The Population Health Imperative, a Systematic Approach to Value

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Conflict of Interest

Jerry Sobolik, MBA
Has no real or apparent conflicts of interest to report.

Claudia Blackburn Miller, MBA
Is employed by The Chartis Group, which provides services that are discussed as a part of this presentation.
Agenda

• PHM Framework and Core IT Competencies
• Mayo Clinic Case Study
  – Call for Action
  – Use Cases and Data Needs
  – System Selection and Implementation
  – Iterative Incremental Value
• Challenges and Next Steps
Learning Objectives

- Explain how to align an organizational healthcare model with a value-based reimbursement model to support the allocation of resources for high-risk patients
- Describe models associated with Population Health and Population Health Management
- Summarize the role of analytics in developing and evaluating programs and processes
- Identify where your organization is on a Population Health Management (PHM) maturity roadmap
An Introduction of How Benefits Were Realized for the Value of Health IT

Treatment / Clinical

• The PHM tool allows identification of patients for better treatment

Electronic Secure Data

• Information allows for the holistic picture of the patient for best identification of risk and subsequent treatment, as well as dashboard for sharing and reporting of data in a transparent fashion

Efficiency Savings

• The PHM tool allows for one report to be shared with multiple sites without having to recreate it for each site
Starting the PHM Journey

What are Stakeholders Saying?

• “How are we going to get funding if our goal is to reduce hospital visits?”
• “What tool will our clinically integrated network use?”
• “Is there a class I can go to in order to prepare?”
• “I know this is a journey, but what am I supposed to pack?!?!?”
• “Why are we buying all of these PHM tools that don’t talk to each other?”
• “What are we trying to accomplish?”
• “This does not meet my needs, but I don’t know what my needs are!”

What is Population Health Management?
Population Health Management

Competencies to Create and Deploy Powerful Information

- Data Sharing, Data Governance and Data Standards
- Data Aggregation and Integration
- Innovation and New Technology
- Population Definition, Patient Attribution and Risk Stratification
- Operational Analytics and Performance Management and External Reporting
- Decision Support and Team Communication
- Financial Management
- Patient and Member Engagement
# Data Sharing, Data Governance and Data Standards

## Overview
Data sharing and data use agreements in place; Data governance policies and oversight structure in place.

## Current State Description
- Policies and procedures have been expanded (e.g., PCP Attribution Policy and Definitions)
- Data models and nomenclature standards are fully defined
- Data Analytics Oversight Group in place

## Current State Assessment

<table>
<thead>
<tr>
<th></th>
<th>Emerging</th>
<th>Expanding</th>
<th>Advanced</th>
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Emerging stage indicated.
## Data Aggregation and Integration

### Overview
Appropriate, consolidated data repositories to support integrated analytics needs.

### Current State Description
- Single, comprehensive MS BI data warehouse with use-case data modeling
- Strong, consistent procedures for data normalization and transformation and a unified data architecture / flow
- Ability to interface across multiple data warehouses / HIEs

### Current State Assessment

<table>
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## Population Definition, Patient Attribution and Risk Stratification

### Overview

Ability to identify and attribute individuals within a defined population to support PHM efforts.

### Current State Description

- Comprehensive and consistent application of population attribution methodologies
- Panel size dashboards are available on demand in real-time, to inform placement of new patients calling for appointments
- Systematic population stratification system based on more complete information for broader populations, to develop risk profiles and identify highest need members
- Development of predictive modeling and advanced system stratification to anticipate total cost of care over time and recommend targeted interventions by a PHM analytics tool

### Current State Assessment

<table>
<thead>
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</tbody>
</table>
Operational Analytics and Performance Management and External Reporting

Overview

Systems in place to measure, collect, track, and analyze quality, cost and utilization data across the care continuum.

Current State Description

- Timing of most data is near real-time data, except for claims
- Data-driven culture focused on analytics to support risk intervention and preventative medicine
- All metrics (external and internal) standardized across the network
- Dashboards and reports can be rolled up or drilled down at various levels to understand performance at various levels (e.g., by provider, by region, by specific population, with internal transparency around performance)

Current State Assessment

<table>
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<tr>
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</table>

Emerging

Expanding

Advanced

#HIMSS16

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### Decision Support and Team Communication

#### Overview
Availability, application and adoption of necessary toolsets and expertise to convert data and information into shared knowledge that is communicated across care teams.

