True Cost and Value of Mental Health Integration: Intermountain Healthcare’s Team-Based Approach to Population Health

Kim Brunisholz

27th Annual National Forum on Quality Improvement in Health Care
12/7/15

#27FORUM

M 16 - Course Objectives:

Identify how integrating mental health services into personalized primary care improves outcomes for patients and families managing multiple and complex conditions and determines the total cost of effective team care.

Demonstrate the greater value provided by high-performing, team-based care compared to the more traditional patient management approach, as measured by outcomes, costs, and utilization.

Understand the features of a Learning Healthcare Delivery System: explicit performance, improvement, and learning goals; systematic monitoring against goals; active environmental scanning; explicit processes/policies for internal/external experimentation; supportive leadership, culture, training & resources.
Culture of a Learning Healthcare System

• Common Vision
• Clinical Work Processes
• Data and Evaluation Transparency

Kim Brunisholz
Delivery System Science Fellow

*This presenter has no relevant financial disclosures
WHAT NEEDS TO CHANGE?

1. Lack of evidence-based care in daily practice
2. Unsustainable cost increases
3. Misaligned financial incentives
4. Ineffective patient engagement
   • Unhealthy behaviors
   • Uninformed participation in critical decisions
   • Suboptimal management of chronic illness
1. Create a common vision for population health
SOLUTIONS
1. Create a common vision for population health
2. Provide evidence-based care
3. Create transparency with data, measurement, and evaluation
Highly Integrated Health System

Since 1975
• 22 hospitals
• 2,784 licensed beds

Since 1983
• Health plans
• 700,000+ members

Since 1994
• 1,200 employed physicians
• 558 advanced practice clinicians

Since 1997
• 10 key service lines

Our Charge: To become a “Model Healthcare System”

COMMON VISION
BEST PRACTICES
TRANSPARENCY

SOLUTIONS
1. Create a common vision for population health
Our efforts are ultimately centered around what matters most to our patients, families, employees, members, and communities.

**Core Business**
- Perfecting the Clinical Work Process
- Best clinical care in the world doesn’t matter if no one can afford it.
- Always do the right thing!

**The Intermountain Way**
- Improved quality & service
- Evidence-based practice
- Systematic approach-measure & improve

**Culture of Learning**
Success is always led by clinical teams but must include operational, financial, governance, and patient engagement.
The Intermountain Way

Improved quality & service + Evidence-based practice + Systematic approach - measure & improve

ALWAYS DO THE RIGHT THING!

SUCCESS Always led by clinical but including operational, financial and even governance!

SOLUTIONS

1. Create a common vision for population health
2. Provide evidence-based care
Provide Evidence-Based Care

- Leadership creates an infrastructure (data systems and Clinical Programs) to measure and manage performance
- Clinical Programs create Care Process Models, educate providers, and track outcomes
  - Preventive care management
  - Acute disease management
  - Chronic disease management

Intermountain Clinical Programs

- Behavioral Health
- Cardiovascular
- Intensive Medicine
- Musculoskeletal
- Neurosciences
- Oncology
- Pediatric Specialty
- Primary Care
- Surgery
- Women and Newborn
Clinical Program Organizational Structure

Clinical Program Leadership
Medical and Operations Director
Support Staff Development

Guidance Councils
Medical Directors – Regional Nurse Consultants
SelectHealth, other support staff
Implementation and Development

Development Teams
Specific Disease Process Development

Physician Advisory Councils
Implementation and Development

Guidance Councils – Set Goals

• Evaluate and give input on output of development teams
• Assist in and track implementation and goal achievement
• Set priorities for the development of clinical content
• Recommend priorities for infrastructure development
Clinical Program Organizational Structure

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Support Staff Development

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Development Teams
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Implementation and Development
SOLUTIONS

1. Create a common vision for population health
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Clinical Programs IS Structure

Integrated Reporting and Analysis

Build a single source for complex data analysis and reporting
Intermountain’s information system

![Diagram of Intermountain’s information system]

Clinical Program/EDW Partnership

<table>
<thead>
<tr>
<th>Clinical Program</th>
<th>EDW</th>
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</thead>
<tbody>
<tr>
<td>Business/Clinical Leader</td>
<td><strong>Determines vision priorities</strong></td>
</tr>
<tr>
<td>Outcomes Analyst/Statistician</td>
<td><strong>Develops the analytical processes</strong></td>
</tr>
<tr>
<td></td>
<td><strong>Performs advanced statistical analysis</strong></td>
</tr>
<tr>
<td></td>
<td><strong>Serves as liaison between EDW and Clinical Program</strong></td>
</tr>
<tr>
<td></td>
<td><strong>Leads requirements analysis effort</strong></td>
</tr>
<tr>
<td></td>
<td><strong>Improves data quality</strong></td>
</tr>
<tr>
<td>Data Manager</td>
<td><strong>Serves as liaison between EDW and Clinical Program</strong></td>
</tr>
<tr>
<td>Data Architect</td>
<td><strong>Designs, develops, and maintains data infrastructure</strong></td>
</tr>
<tr>
<td>Reporting App Developer</td>
<td><strong>Provides software project management</strong></td>
</tr>
<tr>
<td></td>
<td><strong>Assists with ETL</strong></td>
</tr>
<tr>
<td></td>
<td><strong>Develops reports and reporting applications</strong></td>
</tr>
</tbody>
</table>
The Flow of Information: Team Message Log

