Understanding the Role of the Patient-Centered Medical Home in Building a Strong Primary Care Foundation

A Study of the Blue KC Medical Home Program

Presented by Karen S. Johnson, PhD
Q1: What factors are associated with Medical Home implementation?

Non-Medical Home
n=362

Medical Home
n=125

High Quality Primary Care Practice Patterns
- Primary & Secondary Prevention
- Tertiary Prevention
- Chronic & Follow-up Care
- Health Status Change
- Continuity
- Efficiency

Payer Influence

Location

Practice Size

Patient Mix

Physician Leadership

Outcomes of Interest

n=27

Hospital System

n=60

Physician-Owned MH

Q2: Is working in a Medical Home associated with differences at the physician level?

Q3: Is ownership of MH practices associated with differences in cost and utilization?

Outcomes of Interest

n=1,552

Primary Care physicians

n=452

Hosp/System-Owned MH

n=80

Physician-Owned MH

n=27

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Methodology

3 cross-sectional, retrospective studies analyzed the relationship between primary care physicians, practices and implementation of the Medical Home. Multiple Logistic Regression (Q1) and Multiple Linear Regression (Q2 & Q3) were utilized. The study population included adult members (n=229,541) attributed to primary care physicians within Blue KC network (n=497) and practices (n=7,552).

Primary care physicians (n=1,552) and practices (n=497) within Blue KC network were analyzed in the study.
This study draws on data provided by Blue KC and/or agreements with its vendor partners.

Data Sources

- Blue KC Medical Home Program Data (Calendar Year 2015)
- Member-level Data (n=229,541)
- Age, gender, risk score, attribution status, claims cost ($PM)  
- 3M™ Value Index Scores indicative of high quality, primary care services
- Physician-level evaluation
- Practice-level data (n=497)
- Number of physicians, location, specialty, Medical Home practice status
- Practice-level data (n=1,552)
- Age, gender, specialty, practice affiliation, attributed members
- 3M™ Value Index Scores indicative of high quality, primary care services
- Practice-level data (n=1,552)
- Age, gender, specialty, practice affiliation, attributed members
- Practice-level data (n=497)
- Number of physicians, location, specialty, Medical Home practice status
- Physician-level evaluation
- Composite score + Six Domains

Blue KC Medical Home Program Data (Calendar Year 2015)
**How do basic characteristics of Medical Homes and Non-Medical Homes differ?**

**Key Differences:**

- Medical Homes are larger
- 5 Physicians compared to 2.4 (p<0.0001)
- Medical Homes have more Blue KC attributed members
- 240 per physician compared to 91 (p>0.0001)
- Medical Homes are more urban
- 77% compared to 52% (p<0.0001)
## Q2: Does Medical Home implementation influence physician practice patterns?

<table>
<thead>
<tr>
<th>Domain</th>
<th>Evaluation Description</th>
<th>Measures</th>
<th>Metric</th>
</tr>
</thead>
<tbody>
<tr>
<td>Efficiency</td>
<td>Use of two key healthcare resources</td>
<td>Generic Prescribing Rate</td>
<td>Percent completion between actual and expected</td>
</tr>
<tr>
<td>Follow-up Care</td>
<td>Conditional admission (CAC)</td>
<td>PCP Visit</td>
<td>Percent completion between actual and expected</td>
</tr>
<tr>
<td>Continuity</td>
<td>Continuity of Care Index (COI)</td>
<td>Well Qualified Provider Visit</td>
<td>Percent completion between actual and expected</td>
</tr>
<tr>
<td>Chronic Care</td>
<td>Chronic Severity and Chronic Complexity and Continuity of Care Index (COI)</td>
<td>PCP Visit</td>
<td>Percent completion between actual and expected</td>
</tr>
<tr>
<td>Health Change</td>
<td>Escalation of chronic illness in “Status Jumpers” between “Medicare Starter” and “Medicare Starter”</td>
<td>“Status Jumpers”</td>
<td>Percent completion between actual and expected</td>
</tr>
<tr>
<td>Tertiary Prevention</td>
<td>Admissions &amp; ED Visits</td>
<td>“Medicare Starter”</td>
<td>Percent completion between actual and expected</td>
</tr>
<tr>
<td>Primary Prevention</td>
<td>PPR Rates</td>
<td>“Medicare Starter”</td>
<td>Percent completion between actual and expected</td>
</tr>
<tr>
<td>Secondary Prevention</td>
<td>PPR Rates</td>
<td>“Medicare Starter”</td>
<td>Percent completion between actual and expected</td>
</tr>
<tr>
<td>Prevention</td>
<td>PPR Rates</td>
<td>“Medicare Starter”</td>
<td>Percent completion between actual and expected</td>
</tr>
<tr>
<td>Early Detection</td>
<td>Screening Services Described for Breast Cancer</td>
<td>“Medicare Starter”</td>
<td>Percent completion between actual and expected</td>
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### Value Index Scores

