Primary Care Meets Population Health: The Parable of Preventable Hospitalizations

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Grand Rounds

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Preventable Hospitalizations
AKA Ambulatory Care Sensitive Condition Hospitalizations

• AHRQ Definition:
  – Hospitalization for “conditions for which good outpatient care can potentially prevent the need for hospitalization or for which early intervention can prevent complications or more severe disease”
High Rates
“The scalpel is the greatest proof of the failure of medicine.”

– Dr. Juvenal Urbino, in Love in the Time of Cholera by Gabriel García Márquez
Why?
The Historical Stages of Understanding and Addressing Preventable Hospitalizations

• The access to care stage (1990-2000)
• The chronic care model/PCMH stage (2000-2015)
• The social determinants of health stage (2015-)
Preventable Hospitalization Rate and Income in California: Age 18–64

\[ R^2 = .40 \]

1990 California Hospital Discharge and US Census data for 250 Urban Areas
FIGURE 2. Number of potentially preventable hospitalizations* among adults aged ≥18 years, by income quartile—United States, 2009

What explains the higher preventable hospitalization rates in lower SES communities?

• Poor access to ambulatory care
• Higher underlying prevalence of disease
• Heath care seeking behavior
• Physician admitting practice style
1990 California Hospital Discharge, US Census, and access survey data for 41 Urban Areas
Access to Care

• Financial access
• Access to a primary care “medical home”
  – Starfield “4 Cs”:
    • First Contact accessibility
    • Continuity
    • Comprehensiveness
    • Coordination of care
Interruptions in Medicaid Coverage and Risk for Preventable Hospitalization

Hazard ratio 7.99

Primary Care and Preventable Hospitalizations

• Likelihood of preventable hospitalizations inversely associated with
  – Having a regular source of care
  – Continuity of care
  – Supply of primary care physicians
Number of Uninsured in the US

Source: US Census Bureau, Current Population Surveys
Supply of Practicing Physicians in the US

Physicians per 100,000 Population

Source: COGME, 1996
Policy Implications

- Expand insurance coverage
- Grow the primary care workforce
Are Preventable Hospitalizations Sensitive to Changes in Access to Primary Care?: The Case of the Oregon Health Plan

Saha, Somnath MD, MPH*; Solotaroff, Rachel MD*; Oster, Ady MD†; Bindman, Andrew B. MD‡

Medical Care: August 2007 - Volume 45 - Issue 8 - pp 712-719
Same Association between SES and Preventable Hospitalizations in English NHS

R Cookson et al. *Health Services and Delivery Research*, No. 4.26, 2016
Is Financial Access and Adequate Primary Care Capacity Sufficient?

• Access to what?
Stage 2: Care Redesign

- Chronic Care Model
- Patient Centered Medical Home
- Population Management
“The tyranny of the urgent”

- “Under a system designed for acute rather than chronic care...too often, caring for chronic illness features an uninformed passive patient interacting with an unprepared practice team, resulting in frustrating, inadequate encounters.”

Bodenheimer, Wagner, Grumbach. JAMA 2002;288:1775
Ed Wagner’s Chronic Care Model

The Chronic Care Model

Community
- Resources and Policies
- Self-Management Support

Health Systems
- Organization of Health Care
  - Delivery System Design
  - Decision Support
  - Clinical Information Systems

Informed, Activated Patient

Productive Interactions

Prepared, Proactive Practice Team

Improved Outcomes

Developed by The MacColl Institute
© ACP-ASIM Journals and Books
Joint Principles of the Patient Centered Medical Home
February 2007

American Academy of Family Physicians
American Academy of Pediatrics
American College of Physicians
American Osteopathic Association
10 Building Blocks of High-Performing Primary Care

1. Engaged leadership
2. Data-driven improvement
3. Empanelment
4. Team-based care
5. Patient-team partnership
6. Population management
7. Continuity of care
8. Prompt access to care
9. Comprehensive-ness and Care Coordination
10. Template of the future

T Bodenheimer et al AnnFamMed March 2014

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Team Members Aligned with Empaneled Patient Population Needs

Share the Care Teams: From Universal Coverage to Universal Care

**COMMUNITY-BASED**
- Community-Based Care Manager Teams
- IHSS Worker Training
- Care Transitions
- Self-Management Classes

**CLINIC-BASED**
- Nurse, Health Worker, Complex Care Teams
- Nurse, social worker, pharmacist, Beh Health, PT, etc
- Reengineered role of the medical assistant

**HIGHEST USERS**
**COMPLEX NEEDS**
**CHRONIC DISEASES**
**GENERAL POPULATION**
**NEW WORK FORCE**
## Early PCMH Evaluation

Group Health Cooperative of Puget Sound

<table>
<thead>
<tr>
<th>Interval</th>
<th>Medical home prototype (n = 7,018)</th>
<th>Other clinics (n = 200,970)</th>
<th>Relative difference (%)</th>
<th>p value</th>
</tr>
</thead>
<tbody>
<tr>
<td>12 mo.</td>
<td>0.22 (0.20, 0.24)</td>
<td>0.26 (0.25, 0.27)</td>
<td>84 (78, 90)</td>
<td>p &lt; 0.001</td>
</tr>
<tr>
<td>18 mo.</td>
<td>0.25 (0.23, 0.26)</td>
<td>0.28, 0.27, 0.29</td>
<td>88 (82, 94)</td>
<td>p &lt; 0.001</td>
</tr>
<tr>
<td>21 mo.</td>
<td>0.24 (0.23, 0.26)</td>
<td>0.28 (0.27, 0.28)</td>
<td>87 (81, 93)</td>
<td>p &lt; 0.001</td>
</tr>
</tbody>
</table>

