Evidence Based Medicine: Improving Patient Outcomes

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OBJECTIVES

- The use of Evidence-Based Medicine (EBM) to improve clinical outcomes using clinical decision support (CDS) and quality measurement

- The application of EBM at the point-of-care (Active CareTeam) to enable the patient-centered medical home (PCMH) and accountable care organizations (ACOs)
Agenda

- Chronic Diseases
- Accountable Care Organizations & Patient-centered Medical Home
- Advanced Clinical Analytics
  - Clinical Decision Support (CDS)
  - Registry Risk Stratification
- Advance Clinical Analytics at the Point of Care (POC)
  - A clinical tool for ACOs and PCMS – CDS, Care Management, Patient Portal
  - Advanced Quality Analysis and Measurement
- Final Thoughts
The number of people with chronic disease is increasing
- 2000: 125 M
- 2010: 141M
- 2030: 171M

By 2006, 1 in 4 Americans had multiple chronic conditions
- 1 condition 22.3% (90% of patients 65 years and older)
- ≥ 2 conditions 28.0% (73%)

Leading chronic disease vary across age groups but across all ages hypertension, followed by cholesterol disorders are the most common
Impact of Chronic Diseases

- In 2009, 145 million people—almost half of all Americans—live with a chronic condition.

- NHE grew 4.0% to $2.5 trillion in 2009, or $8,086 per person, and accounted for 17.6% of Gross Domestic Product (GDP)

- Percentage of health care spending for patients with chronic conditions increased from 78 percent (2002) to 84 percent (2009)

Healthcare Spending Per Capita

Health Care Spending Increases With the Number of Chronic Conditions

Source: Medical Expenditure Panel Survey, 2006
Accountable Care Organizations (ACOs)

- Flexible healthcare model that supports risk and non-risk business model
- Provides an organizational framework for the care of a population
- Includes health plans, hospitals, and physicians who serve the populations
- Facilitates payment reform

Patient-Centered Medical Homes (PCMHs)

- Provider-led healthcare team
- Coordination of care for patients in a practice with chronic diseases
- Represents a partnership between the patient and the provider
- Facilitates payment reform
Key Technical Domains to Support Chronic Disease Management

- **Clinical Decision Support**
  - Insufficient decision-support features in many available EHRs

- **Registries**
  - Highly functional, multi-disease management tools not widely available

- **Team Care**
  - Real-time communication capacities between members of the team often not available in commercial EHRs

- **Care Transitions**
  - Lack of integration of inpatient and outpatient EHRs required because of a highly fragmented environment

- **Personal Health Records**
  - Lack of uptake by patients; low health literacy; hesitancy among providers to provide patient information

- **Telehealth**
  - Currently outside of nearly all EHRs; extra cost; need to help practices select among outside vendors

- **Measurement**
  - Commercial EHRs often unable to abstract data to perform this type of measurement; need for harmonized quality and efficiency measures
Advanced Clinical Analytics
ActiveHealth Background

1998 Founded
700 Employees
20 Full-Time Physician Experts

- Founded by Lonny Reisman MD
- Evidence-based health IT solutions & care programs
- Proven quality & cost benefit for 20+ million lives
- Over 17 million alerts
- Headquartered in NYC (R&D, IT)
- Service centers: Chantilly (VA), Chicago, Denver, High Point (NC), and NYC
- Data management unit (HDMS) based in Cleveland and Chicago
- Clients: self-funded employers, health plans, health systems, and health information exchanges
CareEngine uses Evidence-Based Medicine to identify Actionable Opportunities

Collect Patient Data

Compare to Evidence-Based Medicine

Identify & Communicate Gaps in Care
The Anatomy of a Clinical Decision Support Rule

- **Patient Data**
  - CareEngine Logic

- **Clinical confirmation**
  - Validate clinical scenario

- **Exception screening**
  - Exclude patient who have contraindications

- **Alert generation**
  - Send reminder
Advanced clinical decision support should support all stages of health.
MEDICAL ERRORS: 46/1000 potentially serious medical errors were identified

