

# Spine care in upstate New York

Upstate New York adults (18 and older) treated for spine pain during 2013

## Upstate New York

Estimated number of adults treated for spine pain: 626,000 (18.2%)  
 Average cost of acute spine pain episode: \$1,000  
 Estimated total, annual direct costs of spine care: \$933 million

## Central New York

Estimated number of adults treated for spine pain: 128,000 (17.5%)  
 Average cost of acute spine pain episode: \$977  
 Estimated total, annual direct costs of spine care: \$179 million

## Utica/Rome/North Country

Estimated number of adults treated for spine pain: 93,000 (18.5%)  
 Average cost of acute spine pain episode: \$1,030  
 Estimated total, annual direct costs of spine care: \$148 million

## Finger Lakes

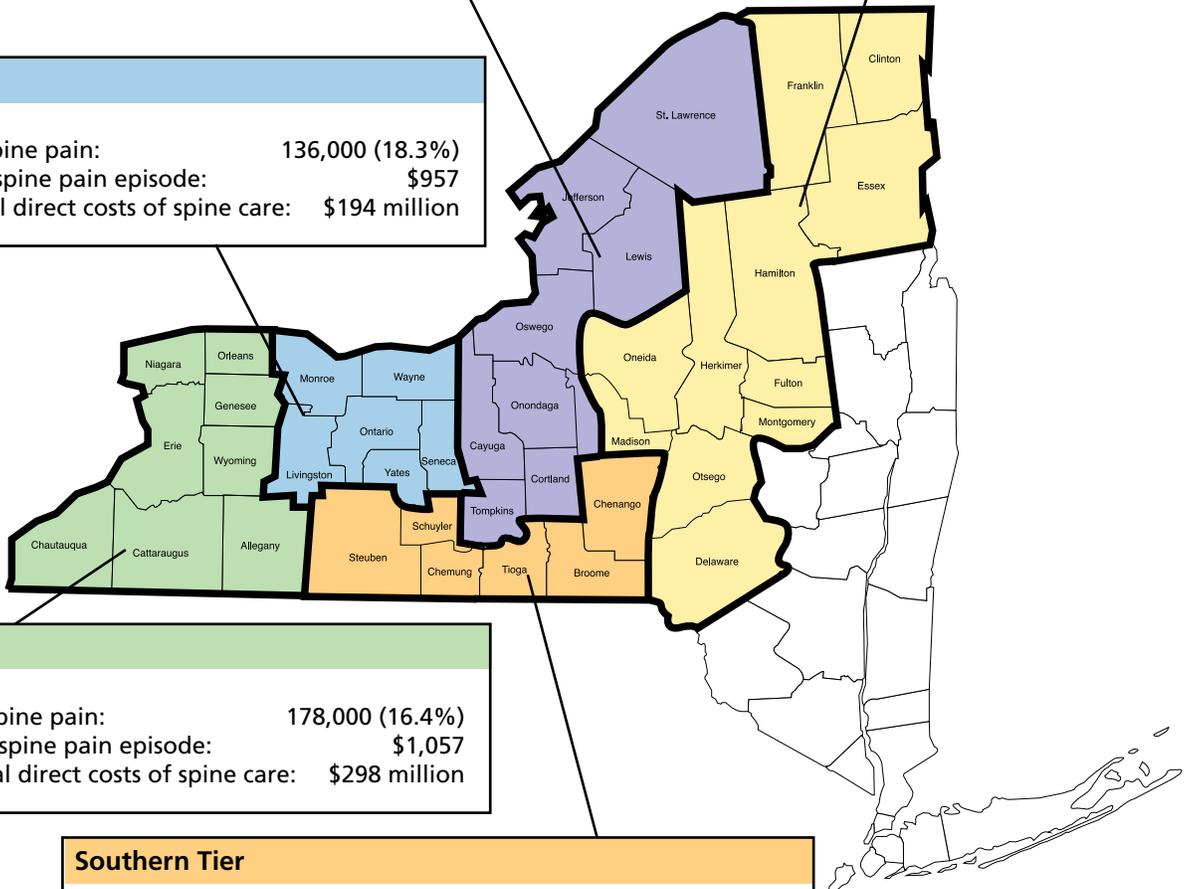
Estimated number of adults treated for spine pain: 136,000 (18.3%)  
 Average cost of acute spine pain episode: \$957  
 Estimated total, annual direct costs of spine care: \$194 million

## Western New York

Estimated number of adults treated for spine pain: 178,000 (16.4%)  
 Average cost of acute spine pain episode: \$1,057  
 Estimated total, annual direct costs of spine care: \$298 million

## Southern Tier

Estimated number of adults treated for spine pain: 73,000 (20.8%)  
 Average cost of acute spine pain episode: \$1,014  
 Estimated total, annual direct costs of spine care: \$111 million



Note: Acute spine pain episodes resolve in 41 days, on average. Acute spine pain episodes account for 87.8 percent of all spine pain episodes.

Note: Upstate New York refers to the 39 New York counties shaded on the map above. Due to extrapolation, the regional figures shown on this map may not sum to upstate New York totals. Total costs for spine care in upstate New York may be underestimated, because medical claims for workers' compensation and no-fault insurance were not included.



## Understanding this report

### Definitions

**Spine:** Also known as the backbone or vertebral column, the spine is the main support for the body. It allows a person to stand upright, bend and twist. In this report, spine refers to the bones, muscles, ligaments and nerves that extend from the skull to the tailbone and protect the spinal cord.

**Prevalence:** The proportion of individuals in a population (such as upstate New York) with a clinical condition (such as spine pain).

**Episode of care:** A group of one or more medical services that begins with an initial diagnosis of spine pain and ends when no further services are utilized.

**Utilization:** The number of medical services used per year for a specific clinical condition by a specific population (e.g., the number of medical services used by adults to treat spine pain in 2013 in upstate New York).

