Transforming Spine Service Line Performance

Powered by Collaboration and Analytics
Brain & Spine service line optimization case study
We would like to share with you a recent experience of transforming the performance of a Brain+Spine service line

As part of a larger clinical transformation effort, a team of representatives across care continuum for brain & spine care... and met to generate, research and vet ideas for service line improvement... ultimately developing a list of quantified and prioritized opportunities and preliminary implementation plans.

Results

- **16 transformative initiatives** totaling $10.5M savings were developed in 8 weeks
- All initiatives were **designed to maintain and improve quality & patient experience**
- Project generated huge **enthusiasm from physicians, clinicians, and program administrators alike** to improve service line organization for both efficiency improvements and **ongoing innovation for growth**
Our motto - “Patient at the center” - thinking about how our changes would directly affect patients of all types

<table>
<thead>
<tr>
<th>The dissatisfied patient</th>
<th>The confused patient</th>
<th>The savvy patient</th>
</tr>
</thead>
<tbody>
<tr>
<td>Often difficult to treat but just as important to engage with proper planning and management</td>
<td>Confused by the process, often missing key details of care follow-up</td>
<td>Eager to find fast efficient solutions; knowledgeable about best practices</td>
</tr>
</tbody>
</table>

*Example response: Multiple sessions for chronic pain sufferers receiving spinal surgery*  
*Example response: Targeted pre-surgery education, clear process, discharge med rec*  
*Example response: Online pre-surgery class; integrated back-pain clinic*
The method relies on three critical success factors: mindset, make-up, and measurement.
Time spent on a pre-launch step to ensure necessary data and team are in place pays dividends during the diagnostic.

**Phase**

- Pre-launch – Data & Team Preparation (4-6 weeks)

**Resources**

- Project Admin Lead
- 1-2 Consultants
- Financial Analysts
- Steering Committee and executives

**Detailed Diagnostic**

- (8 weeks)
- Project Lead
- Service line teams with 8-10 members
- 2-3 consultants
- Steering Committee and executives
The methodology encouraged front-line staff to come up with ideas – helping to ensure buy-in down the road

We conducted open brainstorming with ground rules designed to encourage sharing – unearthing formerly unshared ideas and innovations

We conducted a deep dive of specific care pathways across the entire care continuum, identifying pain points and up-front changes that could positively impact total costs
All opportunities identified aimed at improving use of resources to achieve better outcomes for the patient

Key Themes for Brain & Spine Opportunities

- Develop disease specific care pathways
- Deliver care efficiently with a stream-lined consistent processes
- Clarify service line leadership governance and responsibilities
- Share data and research and align around data-driven goals

Enablers

- Data Access
- Physician Engagement / Incentives
- Clear Communication and Standards
- Common Mission: Improved Value for the Patient

NON-EXHAUSTIVE

- Develop a regional/system mindset
- Encompass entire care cycle
- Co-locate and coordinate disparate appointments
- Provide the right care in the right location
- Choose the most cost-effective intervention
  Perform at the top of license
Each opportunity was analyzed for benefits, investments along with risks and impact to quality and experience

Select Brain and Spine Opportunities (Quantified by Cost Savings)

<table>
<thead>
<tr>
<th>Opportunity</th>
<th>Description</th>
<th>Expected Annual Benefits ($M)</th>
<th>Investment ($M)</th>
<th>Risk</th>
<th>Quality, Experience</th>
<th>Time to Initial realization</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Spine Care Pathway</td>
<td>If we create a systematized path for spine care, we can reduce cost and improve quality across multiple variables</td>
<td>0.6</td>
<td>1.1</td>
<td>-</td>
<td></td>
<td>2-3 Years</td>
</tr>
<tr>
<td>2 Neuro step-down unit</td>
<td>If we established a neuro step-down unit we could more efficiently care for the patients who require greater surveillance than neurounit but not as much as ICU</td>
<td>0.30</td>
<td>0.42</td>
<td>0.04</td>
<td></td>
<td>1-2 Years</td>
</tr>
</tbody>
</table>

Legend:
- High risk
- Moderate risk
- Low risk
- Trend Up
- Maintain
**Detailed Opportunity Assessment Analysis: Creating a Care Pathway for Spine Surgery**

**Care Pathway Review and Redesign**

**Quantification Roll-up**

*CLIENT EXAMPLE*

This redesigned care process will impact multiple cost drivers, with concrete savings of $600K to $1.1M.