Case Identification

MHI Packets

Routine Care
PCP + CM
Responsive
Family Support
GS 1-3
Mild Complexity

Collaborative MHI Team
Complex Co morbid
Family Isolated/Chaotic
GS 4-6
Moderate Complexity

MHS5
Psych Co Morbidity
Family Support
Bulimia
Danger Risk
GS 7-9
Severe Complexity

Team Feedback: MHI dashboard

Registry (EDW) – 1999 to present

Depression registry n = 416,433
148,527 currently active (in the last 12 months)
70,024 unique patients with phq9 and 53,316 with phq2 for patients in depression registry with a total of 183,175 phq9 and 164,502 phq2
106,784 unique patients with phq9 and 153,637 with phq2 for all patients with a total of 234,705 phq9 and 382,048 phq2

Example of Best Practices:
Choosing Wisely

Intermountain Healthcare
The American Board of Internal Medicine and Choosing Wisely

Intermountain and Choosing Wisely

A Primary Care Guide to Choosing Wisely at Intermountain
Tests and Treatments Doctors and Patients Should Discuss

According to the Institute of Medicine, up to 30% of healthcare delivered in the U.S. is unnecessary and may cause harm. Patterned after the Choosing Wisely® campaign (www.choosingwisely.org) of the ABIM Foundation (www.abimfoundation.org), this document summarizes key areas prone to overuse or misuse of medical tests and procedures at Intermountain Healthcare. It also provides advice on underserved care and preventive care visits. Links are provided to tools that summarize the evidence (CPMs and national guidelines), tools to reinforce best practice at the point of care (orders, forms, and quick references), and tools to enable conversations with patients (patient education).

1. Wise Imaging
2. Wise Lab Tests
3. Wise Medications
4. Preventive Care Visits
5. Underused Care
Example of a Longitudinal QI initiative:
Mental Health Integration

MHI Dashboard:
Active Surveillance

- Measures:
  - ED rate and cost for all dx and MH dx
  - Hospitalization rate and cost for all dx and MH dx
  - Total cost of care for SelectHealth patients only
  - Screening rate for depression
  - Change in PHQ9
  - No show rate
Improving Physician Satisfaction
Primary Care Provider Impressions
Patient Satisfaction

Change in PHQ-9 Score of ≥5 Points from baseline to 3 Months

<table>
<thead>
<tr>
<th>Initial Score</th>
<th>Patients with follow up</th>
<th>Increase of &gt;=5 points</th>
<th>Change of &lt;=4 points</th>
<th>Decrease of &gt;=5 points</th>
</tr>
</thead>
<tbody>
<tr>
<td>20-27 points</td>
<td>2,278</td>
<td>19</td>
<td>644</td>
<td>1,615*</td>
</tr>
<tr>
<td>15-19 points</td>
<td>2,524</td>
<td>107</td>
<td>774</td>
<td>1,643*</td>
</tr>
<tr>
<td>10-14 points</td>
<td>2,111</td>
<td>172</td>
<td>910</td>
<td>1,029*</td>
</tr>
</tbody>
</table>

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<th>Patients with follow up</th>
<th>Increase of &gt;=5 points</th>
<th>Change of &lt;=4 points</th>
<th>Decrease of &gt;=5 points</th>
</tr>
</thead>
<tbody>
<tr>
<td>20-27 points</td>
<td>31.0%</td>
<td>0.8%</td>
<td>28.3%</td>
<td>70.9%</td>
</tr>
<tr>
<td>15-19 points</td>
<td>28.9%</td>
<td>4.2%</td>
<td>30.7%</td>
<td>65.1%</td>
</tr>
<tr>
<td>10-14 points</td>
<td>23.8%</td>
<td>8.1%</td>
<td>43.1%</td>
<td>48.7%</td>
</tr>
</tbody>
</table>

* Difference between significant improvement and no significant change is <= 0.001
Patients Seen in a Medical Group Clinic One Month Prior to a Suicide Attempt in 2010

<table>
<thead>
<tr>
<th>Clinic Type</th>
<th>Patients Last Visit within One Month of their Suicide Attempt</th>
<th>All Patients Seen at the Clinics in 2010</th>
<th>Percentage of All Patients</th>
</tr>
</thead>
<tbody>
<tr>
<td>Non-MHI Clinic</td>
<td>465</td>
<td>699,635</td>
<td>0.07%</td>
</tr>
<tr>
<td>MHI Clinic</td>
<td>139</td>
<td>312,163</td>
<td>0.04%*</td>
</tr>
<tr>
<td>Total</td>
<td>604</td>
<td>1,011,798</td>
<td>0.06%</td>
</tr>
</tbody>
</table>

*<p < 0.0001

Notes: 1) MHI Clinics include routine and adoption clinics. Non-MHI clinics include planning clinics and all other medical group clinics 2) Suicide attempts do not include completed suicides where patients were not taken to the ER.

