

# AMERICANS IN MOTION



Intelligence for improving care for musculoskeletal disorders, which cause pain for millions and are a top driver of health care usage and costs.



# Overview

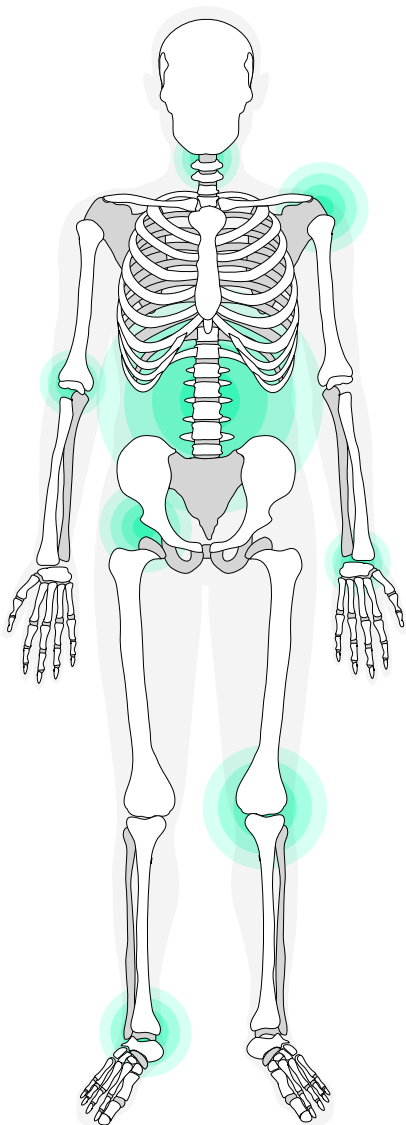
Conditions causing damage to the musculoskeletal (MSK) system are a source of aches and pains for more than 1 in 2 adults<sup>1</sup> and a top driver of health care usage and costs in the U.S.

This report is for plans seeking to understand and improve care and affordability for those suffering with MSK conditions.

Insights are based primarily on our analyses of de-identified and aggregated administrative medical and pharmacy claims data from 2020 for a commercial population consisting of six million lives age 0 to 64 from employers, labor unions and health plans. Some insights are based on 2017–2019 data from a larger commercial population.

## You'll learn how and why:

- + Analyzing drivers of variability in usage, quality and cost yields opportunities for improving care and reducing spend
- + Decreasing use of low-value services and sites of service is key to cost savings
- + Encouraging use of high-performing providers for necessary services improves outcomes and can help lower costs
- + Supporting individuals throughout their health journey is essential, especially those with comorbidities that exacerbate symptoms and increase risk of treatment failures



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The musculoskeletal system includes bones, muscles and joints and the connective tissues (i.e., tendons and ligaments) that hold them together.

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# MSK in the U.S.A.

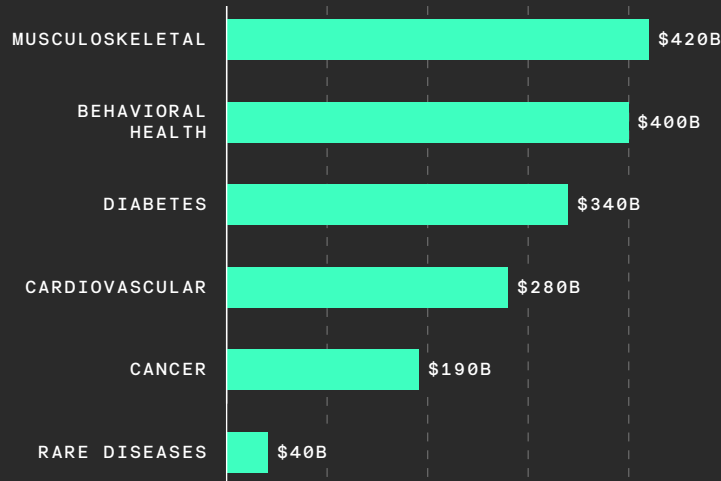
Musculoskeletal conditions affect more than 50% of Americans age 18 and over<sup>1</sup> and cost our health care system an estimated \$420 billion—more than diabetes, heart disease and any other chronic condition.<sup>2</sup>



