Population Health and Care Management:
- Taking on Risk and Improving Outcomes through a Care Management Strategy
- Health IT’s Impact on Population Health Management (and Vice Versa)
Please note that the views expressed by the conference speakers do not necessarily reflect the views of the American Hospital Association and Health Forum.
The health outcomes of a group of individuals, including the distribution of such outcomes within the group.


The group and the outcomes will largely be defined by reimbursement strategies and tactics. Hence, groups will include those that:

- Are readmission risks
- Are undergoing a procedure bundle
- Require a public health intervention, e.g., immunizations
- Have a chronic disease
Population Health Management Increasingly a Strategy

Growth in Hospital-based Population Health Management

Fundamental Requirements for Population Health Management

- Information-powered clinical decision making
- Primary care-led clinical workforce
- Patient engagement and community integration

Source: Three Key Elements for Successful Population Health Management, The Advisory Board Company

Population Health Management Core to ACOs

Over 25% of the US population Will Be Covered by an ACO by 2018

- Prevent Utilization through Medical Management
  - High-risk patient care management (e.g., medication management, care transitions management)

- Retain Utilization Within Network
  - Cost incentives to encourage in-network imaging referrals

- Direct Unavoidable Utilization to Low-Cost, High-Quality Partner
  - Inpatient, outpatient procedures
  - Select inpatient medical care

Example:
Volume steereage to high-value acute care providers

Source: Advisory Board research and analysis
The key is managing the care plan of the individual and assessing the population in aggregate.
Define Population

Group individuals into meaningful populations based on reliable data

- Person-centered data repository
- Identify attributed population
- Identify population by common chronic conditions
- Aggregate and normalize patient information
  - Clinical data
  - Claims data
- Create cohorts and patient lists
Care Management Process:
Identify and Action Care Gaps

Transforms care manager role and immediately focuses attention on patients requiring interventions

- Assign evidence-based longitudinal care plans
  - 12 chronic conditions and 5 wellness factors
- Identify care gaps
  - Compare to evidence-based care plans
- Initiate actionable interventions
  - Driven by embedded workflow management technology
  - Assigned to the most qualified, cost-effective care team member to perform the necessary service
  - Automated when appropriate
  - Engage the care manager for complex decisions
Evidence-based Content

- Evidence-based content from industry experts
  - Level 1A evidence
  - Gathered and analyzed by epidemiologists
  - Reviewed by 600+ active clinicians
- Helps remove individual provider variation
- Prioritized by The National Quality Forum’s (NQF) High Impact Conditions
- Preventive care recommendations from the U.S. Preventive Care Task Force (USPCTF): Grade A and Grade D recommendations
- Continuously updated as new evidence becomes available

Manage Wellness

- Follow-up Comorbidity Management
- Medication Adherence
- Patient Self-management

Manage Chronic Conditions

- Acute Myocardial Infarction
- Asthma
- Atrial Fibrillation
- Congestive Heart Failure
- Chronic Obstructive Pulmonary Disease
- Coronary Artery Disease
- Surveillance and Early Detection
- U.S. Preventive Care Task Force Preventive Care (all ages)
- Diabetes Mellitus, Type 2
- Hypertension
- Major Depression
- Osteoarthritis
- Osteoporosis
- Stroke
Care Management Process: Stratify Risk

Stratify Risk

Sophisticated risk stratification based on reliable data and evidence

Predictive risk stratification is based on:
- Clinical data from multiple disparate EHRs
- Patient reported data
- Historical claims data

Risk Stratification Levels
- High Risk
- Moderate or Rising Risk
- Low Risk

Stratification to identify patients changing risk categories

45% of costs are driven by 3-5% of the community

- 45% of costs: High risk 3-5%
- 35% of costs: Rising risk 20-30%
- 20% of costs: Low risk 70%

Oliver Wyman, The Volume-to-Value Ratio, 2012
Patients actively engaged as a care team member—and proactive about their health—can have better quality outcomes

- Empower patients (and/or their caregivers) to be active participants of their care team
- Preferred communication method
  - Phone call, text, e-mail, letter, etc.
- Patient Portal
  - Appointment scheduling and reminders
  - Secure e-mail exchange
  - Test results
  - Consultations
  - Medical history
  - Educational material
Advanced approach to identify care needs and facilitate interventions at the patient level