**Detailed cost impact analysis of key drivers**

**Numerous factors drive the current variation in LOS by surgeon; surgeons who target these issues demonstrate clear advantages**

<table>
<thead>
<tr>
<th>Issue</th>
<th>Intervention</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lack of clear expectations around time to hospital discharge, time of pick-up</td>
<td>Patient attends management pre-operative class, early discharge planning, ongoing expectation setting around discharge</td>
</tr>
<tr>
<td>Slow in-hospital recovery due to delayed mobilization or non-aggressive PT</td>
<td>Aggressive in-hospital mobilization plan</td>
</tr>
<tr>
<td>Avoidable complications drive up LOS; as patient must stay on to address acquired conditions</td>
<td>Targeted complication prevention interventions (e.g. urinary retention screen, incentive spirometer volume tracking)</td>
</tr>
</tbody>
</table>

**Based on model surgeon results, Client X could save $130K by codifying a care pathway designed to reduce LOS**

**Implementation Considerations**

- Surgeon buy-in critically important to the success of this initiative
- LOS is not something that can be mandated but should be monitored and reported on an individual physician basis adjusted for patient attributes that would elongate stay

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Strategy & Prepared for Becker’s ASC+Spine Conference
Detailed Opportunity Assessment Analysis: Creating a critical care step-down unit within the neuro unit

Current State Assessment and Demand Evaluation

**Current Unnecessary ICU Stays for Neuro Patients**

<table>
<thead>
<tr>
<th>Procedure</th>
<th>Annual Vol.</th>
<th>Percent Should be in Step-down</th>
<th>Percent Should not be in ICU</th>
<th>Avg. Time in ICU (hrs)</th>
<th>% of time could be in step-down</th>
<th>Time Avoided in ICU (hrs)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cranotomy</td>
<td>8</td>
<td>20%</td>
<td>1.6</td>
<td>44.6</td>
<td>50%</td>
<td>36</td>
</tr>
<tr>
<td>Extra-ventricular Drain</td>
<td>13</td>
<td>100%</td>
<td>13</td>
<td>42.1</td>
<td>50%</td>
<td>274</td>
</tr>
<tr>
<td>Intracranial Hemorrhage</td>
<td>10</td>
<td>20%</td>
<td>2</td>
<td>34.4</td>
<td>100%</td>
<td>68</td>
</tr>
<tr>
<td>Medicated Drip</td>
<td>15</td>
<td>10%</td>
<td>1.5</td>
<td>145.0</td>
<td>100%</td>
<td>218</td>
</tr>
<tr>
<td>Post-Op-Shunt</td>
<td>10</td>
<td>100%</td>
<td>10</td>
<td>142.2</td>
<td>100%</td>
<td>2447.4</td>
</tr>
<tr>
<td>Complex Spine Surgery</td>
<td>61</td>
<td>60%</td>
<td>54.9</td>
<td>41.4</td>
<td>100%</td>
<td>2271</td>
</tr>
<tr>
<td>Carotid</td>
<td>61</td>
<td>100%</td>
<td>61</td>
<td>44.6</td>
<td>100%</td>
<td>2720</td>
</tr>
<tr>
<td>Total Unnecessary days in ICU</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>10,539 - 438 days</td>
</tr>
</tbody>
</table>