#### Current State Description
- System-wide care management capabilities are accessible in all relevant care settings and for all care team members with direct, real-time flow of information regarding patient care, outcomes and health status
- Tools are sharpened (more alerts, custom additions to preset content pathways, triggered tasks are built)
- Integrated electronic communication platform for all team members, including patient with basic functionality

#### Current State Assessment

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Big Questions Underlying Development of PHM IT Capabilities

Breakdown of Top IT Priorities
Percentage of Senior IT Leaders Who Ranked Given Topic as a Top Priority
n = 70

- Analytics
- Population Health
- ICD-10
- Accountable Care/Shared Risk
- Consolidation-Related Initiatives

Our Journey

- Use Cases and Data Needs
- System Selection and Implementation
- Iterative Incremental Value
Mayo Clinic Community Practices

MAYO CLINIC in the MIDWEST

- **Academic Medical Center**
  - Rochester, MN
  - 2,000 physicians
  - 170 primary care providers
  - Primary care
  - At full risk for PC

- **Community and Regional Health System**
  - 75 communities in MN, IA and WI
  - 4 regions
  - 18 hospitals
  - 500 primary care providers
  - Primary care
  - At risk for PC

MAYO CLINIC in the SOUTHWEST

- **Arizona**
  - Approx. 400 physicians
  - 60 primary care providers
  - Primary care
  - At full risk for PC

- **Florida**
  - Approx. 400 physicians
  - 45 primary care providers
  - Primary care
  - At full risk for PC
Call for Analytics Action

Concerns about the current analytics capabilities:

- To support the population health strategic plan
- Strong desire for PMPM cost data

Questions were raised about building an in-house data warehouse and dashboard tool versus purchasing a vendor product

Mayo completed a comprehensive review of capabilities to blend internal data repositories with an external vendor for non-owned provider data

ACTION NEEDED!
Our Journey

Use Cases and Data Needs

System Selection and Implementation

Iterative Incremental Value
Office of Population Health Management

- Formed in 2012
- Developed a Mayo framework for PHM
  - Strategy
  - Phasing
  - Oversight
  - Coordination
  - Standardization
- Focused on the community primary care practices
- Initially focused on the Triple Aim
  - Now includes access data
- Value-based care
  - Patient-Centered Medical Home
  - Risk-based reimbursement
The Changing Market

Audience Poll:

What percentage of your provider services are value-based?

a. Only FFS
b. Primarily FFS, some risk
c. Primarily risk
d. N/A (I am not a provider)
WHAT?

The Mayo Model of Community Care (MMoCC)
Implemented in strategic phases

WHO?

Office of Population Health Management (OPHM)
Created by MCCPC to TRANSFORM Community Care

WHAT?

Changing isn’t just for survival

WHY?

Costs are rising
Reimbursement is decreasing

Our survival is at risk
Small changes are not enough

The measure of PRODUCTIVITY is no longer VOLUME
It is VALUE = Outcomes + Service Cost

OPHM establishes the STANDARDIZED ELEMENTS for clinics to implement with APPROPRIATE LOCALIZATION

MMoCC is an enterprise-wide, multi-year roll-out to achieve the TRIPLE AIM:
- Improve Population Health
- Improve individual experiences
- Lower costs while aligning with financial models
Office of Population Health Management (OPHM) Vision

Patient centered, integrated care delivery model based on:
- Aligned incentives
- Coordinated, collaborative processes
- Evidence-based prevention and disease management protocols
- Seamless sharing of information

Supported by wellness and continuity care programs that focus on:
- Patient engagement
- Community integration
- Prevention and health promotion

Driven by analytics to support quality outcomes and value-based accountable reimbursement
Mayo Clinic OPHM (2012)
Population Health Committee Structure

- MCCPC
  - Florida Clinical Practice Committee
  - Arizona Clinical Practice Committee
  - Community Clinical Practice Committee
  - OCDP
  - Enterprise Population Health Committee (PHC)
  - Population Health Committee Exec
    - Pop Health Discovery Subcommittee
    - Pop Health Implementation Subcommittee
    - Pop Health Contracting Subcommittee
    - Pop Health Bus Intel (BI) Subcommittee
Key Considerations: Data Governance and Data Standards

A formal data governance structure is important to obtain, protect and appropriately use data.