**Utilization rate:** The number of medical services used per year per 1,000 patients.

### Data caveats

**Pediatric patients younger than age 18 with spine pain were not included in this report.**

**Estimated number of adults treated for spine pain:** Health plan medical claims data were examined for calendar year 2013 for the number of patients who sought medical services for spine-related pain. Patients who 1.) treated themselves and did not seek medical care, 2.) paid out of pocket for their care, or 3.) were seen under another insurance program, such as workers' compensation, are not included in this report. Therefore, this analysis may *underestimate the number of patients in upstate New York impacted by spine pain and the direct costs associated with medical care.*

## About this report

Spine pain is very prevalent. It affects millions of Americans physically, psychologically, socially and economically. The purpose of this fact sheet is to report the magnitude of spine pain in our communities, the number of individuals impacted, the medical services provided, the costs associated with those services and how these services changed over time. This report highlights the:

- Percentage of adults treated for spine pain during 2013, overall and by region, age group and gender;
- Percentage of upstate New York adults who experienced acute pain and those who had chronic pain, along with the cost differences between chronic and acute pain treatment;
- Relationship between a patient's use of spine care medical services and the cost of those services;
- Use of prescription drugs for spine care among upstate New York adults from 2010 through 2013;
- Service use and cost trends in upstate New York from 2010 through 2013.

## Key findings

- In 2013, an estimated 626,000 upstate New York adults received health care services for spine pain and incurred about \$933 million in total direct health care costs as a result. Additional, indirect costs of back and neck pain include wage and productivity losses (working more slowly or not working at all) and disability expenses, which affect employees, employers and upstate New York communities. These indirect costs and the associated data are not included in this report. The cost of prescription drugs is not included in \$933 million in total direct health care costs.
- The cost for a chronic episode of spine care in 2013 (\$2,908) was almost three times the cost of an acute episode of spine care (\$1,000).
- Prescription drugs were the most commonly used treatment for spine pain in 2013 (used by 45.9 percent of patients), followed by chiropractic care (used by 39.1 percent of patients), imaging (used by 36.9 percent of patients) and primary care physician visits (used by 33.1 percent of patients).
- Not including prescription drugs, surgical interventions accounted for the highest percentage of the total cost of clinical care for spine pain in 2013 (36.0 percent), followed by non-surgical interventions (32.9 percent) and diagnostic services and physician visits (32.2 percent).
- Almost half (45.9 percent) of patients treated for spine pain in 2013 received a prescription for a medication to treat the condition within the first six weeks of diagnosis. More than half (54.3 percent) of those prescribed a medication in the first six weeks of diagnosis received a prescription for an opiate.
- Spine care utilization rates increased 5.7 percent from 2010 (1,193 services per 1,000 adults) to 2013 (1,261 services per 1,000 adults).

## Significance

**Spine pain, also known as back and/or neck pain, is a common clinical problem that's associated with escalating medical costs.** Most adults experience at least one bout of lower back pain in the course of their lifetimes;<sup>1</sup> some endure chronic suffering.<sup>2</sup> One in five U.S. adults endures a lower back pain episode in a given year.<sup>3</sup> Researchers estimate that in their lifetimes, more than 80 percent of adults will experience low back pain,<sup>4</sup> and nearly two-thirds of adults will experience neck pain.<sup>5</sup>

The length and severity of individual spine pain occurrences vary widely. Episodes can range in length from days to years;<sup>6</sup> can negatively affect quality of life, functional ability and general health; and are frequently associated with depression or anxiety.<sup>7</sup>

Acute spine pain (lasting three months or less) accounts for about 87.8 percent of cases. The remaining spine pain occurrences are considered chronic.<sup>8</sup> About 30 percent of all individuals with spine pain experience recurrent episodes or develop persistent pain.<sup>9</sup>

**The high prevalence of spine pain-related conditions place back pain among the nation's leading causes of hospitalization, physician visits and use of other health care services.**<sup>10</sup>

**Many different options exist for diagnosing and treating spine pain. Treatments can range from over-the-counter medications to spinal surgeries. Available medical evidence supports the cost-effectiveness of first using self-care and noninvasive interventions,**<sup>11</sup> because most episodes of spine pain resolve with or without treatment.<sup>12</sup> Self-care includes rest, use of heat, over-the-counter medications and simple exercises.<sup>13</sup>

**Recognizing the importance of evidence-based spine care, the American Academy of Family Physicians and the North American Spine Society have compiled advice on lower back pain management through the national campaign, *Choosing Wisely*.** This campaign aims to reduce unnecessary interventions and support physicians and patients in their efforts to make effective medical care choices.

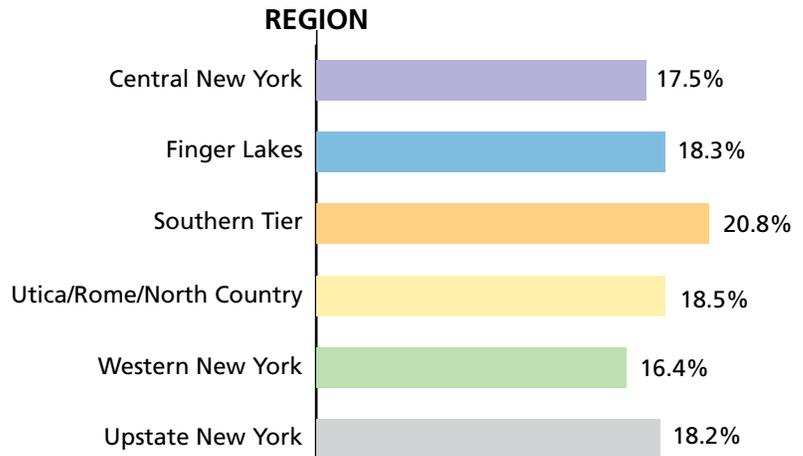
The American Academy of Family Physicians advises that spine pain patients initially avoid imaging due to its high cost, the risks associated with radiation and the likelihood that additional, unnecessary tests and procedures will follow without improved outcomes.<sup>14</sup>

The North American Spine Society does not recommend magnetic resonance imaging in the first six weeks of care for patients with nonspecific acute low back pain, nor does it recommend bed rest for more than 48 hours when treating low back pain.<sup>15</sup>

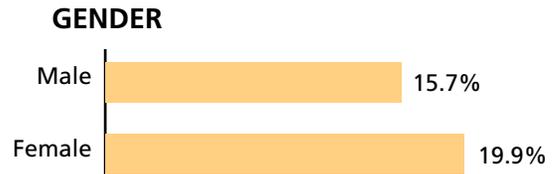
# Upstate New York adults treated for spine pain, 2013

Percent of upstate New York adults who had at least one spine care service in 2013

