Developing the Economic Model for a Successful ACO

AMGA ACO Learning Collaborative
Swissotel, Chicago

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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

- People
- Process
- Technology
- Culture
- Economics
- Leadership
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**
  - Reduce Duplication of Services
  - Reduce Rate of Avoidable Clinical Events
  - Reduce Resources Per Clinical Service
  - Reduce Use of Low Value Services of Specialists and Facilities
  - Increase Price per Clinical Service or Episode

- **Process Improvement Strategies**
  - Health Information Exchange
  - Clinical Decision Support
  - Patient Self-Management Support
  - Care Coordination
  - Lean
  - PCP Referral Influence

**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 IT, the savings accrue to the health plans.”
2 Ways Out of Structural Dilemma #1

**Dominant Payer with Resources and a Social Mission**
(Willing to invest even if some benefits accrue to other payers)
- Medicare
  - Meaningful Use
  - ACO Gain Sharing
  - Comparative Effectiveness
  - Demonstrations
- Some non-profit Blues plans with high local market share
  - PCMH
  - P4P
  - Organized Systems of Care

**Provider with Mostly-Exclusive Relationship with Payer**
(May start as a niche but then grow by outcompeting others)
- Health Systems
  - Kaiser Permanente, Geisinger
- Plan-initiated
  - HealthSpring?
- Disease-specific
  - McKesson/US Oncology?
- Coops formed with reform bill funding?
Fundamental Structural Dilemma #2

- Specialist
- Specialist
- Hospital & Specialists
- Hospital
- Specialty Group Practice
- Employee Health Clinic
- Home Health
- Care Mgmt Vendor
- Nursing Home
- DME Supplier

 Patients that have a Care Relationship with PCMH
Fundamental Structural Dilemma #2

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

...and they are not going to be happy.
Pre-1990’s Delivery System Model

- Health Plan
- Specialist
- Hospital
- Primary Care
Idealized 1990’s “Health System” or “Staff-Model HMO” Model
Conventional 2000’s Organizational Alignment

- Health Plan
- Payer
- Care Manager

- Specialist
- Physician Organization
- Primary Care

- Hospital
- Hospital System
- Hospitalist
Integrated Delivery System ACO Model

Health Plan  Specialist  Hospital

Care Manager  Primary Care  Hospitalist

Accountable Care Organization
Primary Care-based ACO Model

Co-Managed Service Lines
- Health Plan
- Specialist
- Hospital

Primary Care-based ACO
- Care Manager
- Primary Care
- Hospitalist
Alignment of Specialists Depends on the Focus of their Practice

Ambulatory Care and Population Management

- General Internists
- Family Practitioners
- Pediatrics
- Mid-L evels focused on ambulatory care
- Nurse Care Managers

Cardiologists focused on Heart Failure
Endocrinologists focused on Diabetes
Rheumatologists focused on chronic Osteoarthritis
Anesthesiologists focused on pain mgmt
Psychiatrists focused on depression
Physiatrists focused on chronic back pain
Pulmonologist focused on COPD

Inpatient Care and Procedures

Heart & Vascular Service Line Co-management LLP
- Cardiologists focused on CCU
- Interventional Cardiologists
- Cardiovascular Surgeons

Cancer Service Line Co-management LLP
- Surgical Oncologist
- Medical Oncologist
- Radiation Oncologist

Transitions of Care & Resource Stewardship

Hospitalists

Length of Stay & Referral “Keepage”

Pathologists
Anesthesiologists in OR
Radiologists
Emergency
Pulmonologist in Critical Care
Orthopedic Surgeons
Physiatrists focused on surgical rehab

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“Cooperative” Model

Look familiar?

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Health Information Technology

New Vision

Accountable Care
Patient Centered
Population
Process
Guidelines & Protocols
Measures

Going Paperless
Clinical Data Accessibility, Efficiency, Security

Old Vision
Health Information Technology

New Vision

Process

Old Vision

Data
Systems to Enable Process Transformation

- Care Planning
- Care Delivery

- 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

Passively Structured
- Text-to-code logic
- Commands to include text blocks in notes
- Loosely structured messages

Actively Structured
- Registry
- Questionnaire
- Form-based Template Charting
- Problem-oriented clinical documentation templates
- Tightly structured messages

Human readable
- Human readable with more consistent formatting
- Case finding

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IT Framework to Support ACOs

