Population and Patient Centered Care: Transforming Data into Answers: How Data and Analytics Matter in Improving Quality of Patient Care

Shannon Sims, MD and Aldo Tinoco, MD
Monday, November 11, 2019
11:15a – 12:15p
Learning objectives:

• To understand what reports and tools are used in population health management within healthcare delivery organizations

• To understand how data in society-managed registries (ie. QCDRs) can influence healthcare outcomes at a macro level
High level overview of the ways data can make a difference in the quality of patient care in healthcare delivery organizations

• How retrospective quality measure reports are used
• Prospective decision support
• Real-time support
• Proactive care gap reports from data warehouse – (proactive tools so all year long could see where you stood with patients)
• How the process can repurpose the same components to include predictive analytics, esp for those at risk in the population at highest risk - to help at a more macro level when patients fall into multiple denominators
• How these steps are used to determine which type of interventions make sense
Population Health Platform Overview

- Population Stratification
- Care Mgmt. Workflow and Decision Support
- Patient Care Workflows
  - PCP Attribution
  - Patient Profile Creation
  - Clinical Profiling
  - Source Data
  - Real Time Clinical Intervention Engine

Measurements
- Health System Executive Decision Making
Proactive Care Management improves population health outcomes...

...when members and patients are matched with the correct program
Data is Necessary to Stratify Patients into Care Management Programs

<table>
<thead>
<tr>
<th>Target Patient Group</th>
<th>Complex Care</th>
<th>Chronic Conditions</th>
<th>Proactive Care</th>
<th>Care Transitions</th>
<th>Emergent Care</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>• 3+ chronic diseases</td>
<td>• 1-2 chronic diseases</td>
<td>• Controlled chronic disease</td>
<td>• High risk for readmission</td>
<td>• Frequent users of Emergency Rooms</td>
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<tr>
<td></td>
<td>• Uncontrolled (biometrics not w/in normal limits)</td>
<td>• Gaps in care</td>
<td></td>
<td>• Chronic DX, Medicare re-admit DX, high risk score</td>
<td>• Chronic DX, care gaps, 3+ ED visits</td>
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<tr>
<td>Type of Intervention</td>
<td>Chronic</td>
<td>Episodic</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Stratification</td>
<td>Monthly</td>
<td>Monthly</td>
<td>Monthly</td>
<td>Real- Time</td>
<td>Real-Time</td>
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<tr>
<td>Data</td>
<td>Claims, CCD, Eligibility</td>
<td>Claims, CCD, Eligibility</td>
<td>Claims, CCD, Eligibility</td>
<td>ADT, ORU</td>
<td>ADT, ORU</td>
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</table>
People’s Health States Change Over Time…and eligibility into Care Management Management Programs

Health is dynamic. A population health platform must be flexible and responsive to individual and family changing care needs.
Transforms Data into Actionable Knowledge and Workflow

1) Patients generate clinical and financial data

2) Data organized, aggregated, and stored in warehouse

3) Data processed and analyzed

4) Identifies, stratifies and prioritizes high risk patients with potential for impact

5) Prioritized interventions routed through workflow platform

6) Prompt execution of integrated care plan by care management team

- Claims
- Pharmacy
- Lab Result
- Biometric
- Hospital ADT
- EMR (pending)
Population Health Management Operations Platform Overview:

1. Aggregate broad clinical and claims data sets from health system partners and payers

2. Patient matching through a Master Patient Index

3. Patient Centric Data Warehouse

4. Data is run through a configurable rules platform

5. Drives mobile and desktop population health applications

6. Patient engagement applications

7. Performance dashboards and reports

8. Provider network affiliation data management with credentialing/contracting workflow

9. Payer Admin Platform

Index

Exchange

Data Warehouse

Rules

Analytics

Care Management

Care Mobile

Care Browser

Claims Service Exchange Portals Provider Rx RBM
# Physician Reporting

## Gaps in Care – Point of Care

### YOUR HEALTH PLAN

**Davy Jones, MD**

<table>
<thead>
<tr>
<th>Appointment Date</th>
<th>Member Last and First Name</th>
<th>DOB</th>
<th>Age</th>
<th>Gender</th>
<th>Conditions (X if present)</th>
<th>Open Gap(s)</th>
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<td>BENNET LIZZIE</td>
<td>06/21/1932</td>
<td>82</td>
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</table>

Report Date: December 19, 2014

- **Gaps in Care**
- **Physician Reporting**
- **Conditions (X if present)**
- **Open Gap(s)**
- **Member Last and First Name**
- **DOB**
- **Age**
- **Gender**
Challenges in Proactive Care Gap Identification

Quality Measure Design
Designed for measuring, not improving – Majority of quality measures are designed to measure retrospective quality, not prospective affecting of that quality (e.g., COPD new diagnosis initial spirometry HEDIS measure)
Meant for once-a-year run – Quality measures are not optimized for monthly runs and may not provide useful results until later in the measure year (e.g., Rheumatoid arthritis DMARD use)
Strict eligibility requirements – Strict eligibility makes sense for measuring quality, but not for affecting quality throughout the year

Data Challenges
Amount of historic data – There may only be a limited amount of historic data (a new rollout of a new line of business)
Incomplete data – Certain pieces of data required for some quality measures may be missing (e.g., facility bill types)
Additional data sources allow for higher specificity and tailoring of clinical intervention to the patient’s needs

60 year old male with a chronic triad of diabetes, coronary artery disease with a history of an AMI, and COPD; incurred 1 inpatient admission in the last 12 months

