Care of High-Cost Complex Patients in a Medical Home
Sessions D25, E25

National Forum on Quality Improvement in Health Care
December 9-10, 2014

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These presenters have nothing to disclose

Acknowledgements and Disclaimers

- The project described was supported by Grant Number 1C1CMS331064 from the Department of Health and Human Services, Centers for Medicare & Medicaid Services.
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- Thanks to our contributors who include Tracy Johnson PhD, Josh Durfee, Dan Brewer, Carolyn Valdez, Kathy Thompson, Ray Estacio MD, Paul Melinkovich MD
Session Objectives

• Demonstrate a model for application of PCMH components to high-cost high-risk populations
• Identify practice redesign concepts to facilitate integration of care for this high-risk population in the medical home
• Describe specific care coordination strategies for managing high-risk high-cost patients in an integrated care setting
Community Health Services

- Network of 8 Community Health Centers, 16 School-based Health Centers, Urgent Care
- 406,000 visits in 2013, over 120,000 unique patients
- Underserved population:
  - 36% uninsured, balance primarily Medicaid
- Resident training in almost all services but not all sites
- Integrated medical record and clinical registries

Why Transform Primary Care?

- Continued rise in health care costs
- Reduction and uncertainty in health care resources
- Workforce shortages
- Need to improve patient safety and quality
- Silos of care and communication
- Many health care processes include non-value added activities (AKA waste)
  - Estimate $700 billion in waste in health care
- Triple Aim
- Evidence that advanced primary care can bend the cost curve
High Cost/High Risk Patients

Persistence in the level of health care expenditures, U.S. civilian noninstitutionalized population, 2006 to 2009


Health Care Costs Concentrated in Sick Few — Sickest 10% Account for 65% of Expenses

Distribution of health expenditures for the U.S. population, by magnitude of expenditure, 2006

Practice Transformation at Denver Health

- Foundational concept for Community Health Centers
- Evolution from disease collaboratives to PCMH
  - Participant in Safety Net Medical Home Initiative (2008-14)
  - NCQA recognized in 2011 and 2014
- Award from the Centers for Medicare and Medicaid Innovation (CMMI) 2012
  - Funds additional clinical and HIT (Health Informational Technology) resources to support the development of enhanced care teams at DH primary care clinics
  - Practice transformation work is focused on high-risk patients in the belief that this is where we are most likely to achieve better health outcomes along with appreciable cost avoidance

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Community Health Centers (CHC): Founding Principles : 1965

- Meet the needs of the deprived populations through new models of primary care
- Provide personal curative and preventive care as well as community targeted public health interventions
- Community participation
- Community control of the health services
- Use of epidemiologic methods to identify and prioritize interventions
- Expanded health center team beyond traditional clinical personnel
- Goal to reduce disparities in healthcare and health status

NCQA PCMH Criteria

1. Enhance Access and Continuity
2. Identify and Manage Patient Populations
3. Plan and Manage Care
4. Provide Self-Care Support and Community Resources
5. Track and Coordinate Care
6. Measure and Improve Performance

Safety Net Medical Home Initiative

- Four year initiative of the Commonwealth Fund
- CCHN (Colorado Community Health Network)
  - Selected in 2008 to be one of 5 networks
- 15 clinics statewide including 3 at Denver Health
Safety Net Medical Home Change Concepts*

- Engaged Leadership
- Quality Improvement Strategy
- Empanelment
- Continuous Team Based Healing Relationships
- Patient-Centered Interactions
- Organized, Evidence-Based Care
- Enhanced Access
- Care Coordination


SNMHI Change Concepts & Risk Status

**Empanelment**
- Use panel data and registries to proactively contact and track patients by disease status, risk status, self-management status, community and family need

**Organized, Evidence-Based Care**
- Identify high risk patients and ensure they are receiving appropriate care and case management services

**Care Coordination**
- Track and support patients when they obtain services outside the practice, including ED or hospital discharge follow-up
What is Care Coordination?

