Outline

• How can ACOs reduce cost
• ACO structure dilemmas
• IT investment priorities
• Using analytic models
  – Population Management
  – Provider Incentives
  – ACO Financial Models

The ACO Stack
Relative Strength of Sources of Cost Savings for ACOs (Illustrative)

Delivery System Transformation
- Patient-Centered Medical Home
- Accountable Care Organization
- Meaningful Use of Health Information Technology

Cost Impact
- Reducing Duplication of Services
- Reducing Role of Avoidable Clinical Events
- Reducing Resource Per Clinical Service
- Reducing Use of Low Value Services of Specialist and Facilities

Provider Consolidation
- Increasing Market Power

Fundamental Structural Dilemma #1
Many-to-Many Relationships between Plans and Providers

Free Rider Problem
- "If Plan A invests in core process improvement and HIT for its providers, the other plans will receive the savings without bearing the cost. So they will gain advantage."

Scale Problem
- "If Plan A puts its own care managers into clinics of its providers to serve only members of Plan A, there is not enough work to keep the care manager busy."

Externality Problem
- "If Provider 1 invests its own resources in process improvement and HIT, the savings accrue to the health plans."

2 Ways Out of Structural Dilemma #1

Dominant Payer with Resources and a Social Mission
- Medicare
- Meaningful Use
- ACO Gain Sharing
- Comparative Effectiveness
- Demonstrations
- Some non-profit Blue plans with high local market share
- PCPist
- PHM
- Organized Systems of Care

Provider with Mostly-Exclusive Relationship with Payer
- Health Systems
- Kaiser Permanente
- Geisinger
- Plan-Initiated
- Healthspring
- Disease-specific
- McKesson/US Oncology
- Co-ops formed with reform bill funding

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Every party’s cost savings is another party’s revenue loss...

...and they are not going to be happy.
Idealized 1990's “Health System” or “Staff-Model HMO” Model

Conventional 2000's Organizational Alignment

Integrated Delivery System ACO Model
Primary Care-based ACO Model

Co-Managed Service Lines

Health Plan  Specialist  Hospital

Care Manager  Primary Care  Hospitalist

Primary Care-based ACO

Alignment of Specialists Depends on the Focus of their Practice

Ambulatory Care and Population Management

Cardiologists focused on Heart Failure
Cardiologists focused on PCI
Oncologists focused on Cancer Service Line
Radiologists focused on Inpatient Care and Procedures
Pathologists focused on Transitions of Care & Resource Stewardship
Physiatrists focused on Pain Management
Neurologists focused on Inpatient Care and Procedures
Nephrologists focused on Chronic Renal Failure
Anesthesiologists focused on Pain Management

Inpatient Care and Procedures

Neonatologists
Radiologists focused on Inpatient Care and Procedures
Pathologists focused on Transitions of Care & Resource Stewardship
Physiatrists focused on Pain Management
Anesthesiologists focused on Pain Management

Length of Stay & Referral "Keystone"

"Cooperative" Model

Cooperative

Health Plan  Specialist  Hospital

Care Manager  Primary Care  Hospitalist

Primary Care-based ACO

Look familiar?
### Systems to Enable Process Transformation

**Care Planning Tools**  
Patient Centered Problem-Oriented Smart Population

**Care Process Management Tools**  
Physician controlled Measurable Coordination

Leverage Workflow Automation / Business Process Mgmt Technology used in other industries

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### Health Information

**Unstructured**
- Free text
- Dictated and transcribed
- Dictated and voice-recognized
- Document Images
- Optical Character Recognition
- Drawings
- Clinical Images
- Sounds
- Human readable

**Passively Structured**
- Text-to-code logic
- Commands to include text blocks in tables
- Loosely structured messages
- Human readable with more consistent formatting
- Case finding

**Actively Structured**
- Registry
- Questionnaire
- Form-based Template
- Problem-oriented clinical documentation templates
- Tightly structured messages
- Human readable with most consistent formatting
- Reminders and alerts
- Performance measures
- Comparative effectiveness

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### IT Framework to Support ACOs