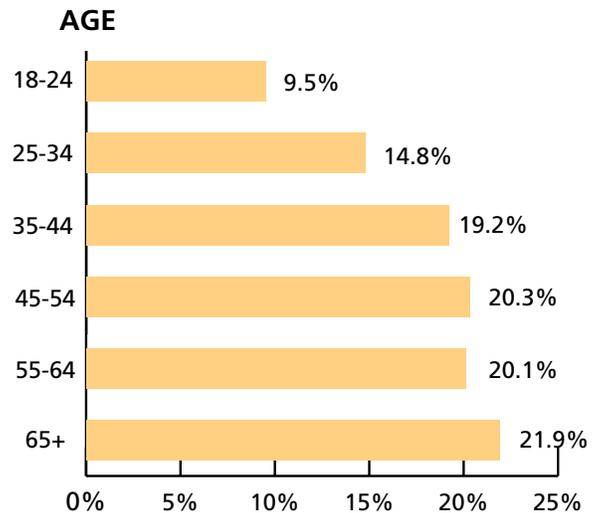
- Close to one-fifth of upstate New York adults received spine care in 2013. The percentages ranged from 16.4 percent in Western New York to 20.8 percent in the Southern Tier.



- A significantly higher proportion of women (19.9 percent) received spine care compared to men (15.7 percent).



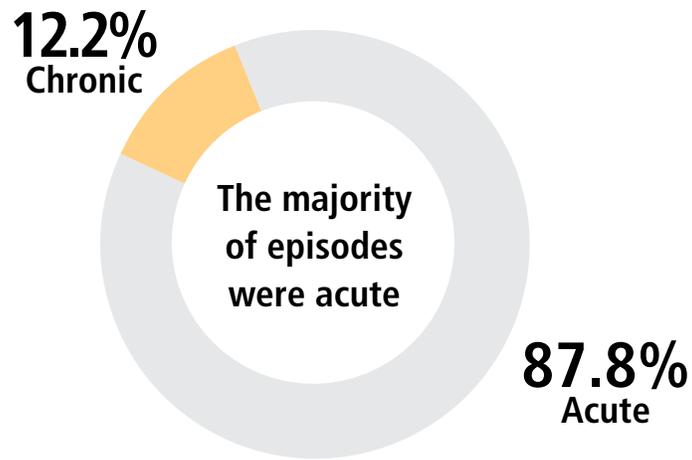
- Adults age 35 and over received more care than younger individuals.



Source: Based on claims data from Excellus BlueCross BlueShield.

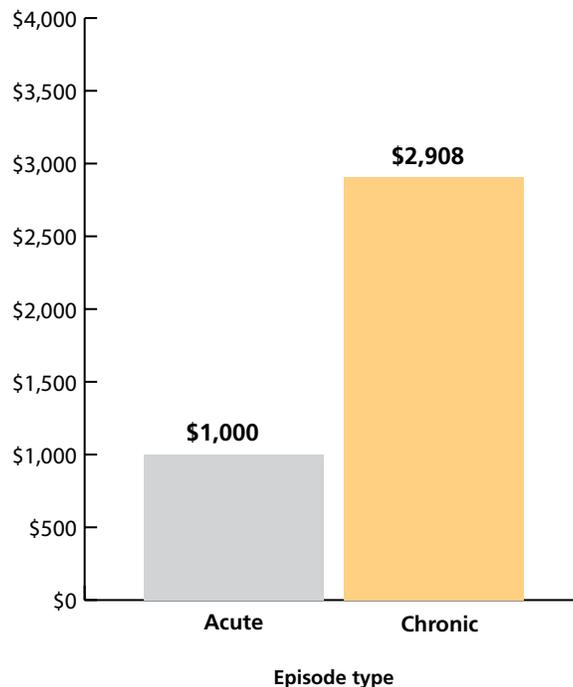
# Acute and chronic spine pain episodes in upstate New York, 2013

Percent of upstate New York adults who had at least one chronic or one acute spine care episode in 2013



Source: Based on episode grouped claims data from Excellus BlueCross BlueShield.

## The high cost of chronic spine pain



Source: Based on episode grouped claims data from Excellus BlueCross BlueShield.

- In upstate New York, the cost of an average chronic episode of spine pain (\$2,908) was almost three times the average cost of an acute episode of spine pain (\$1,000).

## Diagnostic and therapeutic services for spine care

### Diagnostic tests

(listed in order from the most frequently used to the least frequently used)

**Imaging:** Different types of radiology, including X-rays, CT scans, MRIs and myelography, can be used to image the spine. In general, imaging is rarely indicated in the acute phase (first six weeks) of nonspecific back pain.<sup>16</sup> Clinicians will assess patients for any red flags, such as progressive neurological deficits, changes in the bowel or bladder function, significant fever or history of trauma, that would support earlier testing. X-rays can be used to diagnose fractures or to assess for tumors or infections. CT scans provide excellent bony detail and may be indicated in cases of trauma and may be used in combination with myelography. MRIs are an important diagnostic tool when symptoms fail to resolve with an adequate trial of conservative therapy, and they provide excellent images of nerve roots and discs.<sup>17</sup>

Age-related changes that occur within the spine can be identified through MRI imaging. For example, by age 40, 50 percent of adults without symptoms show evidence of disc bulge, and 68 percent show some disc degeneration.<sup>18</sup> Because there is such a high prevalence of imaging findings in asymptomatic patients, oftentimes pain cannot be attributed to specific radiology findings.<sup>19</sup>

**Nerve conduction studies:** Also referred to as nerve conduction velocity tests, nerve conduction studies are electrodiagnostic tests that measure the speed of an electrical impulse through a nerve to determine nerve damage. These tests may be appropriate for persistent radiating pain, including but not limited to herniated disk diseases or sciatic nerve problems.<sup>20</sup>

### Treatment modalities

(listed in order from the most frequently used to the least frequently used)

**Drugs:** Over-the-counter acetaminophen and/or non-steroidal anti-inflammatory medications are available and adequate for many patients. Medications such as muscle relaxants, antidepressants, anticonvulsants and/or narcotics are sometimes prescribed, based on the severity, type and duration of pain and careful consideration of the benefits and risks of medication for the patient.<sup>21</sup>

**Chiropractic care:** Involves spinal manipulation and patient education regarding self-care and exercise to help balance the body's structure, improve function and promote self-healing.<sup>22</sup> Chiropractic care is considered a safe and effective treatment for acute low back pain.<sup>23</sup>

