Improving Diabetic Patient Outcomes by Promoting Patient Engagement with Interactive Patient Portal Functionality

CSC06, August 22, 2021
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Welcome

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Conflict of Interest

- Ashley Beasley, BSHIM, MSHI Candidate
- Robert Gallagher, RHIA, MSHI Candidate
- Larissa Pierce, MD, AAFP, MSHI Candidate

Has no real or apparent conflicts of interest to report.
Agenda

• Introduction: Current and Future State
• PDSA Cycle: Technology and Processes
• Value and Tangible Benefits
• Intangible Benefits and Digital Advocacy
• Recommendations and Questions
Learning Objectives

• Identify opportunities for supportive technology solutions to enhance care value and improve outcomes and engagement for patients with diabetes
• Describe ways to utilize the PDSA cycle to identify and pursue process improvements for patient engagement
• Examine how improved patient engagement for patients with diabetes can impact reimbursement under MIPS/MACRA
• List examples of digital advocacy efforts at local, state, and national levels
HIMSS Case Competition Background

MetroHealth System Davies Award Enterprise Application: Ambulatory Diabetes Care Case Study

• Opportunities
  • Embrace transformative care
  • Propose state / federal digital advocacy solutions

• Focus Areas
  • Current and future state
  • Technology and Processes
  • Value
  • Advocacy
Introduction

- Current State
  - MetroHealth System Davies Award
  - Provider Focus (2003-2014)
- Future State
  - Community Focus (2014-2021)
  - Patient Engagement Focus (2021-...)
Current State: Diabetes Overview

10.5% US ADULTS WITH DIABETES

$2.3x MEDICAL COSTS COMPARED TO NON-DIABETICS

19% PATIENTS WITH DIABETES MEET CARE GOALS

34 MILLION Americans live with diabetes

MORBIDITY AND MORTALITY Financially and functionally costly

PATIENT CENTRIC MEASURES Can improve quality and add years to life
Current State: MetroHealth System

Cleveland, Ohio’s safety-net health system

- 300k patients
  - 2/3 uninsured, Medicare, or Medicaid
  - 56k patients with diabetes
  - 53% county diabetes total
- 20 health centers, 40 clinical sites
- HIMSS Level 7 Meaningful Use EHR

Cuyahoga County Ohio. ccpcaohio.com, Cuyahoga County Police Chiefs Association.
https://www.ccpcaohio.com/resources/map.gif
Current State: Davies Award

- EHR modifications 2006-2015 targeted MD-centric measures
  - BPAs
  - Provider reports
  - Care plans
  - Epic’s synopsis tool
- 2015: Won HIMSS Enterprise Davies Award for process improvements
- Patient-centric outcomes measures lag behind care core measures
Future State: Shift to Value-Based Care

• Gap between medical care and patient wellness
• MACRA 2015
• Value-based care opportunities
  • Empower and engage patients
  • Improve community health
Future State: Community Health\textsuperscript{8, 9}

- Social determinants of health (SDOH)
  - Poverty rate 16.2%
- Institute for H.O.P.E.
  - Health, Opportunities, Partnerships, Empowerment
  - SDOH screening with UniteOhio
Future State: Patient Engagement

95% Medical care is self-provided

Empower Patient Engagement

2-6 Hours/year patients spend with provider

Value

Recommendation and Conclusions

Introduction

Plan

Do

Study

Act

#HIMSS21
Meet Connie Cleveland

- 44-year-old mother of two
- Diagnosed with diabetes in early 2020
- Prior to her follow up appointment, COVID-19 led to a lockdown
- Disconnected from care

“I’d like to feel more connected to my health, and get a plan together... Isn’t there an app for that?”
MyChart® Care Companion

- Promote patient engagement
- Interactive Care Plan
- To-do List
- User friendly
- Scalable for other chronic care conditions
**MyChart® Care Companion**

- Mobile app and web browser
- Other features:
  - Manage appointments
  - Telehealth
  - Messaging
  - Billing

MyChart® is a registered trademark of Epic Systems Corporation.
MyChart® Care Companion

- Tasks
- Educational material
- Symptom check-in questionnaire
- Record data

MyChart® is a registered trademark of Epic Systems Corporation.
MyChart® Care Companion

- Symptom check-in escalation
- Educational content

MyChart® is a registered trademark of Epic Systems Corporation.
Privacy and Security

- Access codes for sign-up
- Two-factor authentication
- Biometric login
- Session timeout
- Proxy access
- Encryption, without caching
PDSA Cycle

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Study
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**PDSA Cycle**

- Plan-Do-Study-Act (PDSA) Process
- Total Quality Management (TQM) Approach
- Greatest likelihood of success using existing QI Process
**PDSA Cycle: Plan**

- Assess current state and needs
- Define goals
- Select and plan change
Plan: Assess Needs and Define Goals