Reducing Care Fragmentation in primary care:

- Link patients with community resources to facilitate referrals and respond to social service needs
- Integrate behavioral health and specialty care into care delivery through co-location or referral agreements
- Track and support patients when they obtain services outside the practice
- Follow-up with patients within a few days of an emergency room visit or hospital discharge
- Communicate test results and care plans to patients/families
- Provide care management services for high risk patients

http://www.safetynetmedicalhome.org/change-concepts/care-coordination

Patient-Centered Planned Care

- Risk stratification based on health risk profile and clinical input
- Text appointment reminders
- Same day appointment availability
- Prepared teams and patients
- Registry-based outreach
- Diabetes management
- Panel management

- Assign and deploy care team
- Create and communicate care plan through shared decision making
- Patient navigators
- Nurse care coordinators
- Clinical pharmacists
- Behavioral health consultants

- My Health Plan
- Self management action plans
- Medication management
- E-Touch health reminders
- Asthma home visits
- Transitions of care coordination
- High risk high cost case conferencing/care coordination

EMR

Patient Tiering

Access

Post-visit care

Pre-visit planning

During the visit

Patient and Care Plan

Enhanced care teams
Practice Coaches

- Assist in development, support and follow-up of PCMH standard work
- Support project champions
  - Adult referral tracking
  - Self management goal setting
- Coordinate work with enhanced care teams
  - Ensure that practices for all target populations meet PCMH criteria for implementation and documentation
- Work with 21st Century Care team to assure application of PCMH to high risk populations

21st Century Care Grant Overview

DH’s 21st Century Care builds on Patient Centered Medical Home (PCMH) and provides enhanced Health Information Technology (HIT)/clinical staffing tailored to patient risk/need:

- DH received largest CO innovation challenge grant ($19.8 million)
- One of 107 grantees out of nearly 3000 applicants
- Formal agreement between Denver Health and CMS to stage a test of a care delivery model over 3 years
- This grant further allows DH to innovate the delivery of health care and influence the direction of delivery system transformation nationally
PCMH & 21st Century Care

- NCQA 2011 standards
  - Self-management support and care coordination standards are higher
  - Requirement to identify a high risk population within the practice

- 21st Century Care program
  - Means to identify high risk population
  - Resources for case management of this group
  - Uses PCMH framework/care model

21st Century Care Goals

Over the three-year grant period, ensure:

- Better Access:
  - Increase access to care by 15,000 people

- Better Care & Health:
  - Improve patient satisfaction with care delivered between visits by 5% without decreasing satisfaction with visit-based care
  - Improve overall population health for DH patients by 5%

- Lower Cost:
  - Decrease total cost of care by 2.5% relative to trend
  - Reduce CMS spending by $12.8 million relative to trend
21st Century Care Population

Includes:

- Denver Health empaneled patients (primary care visit in the last 18 months)
- Denver Health managed care patients
- Certain frequent users of Emergency Department, Urgent Care, Inpatient Services, including unempaneled “Frequent Fliers” (generally, 3+ visits in last year)
- CMS populations: Medicaid, Medicare, CHP+, uninsured
- Exclude commercially insured

2013 21st Century Care Population

<table>
<thead>
<tr>
<th>Gender</th>
<th>Peds (N = 76,371)</th>
<th>Adults (N = 83,549)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>N</td>
<td>%</td>
</tr>
<tr>
<td>Male</td>
<td>34,425</td>
<td>45%</td>
</tr>
<tr>
<td>Female</td>
<td>34,054</td>
<td>45%</td>
</tr>
<tr>
<td>Unknown</td>
<td>7,892</td>
<td>10%</td>
</tr>
<tr>
<td>Age (yrs)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>&lt; 5</td>
<td>18,984</td>
<td>25%</td>
</tr>
<tr>
<td>5-10</td>
<td>22,241</td>
<td>29%</td>
</tr>
<tr>
<td>11-18</td>
<td>26,890</td>
<td>35%</td>
</tr>
<tr>
<td>19-34</td>
<td>364</td>
<td>0%</td>
</tr>
<tr>
<td>35-49</td>
<td>21,606</td>
<td>26%</td>
</tr>
<tr>
<td>50-64</td>
<td>18,503</td>
<td>22%</td>
</tr>
<tr>
<td>&gt;=65</td>
<td>8,821</td>
<td>11%</td>
</tr>
<tr>
<td>Unknown</td>
<td>7,892</td>
<td>10%</td>
</tr>
</tbody>
</table>

Population

- Empaneled: 62,424 (82%)
- Nonempaneled High Utilizer: 320 (0%)
- Nonempaneled Managed Care: 13,627 (18%)
Key Features of 21st Century Care