- Evidence-based chronic condition content drives longitudinal care plan
- Wellness factors
- Embedded workflow management technology monitors, notifies, and escalates
  - Care Manager
  - Care Team
  - Patient (person)
- Facilitates care team transformation
  - Automated redistribution of workload
  - Care team members utilized at highest level of their scope of practice/license
Care Management Process: Measure Outcomes

Monitor to help improve patient, population, and care delivery organization quality and financial outcomes

- Analyze care processes and clinical outcomes
  - Individual patient
  - Population level
  - Utilization, quality, cost
- Dashboards and reports
  - Patient, population, care delivery organization
- Based on regulatory and ACO quality metric requirements
Material Changes in Business Models, Technologies and/or Environment Lead to Significant Changes in and Industry’s Core IT Platforms

<table>
<thead>
<tr>
<th>Retail</th>
<th>World Wide Web</th>
<th>Web-based product review, comparison and ordering</th>
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<tbody>
<tr>
<td>Banking</td>
<td>Deregulation</td>
<td>Funds Management</td>
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<tr>
<td>Content Distribution</td>
<td>World Wide Web</td>
<td>Music ecosystems; Free news; Craigslist</td>
</tr>
<tr>
<td>Shipping</td>
<td>GPS; Bar codes; Hand held devices</td>
<td>Real time package tracking</td>
</tr>
</tbody>
</table>
Population Health Management Touches the Entire HIT Portfolio

- Electronic health record
  - Reminders
  - Documentation
  - Team-based worklists
- Revenue cycle
  - Population-based charge groupers
  - Internal accounts payable
  - Contract management
- Analytics
  - Population-based cost and quality measures
  - Predictive and deviation analytics
- “Interstitial” applications
  - Care management
  - Health information exchanges
  - Personal health records
- Infrastructure
  - Interoperability
  - Semantic normalization of data
  - Workflow engines
  - Secure messaging
- Content
  - Evidence-based care plans
Determine Variation from Plan: Readmissions Dashboard

30 Day Readmissions

As of 6/18/2012

Organization: Enterprise

Readmissions Dashboard

# Patients Risk factor by LACE Score

AMI

HF

PNEU

Inhouse

AMI

HF

PNEU

# Admissions by Modified LACE Score

# Readmissions by Top 5 Health Professionals

Drews, Agnes

Clark, Vera

Valdez, S.

Billis, L.

Addison, A.
Creating Approaches to Moving Population Management Applications to the Next Generation

- **A shift from a generation characterized by:**
  - Management of only the sickest/high risk patients
  - Static risk categorization
  - Single disease/condition focus based on simple data values and events
  - “List” generation with significant manual work
  - Retrospective

- **To a generation characterized by:**
  - Management of all patients
  - Risk categorization that follows a patient’s evolving risk
  - Multi-disease/condition focus using evidence-based care plans
  - Significant process automation and leverage of the care team including the patient
  - Concurrent
Introducing Steven C. Linn, MD, MPh,
Chief Medical Officer and Vice President of Academic Affairs
Inspira Health Network,
Population Health

Steven Linn, MD, MPH
AHA Leadership Summit, San Diego
July 20th, 2014
• Please note that the views expressed by the conference speakers do not necessarily reflect the views of the American Hospital Association and Health Forum.
✓ Improving the **patient experience** of care (including quality and satisfaction)

✓ Improving the **health of populations**

✓ Reducing the **per capita cost** of health care
Studying population-based rates of health resource allocation and utilization ...
Regional Variation in Rates of Spine Surgery

**Total Spine Surgery**

There was substantial regional variation in overall spine surgery rates among Medicare enrollees in 2002-03 (Figure 3). Rates varied by a factor of almost six, from 1.6 per 1,000 enrollees to 9.4. Among the hospital referral regions where rates of spine surgery were highest were Casper, Wyoming (9.4); Mason City, Iowa (9.0); Bend, Oregon (8.7); Boise, Idaho (8.2); and Billings, Montana (8.0). Regions with rates lower than the national average of 4.0 spine surgery procedures per 1,000 enrollees included Honolulu (1.6); Newark, New Jersey (1.7); Paterson, New Jersey (1.8); Manhattan (1.8); and East Long Island, New York (1.8).

