DISCLAIMER: The views and opinions expressed in this presentation are those of the author and do not necessarily represent official policy or position of HIMSS.

CLINICAL INFORMATICS INSTITUTE

Shape the future of Healthcare for Tomorrow

Population Health and Data Analytics

Presented by:
Jennifer Polello, MHPA, PCMH CCE, MCHES
Arcadia Healthcare Solutions
Learning Objectives

Following this presentation, attendees will have knowledge and awareness three content areas:

1. Define population health and corresponding technologies, processes and tools used to measure and manage patient data

2. Identify target populations which should be monitored and how to identify trends in outcomes

3. Identify common strategies for population health management
Executive Summary

- Effective population health management can lead to improved clinical outcomes by engaging all members of the care team and the patient in the development and implementation of the care plan.

- Successful population management programs require both EHR and claims data, supplemented by other operational data sources that can provide real-time monitoring for efficient care coordination.

- Chronic disease and multi-condition patients are an ideal target audience, and if done successfully can improve financial margins in certain pay-for-performance and capitated environments.

- Population health management is a journey that requires a sound strategy, a strong foundation of data & technology, as well as the effectively trained clinical team to make a significant and lasting impact.
## The Changing Landscape

### Payment Reform
The number of systems with total cost of care contracts doubled in the last 2 years.

### Market Pressure
296 hospital M&A transactions in the last 3 years – more than the previous 5.

### Patient Consumerism
Average deductible has risen 88% in the commercial market.

### Capacity and Access
20% of the population lives in an area with a PCP shortage. The ACA brings 14.7M new insured patients.
A Changing and Dynamic Healthcare Market

Health Systems need data-driven strategies born from flexible technology and clinical/process expertise to achieve sustained transformation towards PHM.

1. Fee-for-Service
   - EHR adoption, Meaningful Use

2. Pay-for-Performance
   - Quality Measurement

3. Shared Savings
   - Medical Expense Management

4. Accountable Care
   - Care Management

5. Global Payment
   - Full risk & capitation

- EHR Incentives
- Meaningful Use
- PQRS Penalties
- CMS MSSP
- CMS MSSP
- PQRS Penalties
- CMS MSSP
- CMS MSSP
- CMS MSSP
- Commercial
- Commercial

- Install EHR Platform
- Optimize EHR Use
- Aggregate & Analyze Claims/Clinical Data
- Continuous Clinical & Ops Improvement
- Sustain High Performance

- EHR & Practice Diagnostics
- Quality Measurement
- Risk Adjustment
- Advanced Utilization Analysis
- Patient Engagement

Program Needs

Analytics Needs

CLINICAL INFORMATICS INSTITUTE
Building Blocks for Reform

- Better Health
- Better Care
- Lower Costs

- Care Delivery Innovations
- Provider Feedback & Measurement
- Payment Reform

Data and Technology Foundation

*Adapted from the Institute for Health Care Improvement’s Triple Aim Initiative
What is Population Health?

- Initially used by researchers, policymakers and public health

- Has been defined as “The health outcomes of individuals including the distribution of such outcomes within a group” (Kindig and Stoddard 2003)

- Key component of the IHI’s Triple Aim (Berwick 2008) to improve the health care system

- Also includes the measurement, not just outcomes but factors that influence them (Dunn and Hayes 1999)

- Applies foundational public health principles to all aspects of health
How Does One Impact Populations?

Smallest Impact

Counseling and Education

Clinical Interventions

Long-lasting Protective Interventions

Change the Context
to make individuals default decisions healthy

Socioeconomic Factors

Largest Impact

Eat healthy, be physically active

Prescriptions for high blood pressure, high cholesterol, diabetes

Immunizations, brief intervention, cessation treatment, colonoscopy

Fluoridation, trans-fats, smoke-free laws, tobacco tax

Poverty, Education, Housing, Inequality

*Source: CDC*

CLINICAL INFORMATICS INSTITUTE
A Model for Care

The Chronic Care Model is the foundation for clinical transformation that lead to improved outcomes.
Identifying Populations

Patients can be classified, monitored and approached by care teams in with multiple strategies. Accurately identifying your patients relies on validated and integrated data and a strong analytics platform.

