APPLICATION FORM

Title of Entry: Transforming Care for Low Back Pain: A New Population Health Model

Division: Large Organizations

Award: Optimal Operations

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Date Implemented: 08/13/2014
Date Results Achieved: 07/01/2015

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EXECUTIVE SUMMARY

Low back pain (LBP) is a common condition and the leading cause of disability in the United States\(^1\). Nationally, this condition accounts for nearly 15 million visits and represents close to $25 billion dollars in health care spending annually\(^2\). Under-utilization of scientifically proven care models and over-utilization of high-cost or low-value treatment strategies is a national trend and under scrutiny. One major consequence of this approach to managing such a prominent condition is prescription opioid abuse, which carries enormous societal burden and safety risks.

Based upon substantial variation in care, costs and high-utilization trends associated with poor outcomes, creation of an acute low-back program became a priority. Frequent patient “bounce back” in ambulatory and emergency departments provided a fertile setting for population health strategies across a continuum designed to improve patient satisfaction and safety, reduce costs and create consistently high value. Efforts shifted from understanding how to effectively manage individual encounters, to truly understanding the impact upon outcomes and people’s lives.

In 2014, we began transformative work for management of acute low-back pain that crossed the continuum of care and mitigated risk for chronic pain. Our strategy aimed at:

- Implementing best-practice, innovative, population-health models of care delivery with rapid access to alternatives to surgery and opioid utilization
- Implementing opioid and imaging guidelines at all levels of the organization
- Enabling providers through computerized decision support tools
- Providing early access to Physical Therapy (PT) screening and management of high-risk patients, evidence-based care, outcome measurement and individualized, patient-education video resources at a reduced number of visits
- Expediting care through the continuum and provide a consistent message at all portals

**Pilot Results:** Two high-volume pilot sites with diverse but interrelated patient populations were selected to study the new workflows. During a two-month pilot (5/1/15 to 6/30/15), positive outcomes were realized in 77% of the metrics targeted.

**Emergency Department Results** (n=321)
- Reduced narcotic prescription rates 17%
- Reduced X-ray utilization over 20%
- Increased referrals to PT 13%

**PCP Family Practice Results** (n=250)
- Reduced narcotic refill rate by 10%
- Reduced MRI rate 5% and reduced other X-rays 7%
- Increased referrals to Physical Therapy (PT) 8%
- Reduced PT visits to <5 visits while experiencing a 32 point average change in the Oswestry Disability Index

Incremental implementation began Jan. 1, 2016 throughout all primary and urgent care facilities.

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\(^2\) sg2.com, 2012
ASSESSMENT

In 2014, the Neuroscience Service Line established low-back pain (LBP) as one of five core priorities for strategic growth, aligned with a population health management approach. Primary-care leadership and employee health plan administrators also played important roles; keenly aware of the issues related to back pain. With a desire to achieve a systematic, Triple Aim approach, they partnered to bring together key stakeholders from across the continuum and develop a new model for the organization. Initial steps included a review of national and community data and exploration of contemporary models of care delivery. Highlights of the research are offered below:

- Americans spend $50 billion annually on treatment for LBP.
- It is most common in ages 35-60; with $550 billion annually in lost productivity.
- CMS indicates that between 1996 and 2004, there was a 629% increase in epidural steroid injections, a 423% increase in opioid prescriptions and a 307% increase in spinal fusions.

Advisory Board Daily Briefing: Hospitals offer more than surgery for back pain. March 2014
- AHRQ ranks spinal fusion as one of the five most expensive surgeries with the highest aggregate costs for hospital stays in 2011 at $12.8 billion.
- Blue Cross/Blue Shield of N.C. cited a 50% jump in costs for spinal fusion from 2004-2009 and are “in the top echelon of top cost drivers.”

JAMA: Doctors are over treating back pain. July 13
Between 1999 and 2010:
- Narcotic prescriptions have increased from 19% to 29%, while NSAIDS have decreased from 37% to 24%.
- CT or MRI have increased from 7% to 11%.

Impact on Claims: Hospital Self-Administered Plan Comparison Data.
August 2014 review of previous 24 month claims data
- 12,380 claims were submitted with a primary diagnosis of low-back pain for 1,275 unique patients for a total of $16.3 million. Back pain ranked fifth in the number of claims.
- MRI utilization rates were 30% higher than payer book of business.

UDS Lifeware Outcome Database: Physical Therapy Outcomes Jan-Mar 2014
- Average number of visits for low-back pain nationally=10 visits; hospital=9.1
- Average change in body movement and control nationally=12.2; hospital=14.7.