Scenario 1: Medical Claims Only

Scenario 2: Medical Claims, Pharmacy, Self-reported and Clinical Data

High Intensity Complex Care w/ Multi-disciplinary Care Team

Low Intensity Condition Care w/ Telephonic Monitoring and Follow-up

Medical Claims

- Persistent beta blocker treatment post-AMI admission
- “Good” health status
- Moderate exercise levels
- HbA1c < 7
- No COPD exacerbations in last 12 months
Generate a Data Quality Profile

Quality checks identify:

- Completeness of Data: Control totals ensure nothing was lost in transmission
- Gaps in Data: required fields (e.g., rendering NPI, paid amounts, procedure codes, patient demographics)
- Format and Content issues: valid values, range and distribution of values
- Duplicate Records
- Sanity Check on Key Metrics: rough cut at admits, per member per month (PMPM) costs
- Anomalies in Aggregate Data: enrollment counts, paid dollars by month, average age, members by gender
- Referential Integrity Issues (e.g., claims can be linked to members and providers)
Goals and Objectives of Data Quality

• Discover critical data issues *early* in the data acquisition and onboarding process
• Escalate critical issues internally and externally to client/payer to ensure awareness of impact and to allow adequate time to mediate
• Determine workarounds where necessary and feasible (e.g., augment provider data from other sources)
• Ensure stakeholder awareness of issues and understanding of impacts on stratification, reporting, analytics and clinical operations
• Ensure data is loaded to registry/reporting warehouse and transformed per specifications of the use case (i.e., operating rules for transforming data are correct and produce correct result)
• Ensure ongoing data feeds continue to be of sufficient quality to support continuing operations and reporting
  • Reconcile
  • Resolve
Quality Needs Span a wide range of clinically relevant data

- Health Risk Assessments (HRAs)
- Reference Lab Results
- Vitals/Biometrics
- Gaps in care, risk scores, risk groups
- ADT
- Clinical Narratives
- Structured Clinical Data from EHR
What is Provider Data used for?

Provider Directories: Use provider data in both print and web versions. Meet regulatory requirements and drive enrollment.

Provider Attribution: Uses provider data to assign the providers who will be held accountable for member care and to associate with quality measures.

Care Management and Utilization Management: Program support. Provider data used to identify Primary Care Providers, Admitting Physicians, and other providers responsible for patient care.

Analytics: Uses provider data to assess patient/physician adequacy per regulator requirements. Reports on marketability, financial efficiency of the network, and P&L.

Claims Payment: Uses provider data to determine Payee, Payee address, and reimbursement methods.

Network Analysis & Development: CMS approval is dependent on provider data to assess contracting needs and viability. All provider locations and services should be captured and updated regularly.

Regulatory Reporting: Provider data is required for CMS reporting on network adequacy and regulatory compliance.
Outcomes at the macro level

• Describe the ways in which data from QCDRs can affect population health outcomes at the macro-level by being used to influence policy, inform payers, and/or empowering patients
Aligning Reporting/Measurement Strategy with Value-oriented Outcomes

<table>
<thead>
<tr>
<th>Example metrics</th>
</tr>
</thead>
<tbody>
<tr>
<td>Greater Engagement Are we identifying and engaging the right patients?</td>
</tr>
<tr>
<td>- Reach and Assessment rates</td>
</tr>
<tr>
<td>- Graduation Rates</td>
</tr>
<tr>
<td>- Patient Care Plan Completion</td>
</tr>
<tr>
<td>- Progress Against Patients Goals</td>
</tr>
<tr>
<td>- ED Utilization Rate</td>
</tr>
<tr>
<td>- 30 day readmission rate</td>
</tr>
<tr>
<td>- Patient Experience (CAHPS)</td>
</tr>
<tr>
<td>Better Health Are patients experiencing better clinical outcomes?</td>
</tr>
<tr>
<td>- Prevention rates (e.g., Immunizations, screenings)</td>
</tr>
<tr>
<td>- Effectiveness of care coordination</td>
</tr>
<tr>
<td>- Patient safety (e.g., medication reconciliation, screening for fall risk)</td>
</tr>
<tr>
<td>Lower Costs Are we reducing cost and over-utilization?</td>
</tr>
<tr>
<td>- Total cost of care</td>
</tr>
<tr>
<td>- Medical and Rx PMPM trend</td>
</tr>
<tr>
<td>- Inpatient and outpatient utilization trends,</td>
</tr>
<tr>
<td>- Preference sensitive admissions rates</td>
</tr>
</tbody>
</table>

A Stronger, More Sustainable Health System

- Reduced Patient Health Care Costs
- A shift to In-system Utilization
- Improved Quality of Care
Using Reports and Data to Support Key Drivers

Analytics yields reports and solutions that:

- Assess performance over time
- Proactively *drive* improvements in performance
- Impact performance on an individual and population level

<table>
<thead>
<tr>
<th>Intent</th>
<th>Assess Performance (looking back)</th>
<th>Drive Performance (looking ahead)</th>
</tr>
</thead>
<tbody>
<tr>
<td>(3) Individual Performance</td>
<td>• Individual patient’s health improvement over time</td>
<td>• Highlight individual needs and opportunities for impact</td>
</tr>
<tr>
<td>(1) Population Performance</td>
<td>• Improvements in health of specific populations</td>
<td>• Identify population needs and opportunities for impact</td>
</tr>
</tbody>
</table>

Unit of analysis

- Individual Patient or Provider
- Patient Population or Provider Groups
Identifying Opportunities for Action

• Integrated platforms power identification of clinical opportunities:
  • Individuals exhibiting need (e.g. positive screen for depressions)
  • High cost claimants
  • Patients with ongoing or multiple care gaps
  • Patients with specific opportunities for improvement (e.g. gaps in care)
Program-specific models are built process to target the most clinically relevant and impactable patients.

Models with more focused outcomes performed twice as well as those that attempted to predict general outcomes.

Increasing predictive model performance necessary.