**Dashboards** to track entire programs (PCMH, ACO, etc…) – useful for system-wide analysts and care coordinators

**Measure set performance** that impact patient outcomes and financial incentives – identify low hanging fruit and challenge problems

**Flexible filters** that support drill down from enterprise, to site, to provider, to patient; across disease states, demographics, and other factors.

**Tracking Reports** to show progress over time

**Geocoding** to identify location-based health factors

**Care Team Focus** to make data actionable for specific patients
Critical Dimensions of PHM

**Technology**
- CDSS
- Registries
- Integrated/Predictive Data Analytics

**Care Models**
- Care Management
- Care Coordination
- Medical Home
- Evidence-based Care

**Patient Engagement**
- Patient Centered Interactions
- Shared decision making

**Continuous Quality Improvement**
- Enhanced Access
- Care Coordination
- Scorecards

---

**Value**
- POC decisions
- Real time tracking
- ID High risk/high cost patients

**Value**
- Focused Care
- Community-based
- Transformative to include the patient

**Value**
- Empowers the patient
- Inclusive of all care team members

**Value**
- Values the patient
- Incentivizes the care team
- Provides a culture of improvement

---

Changing culture: teams, focused interventions base on quality, coordinated care
Measuring the Value of a PHM Program

### PCMH
- PCMH Level 3 recognition achieved 18 months ahead of scheduled, leading to additional
  - $3.1 Million

### Expanded Capacity
- New care models and better aligned teams let 100 providers see an additional 3 visits per day
  - $5.9 Million

### Incentive Contracts
- Improving quality scores by an average of 7.25% points on incentive and pay-for-performance contracts
  - $1.6 Million

### Provider Satisfaction
- Provider satisfaction does not falter, avoiding attrition spending on per diem providers, drops
  - $1 Million

The 3 Phases of Building Change

1. **Plan and Engage**
   - Capture the baseline data for planning
   - Clinical, IT and Operations steering committees plan organizational transformation around MU and PCMH care model

2. **Drive Change**
   - Changing workflows takes its toll.
   - Provider productivity increases month-over-month through Q3
   - High variability in both Quality and Productivity measures

3. **Sustain Improvement**
   - Variability falls substantially, leading to predictable improvement
   - Quality measure scores improve 10-55%
   - Provider productivity rises 15 to 17 visits per provider per day
Tracking the Value of a PHM Program

Plan & Engage

Drive Change

Sustain Improvement

CAPACITY, EFFICIENCY & VOLUME

QUALITY INCENTIVES (POINTS CHANGE)

Visits/Day per provider

Minutes Charting per Visit

March 2013
Coaching In Place for 3 Months

June 2013
Measure Reporting Deployed

October 2013
SM Process Rollout Begins

December 2013
95% Providers at MU Targets

March 2014
PCMH Level 3 Submission

+10 Developmental Delay Check

+9 Colorectal Cancer Screen

+6 CAD Lipid Control

+4 Asthma Control Med

$11M in new revenues

$1M in savings

CLINICAL INFORMATICICS INSTITUTE
Challenges of Population Health Mgmt.

1. **Data**: Inability to access EHR data, to combine data from multiple sources, lack of confidence in integrity of data sources

2. **Patient ID**: Who are my patients? Empanelment struggles, ID of high risk/high cost patients

3. **Care Coordination**: Patient mobility and inability to share patient info

4. **Patient Engagement**: Activate and Motivate (reactive/proactive, physician led/patient led)
Thank you!