<table>
<thead>
<tr>
<th>Purpose</th>
<th>Membership Structure</th>
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</thead>
<tbody>
<tr>
<td>Collects, advises, interprets and analyzes PHM data</td>
<td>Membership</td>
</tr>
<tr>
<td>Provides a governance framework for what and how we measure and monitor data, including tool development</td>
<td>Physicians</td>
</tr>
<tr>
<td>Serves as the liaison between IT (and various IT committees)</td>
<td>Operations Administrators</td>
</tr>
<tr>
<td>Provides general financial and clinical analytics for reporting</td>
<td>Operation Management</td>
</tr>
<tr>
<td>Advises on feasibility of new data requests</td>
<td>Business Analysts and Data Scientists</td>
</tr>
<tr>
<td>Provides oversight to key informatics projects impacting population health</td>
<td>Director of Physician Compensation</td>
</tr>
<tr>
<td>Standardizes definitions related to data in primary care and report metrics</td>
<td>Director of Quality Reporting</td>
</tr>
<tr>
<td>Collaborates with Contracting Sub-Committee to understand and analyze contracts</td>
<td>Payer Relations Staff</td>
</tr>
<tr>
<td>Oversees, creates and sponsors training curriculums on PHM data tools</td>
<td></td>
</tr>
<tr>
<td>Facilitates gathering of payer data</td>
<td></td>
</tr>
</tbody>
</table>
Metrics

• Quality
  – Chronic conditions
  – Prevention and wellness

• Satisfaction
  – Provider appointment
  – Nurse phone call
  – Portal use

• Financial
  – PMPM (charges)
  – PMPM (costs)
  – NOI PMPM

• Utilization
  – Hospital days and admit
  – ER visits per 1000
  – Specialty visits per 1000

• Access
  – Risk adjusted Panel size
  – Continuity of care, portal sign up and usage
  – Messaging response time
  – Contact hours and percent booked
  – 3rd next available
  – No show rates and turn rates
## Mayo Clinic Health System Required Data Sources

<table>
<thead>
<tr>
<th>Data Source / Domains</th>
<th>Method of Transfer</th>
<th>Current Extraction Frequency</th>
<th>Current Delivered Date of Service Lag</th>
<th>Desired Extraction Frequency</th>
<th>Status</th>
<th>Timeframe for Completion</th>
<th>Implication to Application (if not complete)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>EMR</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Clinical data</td>
<td>Vendor pulls data</td>
<td>Daily</td>
<td>1 Day</td>
<td>Daily</td>
<td>Exists in Production</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>• Demographics and insurance</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Billing data</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Beach Warehouse (MCHS billing data combined rom 6 RC systems)</strong></td>
<td>Mayo pushes data/ETL</td>
<td>Monthly</td>
<td>10 – 40 Days</td>
<td>Monthly</td>
<td>Exists in Production</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>• Billing data</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>EMR</strong></td>
<td>ADT HL7v2</td>
<td>Daily</td>
<td>Daily</td>
<td>Daily</td>
<td>Exists in Production</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>• Patient information</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Admission info</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>• Diagnosis</td>
<td></td>
<td></td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>EMR</strong></td>
<td>Scheduling HL7v2</td>
<td>Daily</td>
<td>Daily</td>
<td>Daily</td>
<td>Exists in Production</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>• Scheduling data</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Person Database</strong></td>
<td>Virtual Machine</td>
<td>Monthly</td>
<td>Monthly</td>
<td>Monthly</td>
<td>Exists in Production</td>
<td>Vendor February Release (fix to enable Publishing Functionality)</td>
<td>N/A</td>
</tr>
<tr>
<td>• Provider-Facility relationship</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Person Database</strong></td>
<td>AMS</td>
<td>N/A</td>
<td>Monthly/PRN</td>
<td>Complete</td>
<td></td>
<td>Vendor February Release (fix to enable Publishing Functionality)</td>
<td>N/A</td>
</tr>
<tr>
<td>• Site to User relationship</td>
<td></td>
<td></td>
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</tbody>
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MMoCC Focus Areas