Goal Highlights

- Improve communication
- Individualized care
- Patient engagement
Plan: Selecting the Change

SWOT Analysis → Literature Review → Brainstorming → Affinity Grouping → Multivoting
Plan: SWOT Analysis

**Strengths**
- Existing infrastructure, robust EHR tools
- Culture of continuous improvement
- Community involvement
- Charitable and public funding

**Weaknesses**
- Lack of human resources
- Lack of technology education for patients

**Opportunities**
- Patient engagement
- Improved communication
- Institute for H.O.P.E. and UniteOhio

**Threats**
- Lack of broadband in low-income neighborhoods
- Health disparities
- COVID-19
- Market competition
Plan: Selecting the Change

- SWOT Analysis
- Literature Review
- Brainstorming
- Affinity Grouping
- Multivoting
**Top Ranked Potential Changes**

- Promote Patient Engagement with Custom App
- Promote Patient Engagement by Expanding Existing App with Care Companion
- Identity at Risk Patients with Predictive Analytics and Perform Preventative Outreach
- Automatically Refer to Community Resources based on SDOH screening
- CDSS to Automatically Place Orders and Optimize Existing EHR Tools
Plan: Reasons for Selecting Care Companion

95% DIABETES CARE PROVIDED BY PATIENT

0.75% REDUCTION OF HbA1c

69% PATIENTS UTILIZE MYCHART

PATIENT ENGAGEMENT
Key to diabetes management

MOBILE APPS
Helps reduce HbA1c and risk of comorbidities

USE OF EXISTING APP
Reduces burden and improves diabetes self-care

Plan: Reasons for Selecting Care Companion

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**PDSA Cycle: Do**

- Follow SDLC to implement Care Companion
- Update clinic workflow
- Assign care plans
- Engage patients
Do: Implement Care Companion with SDLC
Do: Analyze Existing Process

- Daily Huddle (Today's pts)
- Check In
- History and Vitals
- Evaluation and Assessment
- Check Out
Do: Update Process

- Daily Huddle (Today’s pts and Escalated pts)
- Check In
- Enroll in MyChart
- History and Vitals
- Evaluation and Assessment
- MyChart Education
- Check Out
- Symptom Check-In Questionnaire
**Do: Change Management**

- Project support from leadership
- Appoint a project champion and subject matter experts
- Foster involvement at all levels
I’m sick and tired of feeling sick and tired. If this app could help me feel better, then I’ll give it a shot!

Check-In with Connie

- Connie visits the clinic, sets up Care Companion
- In the symptom checker, she logs fatigue and nausea and uploads her glucose, which is slightly elevated
- Nursing staff reach out to her via the app with tasks, care plan, diet education, and recipes
- Connie commits to using the app daily
PDSA Cycle: Study

Measure and Analyze Outcomes

- What should be measured?
- How will we measure it?
Study: Analyze Outcomes of the Change

- PDSA Goals
  - Patient engagement using Epic’s Care Companion
  - Improved diabetes management
- Methods for Analysis
  - Reporting
  - Patient Engagement Survey
  - Quality Metric Dashboards
Study: Analyze Outcomes of the Change

Care Companion Engagement

• Goals
  • 10% enrollment, approximately 5,600 patients
  • App utilization

• Analysis
  • Reporting on enrollment
  • User Experience Survey
User Experience Survey Sample
Study: Analyze Outcomes of the Change

Improved quality measure rate goals

• Follow-up appointments after receiving red flag lab results
• Referral to a nutritionist/diabetic educator within an elevated BMI17
• Increase rate of periodic screening for conditions caused by diabetes
• Reduce diabetic-related 30-day readmissions
• Reduce avoidable diabetes-related emergency department (ED) visits
Study: Analyze Outcomes of the Change

Analyze using Quality Metric Dashboards

• System-wide dashboard
• Patient specific dashboard

Patient: Connie Cleveland
DOB: 4/28/1977

<table>
<thead>
<tr>
<th>Test Date</th>
<th>HbA1c</th>
<th>Test Date</th>
<th>Microalbumin</th>
<th>Test Date</th>
<th>Blood Pressure</th>
</tr>
</thead>
<tbody>
<tr>
<td>3/1/21</td>
<td>6.4</td>
<td>3/1/21</td>
<td>200</td>
<td>3/1/21</td>
<td>135 / 78</td>
</tr>
<tr>
<td>9/1/20</td>
<td>7.9</td>
<td>9/1/20</td>
<td>205</td>
<td>9/1/20</td>
<td>140 / 92</td>
</tr>
<tr>
<td>3/1/20</td>
<td>9.4</td>
<td>3/1/20</td>
<td>150 / 93</td>
<td>3/1/20</td>
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</table>

