Data Driven Innovation

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The Path of Innovation

Real Time Operational Metrics

Mobilizing Ideas

Data Visibility (BI)
Giving Staff Opportunities To Shine

- One of the recurring sources of health care waste stems from staff not having the information they need to make better decisions.

- Second source of waste is old information that negatively impacts culture and engagement.

- Understanding where and how resources are allocated helps staff drive utilization.

- Flowing data at the same rate or faster than the work optimizes work flow decisions.
Altru’s Advanced Orthopedics

Vision: Region’s Premier Orthopedic Center

Goal: Collaborative team approach of orthopedic and hand surgeons, podiatrists and sports medicine physicians treating all in one location
Can Technology Provide Solutions

IMPROVEMENT SELECTION PROCESS

Led by Dave Molmen, CEO Altru Health System

Pressures in HealthCare
• Reimbursement pressures
• Need for increased efficiencies
• Limited work force

How can technology help solve this?
New Vision For Care-New Partners

New Brand:
Altru Advanced Orthopedics

New Procedures:
• Anterior approach to hip replacement
• Cartilage Restoration
• Arthroscopic superior capsular reconstruction

New Partnerships:
• EXOS
• Intelligent InSites
• Eide Bailly
Advanced Orthopedic Goals

- Access
- Quality of Care
- Patient Satisfaction

It’s not a question of if, it’s a question of when, and with better data and systems we can engage people and pull great ideas for operational change.
Combined Expertise To Achieve Goals

1) **(Technology)** Getting Data We Didn’t Have
2) **(People)** Learning and Innovating from New Data
3) **(Process)** Putting Innovation Into Action

“We needed these three pieces for Altru to have different conversations to meet challenges and add value to patient care and operations. The remedy for this challenge was a multi-faceted solution set from Altru, InSites and Eide Bailly.”  
*Jill Wilson*
Better Operational Data – Better Improvement

- Ability to Create and Sustain Process Changes
- Ability to Learn and Leverage Information from Systems

HI

Random & Out of Focus

Stuck

Focused and Performing

Frustrated
Real Time Location Solution (RTLS) Insight
Enterprise Visibility
Systems Integration

Software and Hardware
Real Time Monitoring for Patient Satisfaction

The different colors are visual cues as to the status of care—milestones reached in the work flow process.
# Real Time Status

Care coordination made easy.

<table>
<thead>
<tr>
<th>Status Summary</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Room</td>
<td>Room Status</td>
</tr>
<tr>
<td>(A) Exam 115</td>
<td>Ready For Provider</td>
</tr>
<tr>
<td>(A) Exam 116</td>
<td>Nurse in Room with Patient</td>
</tr>
<tr>
<td>(A) Exam 117</td>
<td>Physician in Room with Patient</td>
</tr>
<tr>
<td>(B) Exam 118</td>
<td>Physician in Room with Patient</td>
</tr>
<tr>
<td>(B) Exam 119</td>
<td>Nurse in Room with Patient</td>
</tr>
<tr>
<td>(B) Exam 120</td>
<td>Needs Cleaning</td>
</tr>
<tr>
<td>(C) Exam 121</td>
<td>Patient in Room</td>
</tr>
<tr>
<td>(C) Exam 122</td>
<td>Patient in Room</td>
</tr>
<tr>
<td>(C) Exam 123</td>
<td>Patient in Room</td>
</tr>
<tr>
<td>(C) Ortho - Procedure 116</td>
<td>Available</td>
</tr>
<tr>
<td>(D) Casting Bay 1</td>
<td>Patient in Room</td>
</tr>
<tr>
<td>(D) Casting Bay 2</td>
<td>Available</td>
</tr>
</tbody>
</table>