Linking Cost and Quality Outcomes

<table>
<thead>
<tr>
<th>PHQ-9 Initial Severity</th>
<th>Decrease of &gt;=5 points within 3 months</th>
<th>Decrease of &gt;=5 points within 6 months</th>
</tr>
</thead>
<tbody>
<tr>
<td>20-27 points</td>
<td>70.9% *</td>
<td>62.6% *</td>
</tr>
<tr>
<td>15-19 points</td>
<td>65.1% **</td>
<td>50.8%</td>
</tr>
<tr>
<td>6-14 points</td>
<td>48.7% *</td>
<td>38.8%</td>
</tr>
</tbody>
</table>

*Difference between significant improvement and no significant change is <0.001
**Difference between significant improvement and no significant change is <0.01

**Significant Functional Improvement**

54% Reduction in ER utilization
For depressed patients treated in MHI Clinics
Savings to the Insurance Plan (SelectHealth) 
For Service Lines Directly Affected by MHI

Difference in Per Patient Allowed Charges Between Pre and Post (in 2005 Dollars) 
For Service Lines Effected by MHI

Inp Medical  $173
Inp Psych  $36
ER  $38
PCP  $77
Psych/Counseling  $87
Anti-depressants  $114
Overall  $640

Savings to the Insurance Plan (SelectHealth) 
For Service Lines Effected by MHI

Difference in Per Patient Allowed Charges Between Pre and Post (in 2005 Dollars) 
For All Service Lines

MHI Effected Service Lines  $640
Remaining Service Lines  $348
All Service Lines  $725

$667 Savings
$1,392 Savings

Total Savings to the Insurance Plan (SelectHealth)

Remaining service lines includes:
Inpatient Services: Obstetrical and Surgical.
Outpatient Services: Urgent care, Specialty care.
Ancillary Services: Pharmacy for other drugs, Lab, Outpatient Radiology and Testing.
Outpatient other, Chemo and radiotherapy, and Other miscellaneous.
Does MHI Improve Clinic Performance?

### Clinic Type (SLC only) ER Visits per Patient per Year (95% Confidence Intervals)

<table>
<thead>
<tr>
<th>Clinic Type</th>
<th>ER Visits per Patient per Year (95% Confidence Intervals)</th>
</tr>
</thead>
<tbody>
<tr>
<td>MHI</td>
<td>0.69 (0.60, 0.78)</td>
</tr>
<tr>
<td>Hot-Spots</td>
<td>2.32 (1.9, 2.7)</td>
</tr>
</tbody>
</table>

P < 0.05

**MHI Clinic Performance by Diffusion of Social Context**

- **Bountiful Routinized Internal Medicine, Family Practice**: 0.5
- **Bryner Clinic Routinized Internal Medicine, Pediatrics**: 0.8
- **Holladay Pediatrics Routinized Pediatrics**: 0.6
- **Memorial Clinic Routinized Internal Medicine, Pediatrics**: 0.7
- **Cottonwood Late Adoption Family Practice**: 0.6
- **Cottonwood Late Adoption Internal Medicine**: 0.8
- **Holladay Clinic Late Adoption Internal Medicine**: 0.6
- **Salt Lake Clinic Late Adoption Internal Medicine, Family Practice**: 0.7
- **South Jordan Late Adoption Family Practice**: 0.7
- **South Sandy Late Adoption Family Practice**: 0.6
- **Taylorsville Late Adoption Family Practice**: 0.7
- **Internal Medicine Associates Early Adoption Internal Medicine**: 0.8
- **Southridge Early Adoption Pediatrics**: 0.5
- **West Jordan Early Adoption Family Practice**: 0.7
- **Avenues Planning Internal Medicine**: 0.4
- **Gorang Planning Family Practice**: 1.0
- **Holladay Pediatrics North Planning Pediatrics**: 1.2
- **Mountain View Planning Pediatrics**: 0.8
- **Sandy Planning Internal Medicine, Pediatrics**: 1.0

Mode = 1.0

Notice the relationship between ‘ER visits per patient’ and MHI phase of implementation.
Our patients are getting better when receiving treatment

"Response" is defined as last PHQ-9 less than 75% of score at onset of episode

Our patients are getting better when receiving treatment

"Remission" is defined as last PHQ-9 score less than 5
Journey toward routinization for 82 primary care practice

Growth towards routinization

Journey toward routinization – Impact on coded PHQ9
Time (in years) to routinization

The Triple Aim and Shared Accountability