Jennifer Polello
Principal Clinical Consultant
Jennifer.Polello@arcadiasolutions.com
@ArcadiaHealthIT
Population Health & Data Analytics
Orlando Health’s Journey

Jonathan S Ware, MD
Medical Director of Population Health Management
Orlando Health
Objectives

- Describe Orlando Health’s strategy and tools used to manage population health data.
- Provide an overview of the population health implementation process.
- Discuss how this information is captured and used by clinicians at Orlando Health and other organizations across the continuum of care.
- Demonstrate real outcomes achieved in the Orlando Health population health strategy and the community they serve.
Population Health: Community Impacts

- Holistic approach to healthcare that aims to improve the health status of an entire community.
- Managing all aspects of health from wellness to complex care across the care continuum.
- Right care at the Right Time by the Right Person in the Right Setting.
Identification, Engagement and Targeted Intervention

• 8-year-old boy with Severe Persistent Asthma
• Hospitalized 4 Times Within 12-Month Period
• Taking Inhaled Steroids, Multiple Medications
• Absenteeism:
  – Parents missing work
  – Him missing school
• Presenteeism:
  – He’s not playing or exercising
  – Depressed?
• Used Population Health Software to Identify Others
• Engaged Parents and Patients
Example of Identification, Engagement and Targeted Intervention
Population Health Management and Behavioral Health

Maintain and/or improve the physical and biopsychosocial well being of individuals through cost-effective and tailored health solutions.

- Critical role of mental health treatment
- Patient engagement, education, activation
- Care coordination by non-physician team members
- Care team approach
Population Health: Strategy and Tools

• Utilize the Power of the Electronic Medical Record to:
  – Analyze specific measures.
  – Display information on dashboard.
  – Report specific measures and trends.
  – Give Meaningful Feedback.
Utilize the Population Health Management Software to Close Care Gaps
Utilize the Population Health Management Software to: Stratify by Priority
Utilize the Population Health Management Software to: Create Pursuit Lists
Utilize the Population Health Management Software to: Manage Chronic Conditions
Utilize the Population Health Management Software to: Measure & Report

Monthly Performance
Prev. Breast Cancer Screening
Population Health: Implementation
Population Health: Data Capture
Population Health: Data Capture