**Analysis & Reporting**
- Quality
- Episode Profiling
- Population Network Analytics
- Registry
- Research

**Clinical Workstation**
- Results
- Orders
- Schedule
- Lab results
- Clinical Documentation

**Care Planning**
- Clinical Templates
- Orders
- Clinical Documentation

**Patient Apps**
- Results
- Care Plan
- Dashboard
- Patient Communication
- Call Center
- E-mail

**Clinical Process Mgmt**
- Process Design
- Process Evaluation
- Process Monitoring
- Actionable Insights
- Orders/Results Management
- Clinical Decision Support
- Care Relationship Mgmt
- Call Center
- E-mail, Text & IM

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*US patents #7020618, #7707057*
Analytic Data Repository Framework to Support ACOs

Source Systems
- Scheduling
- Admit, Discharge, Transfer (ADT)
- Clinical Data
- Billing
- Medication Administration
- Operating Room
- Credentialing
- Etc.

Analytic Data Repository

Raw Versioned Data

Analyzable Data

Cubes & Other Summary Data Structures

Reports & Reporting Applications

Data Derivation Engines & Services

Disease ID

- Gaps in Care

- Core Relationships

- Specialty / Peer

- Referral Relationships

- Etc.

Derived data

- Analyzable Data
- • Normalized
- • Documented
- • With derived entities and attributes

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REPORTS vs. MODELS

Looking back

Looking ahead

Using Models for Care Management

Continuum of Patient Needs

Wellness

Concerns & Symptoms

Elective Surgical Conditions

Chronic Conditions

Acute Conditions

Complex Catastrophic Conditions

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Is Care Management Effective?

- Are drugs effective?
- Is a scalpel effective?

It depends

- Which population?
- What point in time?
- What intervention?
- What outcomes of interest?
- What time horizon?
- What evidence threshold?

Competing Intervention Design Philosophies

<table>
<thead>
<tr>
<th>HOLISTIC</th>
<th>TARGETED</th>
</tr>
</thead>
<tbody>
<tr>
<td>Many “triggers”</td>
<td>Targeting of Patients Based on Objective Criteria Based on Opportunity to Benefit from a particular intervention</td>
</tr>
<tr>
<td>General Assessment</td>
<td>Outreach Protocol</td>
</tr>
<tr>
<td>Multi-issue Care Plan</td>
<td>Intervention Protocol</td>
</tr>
<tr>
<td>Intervention Period as Coach Skeper Goals and Revised Care Plan</td>
<td>Consistent intervention process enables process improvement</td>
</tr>
<tr>
<td>Easier to design</td>
<td>Targeting protocol can be applied to comparison population for evaluation</td>
</tr>
<tr>
<td>Respects professionalism</td>
<td>Addresses patient complexity</td>
</tr>
<tr>
<td>Difficult to evaluate</td>
<td></td>
</tr>
</tbody>
</table>

Using Intervention Models to Explore Alternative Interventions

<table>
<thead>
<tr>
<th>Identified</th>
<th>Care Transition Nurse On Site</th>
<th>Telephonic</th>
</tr>
</thead>
<tbody>
<tr>
<td>Population/Spend</td>
<td>$100</td>
<td>$100</td>
</tr>
<tr>
<td>Patients Identified when still in hospital</td>
<td>$100</td>
<td></td>
</tr>
<tr>
<td>Target Rate</td>
<td></td>
<td>$46</td>
</tr>
<tr>
<td>Reach and Engagement Rate</td>
<td>$100</td>
<td>$41</td>
</tr>
<tr>
<td>Effectiveness Rate in avoiding need for readmission</td>
<td>$61</td>
<td>$13</td>
</tr>
<tr>
<td>Total Gross Savings</td>
<td>$20</td>
<td>$2</td>
</tr>
</tbody>
</table>

Illustrative
Intervention Design

Cause-Effect Model

Process Model

Evaluation Plan

Effect Measurement

Intervention Model

Business Process Workflow Diagram (BPW)

Projected Outcomes For Alternative Intervention Designs

Activity Data to

Calculated Actual Outcomes

Clinical Program Operations

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Illustrative

Number of IP admissions per 1000 members identified with CHF, by percentile of risk score