C O S T

50%

15%

PHM FOCUS

• Care Coordination
• Care Transitions
• Palliative Care

Care teams

Patient engagement

Community engagement

Access

P O P U L A T I O N

% of community

35%

35%

15%

50%

• Disease Management

• Wellness
• Prevention

2010 data from Mayo Clinic Health Sciences Research
MMoCC Impact

80% of costs

- Situational Risk
  - Family Hx
  - Environment

- Early Risk
  - Diet
  - Exercise

- High Risk
  - Cholesterol
  - BP
  - Blood sugar

- Symptomatic Illness
  - Active Dz
  - Diabetes

- Complex Active Illness

Health Status

Health Care Spend

Ability to impact

Lifetime

Identify opportunities
Act on opportunities
MMoCC Process Model

1. DEFINE
   - Population Identification

2. ASSESS
   - Health Assessment

3. STRATIFY
   - Risk Stratification

4. ENGAGE
   - Enrollment / Engagement Strategies

5. MANAGE
   - Management / Interventions
     - Tailored Interventions
     - Care Coordination
     - Disease / Case Management
     - Health Risk Management
     - Health Promotion / Wellness

Meeting patients where they are

...physically
- home
- school
- work
- shopping
- in the clinic

...in the way that works best for them
- email
- text
- internet
- phone
- video
- face-to-face
Our Journey

Use Cases and Data Needs

System Selection and Implementation

Iterative Incremental Value
## In-house Tool vs. Vendor Tool

<table>
<thead>
<tr>
<th>Feature</th>
<th>In-house Practice Management Tool</th>
<th>Vendor Analytical Tool</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>One-stop shop for Triple AIM and access metrics</td>
<td>Data is standardized, normalized and allows for external benchmarks</td>
</tr>
<tr>
<td>Financial Data</td>
<td>Billing system and Cost accounting system</td>
<td>Chose not to share this data</td>
</tr>
<tr>
<td>Support</td>
<td>Internal support allows rapid updates for new fields that support new queries</td>
<td>New variables need to be prioritized amongst other clients’ variable requests</td>
</tr>
<tr>
<td>Predictive Modeling</td>
<td>N/A</td>
<td>Comes with proven, strong predictive modeling capabilities</td>
</tr>
<tr>
<td>Patient Satisfaction</td>
<td>Part of Triple Aim and included in enterprise data warehouse for all practices</td>
<td>Chose not to share this data</td>
</tr>
<tr>
<td>Access Metrics</td>
<td>Based on internal Mayo definitions and we have other sources for benchmarks</td>
<td>Chose not to share this data</td>
</tr>
</tbody>
</table>
Analytical Dashboard

Source: Mayo Clinic

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Analytical Dashboard

AAP: Pts w/ High BMI
Obese (Class III): 43.7%
Obese (Class II): 35.0-39.9: 45.7%
Obese (Class I): 30.0-34.9: 47%
Overweight: 25.0-29.9: 47%

# of patients: 139,789

DM: Clinical and Coded Evidence of DM with

Percent of Patients

DM Evidence Type (Up to End of Time Period)

# of patients: 52,321

CHF: Patients by Likelihood of Admission

Likelihood of CHF Related Hosp w/in 6 months
Categorized (End of Data)

Number of Patients

0-75 (Least) 80-85 (Least) 90-94 (More) 95+ (Most)

# of patients: 3,533

CHF: HCC Stratification by Predictive Risk Category

Number of Patients (G retrospective)

100% 80% 60% 40% 20% 0%

HCC-RAP (Last 12 Months of Data)

# of patients: 3,533

DYS: Change from First LDL (>100) to Last LDL with data

Number of Patients

5,000,000 5,000,000 1,000,000

Change from First to Last LDL

# of patients: 6,440

AAP: Pts w/3 or More ED Visits and Hospital Admits by PCP

Number of Patients

60 20 10 0

Current PCP

# of patients: 654

Source: Mayo Clinic
Our Journey

- Use Cases and Data Needs
- System Selection and Implementation
- Iterative Incremental Value
PHM Value Realization: What is it?