**Opportunity Sizing**

**Savings Calculation**

<table>
<thead>
<tr>
<th><strong>Avoidable ICU Days</strong></th>
<th>Low (2/1 Ratio)</th>
<th>High (3/1 Ratio)</th>
<th>Investment would be limited to the cost of adding bio-monitoring/tele to 4 beds ($40,000)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Avoidable ICU Days</td>
<td>437.9</td>
<td>437.9</td>
<td></td>
</tr>
<tr>
<td>Cost for ICU</td>
<td>$1,588.8</td>
<td>$1,588.8</td>
<td></td>
</tr>
<tr>
<td>Cost for Step-down</td>
<td>$914.3</td>
<td>$629.2</td>
<td></td>
</tr>
<tr>
<td>Savings/patient day</td>
<td>$674.5</td>
<td>$960</td>
<td></td>
</tr>
<tr>
<td>Annual Savings</td>
<td>$295,350</td>
<td>$420,217</td>
<td></td>
</tr>
</tbody>
</table>

**Future State Design and Implementation Considerations**

**Future State**

- Neurological patients who qualify for step-down ICU would be cared for in the existing neurounit but with a lower nurse to patient ratio.
- Given their specialized understanding and experience on neurological indications, neurounit nurses are best equipped to care for these patients; studies indicate patients are better cared for and have shorter lengths of stay in a specialized unit that can flex around their needs (especially for stroke).
- Unit can easily shift down staffing at patient readiness.

**Implementation Considerations**

- Option may conflict with general step-down unit; important to note that the specialized nurse care is critical to success.
- Of interviewed physicians, one suggested having telemetry equipment available for these patients which may require some additional wiring.
- Low investment: PPMC neurounit is already set-up to allow for care of higher acuity patients.
- Model could be spread across the region.
Our learnings can be used to replicate results in other service lines and organizations

- Focus on **quality and experience improvement**
- Invest time and resources in a **pre-launch phase**
- Solutions create **benefits independent of reimbursement model** (FFS, population health, bundles)
- **Findings are transferrable broadly** from one facility/condition to system-wide and multiple conditions
- Being a team member **builds morale and pride, helps foster relationships** within and across service lines
- Creating **cross facility service line management structure** including P&L enables collaboration and co-ownership long after the project is complete
Innovations in post-procedure care can further improve outcomes and experience

**Vera**: Tele-Rehabilitation platform for patients

Digital Prescription - Patient walk-through of clinician-prescribed rehabilitation program

Skeletal and Joint Tracking - re-purposed from video games

Automated Patient Guidance, Education, and Reporting - patient can report pain

HD Video - used for recording exercise sessions, real-time and tele-visits with physician or physical therapist

Create standard protocols or customize individual exercise plans (reps, sets, frequency)

Dashboard to review all patients quickly

Detailed statistics for individual patients. Are they doing exercises? Are they having trouble with form?

Review recorded videos for complete perspective

More details at [www.reflexionhealth.com](http://www.reflexionhealth.com)
**Strategy& offerings seek to create focus and build capabilities**

Provider Needs

**Viable and Vital Value Proposition**

Defining a sustainable and distinct competitive position that creates value and achieves the mission

**Effective and Efficient Care Delivery**

Deploying clinical resources - including physicians, staff, facilities and technologies – to optimize outcomes and value for patients and populations

**Enabling High Performance**

Translating strategy into optimal decisions and behaviors through the right processes, tools and culture

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**Strategy**

Developing pragmatic, innovative, consumer-centric, market-driven, value-based strategies

**M&A**

Helping health systems achieve their strategies through inorganic growth, with a focus on building capabilities, optimizing physician partnerships, achieving “system-ness,” realizing synergies and transforming the culture

**Value-Based Care**

Helping providers develop new value propositions and business models by transforming care delivery, financing and engagement – through models such as productized (bundled) care, population health, medical homes, and custom care models for complex populations

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**“Fit for Growth”**

Working with health systems to dramatically transform their cost base, prepare for price transparency and manage the margin pressure – by removing waste and engaging faculty and staff

**Health IT**

Enabling the strategy through informatics-driven capabilities and asset commercialization

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