

The Remarkable Cost Benefits of Preoperative Pain Neuroscience Education

Orthopedic surgery is one of the most common medical procedures in the United States, and its prevalence is only increasing. It is estimated that over 2 million spine surgeries are performed in the US annually, while over 1.5 million total knee arthroplasties (TKA) are performed.¹⁻³ Since 2010, TKAs have doubled.⁴

One in three patients still experience significant pain and disability following lumbar surgery, while one in five patients experience persistent pain and disability following TKA.⁵⁻⁷

To address this pain, patients are sometimes sent to physical therapy for treatment after lumbar surgery and TKA. Recent research, however, has highlighted issues:

- 1 Postoperative rehabilitation following TKA or lumbar surgery has shown limited efficacy in reducing postoperative pain and disability.^{8,9}
- 2 The exact content, frequency, duration, and timing of optimal postoperative rehabilitation is not known.⁸
- 3 Many patients are not readily sent to physical therapy following lumbar surgery and TKA, despite the presence of pain and disability.¹⁰
- 4 Large numbers of patients report a poor surgical experience which further fuels ongoing pain and disability.⁵⁻⁷

Given these problems, the patient experience following orthopedic surgery needs to improve. What can be done?

Is Preoperative Pain Neuroscience Education the Answer?

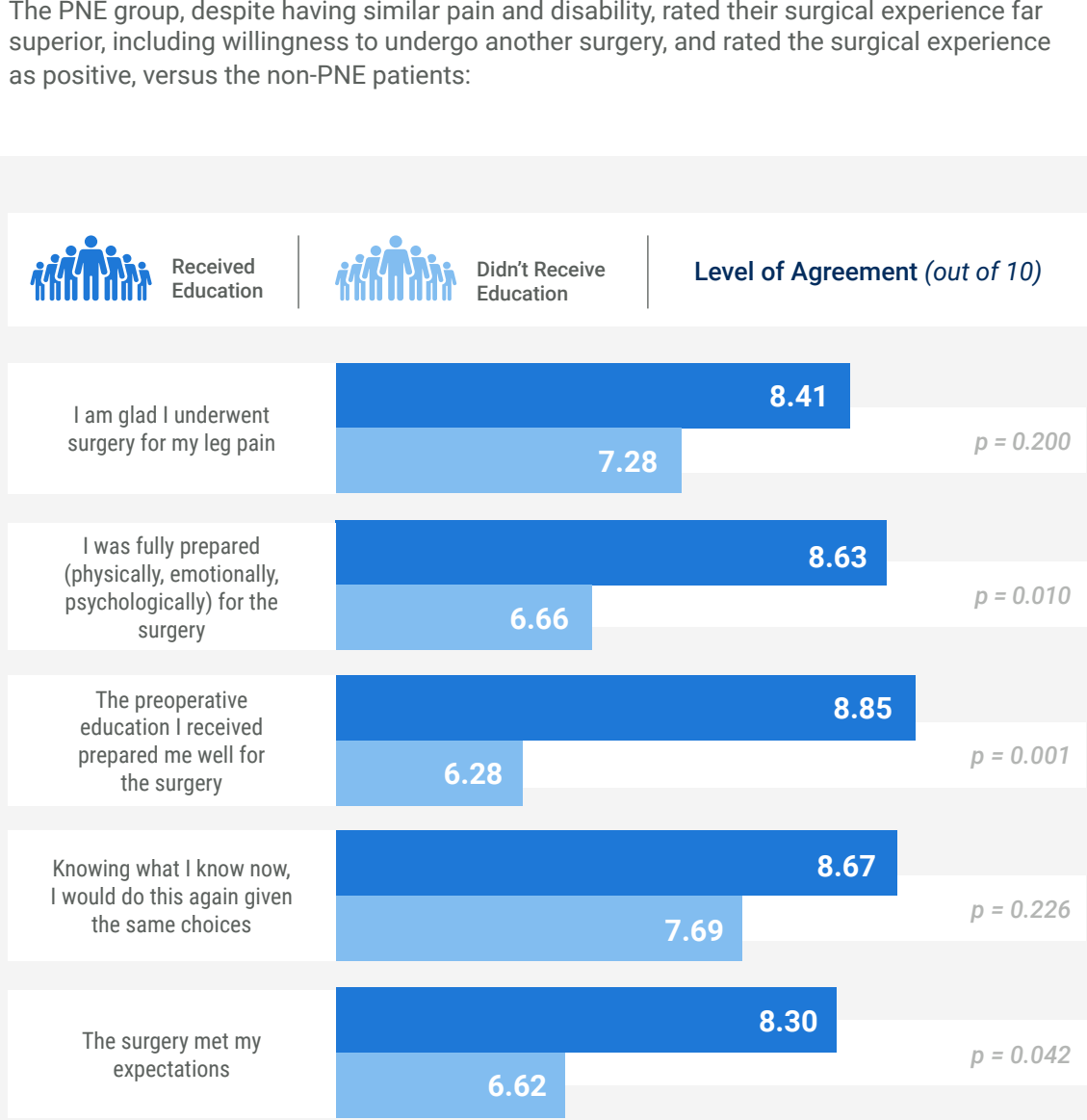
A pain neuroscience team designed a preoperative PNE program for lumbar surgery as a one-on-one, clinician-led session, lasting 30 minutes.¹¹ The session taught patients about the surgery, how a sensitized nervous system is part of the experience, how pain after surgery is to be expected, and simple-to-follow post-operative advice and strategies.