Guidelines/Opioid Management: Prior to this initiative, there were no specific hospital policies or guidelines related to the management of low-back pain or opioid utilization for back pain.

Independent Focus Group May 2015: Results indicated that back pain patients want respect, alternatives, comprehensive services, education and support in a more timely fashion.

Baseline metrics were secured for four key areas: Unique patients, opioid prescription rate, MRI rate and Physical Therapy referral. Refer to results for details of all baseline and pilot metrics.
INTERVENTIONS

Sponsors: Hospital and Primary Care Sponsors were secured and a Project Lead was selected.

Project Charter: A Logic Model was completed (attached) to serve as a guide for the project. The model defined resources, activities, outputs, desired outcomes, outcome indicators and impact for a three-year project.

Leadership Plan: Physician Champions were secured from primary care, outpatient and emergency department and a Lean Six Sigma Black Belt/project manager was assigned. A scope document was created to secure resources from business intelligence and IT. A Low Back Pain Steer Committee was formed and included key stakeholders across the continuum who convened monthly beginning August 2014 to formulate, approve and drive the project plan.

Sub committees included:

- **Clinical Solutions**: The charter of this team was to review best practices and develop innovative solutions, guidelines and policies related to evidenced-based management of back pain
- **Metrics Team**: This team included members from: finance, business intelligence, clinicians, leaders and electronic medical records representatives. The charter of this team was to define, secure and validate baseline metrics, develop strategies to provide IT solutions that enabled physicians to provide evidence based care and use the electronic medical record as a tool to begin real-time and longitudinal tracking of patients with the long-term goal of a spine registry

Interventions:

- Studied current workflow using Lean methods and redesigned work to reduce variation.
- Selected the **Bree Collaborative Spine/Low Back Pain Topic Report and Recommendations** as a guideline; conducted webinar with representatives.
- Approved Clinical Practice Guidelines and Opioid Guidelines for the emergency department and primary care providers (PCP) based upon evidence.
- Hardwired IT decision-support tools to reduce costs while preserving the patient provider relationship including: Smart Sets, Order Sets, a Smart Form Prototype and a Best Practice Alert for imaging studies such as MRI/CT scan or X-ray studies.
- Partnered with Physical Therapy to define an evidence-based algorithm and value stream pathway with options including:
  - “Fast Track” access to early, evidence-based care within 24 hours.
  - Screen and manage high-risk patients using Keele STarT Back screening tool.
  - Develop patient education resources including a visit type for a one- or two-visit home exercise program using Medbridge as a vendor of video home exercises.
- Integrated feedback from our “Voice of the Customer” patient focus group.
- Launched Nurse Triage and E-Visits for acute low-back pain, to expedite care.
- Conducted two-month pilot at a large primary care office and emergency department.
- Hired Spine Medical Director/Physiatrist to collaborate with providers and offer non-surgical alternatives including acupuncture year two and Back Clinic year three.
- Utilized a consultant -physiatrist for emergency department strategies and provider CME.
- Created marketing tools to educate providers and the community.
RESULTS
A pilot was conducted in May and June of 2015 at the largest primary care provider office in the health system and in Fast Care in the Emergency Department. These sites were chosen for their diversity, interdependency, and need for consistent approaches to medication, imaging, and non-surgical referrals. Handoffs and rapid transitions of care were explored for efficiencies.

Pilot results:

<table>
<thead>
<tr>
<th>Outcome Metrics</th>
<th>FY14 Baseline</th>
<th>Pilot</th>
<th>Green Highlights indicate favorable results</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>PCP # Episodes</td>
<td>1,620</td>
<td>320</td>
<td></td>
</tr>
<tr>
<td>Fast Care (ED) # Episodes</td>
<td>1,824</td>
<td>380</td>
<td></td>
</tr>
<tr>
<td>Opioid Order Rate</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PCP</td>
<td>40%</td>
<td>42%</td>
<td>2%</td>
</tr>
<tr>
<td>Fast Care</td>
<td>55%</td>
<td>38%</td>
<td>-17%</td>
</tr>
<tr>
<td>Opioid Refill Rate</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>PCP</td>
<td>18%</td>
<td>8%</td>
<td>-10%</td>
</tr>
<tr>
<td>Fast Care</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
</tr>
<tr>
<td>MRI Rate</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PCP (FY14=74/Pilot=1)</td>
<td>5.4%</td>
<td>0.4%</td>
<td>-5.0%</td>
</tr>
<tr>
<td>Fastcare (FY14=64/Pilot=13)</td>
<td>3.5%</td>
<td>4.0%</td>
<td>0.5%</td>
</tr>
<tr>
<td>X-ray</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PCP</td>
<td>22.9%</td>
<td>16.8%</td>
<td>-6.1%</td>
</tr>
<tr>
<td>Fastcare</td>
<td>65.8%</td>
<td>43.9%</td>
<td>-21.9%</td>
</tr>
<tr>
<td>PT Referral Rate</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PCP</td>
<td>21.8%</td>
<td>30.0%</td>
<td>8.2%</td>
</tr>
<tr>
<td>Fastcare</td>
<td>0.3%</td>
<td>10.9%</td>
<td>10.6%</td>
</tr>
<tr>
<td>Average PT Visits</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PCP</td>
<td>6.2</td>
<td>3.5</td>
<td>-43.1%</td>
</tr>
<tr>
<td>Fastcare</td>
<td>5.5</td>
<td>3.9</td>
<td>-23.2%</td>
</tr>
</tbody>
</table>