1. Design and Deploy
   - Design and Deploy the user experience (physicians, staff and patients/consumers)

2. Measure
   - Measure associated benefit metrics

3. Realize
   - Realize increased value from your PHM investment

Realize increased value from your PHM investment
How Do You Know When You’ve Achieved Value From Your PHM Tool?

VALUE = \[\uparrow \text{Quality} + \uparrow \text{Patient Experience} + \uparrow \text{Safety} \downarrow \text{Cost}\]

Benefits must be measured and managed to achieve value.
Iterative Value

• All sites are actively engaged
• Standardizing across sites and regions is a challenge
• For many, fee-for-service remains a driver
• Data management processes are maturing
• Keys to our success:
  – Engaged leadership at local levels
  – Institutional support
  – Strong physician leaders on each subcommittee and workgroup
  – Excellent business analysis, project management and informatics support in place
Example Use from Care Coordinators

Patient A:

**Diagnoses:** diabetes, kidney disease and cardiovascular issues

**Results:** A1c down from 8.4 to 7.2, patient monitoring blood sugars, weight and pain, intervention referral to CDE and nutritionist

“She is much better about monitoring her blood sugars, weight and her pain. The best intervention for Patient A has been referring her to work with diabetic educator. She also visited a nutritionist.”

Patient B:

**Diagnosis:** CHF, Possible Lewy Body Dementia, Depression, HTN

**Results:** Avoided ED visits, Geri Fellow visit re: Palliative Care

“… the Geri Fellow had a wonderful conversation with Patient B about Palliative Care, and I feel confident that will be a path he will be willing to follow in the coming weeks.”
# Example Use from Care Coordinators

**Patient C:**

**Diagnosis:** CHF, CKD, high output ileostomy, cardiomyopathy  
**Results:** Reduced specialist visits, end-of-life planning, comfort management, potassium levels in range  

“… the biggest benefit I feel for Patient C has been working on end of life planning, MTM consults, CHW involvement, and ileostomy management for comfort.”

**Patient D:**

**Diagnosis:** Diabetes, needed hip replacement  
**Results:** In less than 6 months, reduced A1c down from 10.5 to 5.6  

“… until diabetes managed, no hip surgery … I was there to make sure he didn’t ‘burn out’ watching his diet as much as he did … he enjoyed the pep talks…”
# Challenges and Next Steps

<table>
<thead>
<tr>
<th>Challenges</th>
<th>2016 Next Steps</th>
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<tbody>
<tr>
<td>• Practice standardization</td>
<td>• Operationalize Business Intelligence Subcommittee</td>
</tr>
<tr>
<td>• Resources</td>
<td>• Establish and deploy enterprise metrics</td>
</tr>
<tr>
<td>– Can’t stop processes and can’t add resources to change</td>
<td>• Deploy Point-of-care registry and care management</td>
</tr>
<tr>
<td>– Understand practice variation and standardize</td>
<td>• Perform patient consumer engagement using EMR patient portal</td>
</tr>
<tr>
<td>– Informatics knowledgeable in EMR support teams</td>
<td>• Incorporate patient satisfaction data</td>
</tr>
<tr>
<td>• Important to standardize data and processes before implementing tools</td>
<td>• Develop a risk factor appropriate for pediatric population</td>
</tr>
<tr>
<td>• Rapid cycle iteration requires significant resource involvement</td>
<td>• Launch a dashboard along with education and training</td>
</tr>
<tr>
<td>• Decision rights – “who says this is the new process…”</td>
<td>• Initiate data sharing with community agencies, such as Asthma action plan to schools</td>
</tr>
<tr>
<td>• Capturing social determinants</td>
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Electronic Secure Data
• Information allows for the holistic picture of the patient for best identification of risk and subsequent treatment, as well as dashboard for sharing and reporting of data in a transparent fashion

Efficiency Savings
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http://www.himss.org/ValueSuite
Questions

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