- <FormData FormOID="F_WEEK_1_2">
  - <ItemGroupData ItemGroupOID="IG_COMMON">
    <ItemData OID="I_SITE" Value="23" />
    <ItemData OID="I_SUBJECTID" Value="001" />
    <ItemData OID="I_VISIT" Value="2010-03-13" />
    <ItemData OID="I_VISITTIME" Value="09:12:28" />
  </ItemGroupData>
  <!-- Demonstration of the capability of ODM to include data points from EHRs -->
- <ItemGroupData ItemGroupOID="IG_PE_WEEK">
  - <ItemData OID="I_HEIGHT" Value="193">
    <MeasurementUnitRef MeasurementUnitOID="MU_CM" />
  </ItemData>
  <!-- cda:observation classCode="OBS" moodCode="EVN" -->
  <cda:templateId root="2.16.840.1.113883.10.20.1.31" />
  <!-- Result observation template -->
  <cda:id root="d11275e1-67ae-11db-bd13-0800200c9a66" />
  <cda:code code="50373000" codeSystem="2.16.840.1.113883.6.96" codeSystemName="SNOMED-CT" display="Body height" />
  <cda:statusCode code="completed" />
  <cda:effectiveTime value="20100313" />
  <cda:value xsi:type="PQ" value="193" unit="cm" />
</cda:observation>
</ItemData>
<table>
<thead>
<tr>
<th>Measure #</th>
<th>Measure Title</th>
<th>Measure Category</th>
<th>Actual Score</th>
<th>Target Score</th>
<th>Current Percentile</th>
</tr>
</thead>
<tbody>
<tr>
<td>Measure #1</td>
<td>Getting Timely Care, Appointments, &amp; Information</td>
<td>Patient/Caregiver Experience</td>
<td>70.00</td>
<td>90.00</td>
<td>70th Percentile</td>
</tr>
<tr>
<td>Measure #2</td>
<td>How Well Your Doctors Communicate</td>
<td>Patient/Caregiver Experience</td>
<td>70.00</td>
<td>90.00</td>
<td>70th Percentile</td>
</tr>
<tr>
<td>Measure #3</td>
<td>Patients’ Rating of Doctor</td>
<td>Patient/Caregiver Experience</td>
<td>70.00</td>
<td>90.00</td>
<td>70th Percentile</td>
</tr>
<tr>
<td>Measure #4</td>
<td>Access to Specialists</td>
<td>Patient/Caregiver Experience</td>
<td>59.00</td>
<td>60.71</td>
<td>70th Percentile</td>
</tr>
<tr>
<td>Measure #5</td>
<td>Health Promotion and Education</td>
<td>Patient/Caregiver Experience</td>
<td>75.50</td>
<td>75.71</td>
<td>70th Percentile</td>
</tr>
<tr>
<td>Measure #6</td>
<td>Shared Decision Making</td>
<td>Patient/Caregiver Experience</td>
<td>REPORT</td>
<td>REPORT</td>
<td>REPORT</td>
</tr>
<tr>
<td>Measure #7</td>
<td>Health Status/Functional Status</td>
<td>Patient/Caregiver Experience</td>
<td>REPORT</td>
<td>REPORT</td>
<td>REPORT</td>
</tr>
<tr>
<td>Measure #8</td>
<td>Risk Standardized, All Condition Readmissions</td>
<td>Care Coordination/ Patient Safety</td>
<td>15.50</td>
<td>15.45</td>
<td>80th Percentile</td>
</tr>
<tr>
<td>Measure #9</td>
<td>ASC Admissions: COPD or Asthma in Older Adults</td>
<td>Care Coordination/ Patient Safety</td>
<td>0.40</td>
<td>0.00</td>
<td>70th Percentile</td>
</tr>
<tr>
<td>Measure #10</td>
<td>ASC Admission: Heart Failure</td>
<td>Care Coordination/ Patient Safety</td>
<td>0.50</td>
<td>0.18</td>
<td>70th Percentile</td>
</tr>
<tr>
<td>Measure #11</td>
<td>Percent of PCPs who Qualified for EHR Incentive Payment</td>
<td>Care Coordination/ Patient Safety</td>
<td>80.00</td>
<td>90.91</td>
<td>70th Percentile</td>
</tr>
<tr>
<td>Measure #12</td>
<td>Medication Reconciliation</td>
<td>Care Coordination/ Patient Safety</td>
<td>87.04</td>
<td>90.00</td>
<td>80th Percentile</td>