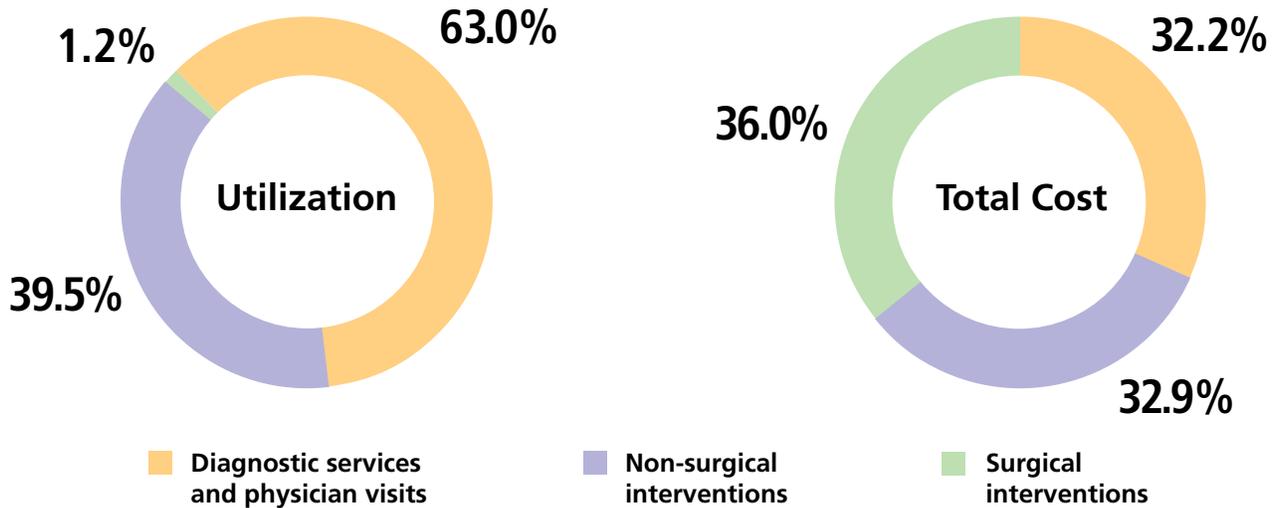
**Physical therapy:** Blends physical modalities with exercise to manage pain and restore function. It teaches patients strengthening and stretching techniques and emphasizes re-injury prevention.<sup>24</sup> Many people with acute low back pain benefit from physical therapy.<sup>25</sup>

**Spinal injections:** May be indicated in some patients to relieve pain when medications and other non-surgical treatments fail to provide relief.<sup>26</sup>

**Surgical procedures:** Include, but are not limited to, disectomy, laminectomy, fusion and vertebroplasty.<sup>27</sup> They may be indicated for pain refractory to conservative therapy and/or loss of function caused by such conditions as persistent disc herniation, spinal stenosis and unstable spondylolisthesis.<sup>28</sup>

Other treatments not examined in this report include (but are not limited to) cognitive behavioral therapy, acupuncture, biofeedback, yoga, massage and aquatic therapy.<sup>29</sup>

## Utilization and cost of treatments\* for upstate New York adults presenting with spine pain, 2013 (prescription services not included)



### Diagnostic services and physician visits

63 percent of all treatments utilized consisted of physician visits, nerve conduction testing and imaging. These services accounted for 32.2 percent of the total cost of spine care. Patients who:

- Had a physician visit had an average of two visits.
- Had imaging had on average two imaging services.
- Had nerve conduction testing had an average of one test.

### Non-surgical interventions

39.5 percent of all treatments utilized consisted of chiropractic treatment, physical therapy, injections and home care. These services accounted for 32.9 percent of the total cost of spine care.

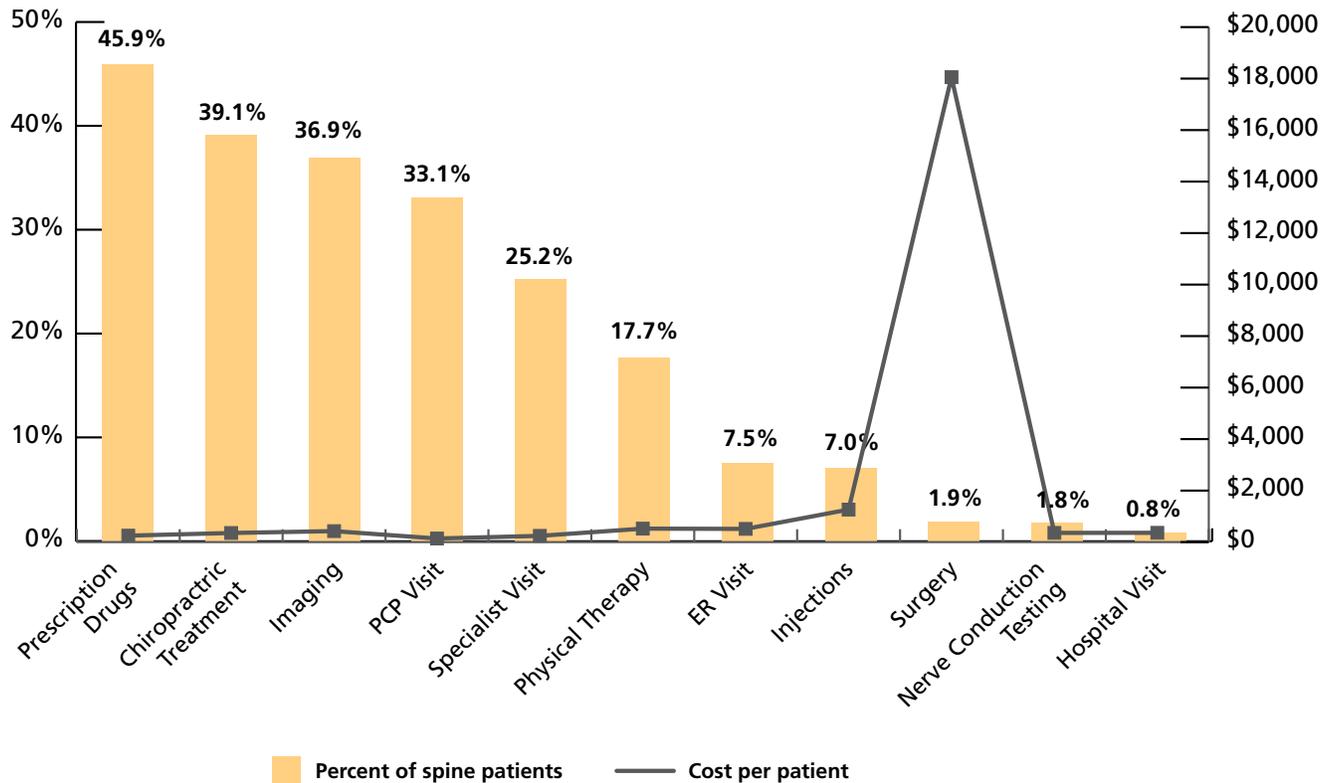
- Patients who had non-surgical treatment had an average of eight services.