A multi-center randomized clinical trial was developed with half of the patients getting ready for lumbar surgery receiving preoperative PNE, while the other half did not.¹²

The Results

Patients underwent lumbar surgery and were tracked for three years post-op.¹³ At one year after lumbar surgery, there was no difference between the two groups for back pain, leg pain, and disability, however:

The PNE group, despite having similar pain and disability, rated their surgical experience far superior, including willingness to undergo another surgery, and rated the surgical experience as positive, versus the non-PNE patients:



45% less on healthcare spending (test, imaging, treatment) for patients in the one year after surgery (same pain and disability) compared to those who didn't receive preoperative PNE.

2k savings per patient in the one year postoperative period. With 600,000 laminectomies/discectomies in the US annually, this program would amount to a \$1.2 billion annual savings.

60% difference in cost savings in favor of the PNE-group. The same patients were tracked for three years, and the same results to patient satisfaction and cost savings remained intact.

Applying Preoperative Pain Neuroscience Education for Total Knee Arthroplasty

The content was adapted for TKA, including pain and sensitization of the nervous system following surgery, and strategies for pain.

Results of the Program

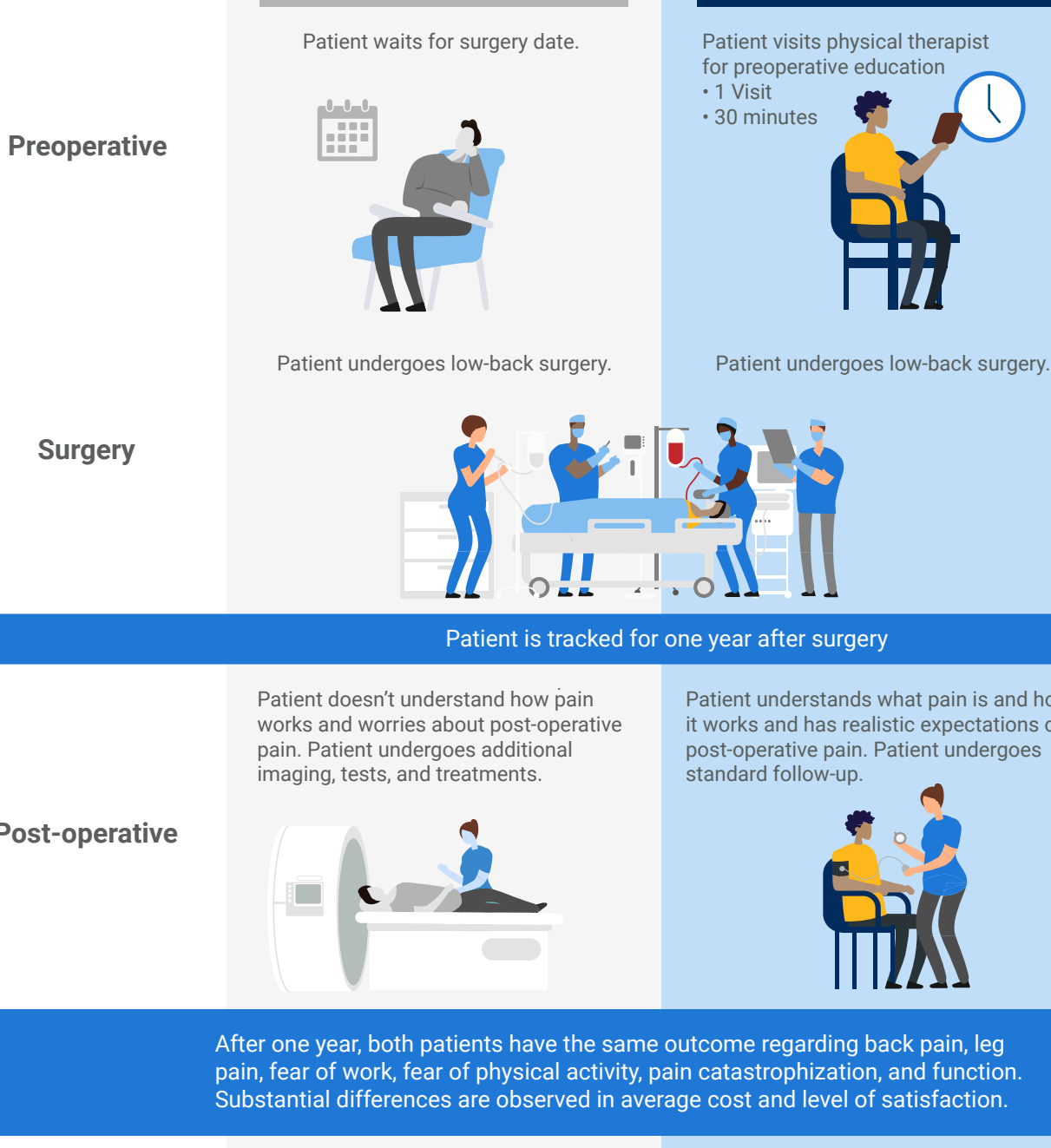
Results showed that the nervous system of the TKA knee preoperatively calmed down 20 percent similar in effect size as what is currently being reported with membrane-stabilizers given to patients prior to TKA, without the side effects of the medication.¹⁴