HOSPITALIZATIONS: 8.4% fewer hospitalizations

PAID CLAIMS: $8.07 PMPM lower across the study population

CHARGES: Average PMPM charges (vs. paid claims) in the treatment group were reduced by $21.92 (6.1%) vs. control group

HOSPITALIZATION: 95% of savings was due to decreases in inpatient charges and associated professional charges

CAUSALITY: After the study, both groups received advanced CDS, and differences between the groups disappeared
Clinical Analytics at the Point of Care
Active CareTeam at Work

Delivers real-time CDS at the point of care
Registry Functionality
Clinical Risk Management

Looking across the health spectrum to support the ACO and PCMH

**Validation**
- Does patient really have this condition/disease?

**Stratification**
- How severe is this patient’s condition?

**Opportunity**
- How can we influence this patient’s care?
CareEngine-Powered Population Health Profile

Healthy Members → At Risk Members → Acute/Complex → Chronic Conditions

Advanced Clinical Analytics provides Clinical Decision Support Across the Population Health Spectrum
Incremental DM Program Savings

METHODOLOGY
Large-scale commercial population of 200,000 members

Control Group
Members *not meeting criteria* as needing DM interventions.

Intervention Group
Members *meeting criteria* as needing DM interventions.

RESULTS

COST TREND INCREASES:
Increase of **8.9%**.

COST TREND INCREASES: Increase of **6.7%**.

COVERED CHARGES: **$3.30***
PMPM lower across the entire population.

* 2008 dollars
Quality Analysis & Measurement
Active CareTeam at Work

Quality: Monitoring and Measuring Performance
# Active CareTeam at Work

## Financial Reporting Analytics

### ActiveAnalytics - Chronic Risk

<table>
<thead>
<tr>
<th>Category</th>
<th>High Risk Members</th>
<th>Medium Risk Members</th>
<th>Low Risk Members</th>
<th>No Current Condition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Member Distribution</td>
<td>28%</td>
<td>8%</td>
<td>5%</td>
<td></td>
</tr>
<tr>
<td>Total Paid Spend</td>
<td></td>
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<tr>
<td>Inpatient Spend</td>
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<tr>
<td>Outpatient Spend</td>
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<td>Professional Spend</td>
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<tr>
<td>Pharmacy Spend</td>
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<tr>
<td>Hospital Admissions</td>
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<tr>
<td>Care Considerations</td>
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</tr>
</tbody>
</table>

### ER Dashboard

- **Overall ER Trends**
  - ER Visits for Non-Emergent Care
  - Frequent Users of ER Services
- **ER Benchmarks**
  - Rolling Incurred View of Claims Paid from Apr 2007 through Jun 2010
  - Report Period: Apr 09-Mar 10, Apr 08-Mar 09, % Change
  - Measure Type: Allowed PM/EM, Paid PM/EM, Services/1000
  - Allowed: $16,77, Paid: $11,26, % Difference: 35.9%

- **ER Financial Report**
  - Mozilla Firefox
  - http://localhost/ac_demo_jan/er.html
Performance Analysis based on Quality Measurement

- Quality Measures (QMs) analyzed on a number of levels
  - Physician
  - Organization
  - Population

- For organizations taking risk, e.g., ACOs, or that need to demonstrate quality e.g., PCMHs, QM are used to evaluate overall performance and impact of accountable providers

- Performance Metrics include measures of cost, efficiency, and clinical quality

- Reporting allows for trend analysis and comparison to benchmarks for the performance metrics

- Metrics based on industry-defined measures and methodologies where appropriate
Final Thoughts
Summary

- Advanced clinical analytics include:
  - Advanced clinical decision support
  - Quality measurement
  - Clinical risk stratification and registry functionality

- Advanced clinical analytics that use EBM at the point of care are essential to support ACOs and PCMHs

- Advanced clinical analytics when used in the clinical workflow:
  - Improve clinical processes and outcomes
  - Reduce utilization and paid costs PMPM
  - Facilitate improved disease management for patients at risk
Questions

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