leverage internal resources to soften the impact the impact of an upstream problem for high-cost patients? How do we work with other upstream systems to improve services for high-need patients?</td>
<td>How can my clinic system support policy or regulatory changes to improve service delivery for high need patients with upstream problem?</td>
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# Upstream QI Solutions Matrix

(Example: Diabetes & Food insecurity  
(R. Manchanda 2014)

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<td><strong>Primary Prevention</strong></td>
<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>
</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>
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<td><strong>Tertiary Prevention</strong></td>
<td>Reduce ED use among high-utilizer severe diabetics using food and income support referrals</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>
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With ‘upstream’ quality improvement, providers can create systems that work better.

Provider confidence to address housing & other social needs (v1.0)

Baseline: 24%

After: 70%
Community Health Detailing
Trained over 100 high school ‘detailers’
“Yelp for Health” tool now at UCLA
To improve social determinants, it is necessary, but not sufficient, to engage and transform health care.

We can't get health care as a right without addressing social determinants.

We can’t get health care right without addressing social determinants of health.
For Veronica,

For many of our patients,

Better Care and

Better Value are possible
Thank you

@RishiManchanda

rishi@healthbegins.org
We’ll create an Upstream QI solution for poorly controlled diabetics
An ‘Upstreamist Project Canvas’ to develop Upstream QI solutions

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<td>List key numbers that will tell you how well the upstream intervention is working</td>
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<td>Reflect on Clinic and Community interests</td>
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<td>“E.g. Project Healthy Home: We remove Indoor Allergens to prevent costly upper respiratory illnesses among adult Medicaid patients who frequently visit the emergency department”</td>
<td>How will the clinic help? Screen for upstream cause-Triage-Exam-Chart/Code-Educate-Refer-Follow-up</td>
<td>Is an economic and/or business case helpful?</td>
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<td>TEAM</td>
<td>Who needs to be on your Upstream QI team? Revisit Step 1</td>
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Use Upstream Project Canvas for poorly controlled diabetics with food insecurity

• Define the Population

• Assemble an Upstream QI Team
  • Who’s on the team?
  • Agree on the process to document
  • Agree on the purpose of the process
    • Improve care AND address an upstream social determinant of health
  • Agree on beginning and ending points
Use Upstream Project Canvas for poorly controlled diabetics with food insecurity

• Agree on the level of detail to be displayed

• Begin by preparing an outline of steps
  • What information do you need?

• Identify and recruit other people that should be involved
  • Who needs to be on the team if you want to improve the social determinants of health for your poorly controlled diabetics?
Upstream-informed segmentation in QI

Are our target populations for QI projects segmented enough?
  e.g. “poorly-controlled diabetics”

Use social determinants of health to better segment patients before launching a QI intervention
  e.g. “poorly-controlled diabetics with stable but serious disability as well as food insecurity within last 6 months”
Get Out of the Building (GOOB)

A quick way to validate (or invalidate) assumptions about problems and upstream causes

Gather data from at least 5 non-clinical Experts
- Community Experts
- Public Health
- Academia

Talk with at least 5 people/ patients
- Avoid online surveys
- Try exam rooms, waiting rooms or
- Try public spaces
“N-of-1” in Upstream QI

• In existing QI methods, patients may be involved as members of improvement teams, providing perspectives in a design phase, and/or as the voice of the process through patient surveys.

• However, patients are rarely the immediate focus of quality improvement initiatives.

• Providers can build upstream QI self-efficacy by focusing on “N-of-1” first.
“N-of-1” in Upstream QI

• Clinical team selects one patient in target population (e.g. poorly controlled diabetic)

• **Goal**: Design the perfect visit for that individual based, aligned with upstream causes of poor health.

• **Activity**: Teams identify change ideas that lead to changes in the clinic, using plan-do-study-act rapid cycle testing.

• As issues are resolved for the first patient, clinic expands the activity to design the perfect visit with a scale-up strategy of 1:2:5:25.
<table>
<thead>
<tr>
<th>prevention</th>
<th>patient-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>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>
</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 ED use among high-utilizer severe diabetics using food and income support referrals</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>
### Pareto Chart Exercise: e.g. Poorly controlled diabetics

**Problem:** Patient with poor DM control  
**Name:** RM  
**Time:** 9–5  
**Location:** Partnership Health Clinic ABC  
**Dates:** Week of 9/6, 9/13, 9/20, 9/27, 10/4, 10/11, 10/18

<table>
<thead>
<tr>
<th>Reason</th>
<th>9/6</th>
<th>9/13</th>
<th>9/20</th>
<th>9/27</th>
<th>10/4</th>
<th>10/11</th>
<th>10/18</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hard to get refills</td>
<td>3</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>0</td>
<td>19</td>
</tr>
<tr>
<td>Can’t afford meds</td>
<td>10</td>
<td>12</td>
<td>6</td>
<td>3</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>31</td>
</tr>
<tr>
<td>No time for exercise</td>
<td>0</td>
<td>0</td>
<td>2</td>
<td>3</td>
<td>6</td>
<td>1</td>
<td>0</td>
<td>12</td>
</tr>
<tr>
<td>I can’t afford food you want me to eat</td>
<td>2</td>
<td>2</td>
<td>1</td>
<td>2</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>8</td>
</tr>
</tbody>
</table>

| Total                                       | 17  | 21   | 13   | 12   | 10   | 5     | 2     | 80    |


PCMH 2014 is a big opportunity for upstream integration

1. Health Literacy Assessments
2. Behavioral health conditions
3. High cost/high utilization
4. Poorly controlled or complex conditions
5. Barriers to Self Care
6. Social determinants of health
7. Community Resource lists
8. Referrals by outside organizations, practice staff or patient/family/caregiver
Vermont’s Community Health Teams are part of the PCMH
QI & Population Segmentation

• **Current system:** We segment patient population by the provider whose services the patients are using at the moment.

• Population-level care management strategies including risk stratification are becoming more common.

• How can we better address distinct priorities and needs of different groups in a given patient population?

http://www.ncbi.nlm.nih.gov/pmc/articles/PMC4116260/#b10-permj18_3p0018
http://www.ncbi.nlm.nih.gov/pmc/articles/PMC2690331/
Better Segmentation

Bridges to Health model
• 8 population segments
  • From “Healthy” to “Frailty, with or without dementia”

Senior Segmentation at Kaiser
• “Robust with no chronic conditions”
• “One or more chronic conditions”
• “Advanced illness and/or end-organ failure”
• “Extreme frailty or near the end of life”

http://www.ncbi.nlm.nih.gov/pmc/articles/PMC4116260/#b10-permj18_3p0018
http://www.ncbi.nlm.nih.gov/pmc/articles/PMC2690331/