<table>
<thead>
<tr>
<th>Test Date</th>
<th>BMI</th>
<th>Screening</th>
<th>Completed</th>
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</thead>
<tbody>
<tr>
<td>3/1/21</td>
<td>31</td>
<td>HbA1c</td>
<td>Yes</td>
</tr>
<tr>
<td>9/1/20</td>
<td>33</td>
<td>Diabetic Eye Exam</td>
<td>No</td>
</tr>
<tr>
<td>3/1/20</td>
<td>38</td>
<td>Nephropathy (Microalbumin)</td>
<td>Yes</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Blood Pressure</td>
<td>Yes</td>
</tr>
<tr>
<td></td>
<td></td>
<td>BMI</td>
<td>Yes</td>
</tr>
</tbody>
</table>

Referrals Needed
- Nutritional / Diabetic Educator
  - Scheduled: Yes
  - Completed: 3/15/2021
- Diabetic Eye Exam
  - Scheduled: No
  - Completed: Yes
**PDSA Cycle: Act**

- Celebrating accomplishments
- Planning for additional improvements
- Strategies for spreading the change
- Preparing for future PDSA cycles
Act: Advocacy Opportunities²⁴,²⁵

- Community Advocacy
  - Institute for H.O.P.E. SDOH survey
  - UniteOhio referrals interface with MyChart
- Broadband Advocacy
  - 30M disconnected across US
  - FCC’s “Bridging the Digital Divide”
  - Digital Redlining
  - Cleveland = Worst Connected City in the U.S. in 2019
  - Threat to MetroHealth patients
Act: Advocacy Recommendations\textsuperscript{26, 27}

- Federal: American Jobs Plan $100B
  - Penalties for companies found engaging in digital redlining
  - Close digital divide
- State: Broadband Expansion Act $210M
- Local: Clark-Fulton “digital campus”
  - Media labs and patient training
  - Public hotspots around clinics
Value

- Estimated project benefits
- Estimated project costs
Financial Value Highlights

- **Value of Benefits**: $1.73M
- **Break-even Point**: Year 3
- **Return on Investment (ROI)**: 35%

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#HIMSS21
## Value: Benefit Analysis

### Diabetic Readmission Savings
<table>
<thead>
<tr>
<th>Year</th>
<th>2021</th>
<th>2022</th>
<th>2023</th>
<th>2024</th>
<th>2025</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>209,939</td>
<td>257,175</td>
<td>300,895</td>
<td>340,513</td>
<td>375,537</td>
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</tbody>
</table>

### Diabetic ED Visit Savings
<table>
<thead>
<tr>
<th>Year</th>
<th>2021</th>
<th>2022</th>
<th>2023</th>
<th>2024</th>
<th>2025</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>67,632</td>
<td>76,537</td>
<td>84,409</td>
<td>91,162</td>
<td>96,733</td>
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</table>

### TOTAL BENEFITS
<table>
<thead>
<tr>
<th>Year</th>
<th>2021</th>
<th>2022</th>
<th>2023</th>
<th>2024</th>
<th>2025</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>277,571</td>
<td>333,712</td>
<td>385,304</td>
<td>431,674</td>
<td>472,269</td>
</tr>
</tbody>
</table>

### PV of BENEFITS
<table>
<thead>
<tr>
<th>Year</th>
<th>2021</th>
<th>2022</th>
<th>2023</th>
<th>2024</th>
<th>2025</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>269,486</td>
<td>314,555</td>
<td>352,607</td>
<td>383,537</td>
<td>407,384</td>
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</table>

### PV of ALL BENEFITS
<table>
<thead>
<tr>
<th>Year</th>
<th>2021</th>
<th>2022</th>
<th>2023</th>
<th>2024</th>
<th>2025</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>269,486</td>
<td>584,041</td>
<td>936,649</td>
<td>1,320,186</td>
<td>$1,727,569</td>
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</table>
# Value: Cost Analysis

<table>
<thead>
<tr>
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<th>2021</th>
<th>2022</th>
<th>2023</th>
<th>2024</th>
<th>2025</th>
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</thead>
<tbody>
<tr>
<td><strong>Staffing for Care Companion Implementation</strong></td>
<td>62,347</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
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<tr>
<td><strong>Staffing for Clinic Process Redesign</strong></td>
<td>72,027</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td><strong>Training</strong></td>
<td>16,960</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td><strong>Application Maintenance</strong></td>
<td>27,398</td>
<td>21,076</td>
<td>21,076</td>
<td>21,076</td>
<td>21,076</td>
</tr>
<tr>
<td><strong>Vendor Support and Licensing Fees</strong></td>
<td>225,000</td>
<td>225,000</td>
<td>225,000</td>
<td>225,000</td>
<td>225,000</td>
</tr>
<tr>
<td><strong>TOTAL COSTS</strong></td>
<td>403,732</td>
<td>246,076</td>
<td>246,076</td>
<td>246,076</td>
<td>246,076</td>
</tr>
<tr>
<td><strong>PV of COSTS</strong></td>
<td>391,973</td>
<td>231,950</td>
<td>225,194</td>
<td>218,635</td>
<td>212,267</td>
</tr>
<tr>
<td><strong>PV of All COSTS</strong></td>
<td>391,973</td>
<td>623,923</td>
<td>849,117</td>
<td>1,067,752</td>
<td>$1,280,019</td>
</tr>
</tbody>
</table>