- **Implements Multi-Payer Approach**: Level One Care for All
- **Builds On/Optimizes PCMH**: with emphasis on the strategic use of visit time, patient activation/self-care support, right-sized, team-based staffing that integrates practice-based with centralized strategies
- **Leverages Technology**: to implement low-touch activities to improve communication
- **Redesigns Care Model for High-Risk Populations**: comprehensive, staff-intensive approach that considers social, behavioral, physical needs across the care continuum (e.g. broader than just hospital discharge or PCMH)

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Key Features 21st Century Care

- **Incorporates Current Innovations**: e.g. text messaging, patient navigation/community health workers, co-located primary care/behavioral health services
- **Leverages Integrated System to Demonstrate New Innovations**: additional/better integration of substance abuse and behavioral health, specialty services
- **Builds Community Linkages/Capacity**: leverages Mental Health Center of Denver (MHCD), patient navigator infrastructure to connect patients to the broader Denver community
- **Leverages Lean for Implementation**
$8.9 million in support for clinical staff at 8 distinct sites in different neighborhoods
- 25 patient navigators
- 3 pediatric nurse care coordinators
- 3 clinical pharmacists
- Behavioral health expansion

Develop 3 high risk teams
- Children with Special Health Care Needs clinic
- Adult Intensive Outpatient Clinic
- Mental health high risk clinic
21st Century Care Continuum

Goal to achieve practice transformation by integrating new staff with existing staff to provide team-based care, especially to high-risk high-cost patients

Patient Tiering

Denver Health has implemented a standardized tiered approach to healthcare management. The goals of tiering are:

- To risk-stratify the population and match care management resource to the level of risk
- Improve quality of healthcare at reduced costs
- Group patients based on a combination of demographic and health risk assessment information, disease / condition-specific registry information, and predictive modeling taking into consideration diagnosis, past medical services utilization and other factors

Patient Tiering supports:

- Identification of patients who may benefit from HIT-facilitated interactions
- Identification of patients who are eligible for Patient Navigation (tiers 2 – 3)
- Identification of high-risk patients
- The ability to trigger appropriate interventions at the appropriate time
Tiering Methodology

- Using diagnoses, procedures, pharmacy and demographic data, every person in Denver Health system in past 18 months is assigned to a Clinical Risk Group (CRG) including Managed Care patients, even if non-DH utilizers
- Each CRG is assigned a tier, split between adults and pediatrics 19 years or older is an adult, unless on pediatric registry
- Utilization patterns can override the tier that a CRG is assigned to

Adult Tiering Methodology

<table>
<thead>
<tr>
<th>CRG Status</th>
<th>Tier</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 - Healthy</td>
<td></td>
<td>21,701</td>
<td>281</td>
<td></td>
<td>8</td>
<td>22,080</td>
</tr>
<tr>
<td>2 - History of Significant Acute Disease</td>
<td></td>
<td>2,664</td>
<td>12</td>
<td>0</td>
<td>6</td>
<td>2,684</td>
</tr>
<tr>
<td>3 - Single Minor Chronic Disease</td>
<td></td>
<td>1,461</td>
<td>2</td>
<td>7</td>
<td>0</td>
<td>4,218</td>
</tr>
<tr>
<td>4 - Minor Chronic Disease in Multiple Organ Systems</td>
<td></td>
<td>2</td>
<td>2</td>
<td>183</td>
<td>0</td>
<td>1,386</td>
</tr>
<tr>
<td>5 - Single Dominant or Moderate Chronic Disease</td>
<td></td>
<td>272</td>
<td>10</td>
<td>420</td>
<td>57</td>
<td>66</td>
</tr>
<tr>
<td>6 - Significant Chronic Disease in Multiple Organ Systems</td>
<td></td>
<td>11,633</td>
<td>1,711</td>
<td>620</td>
<td>619</td>
<td>10,979</td>
</tr>
<tr>
<td>7 - Dominant Chronic Disease in 3 or more Organ Systems</td>
<td></td>
<td>57</td>
<td>0</td>
<td>7</td>
<td>1,706</td>
<td>1,863</td>
</tr>
<tr>
<td>8 - Dominant, Metastatic and Complicated Malignancies</td>
<td></td>
<td>422</td>
<td>41</td>
<td>91</td>
<td>15</td>
<td>513</td>
</tr>
<tr>
<td>9 - Catabolic Conditions</td>
<td></td>
<td>167</td>
<td>220</td>
<td>213</td>
<td>609</td>
<td>1,800</td>
</tr>
<tr>
<td>Totals</td>
<td></td>
<td>20,043</td>
<td>27,336</td>
<td>4,571</td>
<td>2,016</td>
<td>58,958</td>
</tr>
</tbody>
</table>