### Surgical interventions

Surgical treatments included in this analysis include fusion, non-fusion and miscellaneous surgical services. In 2013, 1.2 percent of treatments were surgical, accounting for 36 percent of the total cost of spine care.

\* Treatments for spine pain consist of medical services (not including prescription drugs) provided by a practitioner in a hospital or health care facility. Treatment utilization means that one patient used one treatment consisting of one or more services during their spine pain episode.

## Cost and utilization of spine care services among upstate New York adults, 2013



This graph shows the relationship between patient utilization of treatments for spine pain and the associated cost per patient during 2013.

- Prescription drugs were utilized by the highest percentage of patients (45.9 percent)
- Surgery had the highest average cost per patient (\$18,000) but the lowest utilization (1.9 percent of spine patients).
  - The average cost of surgery per patient does not represent the cost for all surgical patients and/or procedures. Unlike other treatments, the cost of surgery is dependent on several variables such as patient case mix and type of procedure.

## A growing problem: Prescription drug use trends

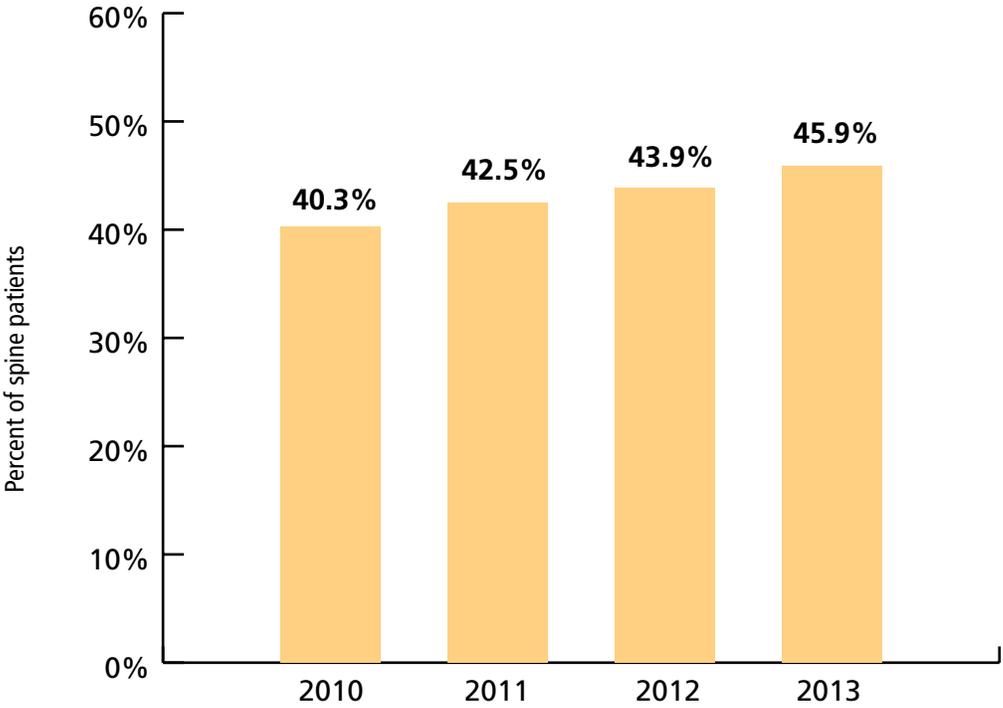
Most acute back pain can be treated with self-care, which may include use of over-the-counter medications such as acetaminophen or non-steroidal anti-inflammatory drugs.<sup>30</sup> However, prescription medications are commonly used to treat low back pain, which contributes to the health care costs associated with low back pain.<sup>31</sup> In the U.S., the cost of prescription drug use for low back pain more than doubled from 1997 to 2005.<sup>32</sup>

A recent study found that nearly 69 percent of patients who had low back pain were prescribed medications during treatment.<sup>33</sup> Of all prescription medications, opioids were the most frequently prescribed pain-related medication (prescribed for 42 percent of patients with low back pain).<sup>34</sup>

The American College of Physicians and the American Pain Society's clinical practice guidelines for treating low back pain include a recommendation to consider the use of medications with proven benefits after careful clinical consideration and in conjunction with discussions regarding self-care with the patient.<sup>35</sup> Selecting medications for low back pain can be challenging, due to each drug's associated benefits and risks, varying evidence-based support, costs and patient preferences.<sup>36</sup>