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

**Clinical Workstation**
- Results
- Profiles
- In Box
- Schedule
- Guidelines

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

**Patient Apps**
- Results
- Coaching
- Telemedicine
- Care Plan
- Questionnaire

**Clinical Process Mgmt**
- Process Designer
- Process Simulation
- Process Monitoring
- Questionnaire Designer
- Order/Result Mgmt
- Clinical Protocol Mgmt
- Care Relationship Mgmt
- Call Center Integration
- E-mail, Text & IM

*US patents #7020618, 7707057

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Analytic Data Repository Framework to Support ACOs

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

Analytic Data Repository
- Raw Versioned Data
- Analyzable Data
  - Normalized
  - Documented
  - With derived entities and attributes
- Cubes & Other Summary Data Structures
- Reports & Reporting Applications
- Data Derivation Engines & Services
  - Disease ID
  - Gaps in Care
  - Episodes of Care
  - Risk Scores
  - Care Relationships
  - Specialty / Peers
  - Referral Relationships
  - Etc.

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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
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

**HOLISTIC**

- Many “triggers”
  - General Assessment
  - Multi-Issue Care Plan
  - Intervention Period as Coach Evolves Goals and Revised Care Plan

- Easier to design
- Respects professionalism
- Addresses patient complexity
- Difficult to evaluate

**TARGETED**

- Targeting of Patients Based on Objective Criteria Based on Opportunity to Benefit from a particular intervention
  - Outreach Protocol
  - Intervention Protocol

- Consistent intervention process enables process improvement
- Targeting protocol can be applied to comparison population for evaluation

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Using Intervention Models to Explore Alternative Interventions

### Care Transition Nurse On Site
- Identified Population/Spend: $100
- Patients Identified in when still in hospital: 100%
- Target Rate: $100
- Reach and Engagement Rate: 65%
- Effectiveness Rate in avoiding need for readmission: $65
- Total Gross Savings: $20

### Telephonic
- Identified Population/Spend: $100
- Patients Identified in when still in hospital: 48%
- Target Rate: $48
- Reach and Engagement Rate: 86%
- Effectiveness Rate in avoiding need for readmission: $13
- Total Gross Savings: $2

Illustrative

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Intervention Design

Includes

Cause-Effect Model

Includes

Process Model

Includes

Evaluation Plan

Includes

Effect Measurement

Supports assumptions of

Intervention Model

Includes

Business Process Workflow Diagram (BPD)

Includes

Activity Data

To

Calculated Actual Outcomes

Evaluated for

Clinical Program Operations

Orchestrates

Project Outcomes for Alternative Intervention Designs

Enables calculation of

Effect Measurement

Confirms plausibility of

Corresponding Diagrams

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

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

Diabetes Disease Management

Gross Savings

Cost

Net Savings

Target Penetration Rate (as % of Diabetes population)

Dollars

Fixed Cost

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Max Net Savings Signature

Chronic Disease Management

- 47% of Ischemic Heart Disease
- 41% of Diabetes
- 87% of Congestive Heart Failure
- 34% of COPD
- 20% of Asthma

Variable Cost PMPM vs. Net Savings PMPM

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Dynamic Models

• Thinking like an accountant analyzing accounts receivable
Dynamic Models

Chronic Condition Management

Quarterly Economic Impact

- Benefit Cost Savings
- Operational Costs
- Investment Costs
- Quarterly Economic Impact

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Analyzing Uncertainty Using Monte Carlo Simulation

Assumptions

Calculations

90% Interval of Uncertainty
Chronic Condition Management—Sensitivity Analysis

2014 Cumulative Net Savings Frequency Distribution

- $10M
- $4M
- $18M
- $32M
- $46M
- $60M

2014 Cumulative Net Savings Variable Sensitivity

- Total Spend Reduction for Engaged Members: 71%
- Member Reach Rate (% of targeted members reached): 17%
- Engagement Rate (% of reached members engaged): 7%
- Double Counting Assumption: 2%
- MA PPO Annual Medical Spend Growth Rate Above Inflation: 1%
- MA PPO Annual Inflation (Program Costs) Growth Rate: 1%
- Average Length of Regular Engagement Phone Calls (min): 1%
- Other: 1%

Illustrative

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Example of “Hurricane Diagram”
WCM Solution Cumulative Net Savings

Range of Outcomes—Cumulative Portfolio Net Savings

Note: Based on a Monte Carlo analysis with 10,000 trials, and triangular distributions on 72 input variables for entire portfolio

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## Modeling Geographically-Sensitive Interventions

