Building a Case for Sustainability Using Medicaid Data

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Project Background

- Transition Medicine Clinic (TMC) has been a DSRIP project under the 1115 Transformation Waiver since SFY12

- Provides a transitional medical home to young adults with chronic childhood conditions

- Provides additional social services not typically covered by public and private insurers
Evaluation Background

- TMC is building a case for value-based purchasing with evidence of positive health outcomes

- One of the project’s stated goals is to reduce Emergency Department utilization by 25%

- Since a high proportion of TMC clients receive Medicaid, Data Analytics is using Medicaid enrollment, claims, and encounter data to measure TMC client ED utilization
Method

• TMC provided Medicaid IDs, first and last TMC visits, and diagnoses

• Define study group
  • 18 months continuous enrollment during SFY10-SFY15

• Create comparison group
  • Enrollment data to identify similar clients
  • Propensity score matching

• Identify ED visits in claims and conduct analysis
  • Average monthly visits
  • Pre-post design
Study group characteristics

CLIENT CHARACTERISTICS STUDY GROUP (n = 261)

Gender
- 50%; Female
- 50%; Male

Race/ Ethnicity
- 3%; Asian
- 15%; Black/ African American
- 17%; White
- 20%; Hispanic
- 44%; Unknown

Age
- 4%; over 30
- 41%; Ages 21-30
- 55%; under 21

Diagnosis Codes
- 9%; Autism
- 17%; Spina bifida
- 26%; Down Syndrome
- 18%; Other
- 30%; Cerebral Palsy
Comparison Group

• Clinical programs not usually set up for experimental design

• Without randomized control group, more difficult to attribute any change in outcomes to program intervention

• Data provides opportunity to construct comparison group

• First step: identify clients from data with a set of characteristics found in the study group.
  • Age, service area, and Medicaid program type
**Before Matching: Study and Comparison Group Characteristics**

STUDY GROUP (n = 261) and UNMATCHED COMPARISON GROUP (n = 66,402)

<table>
<thead>
<tr>
<th>Gender</th>
<th>Race</th>
<th>Age</th>
<th>Diagnosis Codes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Female, 50%</td>
<td>Asian, 3%</td>
<td>Over 30, 4%</td>
<td>Autism, 9%</td>
</tr>
<tr>
<td>Male, 50%</td>
<td>Black/African American, 15%</td>
<td>Ages 21-30, 41%</td>
<td>Spina bifida, 17%</td>
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<tr>
<td></td>
<td>White, 17%</td>
<td></td>
<td>Down Syndrome, 26%</td>
</tr>
<tr>
<td></td>
<td>Hispanic, 20%</td>
<td>Over 30, 57%</td>
<td>Other, 86%</td>
</tr>
<tr>
<td></td>
<td>Unknown, 44%</td>
<td>Under 21, 55%</td>
<td>Cerebral Palsy, 30%</td>
</tr>
<tr>
<td>Study group</td>
<td>Asian, 2%</td>
<td>Ages 21-30, 16%</td>
<td></td>
</tr>
<tr>
<td>Unmatched comparison</td>
<td>Black/African American, 34%</td>
<td>Under 21, 27%</td>
<td></td>
</tr>
<tr>
<td></td>
<td>White, 25%</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Hispanic, 15%</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Unknown, 24%</td>
<td></td>
<td></td>
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<tr>
<td>Study group</td>
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</table>
Comparison Group, cont.

- **Propensity score matching:**
  - Ensures that the distribution of client characteristics is similar
  - Generates a score for each treatment and potential comparison group subject based on client characteristics
  - Clients are matched by most similar score

- **Matched variables include:**
  - Gender
  - Race
  - Age
  - Program Type
  - Risk Group
  - ICD code
  - Fiscal Year of first TMC visit
  - Number of ED visits in 6 months before TMC
After Matching: Study and Comparison Group Characteristics

STUDY GROUP (n = 261) and MATCHED COMPARISON GROUP (n = 261)

Gender

- Study group:
  - Female: 50%
  - Male: 50%
- Matched comparison:
  - Female: 55%
  - Male: 45%

Race

- Study group:
  - Asian: 3%
  - Black/African American: 15%
  - White: 17%
  - Hispanic: 20%
  - Unknown: 44%
- Matched comparison:
  - Asian: 6%
  - Black/African American: 14%
  - White: 21%
  - Hispanic: 23%
  - Unknown: 36%

Age

- Study group:
  - Under 21: 55%
  - Ages 21-30: 41%
  - Over 30: 4%
- Matched comparison:
  - Under 21: 40%
  - Ages 21-30: 56%
  - Over 30: 5%

Diagnosis Codes

- Study group:
  - Autism: 9%
  - Spina bifida: 17%
  - Down Syndrome: 26%
  - Other: 18%
  - Cerebral Palsy: 30%
- Matched comparison:
  - Autism: 8%
  - Spina bifida: 20%
  - Down Syndrome: 23%
  - Other: 18%
  - Cerebral Palsy: 31%
Study Period Design

Period 1: 6 month period pre TMC visit
MONTHS 1-6

INITIAL TMC VISIT

Period 2: 1st 6 months post TMC visit
MONTHS 7-12

Period 3: 2nd 6 months post TMC visit
MONTHS 13-18

18 MONTHS
Average Monthly ED Visits per 1,000 Clients: TMC and Matched Comparison Group

First TMC visit

- Period 1: 6 months pre TMC
- Period 2: 1st 6 mths post TMC
- Period 3: 2nd 6 mths post TMC
- Comparison
- TMC
Study and Matched Comparison Group: Total Visits by 6 Month Period

**PERCENT CHANGES AND P VALUES**

<table>
<thead>
<tr>
<th></th>
<th><strong>STUDY GROUP</strong></th>
<th></th>
<th><strong>COMPARISON GROUP</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Period 1 to 2</td>
<td>-26% p = .099</td>
<td>Period 1 to 2</td>
<td>-25% p = .055</td>
</tr>
<tr>
<td>Period 1 to 3</td>
<td>-33% p = .019</td>
<td>Period 1 to 3</td>
<td>-17% p = .270</td>
</tr>
</tbody>
</table>

*Significant at 95% CI, 5% margin of error*
SUMMARY

Preliminary Findings:

- ED visits for TMC clients decreased by over 25%, their desired outcome
- ED visits for both groups decreased from Period 1 to Period 2
- The decrease for TMC clients was statistically significant from Period 1 to Period 3

Next steps:

- Add more quarters of ED data as available
- Refine comparison group
- Regression analysis to clarify major contributors to decrease