Figure 3. Rates of Spine Surgery Among Hospital Referral Regions, 2002-03

Map 1. Spine Surgery

In 71 hospital referral regions, rates of spine surgery were at least 30% higher than the United States average of 4.0 per 1,000 Medicare enrollees. In 52 hospital referral regions, rates were more than 25% lower than the national average.
Healthcare Spending vs. Life Expectancy

Healthcare spending per capita vs. Average Life Expectancy Among OECD Countries

Total Expenditures on Health per capita in USD
Variation Within the US

“People in the U.S. could be as healthy as their counterparts in Switzerland or Japan, or as unhealthy as people in Algeria or Bangladesh.”

– NBC News
As Hospital Prices Soar, a Stitch Tops $500

How to Charge $546 for Six Liters of Salt Water

The $2.7 Trillion Medical Bill
Colonoscopies Explain Why US Leads the World in Health Expenditures

American Way of Birth, Costliest in the World
The Current Landscape

**Problem**
- Trying to find coverage for 54 million uninsured
- Federal budget shortfall
- Increasing number of Medicare recipients

**Solution**
- Shift the financial risk to *providers* for:
  - Quality
  - Cost
  - Utilization
The Future of Reimbursement

- Fee for Service
- Shared Savings
- Capitated Risk / Accountable Care
Financial Outlook Under Various Payment Models

If per capita utilization declines, hospital profits decline under FFS model.
Financial Outlook Under Various Payment Models

- **Fee for Service**: High profit with high utilization but high risk.
- **Expected Utilization**: Moderate profit with moderate utilization.
- **Reduced Utilization**: Lowest profit with low utilization, but hospitals can share in savings.

If per capita utilization declines, hospital profits decline under shared savings model, though shared savings defrays some losses.
Financial Outlook Under Various Payment Models

Only full risk models provide positive incentive to reduce demand.
Managing Three Distinct Populations

Cost Breakdown

45% of Cost
35% of costs
20% Costs

Management Strategies

High Risk
- At least one complex illness, multiple comorbidities, and psychosocial problems
- Trade high-cost acute care services for low-cost care management

Rising Risk
- Multiple risk factors that could push them into the high-cost category if left unaddressed
- Avoid unnecessary spending and keep these patients from becoming high-risk
- Manage these patients in enhanced primary care

Low Risk
- Healthy or have a well-managed chronic condition
- Looking for convenient access to services they need
- Keep the patient healthy
- Maintain their loyalty to the system
Three Options for Managing Utilization

Prevent Utilization through Medical Management
- Heart Failure
- Pneumonia

Retain Utilization within the Network
- Specialty Referrals
- Imaging

Direct Unavoidable Utilization to Low-Cost, High Quality Partner
- Inpatient & Outpatient Procedures
- Select Inpatient Medical Care
Post Acute Care

- PAC Assessment
- Preferred Provider Network
- Innovative Care Delivery Approaches
- SNF-ists
Healthy People 2020: Leading Health Indicators
Leading Health Topics

<table>
<thead>
<tr>
<th>Topic</th>
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<tbody>
<tr>
<td>Access to Health Services</td>
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<tr>
<td>Clinical Preventive Services</td>
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<tr>
<td>Environmental Quality</td>
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<tr>
<td>Injury &amp; Violence</td>
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<tr>
<td>Maternal, Infant, &amp; Child Health</td>
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<tr>
<td>Mental Health</td>
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<tr>
<td>Nutrition, Physical Activity, and Obesity</td>
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<td>Reproductive &amp; Sexual Health</td>
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<tr>
<td>Social Determinants</td>
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<tr>
<td>Substance Abuse</td>
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<tr>
<td>Tobacco</td>
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**Challenge:** Limited % addressed by the healthcare system!
Community Oriented Primary Care

1. Define and Characterize the Community
2. Involve the Community
3. Identify Community Health Problems
4. Develop an Intervention
5. Monitor the Impact of the Intervention
Bon Secours Baltimore Health

• Community Works
• Housing
• Farmers Markets
• Access to Washers and Dryers
• GED Program for Young Adults
Frustrated by a Foot in each Canoe?
Where to start?

