Population Health

Richard Hodach MD MPH PhD
Chief Medical Officer, Phytel
Objectives

- Recognize ‘Population Health’ as Central to all Changes in Health Care
- Understand What Defines a Population
- Key Principles of Population Health Management
1999

44,000 to 98,000 deaths
due to medical errors
Four-tiered approach to reducing medical errors

2001

Need for well designed systems based on scientific evidence to address six aims.
Set priority for action on 15 chronic conditions using 80/20 rule
Call to Action

Patients Not Receiving Recommended Care

McGlynn et al

“The Quality of Health Care Delivered to Adults in the United States” NEJM June 26, 2003
Population Health Is Fundamental
Quality Focus is Here

Farzad Mostashari, MD, ScM
National Coordinator for Health Information Technology
U.S. Department of Health Human Services

Mark B. McClellan, MD, PhD
Director, Engelberg Center for Health Care Reform
Senior Fellow, Economic Studies
Leonard D. Schaeffer Chair in Health Policy Studies

Carolyn M. Clancy, MD
Director
Agency for Healthcare Research and Quality (AHRQ)
U. S. Department of Health and Human Services

Paul Grundy, MD, MPH
President of the Patient-Centered Primary Care Collaborative
The Medical Education

Meaningful Use
- Patient Outreach
- Registry Reporting
- Patient Self-Care

Quality Reporting
- Population Health
- Chronic Care Management
- Preventive Care

Accountable Care
- Health Risk Assessments
- Behavior Modification
- Wellness Programs

Medical Home
- Care Coordination
- NCQA Qualification
- Patient Self-Management

Population Health
**Triple Aim**

- Concept created by Don Berwick, M.D. at the Institute of Healthcare Improvement (IHI)
- Has become the Foundation for:
  - Medicare and Conventional ACOs
  - NCQA Medical Home
  - Meaningful Use

Across the Entire Population
Alignment with Population Health Goals

Evolution of Payment Structures

Fee for Service
- Pay for Reporting
- Meaningful Use ARRA
- Medical Home

Paying for Performance
- Quality Improvement
- P4P / Pay for Performance
- Bundled Payments

Paying for Higher Value
- Accountable Care Organization models include Shared Savings

Population Health Management

Responsible for Entire Population Regardless of Engagement Status
### Shifting Expectations for “Provider Performance”

#### Fee for Service vs. PCMH vs. Accountable Care

<table>
<thead>
<tr>
<th>Credential-based Expertise</th>
<th>Earn Re-imbursement Incentives</th>
<th>Manage Cost of Treatment</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>One Provider / One Patient</strong></td>
<td><strong>One Provider/One PANEL</strong></td>
<td><strong>Cost Containment:</strong> Avoid hospitalizations, ED services and coordinate cost effective services</td>
</tr>
<tr>
<td>Evidence-based Treatment of symptoms given clinical history, current medications, etc</td>
<td>Demonstrated Compliance w clinical quality indicators and meaningful use</td>
<td>Opportunity: prevent decompensation of highest-risk patients (3-10% of panel)</td>
</tr>
</tbody>
</table>
| Opportunity: routine best practice to monitor & manage steady-state (60% of panel) | | }
What is Population Health Management?

First, what is a population?
What is a Population?
It is Not Just About Public Health Anymore!!

- **Population Examples**
  - A community (city, state, country)
  - An employer population (everyone who works at General Electric)
  - A panel of patients who all have the same primary care physician or go to the same physician practice (HMO, PCMH, ACO)

- **Key Population Attributes**
  - Identifiable and stable membership
  - Members know and understand organization purpose
  - Common member communication/engagement platform
  - Reportable data across all members
What is a Population?
Defining a Practice’s Population Today

- Patient panels today are not easily identifiable or necessarily stable
  - Patients can move easily within and between practices, reducing ability of physicians to impact and coordinate care
- Patients may not be aware of practice’s role in their total health
  - Patients may only think of physician as a resource for illness, not wellness or full continuum of care, and are not used to “care teams” that complement and extend role of physician
- Lack of patient communication/engagement platform
  - Physician practices do not have ready ways to communicate with all patients efficiently or effectively
- Reportable data across all patients
  - Practices likely to be missing essential data about patients and reporting infrastructure may not exist or is rudimentary
What is a Population?
Practice-Based Population Health

From Practice-Based Population Health: Information Technology to Support Transformation to Proactive Primary Care. AHRQ Publication No. 10-0092-EF
## What Does a Population Look Like?