**Introduction**

**Plan**

**Do**

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**Recommendation and Conclusions**

---

*PV of All COSTS calculated as the Present Value of future costs discounted at a 10% rate.*
**Value: Cost Benefit Analysis**

<table>
<thead>
<tr>
<th></th>
<th>2021</th>
<th>2022</th>
<th>2023</th>
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<td>403,732</td>
<td>246,076</td>
<td>246,076</td>
<td>246,076</td>
<td>246,076</td>
</tr>
<tr>
<td>Total Project Benefits – Costs</td>
<td>(126,161)</td>
<td>87,636</td>
<td>139,228</td>
<td>185,599</td>
<td>226,194</td>
</tr>
<tr>
<td>Yearly Net Present Value (NVP)</td>
<td>(122,487)</td>
<td>82,605</td>
<td>127,413</td>
<td>164,902</td>
<td>195,117</td>
</tr>
<tr>
<td>Cumulative Net Present Value (NPV)</td>
<td>(122,487)</td>
<td>(39,882)</td>
<td>87,532</td>
<td>252,434</td>
<td>$447,551</td>
</tr>
</tbody>
</table>

ROI = Cumulative NPV / TOTAL COSTS
Break Even Point = 3 + (Y3 Yearly NPV - Y3 Cumulative NVP / Y3 Yearly NPV)
## Merit-based Incentive Payment System (MIPS)³⁴

**MIPS Score**

- Awarded annually
- 4 weighted categories

### MIPS Categories

<table>
<thead>
<tr>
<th>Year</th>
<th>Quality</th>
<th>Cost</th>
<th>Improvement Activities</th>
<th>Promoting Interoperability</th>
</tr>
</thead>
<tbody>
<tr>
<td>2020</td>
<td>40%</td>
<td>15%</td>
<td>15%</td>
<td>25%</td>
</tr>
<tr>
<td>2021</td>
<td>35%</td>
<td>20%</td>
<td>15%</td>
<td>25%</td>
</tr>
<tr>
<td>2022</td>
<td>30%</td>
<td>30%</td>
<td>15%</td>
<td>25%</td>
</tr>
</tbody>
</table>
### Merit-based Incentive Payment System (MIPS)³⁴

MIPS Score Dictates Payment Adjustments

- Medicare Fee Schedule may be adjusted by a - / + percentage value
- Adjustments are on a sliding scale; based on MIPS score and the Performance Threshold
- 2020 MIPS score determines reimbursement rate for 2022

<table>
<thead>
<tr>
<th>Year</th>
<th>Performance Threshold</th>
<th>Payment Adjustment</th>
</tr>
</thead>
<tbody>
<tr>
<td>2020</td>
<td>45 points</td>
<td>- / + 7%</td>
</tr>
<tr>
<td>2021</td>
<td>60 points</td>
<td>- / + 9%</td>
</tr>
<tr>
<td>2022</td>
<td>60 points</td>
<td>- / + 9%</td>
</tr>
</tbody>
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**Merit-based Incentive Payment System (MIPS)**

MIPS Score Dictates Payment Adjustments

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<tr>
<td>2022</td>
<td>60 points</td>
<td>- / + 9%</td>
</tr>
</tbody>
</table>

MetroHealth is projected lose $1.2M in 2023 if their MIPS Score does not improve.
Value: Intangible Benefits

- Improved disease management for MetroHealth System’s diabetic population
- Patient education and empowerment
- Overall community health
Recommendation and Conclusion
Recommendation and Conclusion

- Utilize the PDSA Cycle
- Implement Epic MyChart Care Companion for diabetes management
- Propose steps for process optimization
- Set goals to be achieved
- Identify value
- Begin planning future improvements
- Expandability of Care Companion for COVID-19 and other chronic conditions
I’m feeling better educated and more in control of my life and my diabetes. My A1c is down to 6.4% and most importantly, I feel healthier!

Check-In with Connie

• Using the app daily has improved medication and dietary education and compliance
• Personalized app to meet additional goals
• In close contact with clinic and care team
Thank you!

Please feel free to reach out to us with any follow up questions:

- Ashley Beasley, abeasley@uabmc.edu
- Robert Gallagher, rgallagh@uab.edu
- Larissa Pierce, impierce@uab.edu
Works Cited


Works Cited