- Patient Centered Medical Home
- Medicare ACO
- Medicaid ACO
- Bundled Payment Models
“Initial” Populations

- Employees
- Uninsured
- PACE programs
Employee “ACO”: Platform for PHO

Employees
- Wellness and Prevention Incentives
- Requirements for Biometric Screening
- Required Enrollment in Care Management
- Strong incentives to stay “In-Network”

Physicians
- Inner Circle Preferred Providers
- Shared Savings Program
- Payout based on performance of Quality Metrics
- Following EBM protocols
Hotspotting

“The ability to identify in a timely manner patients who are heavy users of the system and their patterns of use, so that targeted intervention and follow-up programs can be put in place to address their needs and change the existing, potentially ineffective, utilization pattern”
Findings

10% of patients accounted for 73% of charges

5% of patients accounted for 58% of charges

1% of patients accounted for 26% of charges
Patient “Typology”, 2011

Inpatient Visits

<table>
<thead>
<tr>
<th>0</th>
<th>1</th>
<th>2-3</th>
<th>4 or more</th>
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<tbody>
<tr>
<td>0</td>
<td>2,900 patients (6.6%)</td>
<td>$132m charges (14.8%)</td>
<td>$16m receipts (14.7%)</td>
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<tr>
<td>0-1</td>
<td>26,819 patients (61%)</td>
<td>$87m charges (9.9%)</td>
<td>$11m receipts (10.6%)</td>
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<tr>
<td>2-3</td>
<td>2,332 patients (5.3%)</td>
<td>$115m charges (13%)</td>
<td>$14m receipts (12.9%)</td>
</tr>
<tr>
<td>4 or more</td>
<td>355 patients (.8%)</td>
<td>$165m charges (18.6%)</td>
<td>$20m receipts (18.6%)</td>
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<tr>
<td>6+</td>
<td>2,293 patients (5.2%)</td>
<td>$90m charges (10.2%)</td>
<td>$10m receipts (9.4%)</td>
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<tr>
<td>3-5</td>
<td>9,010 patients (20.6%)</td>
<td>$298m charges (33.6%)</td>
<td>$37m receipts (33.8%)</td>
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<tr>
<td>1-2</td>
<td>2,332 patients (5.3%)</td>
<td>$115m charges (13%)</td>
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</tr>
<tr>
<td></td>
<td>0</td>
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</tr>
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Emergency Department Visits
Data Needs for Population Health Management

1. Descriptive: What happened?
   Analyze the Past
   - Readmission Rate

2. Predictive: What might happen?
   Analyze the Future
   - LACE Tool

3. Prescriptive: What should we do?
   Analyze the Actions
   - Follow Up with PCP within 7-14 Days of Discharge

Degree of Difficulty
Degree of Competitive Advantage
Converting Data to Knowledge

Create list of patients by:

- Hypertension
- Diabetes
- Not on Statin
- Controlled LDL
- Smokers
- Etc.

** Know the answer to questions like this: **
What percentage of patients in your plan, practice, panel etc. with Diabetes have LDL controlled??
Data Sources Populating CareXcell

- Practices using MobileMD Clinical Portal
  - 138 practices
  - 437 providers
  - 1822 named users
- PREP Fitness Program
  - Fitness referrals via eShare
- eHealth Connection Clinical Portal
  - Includes ADT (demographics and triggers)
  - Lab (includes micro, pathology, bloodbank)
  - Consolidated Lab (finals only – joined by Req#)
  - ER Reports (MedHost)
  - Radiology including Cardiology
  - Transcribed Reports (HL7 document + PDF)
  - HIM Scanned Docs (PDF insurance cards, IDs)
  - ER Notifications
  - Outbound Results (all types) IAW subscriptions
  - Cardio Report (Muse, Xcelera)
  - CCD

Extended Care
- 20 Facilities
  - Nursing Homes
  - Rehab
  - Home Care

New Jersey State Tumor Registry
- ER Notifications

Home Health
- 20 Facilities
- Nursing Homes
- Rehab
- Home Care

Outbound Results (all types) IAW subscriptions
- CCXcelera

Practices using EMR-191
- 1 practice
  - 21 providers
- 65 providers
- 1 practice
  - 4 providers
- 11 practices
  - 65 providers
- 16 practices
  - 25 providers
- 3 practices
  - 3 providers

Home Health
- THORNBERRY LTD

LIFE - PACE
- Allscripts
Inspira Example: Patient Centered Medical Home

CareXcell
Optimizing Care Management for Patients and Populations
Questions