</tr>
<tr>
<td>Measure #13</td>
<td>Falls: Screening for Fall Risk</td>
<td>Care Coordination/ Patient Safety</td>
<td>0.00</td>
<td>73.38</td>
<td>Below 30th Percentile</td>
</tr>
<tr>
<td>Measure #14</td>
<td>Influenza Immunization</td>
<td>Preventive Health</td>
<td>60.38</td>
<td>100.00</td>
<td>60th Percentile</td>
</tr>
<tr>
<td>Measure #15</td>
<td>Pneumococcal Vaccination</td>
<td>Preventive Health</td>
<td>77.41</td>
<td>100.00</td>
<td>60th Percentile</td>
</tr>
<tr>
<td>Measure #16</td>
<td>Adult Weight Screening and Follow-up</td>
<td>Preventive Health</td>
<td>58.52</td>
<td>100.00</td>
<td>50th Percentile</td>
</tr>
<tr>
<td>Measure #17</td>
<td>Tobacco Use Assessment and Cessation Intervention</td>
<td>Preventive Health</td>
<td>95.11</td>
<td>90.00</td>
<td>90th Percentile</td>
</tr>
<tr>
<td>Measure #18</td>
<td>Depression Screening</td>
<td>Preventive Health</td>
<td>0.00</td>
<td>51.81</td>
<td>Below 30th Percentile</td>
</tr>
<tr>
<td>Measure #19</td>
<td>Colorectal Cancer Screening</td>
<td>Preventive Health</td>
<td>61.73</td>
<td>100.00</td>
<td>50th Percentile</td>
</tr>
<tr>
<td>Measure #20</td>
<td>Mammography Screening</td>
<td>Preventive Health</td>
<td>68.97</td>
<td>99.56</td>
<td>60th Percentile</td>
</tr>
<tr>
<td>Measure #21</td>
<td>Proportion of Adults who had blood pressure screened in past 2 years</td>
<td>Preventive Health</td>
<td>24.44</td>
<td>90.00</td>
<td>Below 30th Percentile</td>
</tr>
<tr>
<td>Measure #22</td>
<td>Hemoglobin A1c Control (HbA1c) (&lt;8 percent)</td>
<td>At-Risk Population Diabetes (COMPOSITE)</td>
<td>38.57</td>
<td>36.50</td>
<td>90th Percentile</td>
</tr>
<tr>
<td>Measure #23</td>
<td>Low Density Lipoprotein (LDL) (&lt;100 mg/dL)</td>
<td>At-Risk Population Diabetes (COMPOSITE)</td>
<td>47.14</td>
<td>10.00</td>
<td>50th Percentile</td>
</tr>
<tr>
<td>Measure #24</td>
<td>Blood Pressure (BP) &lt;140/90</td>
<td>At-Risk Population Hypertension</td>
<td>65.71</td>
<td>79.65</td>
<td>50th Percentile</td>
</tr>
<tr>
<td>Measure #25</td>
<td>Tobacco Non Use</td>
<td>At-Risk Population IVD</td>
<td>65.91</td>
<td>78.81</td>
<td>70th Percentile</td>
</tr>
<tr>
<td>Measure #26</td>
<td>Aspirin Use</td>
<td>At-Risk Population IVD</td>
<td>86.36</td>
<td>97.91</td>
<td>70th Percentile</td>
</tr>
<tr>
<td>Measure #27</td>
<td>Percent of beneficiaries with diabetes whose HbA1c poor control (&gt;9 percent)</td>
<td>At-Risk Population IVD</td>
<td>80.00</td>
<td>90.00</td>
<td>80th Percentile</td>
</tr>
<tr>
<td>Measure #28</td>
<td>Percent of beneficiaries with hypertension whose BP &lt; 140/90</td>
<td>At-Risk Population hypertension</td>
<td>68.97</td>
<td>79.84</td>
<td>50th Percentile</td>
</tr>
<tr>
<td>Measure #29</td>
<td>Percent of beneficiaries with IVD with complete lipid profile and LDL control &lt; 100 mg/dL</td>
<td>At-Risk Population CAD (COMPOSITE)</td>
<td>68.97</td>
<td>79.84</td>
<td>50th Percentile</td>
</tr>
<tr>
<td>Actual Score</td>
<td>Target Score</td>
<td>Current Percentile</td>
<td>Points Achieved</td>
<td>Max Points Attainable</td>
<td>Domain Score</td>
</tr>
<tr>
<td>--------------</td>
<td>--------------</td>
<td>--------------------</td>
<td>-----------------</td>