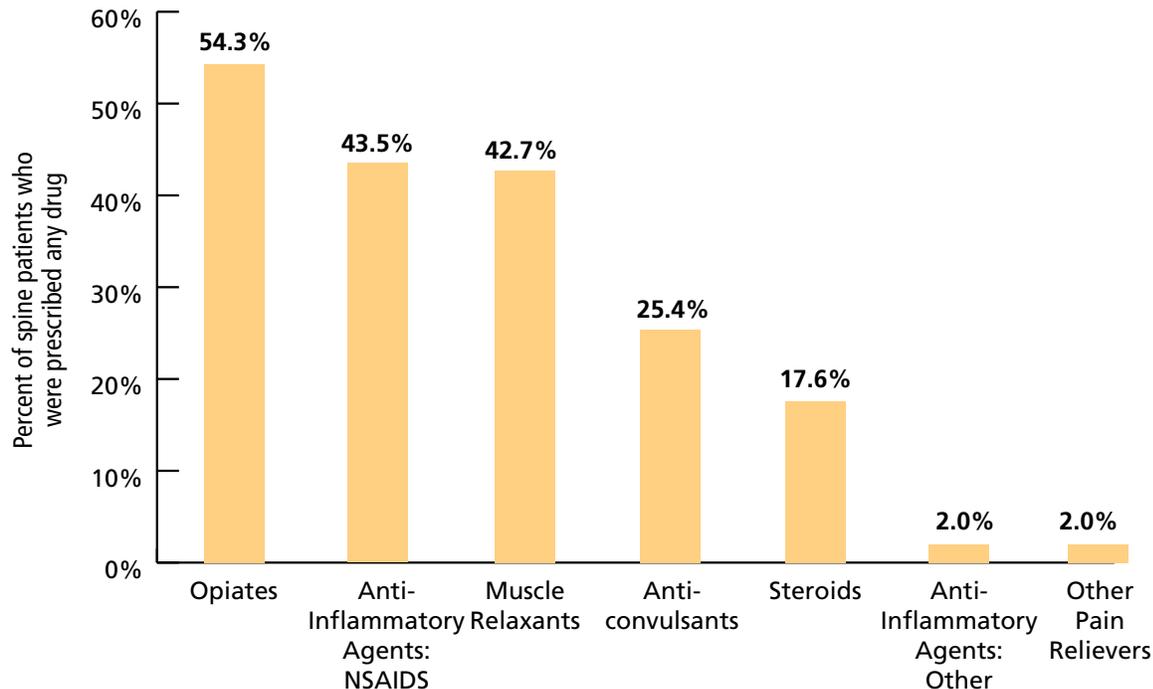
Different classes of medications, including muscle relaxants, anticonvulsants, opiates and steroids, are used to manage back pain. The risks and benefits associated with prescription medications, including opiates, which are generally indicated only in carefully selected patients who have acute, severe pain that is unresponsive to other medications, are beyond the scope of this fact sheet.<sup>37</sup>

# Prescription drug use and trends among adult upstate New York spine patients, 2010 to 2013



2010-2013 saw a steady increase in the percentage of spine patients who were prescribed a medication within the first six weeks of their spine pain episode. The rise in prescription drug use from 40.3 percent to 45.9 percent represents a 13.9 percent increase from 2010-2013.

## Prescription drug use among adult upstate New York spine patients, 2013



Upstate New York spine patients who took prescription medications in 2013 were prescribed opiate medications more frequently than any other class of medications.

- More than half (54.3 percent) of spine patients who received a prescription within the first six weeks of diagnosis received a prescription for an opiate.

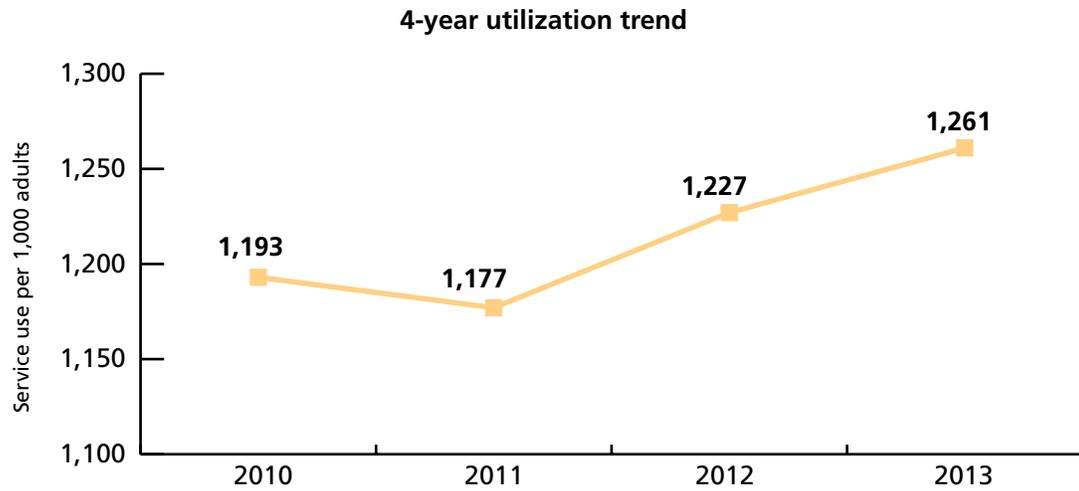
**The American Academy of Physical Medicine and Rehabilitation** recommends that health care providers only prescribe opiates for acute disabling low back pain after an evaluation and when other alternatives have been tried.

Prescribing opiates early for acute disabling low back pain is associated with longer disability, higher surgical rates and a greater risk of later opioid use.

Source: Choosing Wisely- <http://www.choosingwisely.org/clinician-lists/aapmr-opiates-for-low-back-pain/> archived at <http://www.webcitation.org/6cEKOmyZ> on October 12, 2015.

## Spine care utilization trends among upstate New York adults, 2010-2013

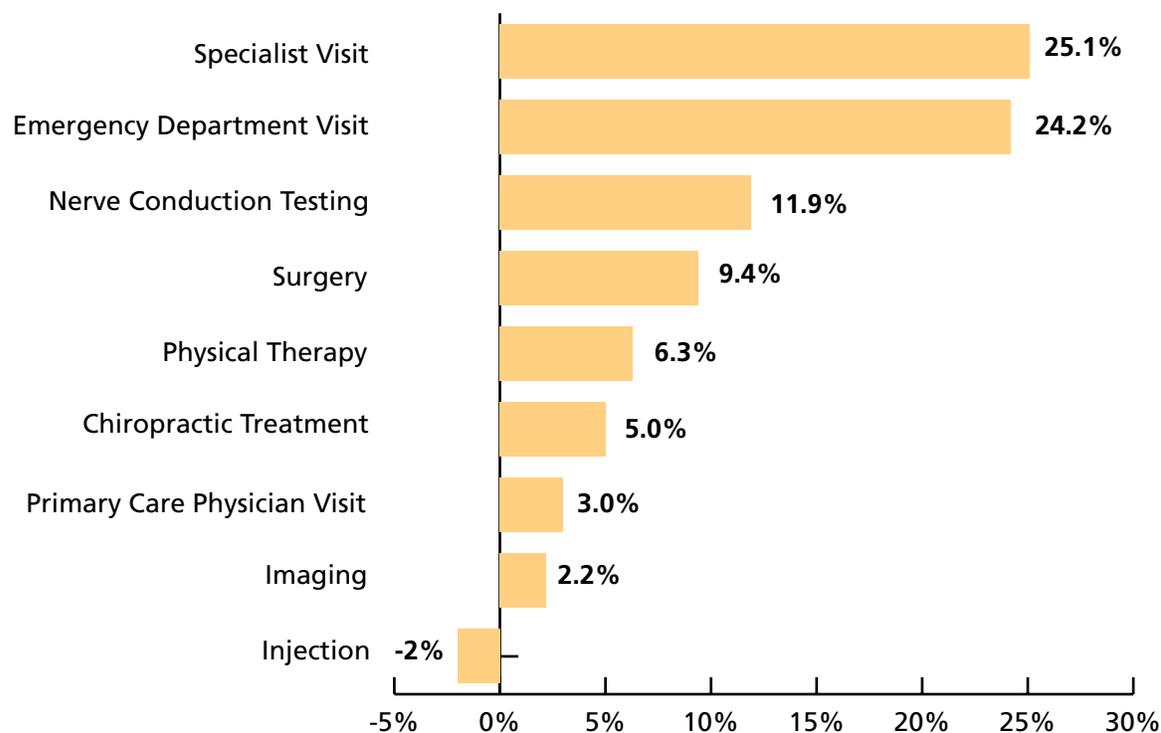
The overall utilization of spine pain treatments and services in upstate New York increased from 2010 to 2013.



