Kaiser Permanente: Improving Diabetes Care with Data-Informed Insights

Michael Shen
Senior Data Consultant
Kaiser Permanente
Agenda

• **Introduction:** Who are we?
• **Context:** Why did we do this?
• **Solution:** What was deployed?
• **Results:** How did we do?
• **Conclusion**
Introduction
12 Million Members

MISSION
Kaiser Permanente exists to provide high-quality, affordable health care services and to improve the health of our members and the communities we serve.

Integrated Delivery
• Kaiser Foundation Hospitals
• Kaiser Foundation Health Plans
• Permanente Medical Groups
Kaiser Permanente Orange County

Area Overview
- 595,000 Members
- 7,200 Staff
- 900 Physicians
- 17 Medical Office Buildings
- 2 Hospitals

Business Intelligence & Transformation
- Provide data analytics solutions for all Orange County
- Inpatient
- Outpatient/Ambulatory
Context
What was the picture in 2016?
Before We Begin, a Short Primer

What is A1c?
- Called Hemoglobin A1c, it’s the primary lab test to monitor diabetes
- Measures blood sugar levels for last 3 months
- Result is measured as a percentage (i.e., 8.5%)

What is Diabetes “Control”? 
- Diabetes is considered “controlled” if A1C levels are below a defined amount
- Generally, diabetics with an A1C of less than 7% are considered controlled

Why is Control Important?
- Reduced risk of heart disease and stroke
- Reduced risk of complications such as kidney disease and eye disease
- Reduced risk of mortality
- Reduces cost of care by ~$500 per patient per year
Care managers are a key piece to diabetes care
- They are the primary point of contact for diabetics
- They guide medication and advise on lifestyle
- They coordinate with PCPs to provide total care

The Care Manager Structure at Kaiser

- Care Leadership
- 27 Care Managers
- 305 PCPs
- 42,000 Diabetic Patients
- 17 Clinics
Why Did We Do This?

Q1 2016
Diabetes care a major challenge in Orange County
• KPOC has 42,000 diabetic members
• A1C Control rates are stable but stagnating (75% HEDIS rating)
• PCPs overburdened and lacking support
• Goal: Transform “good” to “great”

Q2 2016
Decision: Transform Diabetes Care
• Research/Design new care workflows
  • Focus on engaged population
  • Tighter collaboration with PCPs
  • Closed loop workflow so nothing gets lost
• Track and monitor productivity and outcomes

Q3 2016
New care workflows deployed
• But, how do we track how we are doing?

Q4 2016
Initial Request for Data
• Define analytics requirements
Initial Requirements and Goals

Care manager operational performance
  • Track key metrics: Turn-around time and “Momentum”
  • Compare and trend over time

Correlate with patient outcomes
  • Outcomes: Control rate defined by A1c lab result
  • Show control by care manager panel
  • Compare and Trend over time

Care manager direct feedback and actionable insight
  • Scorecard snapshot
  • Prioritized patient list
  • Collaborate with PCPs
Solution
Analytics from Operations to Outcomes
Solution Overview

Care Management

- Q1 2017
- Q3 2017

Care Manager Operational Performance
- A1C Turn-around Time
- A1C Momentum
- Current Open Results

Care Manager Outcomes Analysis
- A1C Control Rate & Change
- A1C Control Churn
- Location and PCP Comparison

Individual Care Manager View
- Care Manager Scorecard
- Key Demographic Breakdown
- PCP Detail and Reporting
- Detail Patient Reporting

Clinic Outcomes Performance
- Clinic Scorecard
- Key Demographic Breakdown
- PCP and Clinic Comparison
- Detail Patient Reporting

Clinics

- Q3 2018

Care Leadership

- Q1 2018

Care Managers

- Q1 2017

- Q3 2017
Data Architecture and Landscape

Data Source
- Epic Data Warehouse (EMR)
- CM to PCP Relationship

alteryx
- Member Month ETL
- Diabetes Calculation ETL

Data Marts
- Care Manager Operational View
  - Daily Extract
  - Care Manager Operational Performance
- Diabetes Monthly Aggregate
  - Daily Extract
  - Care Manager Outcomes Analysis
- Current DM Patients
  - Daily Extract
  - Individual Care Manager View
- Clinic Outcomes Performance
Dashboard Views

Care Leadership

• Clinic Outcomes Performance
  • Clinic Scorecard
  • Key Demographic Breakdown
  • PCP and Clinic Comparison
  • Detail Patient Reporting

Care Managers

• Care Manager Operational Performance
  • A1C Turn-around Time
  • A1C Momentum
  • Current Open Results

• Care Manager Outcomes Analysis
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  • A1C Control Churn
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• Individual Care Manager View
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Clinics

• Clinic Outcomes Performance
  • Clinic Scorecard
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  • Detail Patient Reporting
Care Manager Operational Performance

**Turn-around Time**

**Goals**
- Understand how quickly care managers respond to lab results
- Monitor monthly turn-around times and volumes

**Impact**
- Leadership can monitor monthly turn-around time performance
- Review monthly trends and compare care manager performance
Care Manager Operational Performance

Open Items

Goals
- Identify bottlenecks in incomplete results
- Monitor daily open lab results

Impact
- Visualize which care managers have the most open lab results
- Drill down to see individual labs
Dashboard Views

Care Leadership

Care Managers

Clinics

Q3 2017

Care Manager Outcomes Analysis
- A1C Control Rate & Change
- A1C Control Churn
- Location and PCP Comparison
Care Manager Outcomes Analysis

Care Manager Outcomes

Goals
- Relate care managers to panel diabetes health
- Compare care manager control rates