Report Name: Count_by_CRG_Status.R
## Adult High Cost/High Risk Patients

- Patient is ≥ 19 yrs
- CRG status of 6, or 7 and a CRG level of 4, 5 or 6
- 1+ Inpatient Stays or 2+ ED visits in the previous 6 months

Patients excluded from Care Coordination lists:
- Significant substance abuse (2+ Denver Cares visits in the previous 6 months)
- CRG status of 9 (catastrophic)
- Attempt to further identify actionable patients

### 2013 Adult High Cost/High Risk Patients

<table>
<thead>
<tr>
<th>Population</th>
<th>High Risk (N = 4,825)</th>
<th>Care Coordination Eligible (N = 3,112)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gender</td>
<td>N</td>
<td>%</td>
</tr>
<tr>
<td>Male</td>
<td>2,578</td>
<td>53%</td>
</tr>
<tr>
<td>Female</td>
<td>2,247</td>
<td>47%</td>
</tr>
<tr>
<td>Age (yrs)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>19 - 34</td>
<td>509</td>
<td>11%</td>
</tr>
<tr>
<td>35-49</td>
<td>1,094</td>
<td>23%</td>
</tr>
<tr>
<td>50-64</td>
<td>2,077</td>
<td>43%</td>
</tr>
<tr>
<td>≥ 65</td>
<td>1,145</td>
<td>24%</td>
</tr>
<tr>
<td>Population</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Empaneled</td>
<td>3,571</td>
<td>74%</td>
</tr>
<tr>
<td>Nonempaneled High Utilizer</td>
<td>1,143</td>
<td>24%</td>
</tr>
<tr>
<td>Nonempaneled Managed Care</td>
<td>111</td>
<td>2%</td>
</tr>
</tbody>
</table>
Why High Risk High Cost Care Coordination?

Needed an intervention to help meet 21st Century Care grant goals and objectives

- Improve health of patient and reduce costs
- Identify issues that wouldn’t present during clinic visits
- Help reduce social barriers that are actionable
- Provide multidisciplinary approach to patient-centered care
- Increase patient education
- Reduce avoidable utilization by actionable patients
- Improve communication through acute admission and outpatient work

Why High Risk High Cost Care Coordination?

Sought a primary care team based intervention for people with multiple chronic conditions and recent utilization

- Filled a gap in our overall care model for high risk patients
- Identify issues that wouldn’t present during clinic visits
- Help reduce social barriers that are actionable
- Provide multidisciplinary approach to patient-centered care
- Increase patient education
- Improve communication through acute admission and outpatient work
High Risk High Cost Care Coordination

• Process for multidisciplinary care teams to review the social, behavioral, and medical conditions of selected high-risk patients
• Develop care plans that will generate significant improvements in patient health, reduce utilization of services, and generate significant cost savings
• Targets patients in tiers 3 and 4 with a focus on those that have had recent hospital and/or ED utilization

Care Coordination Process

• Includes all members of the care team: BHCs, SWs, PNs, RNs, PharmDs, PCPs, HCPs
• PCP finalized list of selected patients to 5-10 “actionable” patients each week
• Clinic staff member contacts patient prior to conference to elicit patient goals and barriers
  o Become topics for the case conference
• Patient leaves with a care plan outlining clinic team recommendations and plans
Care Coordination Model

Lessons Learned

- Still have varying degrees of comfort with patient navigator roles and responsibilities
- Need to set standards for when to “quit” conferencing each patient
- Pilots confirmed the importance of asking the patient about their non-medical issues
  - Vast majority of action items were non-medical
- Communication of the care plan is key to the design
  - Follow-up on care plan is challenging
- Patient navigators have a key role in task follow-up
More Lessons Learned