Average Oswestry Change
<table>
<thead>
<tr>
<th>FY14 Baseline</th>
<th>Pilot</th>
<th>Benchmark</th>
</tr>
</thead>
<tbody>
<tr>
<td>NA</td>
<td>32</td>
<td>21</td>
</tr>
<tr>
<td>Ave. Oswestry Change/Visit</td>
<td>5.1</td>
<td>5.9</td>
</tr>
</tbody>
</table>

Phase II: An incremental rollout plan to all urgent care and PCP offices which is currently in process. To date, 11 PCP practices and 3 urgent cares have been engaged.

Sustainability of pilot results:
ADAPTABILITY:
These strategies are adaptable to any large health care organization that utilizes an electronic medical record and that educates providers and the community on best practices.

Based upon the success of the pilot, leadership approved Year Two scope documents and implementation to all sites. Feedback was solicited for development of Year Two scope documents for continuous process improvement.

Year Two Interventions:
- Physiatrist practice embedded in Pain Management for rapid access to any patient not responding to therapy within timeline.
  - Acupuncture and injections as an alternative to opioids and surgery.
- Refinement of IT tools, including acuity metrics in order to drill down data for acute, acute-on-chronic and chronic low-back pain; additional smart phrases to increase data capture.
- Development of a dashboard to be published at the practice level.
- Additional metrics to serve as a foundation for a future spine registry.
- Additional community- and patient-education material regarding opioids.
- Pilot of multidisciplinary approach to complex pain management.
- Pilot of surgical optimization for opioid-tolerant patients.

Maintaining the Initiative:
- A dashboard of metrics has been developed and will be published at each department level.
- Program medical director oversees all data and visits providers to offer suggestions and support.
- Back Pain Steer continues on a quarterly basis to review metrics, to project progress and to address any barriers.

Lessons Learned:
- Strategic alignment and communication across the organization is critical to clinical integration.
- Project-driven roles and responsibilities must be clearly defined and communicated to sponsors, champions, project leads, and committee participants as well as key stakeholders.
- Universally understood IT and workflow terminology and impact of interchangeable terms is a challenge and ongoing improvement area.
- Extensive variation with practice, e-Health, and clinical workflows must be observed, monitored and controlled.
- Controls and process monitoring must be established.
- Lean reduction of waste assists in offsetting demand destruction anticipated with Population Health models.
**Overall Project Goal:** Creating an Acute Low Back Pain Program will substantially support our best-in-class journey in spine care delivery by improving patient satisfaction, reducing the cost of care and creating consistently high value. Ver. 6-25-14