Observed rate per 1000

Overall IP Rate

Predicted rate per 1000

Overall IP Rate

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Finding Target Penetration that Yields Max Net Savings: Maximizing Beneficial Impact for Members for the Amount Spent

Max Net Savings Signature

Dynamic Models

• Thinking like an accountant analyzing accounts receivable
Dynamic Models

Illustrative

Case Management

Quarterly Economic Impact

Dynamic Models

Illustrative

Chronic Condition Management

Quarterly Economic Impact

Analyzing Uncertainty

Using Monte Carlo Simulation

Assumptions

Calculations

90% Interval of Uncertainty
Chronic Condition Management—Sensitivity Analysis

2014 Cumulative Net Savings Frequency Distribution

2014 Cumulative Net Savings Variable Sensitivity

Contribution to Variance

Illustrative

Example of “Hurricane Diagram”

WCM Solution Cumulative Net Savings

Range of Outcomes—Cumulative Portfolio Net Savings

Modeling Geographically-Sensitive Interventions

In-Hospital Care Transition Nurse

Table: Geographically-Sensitive Interventions

<table>
<thead>
<tr>
<th>County</th>
<th>Facilities</th>
<th>NCMs</th>
<th>Annual Net Savings</th>
</tr>
</thead>
<tbody>
<tr>
<td>Oakland</td>
<td>91</td>
<td>8</td>
<td>x</td>
</tr>
<tr>
<td>Wayne</td>
<td>85</td>
<td>10</td>
<td>x</td>
</tr>
<tr>
<td>Kent</td>
<td>22</td>
<td>4</td>
<td>x</td>
</tr>
<tr>
<td>Washtenaw</td>
<td>19</td>
<td>3</td>
<td>x</td>
</tr>
<tr>
<td>Ingham</td>
<td>72</td>
<td></td>
<td>x</td>
</tr>
<tr>
<td>Kalamazoo</td>
<td>12</td>
<td>2</td>
<td>x</td>
</tr>
<tr>
<td>All Other Counties</td>
<td>364</td>
<td></td>
<td>x</td>
</tr>
</tbody>
</table>
The Two Key Challenges to Measurement

**VARIATION**
- Noise > Signal
- Noise = “common cause” or “random” variation in people and their response to disease and treatment

**BIAS**
- Comparison group is not truly comparable
Regression to the Mean
Case Management in Senior Population
Cost per Case before and after referral

n=11,768

Illustrative

Regression to the Mean
Case Management in Senior Population
Cost per Case before and after referral

n=11,768

Illustrative

Regression to the Mean
Case Management in Senior Population
Cost per Case before and after referral

n=11,768

Illustrative

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*Post date ranges in relation to 5-10 days after targeting.
Regression to the Mean

Solution = Outcomes Monitoring with "Re-qualification"

Ramp-Up  | Intervention | Steady State
---|---|---
Pre-Intervention Actual | Pre-Intervention Trend | Expected Post-Intervention Trend | Post-Intervention Actual

Solution = Outcomes Monitoring with "Re-qualification"

Ramp-Up  | Intervention | Steady State
---|---|---
Pre-Intervention Actual | Pre-Intervention Trend | Expected Post-Intervention Trend | Post-Intervention Actual

Applying Outcomes Monitoring to a Vendor-delivered Disease Mgmt Program
Dynamic ACO Financial Model

- ACO gets into financial trouble if their utilization efficiency success outpaces the market conversion to performance-based reimbursement and the ACO’s efforts to reduce its fixed cost base.
- Deals with health plans can be structured to reduce or share this transition risk.
- The key is to create a dynamic model of the economics from all parties’ perspectives, with believable assumptions and the right balance of simplicity vs. detail.
Summary

- ACO success requires attention to “ACO Stack”
- Primary Care vs. Health System Model ACO structure
- IT emphasis on care planning & care delivery coordination
- Importance of actively structured data
- Importance of models, not just reports
- Models should address uncertainty and dynamics

Thank You!

Questions

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