- Difficult to define roles and responsibilities for care coordination (RN, SW, BHC, PN, PharmD)
- Providers can be too narrow when selecting patients to case conference
- Clinics can be slow to adopt and implement case conferencing/care coordination given other priorities
- Each clinic had to pilot and find their own model which can take up to a year to establish

Expected Outcomes of Care Coordination

- Patients will manage medications more appropriately
- Patients will have a better understanding of their health conditions
- Fewer visits to the ER for primary care-treatable conditions
- Fewer hospital admissions for poor control of chronic conditions
- More efficient use of PCP time --> increased access for additional patients
- Team develops solutions to improve patient experience
**Internal Evaluation Framework**

**RE-AIM Evaluation Framework**

<table>
<thead>
<tr>
<th>Domain</th>
<th>Metrics/Analytical Approach</th>
</tr>
</thead>
<tbody>
<tr>
<td>R Reach</td>
<td>Workforce metrics by target population and by tier</td>
</tr>
<tr>
<td>E Effectiveness</td>
<td>Actuarial/financial, utilization, preventive service receipt, chronic care management, patient satisfaction</td>
</tr>
<tr>
<td>A Adoption</td>
<td>Hiring and other workforce metrics by clinic</td>
</tr>
<tr>
<td>I Implementation</td>
<td>Patient satisfaction and provider interviews</td>
</tr>
<tr>
<td>M Maintenance</td>
<td>Trend analysis of routinely reported financial, clinical, and workforce metrics</td>
</tr>
</tbody>
</table>

**Reach Evaluation**

**2013 Adult Patients**

<table>
<thead>
<tr>
<th>Category</th>
<th>Reached</th>
<th>Not Reached</th>
</tr>
</thead>
<tbody>
<tr>
<td>High Risk (n = 4825)</td>
<td>1481 (31%)</td>
<td>3344</td>
</tr>
<tr>
<td>All Others (n = 78,724)</td>
<td>8,540 (11%)</td>
<td>70,184</td>
</tr>
</tbody>
</table>
Reach Evaluation

Effectiveness Evaluation

Preliminary Actuarial Findings of 21CC

- Population: 21CC Managed Care populations
- Baseline period (11/1/11 – 10/31/12)
- Program implementation (11/1/12 – 9/30/13)
- “Cost Avoidance” = Dollar value of utilization reductions
  - Expected spending – Observed spending or
  - (Baseline spending * trend) – Program spending
- Findings:
  - Medicaid cost avoidance equivalent to -2.7% (relative to expected)
  - Reductions in Adult Tier 4 Medicaid utilizers was the single largest driver of overall cost avoidance (-6.1% relative to expected)
Effectiveness Evaluation

Why use actuarial methods?
Actuarial: Observed vs. Expected

Advantages

– CMMI-preferred total cost of care approach and total savings
– Risk-adjusted
– Cross-sectional (does not follow a cohort of individuals over time, no regression to the mean)
– Can back-out “price changes” and/or adjust for policy changes

Disadvantages

– Not specific to 21st Century Care activities
– Sensitive to “trend” assumptions
– Savings may not accrue to the Tier in which they occur

Adoption Evaluation

Workforce Productivity Report
Example
Patient Touches by Role
From 7/1/2014 – 9/30/2014
Role = Patient Navigator

<table>
<thead>
<tr>
<th>Tier</th>
<th>Total Patient Touches</th>
<th>Unique Patients</th>
<th>Average Patient Touches</th>
</tr>
</thead>
<tbody>
<tr>
<td>4</td>
<td>715</td>
<td>431</td>
<td>1.66</td>
</tr>
<tr>
<td>3</td>
<td>614</td>
<td>420</td>
<td>1.46</td>
</tr>
<tr>
<td>2</td>
<td>638</td>
<td>502</td>
<td>1.27</td>
</tr>
<tr>
<td>1</td>
<td>142</td>
<td>125</td>
<td>1.14</td>
</tr>
<tr>
<td>0</td>
<td>67</td>
<td>46</td>
<td>1.46</td>
</tr>
<tr>
<td>Total</td>
<td>2176</td>
<td>1524</td>
<td>1.43</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Name</th>
<th>Total Patient Touches</th>
<th>Unique Patients</th>
<th>Average Patient Touches</th>
</tr>
</thead>
<tbody>
<tr>
<td>Patient Navigator 1</td>
<td>4</td>
<td>4</td>
<td>1.00</td>
</tr>
<tr>
<td>Patient Navigator 2</td>
<td>42</td>
<td>36</td>
<td>1.11</td>
</tr>
<tr>
<td>Patient Navigator 3</td>
<td>53</td>
<td>40</td>
<td>1.33</td>
</tr>
<tr>
<td>Patient Navigator 4</td>
<td>273</td>
<td>297</td>
<td>1.32</td>
</tr>
<tr>
<td>Patient Navigator 5</td>
<td>79</td>
<td>59</td>
<td>1.34</td>
</tr>
<tr>
<td>Patient Navigator 6</td>
<td>188</td>
<td>126</td>
<td>1.49</td>
</tr>
</tbody>
</table>
### Implementation Evaluation