Waiting Patients Summary

<table>
<thead>
<tr>
<th>Patient Name</th>
<th>Age/Gender</th>
<th>Appointment Details</th>
<th>Provider Name</th>
<th>Patient Status</th>
<th>Status Time</th>
<th>Total Time</th>
<th>Current Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>Debra Frank</td>
<td>27 F</td>
<td>8:40 AM - Lab Visit</td>
<td></td>
<td>Waiting</td>
<td>0h 18m</td>
<td>0h 18m</td>
<td>Lobby 1</td>
</tr>
<tr>
<td>Kay Weber</td>
<td>29 F</td>
<td>8:30 AM - Doctor Visit</td>
<td>Steven Miller</td>
<td>Waiting</td>
<td>0h 10m</td>
<td>0h 10m</td>
<td>Casting Lobby</td>
</tr>
</tbody>
</table>

No more guessing about who’s in the room. See which patients are waiting and for how long. Know which patient needs to be seen next.
No More Phone Calls

Technology can save time and increase patient satisfaction.
Bringing Care To The Patient

The scheduler gets real time information about which patient is ready in the care process and patient location.
Expense Breakdown

Expense Breakdown Averages:

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Salaries, wages &amp; benefits</strong></td>
<td><strong>40% to 65%</strong></td>
</tr>
<tr>
<td>Equipment and Supplies</td>
<td>15% to 22%</td>
</tr>
<tr>
<td>Purchased services</td>
<td>10% to 15%</td>
</tr>
<tr>
<td>Professional fees</td>
<td>5% to 7%</td>
</tr>
<tr>
<td>Depreciation</td>
<td>6% to 8%</td>
</tr>
<tr>
<td>Interest</td>
<td>5% to 8%</td>
</tr>
<tr>
<td>Bad debts</td>
<td>4% to 6%</td>
</tr>
<tr>
<td>Other</td>
<td>5% to 7%</td>
</tr>
</tbody>
</table>
Care Process Failure Mode Analysis

1) Variation of care processes in the same service area
   a) added resource applications
   b) increase of process breaks adding wait times for patients and providers
   c) fragmented understanding of care process by staff reducing quality of care

2) Care staff not knowing operational information

3) Team understanding and communication of care process outcomes
Data From RTLS Delivers New Information

Clinic
Workflow Throughput Report

<table>
<thead>
<tr>
<th></th>
<th></th>
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<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Provider 1</td>
<td>21</td>
<td>0:07:49</td>
<td>0:02:56</td>
<td>1:00:01</td>
</tr>
<tr>
<td>Provider 2</td>
<td>66</td>
<td>0:09:45</td>
<td>0:09:52</td>
<td>0:57:40</td>
</tr>
<tr>
<td>Provider 3</td>
<td>21</td>
<td>0:12:13</td>
<td>0:04:10</td>
<td>0:57:14</td>
</tr>
<tr>
<td>Provider 4</td>
<td>37</td>
<td>0:04:20</td>
<td>0:02:08</td>
<td>0:39:26</td>
</tr>
<tr>
<td>Provider 5</td>
<td>18</td>
<td>0:06:26</td>
<td>0:05:13</td>
<td>0:57:42</td>
</tr>
<tr>
<td>Provider 6</td>
<td>36</td>
<td>0:07:07</td>
<td>0:03:11</td>
<td>0:54:35</td>
</tr>
<tr>
<td>Provider 7</td>
<td>16</td>
<td>0:06:50</td>
<td>0:01:04</td>
<td>0:39:43</td>
</tr>
<tr>
<td>Provider 8</td>
<td>36</td>
<td>0:11:12</td>
<td>0:01:34</td>
<td>0:54:17</td>
</tr>
<tr>
<td>Provider 9</td>
<td>47</td>
<td>0:06:03</td>
<td>0:01:27</td>
<td>0:44:30</td>
</tr>
<tr>
<td>Provider 10</td>
<td>13</td>
<td>0:06:43</td>
<td>0:04:49</td>
<td>1:10:11</td>
</tr>
<tr>
<td>Provider 11</td>
<td>38</td>
<td>0:09:54</td>
<td>0:04:11</td>
<td>1:06:23</td>
</tr>
</tbody>
</table>

**Average** 31.7 0:08:02 0:03:41 0:54:42
“Seeing” Layers of Variation & Asking Why

Why the outliers?
Different Conversations

We are pulling real time operational data that we didn’t have before and learning things we didn’t know about the clinic.