Impact
- Show 12 month trend compared against all care managers
- Select between A1C Control Values
- Drill down to 12 month trend and panel size and breakdown
Goals
- Understand demographic context for diabetes control
- Compare diabetes performance by location

Impact
- Relate A1C Control by location
- Drill down to PCPs at each location
Care Manager Outcomes Analysis

A1C Control Churn

Goals
- Evaluating outcomes by control rate alone can be misleading
- Determine outcomes performance by population variance

Impact
- Count of diabetic patients losing control vs gaining control
- Drill down to view monthly churn
Dashboard Views

Care Leadership

Care Managers

Clinics

Q1 2018

Individual Care Manager View
- Care Manager Scorecard
- Key Demographic Breakdown
- PCP Detail and Reporting
- Detail Patient Reporting
Care Manager Dashboard

Goals
- Provide care managers with direct feedback to panel performance
- Allow them to drill down to areas of need

Impact
- Drill down to Care Manager and PCP
- Population Size
- Location and age breakdown
- Control and screening rates
Care Manager Dashboard

Demographic Breakdown

Goals
• Provide care managers regional focused demographic objectives

Impact
• Show regional focused view
• Latino vs Non-Latino diabetes performance
Care Manager Dashboard

**Goals**
- Identify patients of need
- Discuss key patients with PCPs

**Impact**
- Diabetic patients ranked by change from baseline score
- Drilled to Care Manager and PCP panel
- Filter by score, date, and other key factors
- Key in identifying patients of greatest need, or who have slipped through the cracks
PCP Collaboration

- Care managers have monthly or quarterly meetings with their PCPs
- Previously spent a lot of time gathering data with limited info to share
- Now, they print the 4 tabs to share with their PCPs
- They use the data to plan strategy and focus for diabetes patients
Results
Operational Improvements and Testimonial

**Operational Improvements**

<table>
<thead>
<tr>
<th>Time Savings:</th>
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<tr>
<td>• Eliminate 12 hours/month time spent collecting data and building reports</td>
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<table>
<thead>
<tr>
<th>Care Manager Performance:</th>
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<tr>
<td>• Reduced A1C turn-around time from 5+ days to 1 day</td>
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<tr>
<td>• 10% Increase in message volume completion</td>
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<tr>
<td>• Maintaining average 40% avg momentum</td>
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**Testimonials**

“...it is one of the most important tools that we have to hold care managers accountable and improve the quality of lives for our diabetic members.”

Irene Hsieh, RNP, MSN
Director, OC Complete Care and Pain Management

“By visualizing and pinpointing trends, I can address issues in my diabetic patients before they worsen.”

Maria Hernandez, RN, CDE
Care Manager
Outcomes—2017

Operational Improvements…
• In one example, response time to A1C results reduced from > 5 days to about 1 day:

[Bar chart showing Care Manager A1C Turn-Around Time (Days) for 2016 and 2017, with a note indicating new workflows implemented.]

… Lead to Change in Outcomes
• A1C < 7 Control Rates improved by 3%
• That's about 1,200 more diabetics in control

[Graph showing OC Diabetic Control Rate (A1C < 7) with a notable increase after the launch of the dashboard.]

In 2017, for the first time ever, Kaiser Permanente Orange County achieved the highest rating (90th percentile) in HEDIS NCQA’s glucose control rating.
Outcomes—Through 2019

OC Diabetic Control Rate (A1C < 7)

<table>
<thead>
<tr>
<th>Year</th>
<th>Percentage</th>
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<tbody>
<tr>
<td>2016</td>
<td>38.8%</td>
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<tr>
<td>2017</td>
<td></td>
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<td>2018</td>
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<tr>
<td>2019</td>
<td>Oct, 2019 48.1%</td>
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Implement New Workflows

A1C Control Improvement: +9.3%
Outcomes—Through 2019

OC Diabetic Control Rate (A1C < 7)

- Oct, 2016: 38.8%
- Oct, 2019: 48.1%
Outcomes—Through 2019

OC Diabetic Control Rate (A1C < 7)

- **Operational Performance Dashboard**
- **Outcomes Analysis Dashboard**
- **Care Manager Dashboard**
- **Clinic Performance Dashboard**

**Implement New Workflows**
- Oct, 2016: 38.8%
- Oct, 2019: 48.1%

A1C Control Improvement: +9.3%
Conclusion
Since 2016, A1C < 7 control rates improved by 9%

That’s a shift of 3,800 diabetics that are now in control

Estimated annual cost savings of $1.9 million*

Additionally, that’s thousands of lives positively affected

It’s a team effort:

Transformative clinical workflows + Actionable analytics

* Value in Health (2013): Estimated Cost Savings Associated with A1C Reductions in a Large US Commercial Health Plan
Next Steps

Patient snapshot view
• Single view to bring in disparate data regarding patient status
• Save time prepping for visits, pinpoint key areas of need quickly

Predictive analytics
• Add predictive modeling to predict risk of churn
• Help Care Managers prioritize patients

Care manager workload balancing
Key Contributors

Nancy Gin, MD  
Executive Vice President, Permanente Federation

William Woo, MD  
Assistant Chief—Family Medicine

Irene Hsieh, RNP, MSN  
Director, Complete Care and Pain Management

Kimberly Walzer, MBA, LSSBB  
Director, Business Intelligence & Transformation

Todd Newton, MD  
Orange County Medical Director

Wendy Coling, MD  
Assistant Physician Director—Primary Care

Brent R. Davis, MD  
Assistant Area Medical Director
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