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<tr>
<td>Disparities</td>
<td>Primary Prevention</td>
<td>Preventative Services</td>
<td>Percent completion between actual and expected</td>
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<td>Disparities</td>
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**Value Index Scores**

3M (TM)
Q2: Comparison of VIS Scores by Medical Home Status

- VIS Composite
- Primary and Secondary Prevention
- Tertiary Prevention
- Population Health Status Change
- Chronic and Follow Up Care
- Continuity
- Efficiency

**Home Status by Medical Home Practice Site**

- Medical Homes
- Non-Medical Homes

Physician Value Index Scores by Medical Home Practice Site

*p < 0.0001, **p < 0.001, *p < 0.05, +p < 0.10 (approaching significance)***
Q3: Does Medical Home ownership influence total cost of care or utilization rates for high-cost services?

Medical Home practices sorted by ownership (n=107*)

- Practices were very similar in most ways (n=107*).
- Physician-owned practices were more urban (p<.05).
- Larger practice size (~ 5 physicians).
- Strong payer influence (more than 310 members per physician).
- 96% compared to 70%.

*Practices with less than 250 attributed members excluded.
Outcomes of Interest

<table>
<thead>
<tr>
<th>Outcomes</th>
<th>Physician mean (95% CI)</th>
<th>Hospital/ System mean (95% CI)</th>
<th>Total Cost of Care = Total allowed charges/member months</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Cost of Care Per Member Per Month</td>
<td>$338.77 (329.66 to 347.88)</td>
<td>$359.48 (356.88 to 362.07)</td>
<td>$20.71***</td>
</tr>
<tr>
<td>Difference in Hospital Admission Rates Actual – Expected</td>
<td>-5.7 (-9.7 to -1.65)</td>
<td>.59 (-.63 to 1.8)</td>
<td>6.3***</td>
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Notes:
- Utilization Rates = Actual - Expected
- Total Cost of Care = Total allowed charges/member months

Difference in outcomes of interest evaluated using t test:
- **p < 0.001
- *p < 0.05
- +p < 0.10 (approaching significance)
Q1: How do basic characteristics of Medical Homes & Non-Medical Homes differ?

Non-Medical Home vs Medical Home:
- Payer Influence
- Location
- Practice Size
- Patient Mix

Q2: Do practice patterns differ between Medical Home and Non-Medical Homes?

High Quality Primary Care Pattern:
- Primary & Secondary Prevention
- Tertiary Prevention
- Chronic & Follow-Up Care
- Health Status Change
- Efficiency
- Continuity
- Patient Influence

Q3: Is ownership of MH practices associated with differences in cost and utilization?

Outcomes of Interest:
- Total Cost of Care ($/PMPM)
- Utilization of High-Cost Services
  - ED Visits
  - Hospital/System

Physicians in Medical Home demonstrate higher primary care quality overall.
Limitations

- Natural experiment
- Selection bias
- Administrative claims data
- Coding errors, payment errors, membership errors
- No insight into medical home mechanisms in place at non-medical home practices
- Limited understanding of practice environment
- Results specific to this intervention and not generalizable
- Limited understanding of practice environment
Implications for Building a Strong Primary Care Foundation

- Understand how context influences outcomes
- Understand the role that patients play
- Understand the influence of the payer
- Identify ways to engage small, rural practices
Implications for Payers

Payers have the potential to play an important role:

- Multi-payer collaborations can enhance financial incentives and reduce administrative burdens.
- Implement benefit designs that promote primary care referrals for specialty services that have lower cost for basic primary care services.
- Selection of PCP at enrollment.
- Multi-payer collaborations can enhance role: Payers have the potential to play an important
Next Steps

- More focused research to understand the role of:
  - Personal preferences
- Community resources care practices
- Hospital and health system ownership of primary care practices
- The influence of:
  - Benefit design/financial incentives
  - Physician leadership

A more qualitative approach to understanding:

- More focused research to understand the role of the patient:
Thank you and Questions
Multiple Logistic Regression with Odds Ratio