At the six-month follow-up, patients receiving PNE or not were equal in terms of knee pain and disability—similar to lumbar surgery. However, the PNE-group had superior surgical and hospital experiences compared to the non-PNE group, including willingness to undergo another TKA.¹⁵

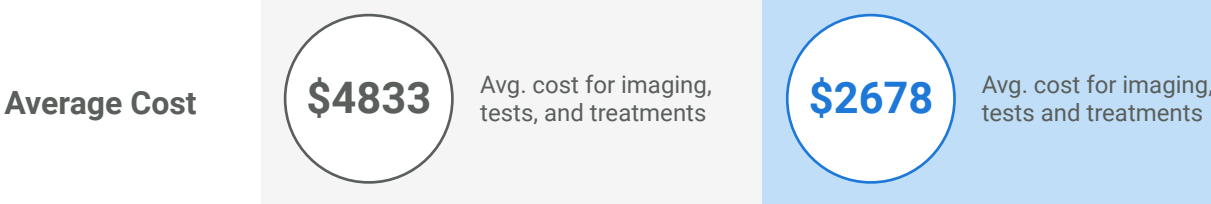


Preoperative Pain Neuroscience Education in Action

Patient has low back and leg pain. Patient consults with spine surgeon and decides to undergo low-back surgery. Surgeon gives patient 10-15 minutes of preoperative education regarding the surgery, procedures, and recovery.



After one year, both patients have the same outcome regarding back pain, leg pain, fear of work, fear of physical activity, pain catastrophization, and function. Substantial differences are observed in average cost and level of satisfaction.



600,000 discectomies were performed in the US in 2012. If the cost of savings per patient were applied, it would account for an annual savings of \$1.2 billion.

How MedBridge Can Help

Whether your organization is looking at digital prehab to prevent workplace injuries or leverage comprehensive digital prehab and rehab programs to help patients recover from musculoskeletal injuries, MedBridge can help.

Preventative Prehab

MedBridge helped Occupational Accountable Care reduce total musculoskeletal costs by 77 percent by standardizing templates for common conditions and types of customers and maximizing engagement with digital technology.

Surgical Prehab

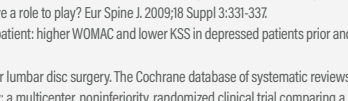
MedBridge partnered with a leading health system to launch their virtual pre-op and post-op comprehensive joint program, which helped them standardize their care, boost operational efficiency, and drive significant improvements in outcomes.

For a more in-depth look at the preoperative pain neuroscience education program, read our [white paper](#) by Adriaan Louw, PT, PhD



MedBridge has over 10 years of helping more than 2,500 healthcare organizations grow their business, elevate their workforce, and deliver exceptional patient experiences.

Contact MedBridge to see what we can do for you.



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