Source: Based on claims data from Excellus BlueCross BlueShield.

The utilization rate, defined as the number of visits/admissions per 1,000 spine patients, increased by 5.7 percent, from 1,193 services per 1,000 adults in 2010 to 1,261 services per 1,000 adults in 2013.

## Utilization of spine care services among upstate New York adults (three-year percent change by service), 2011-2013



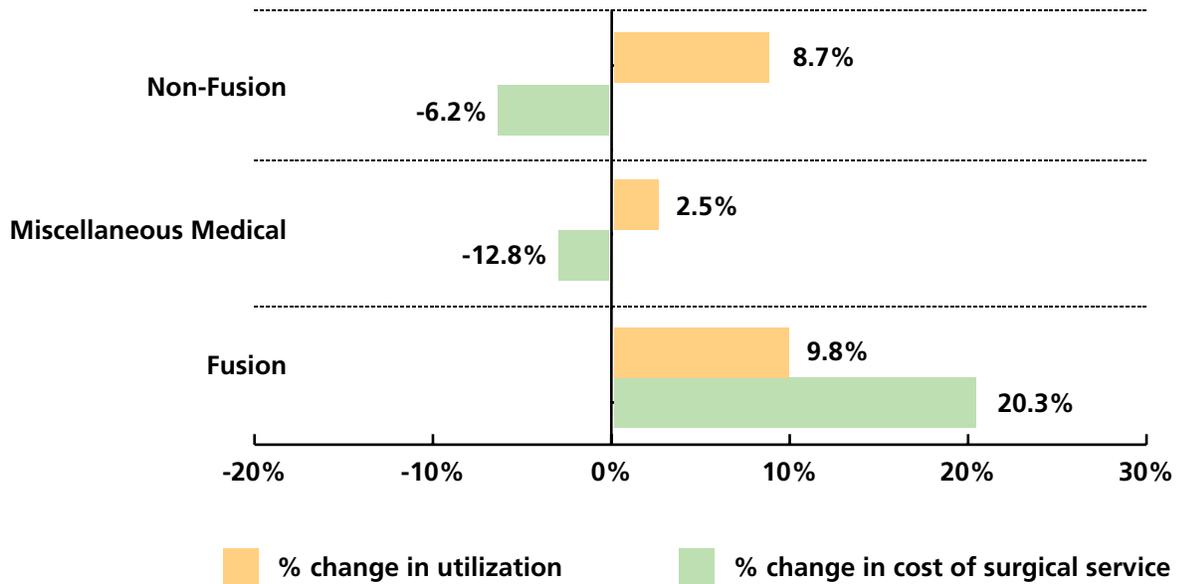
Source: Based on claims data from Excellus BlueCross BlueShield.

From 2011 to 2013, utilization of most treatments and services for spine pain increased in upstate New York. The three-year percent increase rates illustrate the rising usage rates per treatment.

- Visits to specialists increased the greatest amount (25.1 percent), followed by emergency department visits (24.2 percent), nerve conduction testing (11.9 percent), surgery (9.4 percent) and physical therapy (6.3 percent).

## Change in utilization and cost of surgical procedures, 2010-2013

Surgery is the most invasive option for treating spine pain. Surgical procedures include laminectomy or discectomy, which decompress the spinal nerve(s). More complex surgical procedures, such as the fusion of one or more spinal segment, saw the greatest increase in utilization and costs of all surgical procedures used to treat spine pain.



- Utilization of surgical procedures increased by close to 10 percent overall (data not shown) from 2010-2013.

Note: Cost figures are adjusted for inflation.

## Implications

Many acute back/neck pain episodes resolve on their own or with self-care techniques. Most chronic episodes can be treated non-surgically. Surgical treatments are reserved for a small percentage of patients for whom surgery is necessary.<sup>40</sup>

In recent decades, the cost of treating chronic back pain has increased, primarily due to the rising utilization and costs associated with such treatments as prescription medications, imaging services, injections and surgeries.<sup>41</sup>

Facing a need for well-defined, effective spine care treatment, researchers at the National Institutes of Health are currently comparing spine care patient outcomes by treatment type. Their research focuses on better understanding the nature of back pain, identifying preventive measures, improving treatments and minimizing disability.<sup>42</sup>

Several published spine care diagnosis and treatment guidelines are available. They include guidelines published by the American College of Physicians, American Pain Society, Monroe County Medical Society, Agency for Health Care Research and Quality and Institute for Clinical Systems Improvement. These guidelines provide evidence-based information, and include information on self-care options, expected recovery times and remaining active.

## If you have back pain: Here's what to do and when

Most people who have low back pain feel better after a few weeks. Experts From the National Institutes of Health, the Choosing Wisely Campaign, WebMD and the Monroe County Medical Society suggest using the following techniques to aid in recovery:<sup>1,2,3,4,5</sup>

1. Stay active by engaging in your usual daily activities as much as possible. Bed rest should be avoided or limited to one or two days, beyond which it can lead to depression, stiffness and weakness.
2. Sleep on one side with pillows between the knees or on your back with pillow(s) beneath the knees.
3. Apply heat to assist with pain management. Heat dilates the blood vessels and can reduce muscle spasms and reduce pain.
4. Take over-the-counter medications, such as ibuprofen or naproxen, to reduce swelling and help relieve pain.
5. Consult your primary care provider if you experience numbness, weakness, a change in bowel or bladder control, or if pain worsens or is not noticeably better within a few days.
6. Learn about possible alternative, non-surgical treatments, such as yoga, physical therapy, acupuncture, chiropractic care, massage and cognitive behavioral therapy. Consider more invasive treatments, such as surgery, only if your provider deems it's warranted and/or after non-surgical treatments have been exhausted.
7. Stay relaxed, because anxiety only worsens pain. Keep a positive attitude and find a treatment that works for you.