<table>
<thead>
<tr>
<th>Inputs/Resources (Resources dedicated to or used to achieve program Activities)</th>
<th>Activities</th>
<th>Outputs (Products)</th>
<th>Desired Outcomes (Benefits/Objectives) Immediate (0-1yr) &amp; Intermediate (1-3 yrs)</th>
<th>Outcome Indicators (Evaluation and Data Collection Tools)</th>
<th>Impact (Long-term changes)</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Executive Sponsor</td>
<td>• Identify the primary pilot sites</td>
<td>• Total Direct Cost per episode</td>
<td>Benefits for participants during and after the program, such as changes in knowledge, skills, attitudes, values, behaviors, conditions, or status.</td>
<td>Specific items of information that track success of a program's activities.</td>
<td>If completed, ongoing, these activities will lead to the following injury-related and social/organizational changes in 3-5 years.</td>
</tr>
<tr>
<td>• Project Director/Content Advisor</td>
<td>• Identify key stakeholders at the pilot sites</td>
<td>• Narcotic utilization rate</td>
<td>• PCP referral patterns</td>
<td>• Reimbursement that is aligned with value (quality/cost)</td>
<td></td>
</tr>
<tr>
<td>• Project Manager/Program Transformation</td>
<td>• Identify best practice site visits</td>
<td>• Imaging rate</td>
<td>• Patient self-referral patterns</td>
<td>• Deeper understanding of costs and medical plan payments</td>
<td></td>
</tr>
<tr>
<td>• PCP Champion</td>
<td>• Obtain voice of the customer (focus group, phone study)</td>
<td>• Rate of surgical conversion</td>
<td>• Market share for acute low back pain conditions</td>
<td>• Acute low back pain volumes increase without an increase in providers</td>
<td></td>
</tr>
<tr>
<td>• Physiatry Champion</td>
<td>• Identify key pre-intervention metrics</td>
<td>• # PT visits per episode</td>
<td>• Cost per episode of low back pain</td>
<td>• Longitudinal spine registry serves as model for other population health programs in system</td>
<td></td>
</tr>
<tr>
<td>• Business Intelligence</td>
<td>• Identify optimum data gathering and extraction techniques</td>
<td>• # Missed work days</td>
<td>• % patients that convert to surgery</td>
<td>• Patient engagement &amp; self-care measures rising</td>
<td></td>
</tr>
<tr>
<td>• Pain Management</td>
<td>• Create documentation templates to support metrics and business intelligence</td>
<td>• # Return to work days</td>
<td>• Spine surgeon surgery conversion rates (office visits) &amp; RVU/day increased</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PM&amp;R Spine Team 1. Duke St</td>
<td>• Select and benchmark patient outcomes</td>
<td>• # PCP visits / episode of care</td>
<td>• Surgery per capita rates pre and post program are reduced</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• e-Health</td>
<td>• Conduct current workflow analysis</td>
<td>• # ED &amp; Urgent Care visits / episode of care</td>
<td>• Patient Pain satisfaction scores</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Marketing</td>
<td>• Develop future state workflow</td>
<td>• Patient satisfaction with pain</td>
<td>• Costs to</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• ED</td>
<td>• Time to evaluation (timely access to care)</td>
<td>• Patient satisfaction with access to services</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>• Occupational Medicine</td>
<td></td>
<td>• # patients on MyChart</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>• Financial Decision Support</td>
<td></td>
<td>• Time to evaluation (timely access to care)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Physician Liaison (Core Resource)</td>
<td></td>
<td></td>
<td>Immediate 1. Ease &amp; accuracy of data reporting supports program strategy &amp; growth 2. Patients will receive timely, low cost treatment 3. Narcotic prescriptions for this population are reduced or absent 4. Imaging rates for new onset back pain patients are reduced 5. ED, Urgent Care, and PCP visits for this population will be reduced 6. Patient satisfaction with pain improves Intermediate 1. Longitudinal spine registry platform in place to capture episodes of care 2. Providers will align their standards to support this best practice. 3. Payors will steer patients to this program</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Inputs/Resources</td>
<td>Activities</td>
<td>Outputs (Products)</td>
<td>Desired Outcomes (Benefits/Objectives) Immediate (0-1 yrs) &amp; Intermediate (1-5 yrs)</td>
<td>Outcome Indicators (Evaluation and Data Collection Tools)</td>
<td>Impact (Long-term changes)</td>
</tr>
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</tr>
<tr>
<td>(Resources dedicated to or used to achieve program Activities)</td>
<td>What the program does with its resources; the services it provides to fulfill its goal. Activities result in Outputs</td>
<td>The direct product of program activities; units/volume of service. Outputs should produce Desired Outcomes for program participants</td>
<td>Benefits for participants during and after the program, such as changes in knowledge, skills, attitudes, values, behaviors, conditions, or status.</td>
<td>Specific items of information that track success of a program’s activities.</td>
<td>If completed, or ongoing, these activities will lead to the following injury-related and social/organizational changes in 3-5 years.</td>
</tr>
</tbody>
</table>

- based on prioritization of opportunities
- Develop standards of practice for triage, therapy, services, pain management, imaging, escalation in care, and surgery consultation
- Develop communication plan and marketing strategies for company, public, and payers
- Develop the blueprint for a spine registry product
- Develop the spine registry data dictionary
- Modify VS SL Business Plan performance for Acute Low Back Pain

- Rate of program completion
- Quality
- Disability Index

- based on mutually understood quality & cost targets that are consistently met
- 4. Volume supports a shift in some market segments to direct access
- 5. Seamless access to the low back pain episode of care for all levels of the care team

Adapted from "Measuring Program Outcomes: A Practical Approach, United Way of America, 1995"