We began diagnosing the correlation of how the staff and patient moves in the care process and the relation to quality and satisfaction.

We are starting to realize that new metric understanding is impacting our access, our care regiments, and how practices are designed.

New data is providing new questions and innovation is starting…..
Data Should Be A Spark

“What’s this report say?”

“Got it. Thank you!”
Organizing Data

Lagging Data Points

Leading Data Points
When combined, data can provide a more complete picture which, in effect, creates an "intelligence" that cannot be derived by any singular set of data.
Leveraging BI to Gain Understanding
Clarity is Knowing & Builds Innovation
Mobilizing Data and Ideas

The operational structure should allow for the mobility of ideas from data that informs & motivates compared to information that stifles and reprimands staff.
Advanced Orthopedic Team

Mobilizing Data

- Data
- Learning
- Knowledge

Continuum of Operational Intelligence

RTLS and Operational Information (BI)

Mobilizing Ideas

- Ideas
- Action
- Results

Intelligent Improvement

Improvement Methodologies

DATA

PEOPLE
Change Management Structure

- Data Visualization
- Project Management Tools
- Process Improvement Tools
- Aligned with Strategic Vision
- Continuously Build People and Grow Culture of Innovation

Complicated operations don’t need complicated improvement methods—they need to be consistent and easy to use.
Data and Operational Visibility

- Aligned to Strategy
- Project Sheets
- Department Metrics
- BI Visualizations
Removing Cycle Time Waste Increases Access

Cycle Time Trending

Duration (minutes) vs. Period (Nov 30 - Apr 25)

- Initial Duration: 61.5 minutes beginning on Nov 30
- Trend shows a decrease, reaching 50.3 minutes by mid-January
- Further decrease to 45 minutes by Apr 25
- Final duration: 45.6 minutes

The graph indicates a successful reduction in cycle time, which is expected to improve access.
What Altru Set Out To Do……

Altru community-owned, integrated health system.
- 1 acute care hospital
- 1 specialty hospital
- 12 clinics
- 200 physicians
- 4,000 staff

Goals
1) Increase patient access
2) Increase the quality of care
3) Increase patient satisfaction

Solution
- **Technology** – deploying technologies to gain operational data
- **Process** – applying operational data to drive continuous process improvements
- **People** – growing a culture of innovation and capacity for change management
What We Accomplished……

Quantified Operational Improvements In the First Year

- Decreased patient cycle time by 25%; from over 60 minutes to 45 minutes
- Converted over 4,500 minutes each week of non-value-added time to value-added time
- Increased patient access by adding 1,700 more patient visits
- Generated 92 additional surgical cases through expanded number of patient visits
- Reduced 2,264 nursing hours and reallocated nursing staff to other lines of service
- Drove 24% increase in an annual net revenue – equating to significant changes to the bottom line.
This Is Their Visibility Board

Aligned to Strategy

Project Sheets

Department Metrics

BI Visualizations
Dr. W. Edwards Deming, “How Do You Know”

“Without data you’re just another person with an opinion.”

- W. Edwards Deming, Data Scientist
These Folks Know Their Numbers

- Walmart
  - Growing to 150 Walmart Care Clinics in 20 Different Markets by 2018

- Walgreens
  - Currently has 400 Health Clinics

- CVS
  - Continued Expansion of 1,000 clinics to 1,500 by 2018

In 2014, retail clinics had 1% of the primary care market. Today that has grown to over 2% with a continued reach into the patients mindset.

Robert Wood Foundation
Their Operational Knowledge Will Impact Markets

They have access and a profitable price point the market is willing to pay

Affordable Pricing

$40 per visit

$4 per visit for Walmart Health Plan members

Walmart
What Leaders Can Do

- Invest in finding the dots for staff to connect
- Ask questions and learn
- Step out front & be the facility others look to
- Find the data that builds the right conversations
- Mobilize through a designed model—don’t hope
- Stop guessing about operations
- Move towards real-time information
Questions?
Thank You!

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