<sup>1</sup> National Institutes of Health. National Institute of Neurological Disorders and Stroke. "Low Back Pain Fact Sheet." July 2003. Web. Oct. 30, 2013. [http://www.ninds.nih.gov/disorders/backpain/detail\\_backpain.htm](http://www.ninds.nih.gov/disorders/backpain/detail_backpain.htm)

<sup>2</sup> Consumer Reports Health, American Academy of Family Physicians and ABIM Foundation. "Imaging Tests for Lower-Back Pain." Choosing Wisely: An initiative of the ABIM Foundation. Apr. 2012. Web. 18 Oct. 2013. <http://consumerhealthchoices.org/wp-content/uploads/2012/05/ChoosingWiselyBackPainAAFP.pdf>

<sup>3</sup> National Institute of Arthritis and Musculoskeletal and Skin Diseases. "Handout on Health: Back Pain." April 2012. Web. 13 Nov. 2013. [http://www.niams.nih.gov/Health\\_Info/Back\\_Pain/default.asp](http://www.niams.nih.gov/Health_Info/Back_Pain/default.asp)

<sup>4</sup> WebMD. "Use Heat or Ice to Relieve Low Back Pain - Topic Overview." Back Pain Health Center. Healthwise, Incorporated, February 24, 2010. Web. 28 Jan. 2014. <http://www.webmd.com/back-pain/tc/use-heat-or-ice-to-relieve-low-back-pain-topic-overview>

<sup>5</sup> Monroe County Medical Society. "Guidelines for Acute or Subacute Low Back Pain." May 2012. Web. 28 Jan. 2014. [http://www.mcms.org/sites/default/files/physicianTools/FINAL%20LBP%20Guideline\\_2012.pdf](http://www.mcms.org/sites/default/files/physicianTools/FINAL%20LBP%20Guideline_2012.pdf)

## Healthy Back Tips

Regular exercise that strengthens back muscles and improves balance is a great way to maintain a healthy back. Following a healthy diet is also important, because it helps you maintain a healthy weight. Extra weight can stress and cause injury to your back. Strong bones in your back will depend on adequate consumption of calcium and vitamin D.<sup>1</sup>

Additional tips for a healthy back:<sup>2</sup>

- Maintain a neutral spine when bending or lifting objects, and bend from the knees, rather than from the waist.
- Keep the load close to your body when lifting heavy objects.
- Hold the handle of your vacuum, broom or rake directly in front of you, rather than to the side, and then push and pull through the lower back when doing household chores.
- Maintain good posture and avoid sitting for long periods of time. Get up and move around often if you sit for an extended period of time.
- Stand and exercise for a few minutes before lifting a heavy object.
- Avoid bending and leaning forward first thing in the morning.
- Tighten your core muscles when engaged in activity that is strenuous to your back.

<sup>1</sup> National Institute of Arthritis and Musculoskeletal and Skin Diseases. "Handout on Health: Back Pain." April 2012. Web. Oct. 31, 2013. [http://www.niams.nih.gov/Health\\_Info/Back\\_Pain/](http://www.niams.nih.gov/Health_Info/Back_Pain/)

<sup>2</sup>Walters, Clare. "Got Your Back." Community Health Rochester. Fall 2013. Web. 16 June 2014. [http://onlinedigitalpublishing.com/article/Got\\_Your\\_Back/1478102/170961/article.html](http://onlinedigitalpublishing.com/article/Got_Your_Back/1478102/170961/article.html)

## Methodology

Excellus BlueCross BlueShield's Quality and Health Informatics department and Health Analytics team analyzed the data presented in this report.

The prevalence of spine pain in 2013 was derived from Excellus BlueCross BlueShield spine pain medical and drug claims incurred between January 2013 and December 2013 and paid through March 2014. Health care industry standard metrics were used to calculate average encounter costs and utilization rates. Average encounter costs represent combined payer and member costs per hospital admission or outpatient visit. The utilization rate is defined as the total number of services per 1,000 members.

Claims data were grouped into episodes of care by using the OptumInsight ETG Grouper v7.5. An episode of care is all services provided to a patient with a medical problem within a specific period of time in the health care system. The goal of the episode grouper is to combine all health care services and treatments received for each unique episode of care.

Average episode costs were calculated by dividing total episode costs by the number of episodes. Acute episodes were considered complete with no additional claims to be included. Chronic episodes may incur additional claims beyond the study window but were not reflected in this report.

The number of adults in each region who received spine pain treatment and the estimated annual costs reported here use the United States Census Bureau's insured population estimates as of July 1, 2013. Episodes indicated by claims data were extrapolated by age to this population.

## Endnotes

- 1 De Vet, Henrica, et al. "Episodes of Low Back Pain. A Proposal for Uniform Definitions to Be Used In Research." *Spine*, Vol. 27, No. 21. 2002. [http://journals.lww.com/spinejournal/Fulltext/2002/11010/Episodes\\_of\\_Low\\_Back\\_Pain\\_\\_A\\_Proposal\\_for\\_Uniform.16.aspx](http://journals.lww.com/spinejournal/Fulltext/2002/11010/Episodes_of_Low_Back_Pain__A_Proposal_for_Uniform.16.aspx) archived at <http://www.webcitation.org/6cEOVv52T> on October 12, 2015.
- 2 Balagué, Federico, et al. "Clinical Update: Low Back Pain." *The Lancet*, Vol. 369. March 3, 2007. Page 726. <http://www.backpaineurope.org/web/files/lancet.pdf> archived at <http://www.webcitation.org/6cFbH2ZLG> on October 13, 2015.
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- 7 Chou, Roger. "Pharmacological Management of Low Back Pain." *Drugs*, Vol. 70, No. 4. 2010. Page 388. Web. 7 Mar. 2014. (subscription required for full access)
- 8 Balagué, Federico, et al., page 726.
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