<td>----------------------</td>
<td>--------------</td>
</tr>
<tr>
<td>70.00</td>
<td>90.00</td>
<td>70th Percentile</td>
<td>1.70</td>
<td>2.00</td>
<td>87.14%</td>
</tr>
<tr>
<td>70.00</td>
<td>90.00</td>
<td>70th Percentile</td>
<td>1.70</td>
<td>2.00</td>
<td>75.00%</td>
</tr>
<tr>
<td>59.00</td>
<td>60.71</td>
<td>70th Percentile</td>
<td>1.70</td>
<td>2.00</td>
<td>59.06%</td>
</tr>
<tr>
<td>75.50</td>
<td>76.71</td>
<td>70th Percentile</td>
<td>1.70</td>
<td>2.00</td>
<td>81.79%</td>
</tr>
<tr>
<td>REPORT</td>
<td>REPORT</td>
<td>REPORT</td>
<td>2.00</td>
<td>2.00</td>
<td></td>
</tr>
<tr>
<td>15.50</td>
<td>15.45</td>
<td>80th Percentile</td>
<td>1.85</td>
<td>2.00</td>
<td></td>
</tr>
<tr>
<td>0.40</td>
<td>0.00</td>
<td>70th Percentile</td>
<td>1.70</td>
<td>2.00</td>
<td></td>
</tr>
<tr>
<td>0.50</td>
<td>0.18</td>
<td>70th Percentile</td>
<td>1.70</td>
<td>2.00</td>
<td></td>
</tr>
<tr>
<td>80.00</td>
<td>90.91</td>
<td>70th Percentile</td>
<td>3.40</td>
<td>4.00</td>
<td></td>
</tr>
<tr>
<td>87.04</td>
<td>90.00</td>
<td>80th Percentile</td>
<td>1.85</td>
<td>2.00</td>
<td></td>
</tr>
<tr>
<td>0.00</td>
<td>73.38</td>
<td>Below 30th Percentile</td>
<td>0.00</td>
<td>2.00</td>
<td></td>
</tr>
<tr>
<td>60.38</td>
<td>100.00</td>
<td>60th Percentile</td>
<td>1.55</td>
<td>2.00</td>
<td></td>
</tr>
<tr>
<td>77.41</td>
<td>100.00</td>
<td>60th Percentile</td>
<td>1.55</td>
<td>2.00</td>
<td></td>
</tr>
<tr>
<td>58.52</td>
<td>100.00</td>
<td>50th Percentile</td>
<td>1.40</td>
<td>2.00</td>
<td></td>
</tr>
<tr>
<td>95.11</td>
<td>90.00</td>
<td>90th Percentile</td>
<td>2.00</td>
<td>2.00</td>
<td></td>
</tr>
<tr>
<td>0.00</td>
<td>51.81</td>
<td>Below 30th Percentile</td>
<td>0.00</td>
<td>2.00</td>
<td></td>
</tr>
<tr>
<td>61.73</td>
<td>100.00</td>
<td>50th Percentile</td>
<td>1.40</td>
<td>2.00</td>
<td></td>
</tr>
<tr>
<td>68.97</td>
<td>99.56</td>
<td>60th Percentile</td>
<td>1.55</td>
<td>2.00</td>
<td></td>
</tr>
<tr>
<td>24.44</td>
<td>90.00</td>
<td>Below 30th Percentile</td>
<td>0.00</td>
<td>2.00</td>
<td></td>
</tr>
<tr>
<td>38.57</td>
<td>36.50</td>
<td>90th Percentile</td>
<td>2.00</td>
<td>2.00</td>
<td></td>
</tr>
<tr>
<td>47.14</td>
<td>10.00</td>
<td>50th Percentile</td>
<td>1.40</td>
<td>2.00</td>
<td></td>
</tr>
<tr>
<td>65.71</td>
<td>79.65</td>
<td>50th Percentile</td>
<td>1.40</td>
<td>2.00</td>
<td></td>
</tr>
<tr>
<td>65.91</td>
<td>78.81</td>
<td>70th Percentile</td>
<td>1.70</td>
<td>2.00</td>
<td></td>
</tr>
<tr>
<td>86.36</td>
<td>97.91</td>
<td>70th Percentile</td>
<td>1.70</td>
<td>2.00</td>
<td></td>
</tr>
<tr>
<td>80.00</td>
<td>90.00</td>
<td>80th Percentile</td>
<td>1.85</td>
<td>2.00</td>
<td></td>
</tr>
<tr>
<td>68.97</td>
<td>79.84</td>
<td>50th Percentile</td>
<td>1.40</td>
<td>2.00</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>43.60</strong></td>
<td><strong>58.00</strong></td>
<td><strong>75.75%</strong></td>
</tr>
</tbody>
</table>
Population Health: Proven Outcomes

- Shared savings in all 3 of our ACO’s
- Higher MRA scores compared to region
- Lower cost of care
- Increased patient satisfaction
- Increased access to care
- CMMI Patient-centered Medical Neighborhood
- CMMI Bundle Payment for Care Improvement
Questions?