<table>
<thead>
<tr>
<th>Adaptive Reserve Questions from Clinic RN Manager Interviews</th>
<th>A</th>
<th>B</th>
<th>C</th>
</tr>
</thead>
<tbody>
<tr>
<td>We regularly take time to consider ways to improve how we do things.</td>
<td>4.0</td>
<td>5.0</td>
<td>4.0</td>
</tr>
<tr>
<td>After trying something new, we take time to think about how it worked.</td>
<td>2.0</td>
<td>4.0</td>
<td>1.0</td>
</tr>
<tr>
<td>Most people in this clinic are willing to change how they do things in response to feedback from others.</td>
<td>4.0</td>
<td>5.0</td>
<td>5.0</td>
</tr>
<tr>
<td>This clinic encourages everyone to share ideas.</td>
<td>2.0</td>
<td>5.0</td>
<td>4.0</td>
</tr>
<tr>
<td>I can rely on the other people in this clinic to do their jobs well.</td>
<td>4.0</td>
<td>4.0</td>
<td>5.0</td>
</tr>
<tr>
<td>Difficult problems are solved through face-to-face discussions in this clinic.</td>
<td>4.0</td>
<td>3.5</td>
<td>5.0</td>
</tr>
<tr>
<td>Clinic leadership promotes an environment that is an enjoyable place to work</td>
<td>4.0</td>
<td>5.0</td>
<td>4.0</td>
</tr>
<tr>
<td>Leadership strongly supports practice change efforts.</td>
<td>3.5</td>
<td>4.0</td>
<td>4.0</td>
</tr>
<tr>
<td>The clinic leadership makes sure that we have the time and space necessary to discuss changes to improve care.</td>
<td>3.0</td>
<td>4.0</td>
<td>4.0</td>
</tr>
<tr>
<td>When we experience a problem in the clinic, we make a serious effort to figure out what’s really going on.</td>
<td>4.0</td>
<td>4.0</td>
<td>4.0</td>
</tr>
<tr>
<td>People in this clinic operate as a real team.</td>
<td>3.5</td>
<td>5.0</td>
<td>4.0</td>
</tr>
<tr>
<td>Most of the people who work in our clinic seem to enjoy their work.</td>
<td>4.0</td>
<td>5.0</td>
<td>4.0</td>
</tr>
<tr>
<td>This clinic learns from its mistakes.</td>
<td>4.0</td>
<td>4.0</td>
<td>4.0</td>
</tr>
<tr>
<td><strong>Average</strong></td>
<td>3.5</td>
<td>4.4</td>
<td>4.0</td>
</tr>
</tbody>
</table>

### Implementation Evaluation

Maintenance Evaluation

21st Century Care Population

- 2011
- 2012
- 2013
- 2014

Maintenance Evaluation

Adult High Risk Patients (by CRG)

- 2011
- 2012
- 2013
- 2014
Evaluation Challenges

- Data capture
  - Non-DH utilization for non-managed care patients (FFS, BHO)
- Measurement
  - Billing changes (e.g., Outpatient observation cases)
- Undefined target populations
  - Provider referral
  - Adaptations within applied setting
- Comparison groups
  - Historical vs. Concurrent
  - Intent to treat vs. simulated reach

Lessons Learned and Summary

PCMH
Existing practice

High Risk Care Coordination

Unengaged patient

IOC
MHCD
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Acknowledgements and Disclaimers

- The project described was supported by Grant Number 1C1CMS331064 from the Department of Health and Human Services, Centers for Medicare & Medicaid Services.
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