The Evolution of Population Health Management

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Conflict of Interest

Terri Steinberg, MD, MBA

Have no real or apparent conflicts of interest to report.
Today’s Agenda

Introduction
Learning Objectives
Value of Health IT STEPS
History
Blueprint for Success
Successes/Outcomes
Lessons Learned & Recommendations
Value of Health IT STEPS
Q&A
Learning Objectives

1. Illustrate best practices for a data-driven population health management program
2. Explain various aspects of a comprehensive care coordination program
3. Identify technology components used to manage population groups
4. Illustrate nuances of analytic assignments of population risks
5. Recognize potential pitfalls for technology-enabled population health
Christiana Care Health System

53,684 Admissions
21st in the nation

40,684 Surgeries
24th in the nation

172,510 ED Visits
25th in the nation

6,594 Births
33rd in the nation

286,770 Home Health Care Visits

567,988 Outpatient Visits

196,930 Primary Care Office Visits
Population Health Management Timeline

2012
CMS Grant Awarded
$3M, Three-year grant focused on ischemic heart disease

2013
Care Management Programming
Basic data integration

2014
Predictive Analytics
Full data integration

2015
Expand to Other DM Programs
Bundled Payments

Risk Contracts

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Components for Effective Population Management

Technology  Analytics  Care

Coordination
Care Coordination - CARELINK

- Medical Directors
- Pharmacists
- Social Worker
- Support Staff
- Patient and Family
- Case Manager
- Manager
Clinical Programming

- Ischemic Heart Disease
- Surgery
- VNA
- Bariatric Program
- Healthy Beginnings
- Project Engage
- Joint Replacement Program
- Independence at Home
- Medical Home Without Walls
- Medical Directors
- Manager
- Social Worker
- Case Manager
- Support Staff
- PATIENT AND FAMILY
- Pharmacists

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Technology Components

• Data Lake (Homegrown)
• Operational Data Store (Homegrown)
• Care Management Application (Aerial™/Medecision)
• Predictive Analytic Engine (Neuron/Coldlight Systems)
• Member Portal (Aerial/Medecision)
• Later additions:
  – Provider Network Management (Aerial/Medecision)
  – Utilization Management (Aerial/Medecision)
  – Regression Analytics (Aerial/Medecision)
Data Consolidation

CCHS Systems of Interest

Data Lake

Neuron

Delaware Health Information Network (DHIN)
Three Functional Components

Aerial™ Population Health Management

Neuron Predictive Analysis

Portal/PHR

Care Management Activities

Clinical Views

Communication BP Cuff Scale Insulin Pump
Population Health Technology Challenges

• Patients receive care in many ways, from many healthcare business entities.
  – Not all members managed in our population health programs are our patients.

• Data are not integrated across health care organizations.

• Communication to providers across business entities is fractured and difficult.

• A single outcome and management view that crosses business entities has not previously been developed.
**Data Analytic Goals**

- **Risk-stratify the population.**
  - Identify patients who need more or less care.
- **Learn about data patterns and correlations that are unexpected.**
  - Notify Care Coordinators about members at risk.
  - Identify data patterns associated with low cost and high quality.
  - Trigger Care Coordinators when adverse events occur or are likely to occur.
- **Manage the care utilization for member groups.**
  - Approve services and procedures.
  - Identify gaps in care.
- **Understand and manage the performance of a clinically integrated network.**
  - Provide quality and cost reporting
Manual Risk Processes are Automated

The system continuously runs the algorithm and re-scores the patient; changes in status are presented to the care team.
## Risk Prediction – Clinical Algorithm

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Model Calibration

All Patients

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Blueprint for Success

Well-Trained Care management team

Strong Technology infrastructure

Buy-in From stakeholders
Improved Workflow

• 50% reduction in the number of process steps required for a care manager to access and process program participant readmissions

• Increase in productivity
  – 43% reduction in overdue tasks
Clinical Parameters

• Improved depression scores

• High scores for care satisfaction
Outcomes

• A strong technical infrastructure enables excellent patient/care manager ratios 1/2000 – 1/2500

• Improved patient well-being, including less depression

• A correlation with financial benefits was not measured
  – CMS data was not available
  – Aggressive timelines didn’t permit ongoing study after the grant ended
Clinical Challenges

• Effectively motivating patients to care for themselves

• The sometimes overwhelming burden of socioeconomic factors

• Mental health and addiction issues among patients
Lessons Learned

1. Program development needs to be sequential, not concurrent
   - IT platform needs to start first because it has the longest lead time
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4. Must understand the right metrics to measure
5. Address socioeconomic and psychosocial factors

6. Predictive analytics may be superfluous
Future Plans

• Expand clinical programming
• Assume various risk-based contracts
  – MSSP
  – PMPM relationships
  – Value-based risk
• Clinical Goals:
  – Majority of care will be risk-based
  – Develop effective care delivery models
  – Provider empowerment
  – Patient/member satisfaction
Satisfaction
Treatment/Clinical
Electronic Secure Data
Patient Engagement & Population Management
Savings
Excellent participant satisfaction scores

Physical limitation, angina frequency and quality of life gains

Incorporating claims data from within and outside of Christiana Care

Prioritization of care based on levels of need

$1.75 Million/year