## VA PACT Evaluation

<table>
<thead>
<tr>
<th>Pi² Scoreᵃ</th>
<th>Quarterly Hospital Admissions for ACSCs per 1000 Patients, No.</th>
<th>Absolute Difference, No. (%)ᵇ</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Predicted With PACT Initiative</td>
<td>Predicted Without PACT Initiative</td>
</tr>
<tr>
<td>Patients &lt;65 y</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5 to 8</td>
<td>2.28</td>
<td>2.63</td>
</tr>
<tr>
<td>-7 to -5</td>
<td>2.53</td>
<td>2.61</td>
</tr>
<tr>
<td>Patients &gt;65 y</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5 to 8</td>
<td>3.68</td>
<td>3.85</td>
</tr>
<tr>
<td>-7 to -5</td>
<td>4.42</td>
<td>4.33</td>
</tr>
</tbody>
</table>

ᵃ Pi² scores of 5 to 8 indicate more effective PACT implementation; Pi² scores of -7 to -5, less effective implementation.

ᵇ All differences were significant at *P* < .001.

IMPLEMENTATION OF OREGON’S PCPCH PROGRAM:

EXEMPLARY PRACTICE AND PROGRAM FINDINGS

Final Report, September 2016

Prepared by:
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Figure 1: Overall Change in Expenditures per Person, Expenditures per User, and Likelihood of Service Use
A Systematic Review of 2016 Research on PC Transformation

Summary of Outcomes: Peer Reviewed Articles

Number of articles reporting:
- Positive results
- Mixed results
- Negative results

Cost (n=13)
- Positive results: 8
- Mixed results: 2
- Negative results: 3

Quality (n=24)
- Positive results: 11
- Mixed results: 11
- Negative results: 2

Inpatient Utilization (n=6)
- Positive results: 3
- Negative results: 3

ED Utilization (n=10)
- Positive results: 6
- Mixed results: 3
- Negative results: 1
This is a health system

Community

3° Care

2° Care

1° Care

Medical Home

Medical Neighborhood
Population Health Management and Care Integration Across the Neighborhood

- Information flow
- Complex care teams spanning sectors
- Care transitions
- Behavioral health integration
Stage 3

Social Determinants of Health

• San Francisco as a case study
  – Comprehensive coverage
  – Progressive primary care environment
Preventable Hospitalization Rates
San Francisco Adults, 2011-2013

Age & gender adjusted chronic condition rates per 100,000
FIGURE 3. Rate* of potentially preventable hospitalizations† among adults aged ≥18 years, by race/ethnicity — United States, 2001–2009

FIGURE 1. Rate* of potentially preventable hospitalizations† among adults aged ≥18 years, by income quartile§ — United States, 2001–2009

Effects of Social Needs Screening and In-Person Service Navigation on Child Health
A Randomized Clinical Trial

Mean Improvement in Parent Rating of Child’s Health at 4 Months (1-5 scale)

Intervention: 0.36
Control: 0.12

P<.001
Other Examples

• “Hot Spotter” programs
• VA PACT Homeless Care Model
• California “Whole Person Care” county programs
• Trauma-informed care
A PRACTICAL PLAYBOOK

HOW CAN THE PRACTICAL PLAYBOOK HELP WITH YOUR INTEGRATION PROJECT?

https://practicalplaybook.org/

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Spurred by a rapidly changing health care landscape, many academic health systems are reconfiguring to move beyond individual patient care to population-specific management. During this time of transition, academic health systems also have a compelling opportunity to significantly advance broader population-wide health improvement efforts using nominal additional resources. Capitalizing on this opportunity requires systems to refocus on their ultimate mission of improving health and to collaborate with an expanded set of partners to address the diverse factors determining health in their communities.

Evolution to Population Health Improvement

Academic health systems have traditionally focused on individual patient care. This is the “first curve” of academic health systems (Figure, top). Most of their efforts have been directed at addressing the needs of individual participants of health, effective interventions, cross-sectoral partnerships than modern accountable care organizations.

By extending and augmenting capabilities in population health management, systems can contribute significantly to population health improvement. To (Figure, top and bottom). The goal of improvement is to enhance the health of the population, often characterized as specific geography. Compared with the first two curves, the third curve requires a set of factors and influences unrelated to the health behaviors, such as exercise and diet; social factors, such as education and employment; and related to the physical environment, transportation availability, are among the critical areas for improving population health.
• Anchor Institution

“A commitment to consciously apply the long-term, place-based economic power of the institution, in combination with its human and intellectual resources, to better the long-term welfare of the community in which the institution is anchored.”
What is Our Role?

• In our jobs as
  – Clinicians
  – Scholars
  – Educators
  – Community partners
  – Innovators, leaders, and followers

• As members of society
Preventable Hospitalizations as a Health System Parable

• Financial access and a medical home
• Reengineered primary care and population health management models responsive to chronic care needs
• Moving upstream to address social determinants of health