### Health Risk Prevalence

<table>
<thead>
<tr>
<th>Health Risk Category</th>
<th>Population Benchmark*</th>
<th>1 Physician Panel Size</th>
<th>10 Physicians Panel Size</th>
<th>100 Physicians Panel Size</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>2500 patients</td>
<td>25,000 patients</td>
<td>250,000 patients</td>
</tr>
<tr>
<td>Alcohol Use</td>
<td>0.22</td>
<td>550</td>
<td>5,500</td>
<td>55,000</td>
</tr>
<tr>
<td>Injury Prevention</td>
<td>0.16</td>
<td>400</td>
<td>4,000</td>
<td>40,000</td>
</tr>
<tr>
<td>Nutrition</td>
<td>0.96</td>
<td>2,400</td>
<td>24,000</td>
<td>240,000</td>
</tr>
<tr>
<td>Physical Activity</td>
<td>0.48</td>
<td>1,200</td>
<td>12,000</td>
<td>120,000</td>
</tr>
<tr>
<td>Sexual Behavior</td>
<td>0.01</td>
<td>25</td>
<td>250</td>
<td>2,500</td>
</tr>
<tr>
<td>Skin Protection</td>
<td>0.34</td>
<td>850</td>
<td>8,500</td>
<td>85,000</td>
</tr>
<tr>
<td>Smoking</td>
<td>0.11</td>
<td>275</td>
<td>2,750</td>
<td>27,500</td>
</tr>
<tr>
<td>Stress</td>
<td>0.35</td>
<td>875</td>
<td>8,750</td>
<td>87,500</td>
</tr>
<tr>
<td>Depression</td>
<td>0.12</td>
<td>300</td>
<td>3,000</td>
<td>30,000</td>
</tr>
<tr>
<td>Symptoms</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Weight Mgt</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Overweight</td>
<td>0.64</td>
<td>1,600</td>
<td>16,000</td>
<td>160,000</td>
</tr>
<tr>
<td>• Obese</td>
<td>0.33</td>
<td>825</td>
<td>8,250</td>
<td>82,500</td>
</tr>
<tr>
<td>• Extremely Obese</td>
<td>0.25</td>
<td>625</td>
<td>6,250</td>
<td>62,500</td>
</tr>
<tr>
<td>• Obese</td>
<td>0.06</td>
<td>150</td>
<td>1,500</td>
<td>15,000</td>
</tr>
</tbody>
</table>

Source: HealthMedia book of business HRA results, based on over 2 million participants, 2010
### Chronic Conditions Prevalence

<table>
<thead>
<tr>
<th>Chronic Conditions</th>
<th>Prevalence Census Data *</th>
<th>Panel Size=2500/PCP</th>
<th>Panel Size=2500/PCP</th>
<th>Panel Size=2500/PCP</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>One PCP</td>
<td>10 PCP's</td>
<td>100 PCPS</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2500</td>
<td>25000</td>
<td>250000</td>
</tr>
<tr>
<td>Hyperlipidemia</td>
<td>0.204</td>
<td>511</td>
<td>5110</td>
<td>51100</td>
</tr>
<tr>
<td>Hypertension</td>
<td>0.189</td>
<td>472</td>
<td>4720</td>
<td>47200</td>
</tr>
<tr>
<td>Depression</td>
<td>0.047</td>
<td>118</td>
<td>1180</td>
<td>11800</td>
</tr>
<tr>
<td>Asthma</td>
<td>0.073</td>
<td>183</td>
<td>1830</td>
<td>18300</td>
</tr>
<tr>
<td>Diabetes</td>
<td>0.058</td>
<td>145</td>
<td>1450</td>
<td>14500</td>
</tr>
<tr>
<td>Arthritis</td>
<td>0.152</td>
<td>381</td>
<td>3810</td>
<td>38100</td>
</tr>
<tr>
<td>Anxiety</td>
<td>0.112</td>
<td>279</td>
<td>2790</td>
<td>27900</td>
</tr>
<tr>
<td>Osteoporosis</td>
<td>0.056</td>
<td>140</td>
<td>1400</td>
<td>14000</td>
</tr>
<tr>
<td>COPD</td>
<td>0.052</td>
<td>131</td>
<td>1310</td>
<td>13100</td>
</tr>
<tr>
<td>CAD</td>
<td>0.048</td>
<td>120</td>
<td>1200</td>
<td>12000</td>
</tr>
</tbody>
</table>