### In-Hospital Care Transition Nurse

<table>
<thead>
<tr>
<th>County</th>
<th># Facilities</th>
<th># NCMs(^1)</th>
<th>Annual Net Savings</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Engaged Locally</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Oakland County</td>
<td>85</td>
<td>10</td>
<td>$ x</td>
</tr>
<tr>
<td>Wayne County</td>
<td>91</td>
<td>8</td>
<td>$ x</td>
</tr>
<tr>
<td>Kent County</td>
<td>22</td>
<td>4</td>
<td>$ x</td>
</tr>
<tr>
<td>Washtenaw County</td>
<td>19</td>
<td>3</td>
<td>$ x</td>
</tr>
<tr>
<td>Ingham County</td>
<td>7</td>
<td>2</td>
<td>$ x</td>
</tr>
<tr>
<td>Kalamazoo County</td>
<td>12</td>
<td>2</td>
<td>$ x</td>
</tr>
<tr>
<td><strong>Engaged Telephonically</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>All Other Counties</td>
<td>364</td>
<td></td>
<td>$ x</td>
</tr>
</tbody>
</table>

\(^1\) NCMs = Nurse Care Managers

[Map showing targeted counties]

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Modeling Provider Incentive Programs
Savings for Customer X for 41 Initiatives in the BCBSM Physician Group Incentive Program

### Projected benefit cost savings
Annual savings by initiative category

<table>
<thead>
<tr>
<th>Year</th>
<th>Service utilization</th>
<th>Condition</th>
<th>Clinical IT</th>
<th>Core clinical process</th>
<th>New group</th>
<th>Planned</th>
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</thead>
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<tr>
<td>2010</td>
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<td></td>
<td></td>
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<tr>
<td>2011</td>
<td>$6,281</td>
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<tr>
<td>2012</td>
<td>$7,530</td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>2013</td>
<td>$8,472</td>
<td></td>
<td></td>
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</tbody>
</table>

### Projected benefit cost savings
Annual savings by initiative category as % of total benefit cost

<table>
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<tr>
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<th>Service utilization</th>
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<th>Core clinical process</th>
<th>New group</th>
<th>Planned</th>
</tr>
</thead>
<tbody>
<tr>
<td>2010</td>
<td>0.00%</td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>2011</td>
<td>0.00%</td>
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<td></td>
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<tr>
<td>2012</td>
<td>0.00%</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2013</td>
<td>0.00%</td>
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</tr>
</tbody>
</table>

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REPORTS vs. MODELS

Looking back

Looking ahead
The Two Key Challenges to Measurement

<table>
<thead>
<tr>
<th>VARIATION</th>
<th>BIAS</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Noise &gt; Signal</td>
<td>• Comparison group is not truly comparable</td>
</tr>
<tr>
<td>• Noise = “common cause” or “random” variation in people and their response to disease and treatment</td>
<td></td>
</tr>
</tbody>
</table>
Regression to the Mean

Case Management in Senior Population
Cost per Case before and after referral
n=11,768

Average Cost Per Case (PMPM)

Pre Intervention (3 months)  Post Intervention (3 month)

6,533  3,450

47.1% Reduction!
$3,083 Savings Per Case!
Regression to the Mean

Case Management in Senior Population
Cost per Case before and after referral

n=11,768

Days in Relation to Targeting for Case Management*

Cost Per Member Per Month

Engaged

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

Case Management in Senior Population
Cost per Case before and after referral

n=11,768

*Post date ranges in relation to 5-days after targeting.

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Regression to the Mean

Solution = Outcomes Monitoring with “Re-qualification”

Illustrative
Regression to the Mean

Solution = Outcomes Monitoring with “Re-qualification”

Illustrative Regression to the Mean

Pre-Intervention Actual
Pre-Intervention Trend
Expected Post-Intervention Trend
Post-Intervention Actual

Mon 1 Mon 2 Mon 3 Mon 4 Mon 5 Mon 6 Mon 7 Mon 8 Mon 9 Mon 10 Mon 11 Mon 12 Mon 13 Mon 14 Mon 15 Mon 16 Mon 17 Mon 18 Mon 19 Mon 20 Mon 21 Mon 22 Mon 23 Mon 24 Mon 25 Mon 26 Mon 27 Mon 28

Ramp-Up Intervention Steady State

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Applying Outcomes Monitoring to a Vendor-delivered Disease Mgmt Program
Using Statistical Models

Model 2
(Preferred Model)

BEFORE initiative started level and slope for PGIP radiology initiative participants based on all information from non-participants and participants

Slope = 0.65

Elevation on intercept $-0.28$

AFTER initiative started level and slope for PGIP radiology initiative participants

Slope = 0.33

1.28%

Future saving based on model

Time

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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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