Practice Characteristics

<table>
<thead>
<tr>
<th>Practice Characteristics</th>
<th>Odds Ratio (95% Confidence Interval)</th>
<th>Standard Error</th>
</tr>
</thead>
<tbody>
<tr>
<td>Practice size (# of physicians)</td>
<td>2.24* (1.81-2.78)</td>
<td>.245</td>
</tr>
<tr>
<td>Urban practice setting</td>
<td>2.19* (1.27-3.78)</td>
<td>.609</td>
</tr>
<tr>
<td># of attributed members per physician</td>
<td>1.06* (1.05-1.08)</td>
<td>.009</td>
</tr>
<tr>
<td>Risk weight of attributed members (CRG Score)</td>
<td>1.03 (0.95-1.11)</td>
<td>.397</td>
</tr>
<tr>
<td>Age of attributed members</td>
<td>1.01 (0.95-1.07)</td>
<td>.031</td>
</tr>
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</table>

Pseudo R² = .2915

n = 497 practices (135 Medical Home/362 non-Medical Home)

**p < 0.001, *p < 0.05, +p < 0.10 (approaching significance)**
Association of Medical Home Status with Physician Practice Patterns

as Measured by VIS Scores (n = 1,308 physicians)

### Multiple Regression

The table below presents the results of a multiple regression analysis, showing the association of medical home status with various VIS composite scores. The table includes coefficients (b), 95% confidence intervals (95% CI), and statistical significance levels (p-values).

<table>
<thead>
<tr>
<th>Variable</th>
<th>Coefficient (b)</th>
<th>95% CI</th>
<th>Adjusted R-squared</th>
</tr>
</thead>
<tbody>
<tr>
<td>VIS Composite</td>
<td>0.0731***</td>
<td>(0.082 - 0.064)</td>
<td>0.117***</td>
</tr>
<tr>
<td>Tertiary Prevention</td>
<td>0.074***</td>
<td>(0.082 - 0.066)</td>
<td>0.006***</td>
</tr>
<tr>
<td>Primary &amp; Secondary Prevention</td>
<td>0.098**</td>
<td>(0.152 - 0.040)</td>
<td>0.044*</td>
</tr>
<tr>
<td>Population Health Status Change</td>
<td>0.0165*</td>
<td>(-0.060 - 0.031)</td>
<td>0.006*</td>
</tr>
<tr>
<td>Continuity</td>
<td>0.0117*</td>
<td>(-0.054 - 0.054)</td>
<td>0.000***</td>
</tr>
<tr>
<td>Chronic &amp; Follow-Up Care</td>
<td>0.006</td>
<td>(-0.028 - 0.040)</td>
<td>0.004*</td>
</tr>
<tr>
<td>Efficiency</td>
<td>0.007</td>
<td>(-0.032 - 0.032)</td>
<td>0.003***</td>
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Statistical significance levels:
- *** p < 0.0001
- ** p < 0.001
- * p < 0.05
- + p < 0.10 (approaching significance)
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<tr>
<th>Ownership Type</th>
<th>β (95% CI)</th>
<th>Hospital Admissions (Actual – Expected)</th>
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<td>Independent</td>
<td>20.28***</td>
<td>3.26** (-7.69 to 4.9)</td>
<td>-40.9* (-8.2 to 7.5)</td>
<td>-2.45* (-4.6 to 7.4)</td>
</tr>
<tr>
<td>Hospital/System</td>
<td>3.71*</td>
<td>14.1 (-22.2 to 50.5)</td>
<td>3.77 (-30.6 to 37.7)</td>
<td>3.8 (-4.7 to 3.8)</td>
</tr>
<tr>
<td>Percent Female</td>
<td>-5.2</td>
<td>-13 (-80 to 11)</td>
<td>2.71 (-1.4 to 1.5)</td>
<td>-2.1 (-4.7 to 0.5)</td>
</tr>
<tr>
<td>Member Age</td>
<td>-1.9</td>
<td>-1.71 (-1.1 to 1.5)</td>
<td>-1.29 (-3.8 to 0.4)</td>
<td>-1.07 (-2.7 to 0.6)</td>
</tr>
<tr>
<td>Members Per Physician</td>
<td>-0.44**</td>
<td>-0.48 (-0.6 to 0.1)</td>
<td>-0.33 (-2.4 to 0.2)</td>
<td>-0.27 (-2.5 to 0.1)</td>
</tr>
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<td>Ownership Type</td>
<td>-3.9</td>
<td>-3 (-7.9 to 7.2)</td>
<td>2.71 (-3.7 to 9.2)</td>
<td>6.32** (2.7 to 9.8)</td>
</tr>
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Table 3: Multivariate Analyses of Outcomes of Interest by Ownership Type

Note: VIS Composite and Domain Scores, Percent Female Members and Member Count were included in the multivariate analyses, but did not reach significance for any outcome of interest and are excluded from this summary table.
References