*Prevalence data is from recent US Census Data. Most likely these conditions have higher current rates but used to illustrate the magnitude of conditions in different sized PCP groups.*
What Does Population Health Mean in Practice?

Traditional View
30 Patients Per Day

New View
2500 Patient Population

Fee for Service  PCMH  Accountable Care
Principles and Tools for Population Health Management

And helpful hints
“To improve the health status of an entire population.”
# Population Health Management

**Managing Across the Continuum of Care**

<table>
<thead>
<tr>
<th>Well</th>
<th>At Risk</th>
<th>Acute Self Limiting</th>
<th>Chronic Illness</th>
<th>Complex Care</th>
</tr>
</thead>
</table>
| • Prevention  
• Screening | • Lifestyle Risks  
• Smoking  
• Obesity  
• Poor Eating Habits  
• No Exercise  
• Etc. | • Colds/Flu  
• Broken Bones  
• Ear Infections  
• Heart Attacks | • Diabetes  
• Heart Disease  
• Depression  
• Stroke  
• Asthma  
• COPD  
• Other | • Multiple Conditions  
• Lifestyle Risks  
• Multiple Drugs  
• Multiple Physicians |

**Behavior Change** is not easy

Patients have to be **Engaged**

Engagement has to be **Sustained**

With **Persistence** comes **Retention**

Right Information  
Right **Data**  
Right **Intervention**  
Right **Time**  
Right **Method of Communication**

Information **Sharing** is critical

Sharing leads to **Interactivity**

Information has to to “**Actionable”**

All lead to **Better Decisions**
Population Health Management
Look and Manage Beneath the Waterline

Do you only focus the **top 3%?**

You must focus on everyone **below** the waterline **this year** to prevent **next year’s catastrophic cases.**

Source: Healthcare Risk Adjustment and Predictive Modeling by Ian Duncan

>\frac{2}{3}\]

of catastrophic patients this year were **not** catastrophic the previous year.
Because physicians will become responsible for delivering care for an ever increasing panel size (aging of America and 32 million more insureds) they will increasingly deploy care coordination teams modeled after “high performance teams”.

Population Health Management
Teamwork and High Performance Teams
A vision for mobilizing your care team around population health management strategies

- A plan for building a partnership with patients in managing their health and wellness
- A plan for collaboration with other treating providers
- A plan for coordinating outpatient services on behalf of patients at risk of acute failure/hospital admission
Population Health Management
Need for IT Support of Care Model

- Domain 1: Identify Subpopulations of Patients.
- Domain 2: Examine Detailed Characteristics of Identified Subpopulations.
- Domain 3: Create Reminders for Patients and Providers.
- Domain 4: Track Performance Measures.
- Domain 5: Make Data Available in Multiple Forms
Population Health Management
Registries Can be Used to Start

Population Health Management
 Integrated Data Model – Big Data

Data Standardization and Integration
Eligibility
Plan Benefits
Formulary
Hospital Utilization
Lab Values
Drug
HRA
PHR
Med Claims

Patient Centric Records Warehouse

Decision Support Alerts
Analytics
Reports
Identification/Stratification

At Risk Population Programs
Disease Management
Complex Care
You can’t effectively manage health or affect behavior change in people if they are not engaged in the process.

In order to improve outcomes you must convince people to participate (engage) in information sharing programs to accomplish this objective.
Population Health Management

Behavior Change Doesn’t Happen Easy

- Behavior change (smoking cessation, better diet, weight loss medication compliance) happens over time
  - This is similar to the dose/response model inherent in medication or drug therapy.
  - Usually the 1st dose doesn’t elicit the desired result.
  - One must persist in order for the benefit to be realized
- Approaches that foster persistence with health improvement programs as well as learning methods that strengthen retention of education are essential

If Michelangelo were sculpting today…
Historically, the only “actionable information” that the physician gets on their patients has been at an office visit.

This has been the only occasion to update their assessment of the patient to determine any shifts in or additions to the care plan.
Population Health Management
New Modalities of Patient Engagement Will Also Inform Care Team

- Going forward, new technology will be employed to complement the physician’s ability to manage their patient population
  - HRAs, web and smart phone-based surveys
  - Self-management modules and interactive education
  - Health coaching
  - Biometric devices
Common themes:

- **Improved access**
- **Visit optimization**
- **Quality focus throughout (process and outcomes)**

Common requirements:

- **Technology for data management and communications**
- **Automation for reporting, care management and patient engagement**
Population Health Management
You Must be Able to Scale

Preparing to address hundreds of process and outcomes metrics which require hundreds of actions required on a DAILY basis

- Identify patients not coming in
- Engage patients
- Identify items missed in the office
- Identify patients no longer in compliance as of today, tomorrow, etc.
- Analyze performance
- Consistency
Population Health Management

Consider Tools that Use Automation
Diabetes Case Study

The A-HA moment is when you see YOUR data!
Simple Approach

2% had no test recorded

- > 9: 7% - Group 1
- 8 - 9: 10% - Group 2
- 7 - 8: 19% - Group 3
- < 7: 61%

- HbA1c Only
- + LDL >100
- ++ BP >130/80
- +++ BMI >30

2% had no test recorded
Population Stratification & Prioritization

HbA1c and LDL Values for Diabetic Patients
Population Stratification & Prioritization

HbA1c and LDL Values for Diabetic Patients

N=40
N=56
N=105
N=335
Population Stratification & Prioritization

HbA1c and LDL Values for Diabetic Patients

N=31
N=56
N=105
N=335
N=92
N=223
N=190
N=40
HbA1c and LDL Values for Diabetic Patients

Group 1: Top 3%
Population Stratification & Prioritization

HbA1c and LDL Values for Diabetic Patients

- Group 1: Top 3%

BP > 130/80
Population Stratification & Prioritization

HbA1c and LDL Values for Diabetic Patients

Group 1: Top 3%

- BMI > 30
- BP > 130/80
Population Stratification & Prioritization

HbA1c and LDL Values for Diabetic Patients

- **Group 1: Top 3%**
- **Group 2: 20%**
- **Group 3: 77%**

Legend:
- **BMI > 30**
- **BP > 130/80**
Population Management Plan

Group 1: High Intervention
- Weekly calls by care manager
  - Track BP, BMI, discuss diet and exercise
  - Insist / help take & complete HRA
  - Exit when no longer meets group 1 criteria
- Additive to Group 2 and Group 3 activities

Group 2: Moderate Intervention
- Monthly call
- Additive to Group 3 activities

Group 3
- Automated reminders / Invitations for HRA, Education, follow-up appointments
- Digital Coaching to encourage self management
- Snail mail and in-office communications
QUESTIONS?
References

- Guide to Population Health Management. Contributors: Patricia Curran, RN, Principal, Buck Consultants’ National Clinical Practice; Robert Fortini, vice president, chief clinical officer at Bon Secours Health System; Gregory Spencer, MD, FACP, chief medical officer with Crystal Run Healthcare; Barbara Walters, DO, MBA, senior medical director with Dartmouth-Hitchcock. Health Information Network, 2012.
- Population Health Management Group Practice Journal,
- What is Population Health IHT.