**More than  
1 in 2**

American adults  
report having a  
musculoskeletal  
condition<sup>1</sup>

**Chronic Conditions: Cost to U.S. Health Care System, 2018<sup>2</sup>**



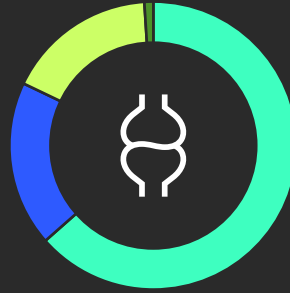
MSK conditions can be categorized based on similarities in mechanisms of injury and care, with 99% of usage and cost concentrated in three categories (see page 4):

1. **Wear and tear**, including strains, sprains and tears of muscles, tendons and ligaments; ruptured discs in the spine; and degenerative changes in the joints
2. **Trauma**, such as fractures and crush injuries
3. **Autoimmune** or rheumatological diseases, such as rheumatoid and psoriatic arthritis

Drilling down into the medical and pharmacy claims for commercially insured plan members under the age of 65, we found that wear and tear accounts for almost two-thirds (63.5%) of all MSK-related usage and costs. Within the wear-and-tear category, evaluation and treatment of conditions involving just five anatomic sites—back, knees, hips, neck and shoulders—are responsible for 80% of usage and costs.

As such, the following sections focus on treatment of wear and tear of the MSK system and provide intelligence for improving care and affordability.

MSK Conditions: Percentage of MSK Plan Spend, 2020



TYPE	AVERAGE PATIENT AGE	% OF MSK PLAN SPEND
<b>Wear and Tear</b> <i>e.g., osteoarthritis</i>	44	63.5%
<b>Trauma</b> <i>e.g., fractures</i>	39	18.6%
<b>Autoimmune</b> <i>e.g., rheumatoid arthritis</i>	48	16.9%
<b>Other</b> <i>e.g., cancer, infections</i>	31	1.0%



## Nearly 2/3

of plan spending on MSK conditions is driven by treating pain due to wear and tear

# MSK wear and tear: Demographics and comorbidities



**27%**  
of patient volume  
**across all**  
**medical conditions**  
in commercial plans  
is due to MSK  
wear and tear

Wear and tear of the MSK system is so widespread that it accounts for 27% of patient volume across all medical conditions for commercial plans. Among patients with MSK wear and tear, people age 45–64 make up 51% of total patient volume. Spend per patient is highest among those age 55–64, 1.4 times higher than the 45–54 age group. Among all age groups, women account for 57% of usage and 52% of spend.



Certain comorbidities that complicate the course of treatment for individuals with MSK conditions are common. We chose to focus on **obesity and behavioral health conditions** due to their prevalence, implications for treatment and impact on outcomes.

Obesity consistently emerges as a key risk factor in the onset and progression of wear and tear on the MSK system. Though undercoded in medical claims data, an obesity diagnosis is present in 8% of patients. What's more, the average spend on MSK conditions in patients with obesity is 80% higher than for those without obesity; this is due to surgical complications, unplanned hospital readmissions, more emergency (ED) visits and other mostly avoidable downstream costs.

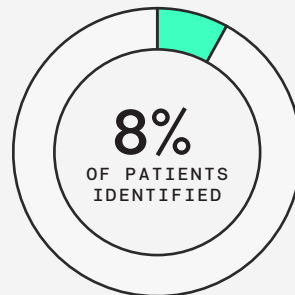
Of patients being treated for wear and tear of the MSK system, 35% have claims related to behavioral health. The average spend for these patients is 66% higher than for those without behavioral health conditions. Examining this further, 18% of patients suffering from MSK wear and tear experience anxiety and 12% suffer from depression. Behavioral health comorbidities can create a vicious cycle, with an MSK condition negatively impacting mental health, which then disrupts the ability to manage the MSK condition.



Certain comorbidities, such as **obesity, anxiety and depression**, are associated with significantly higher spending in patients who undergo treatment for MSK wear and tear

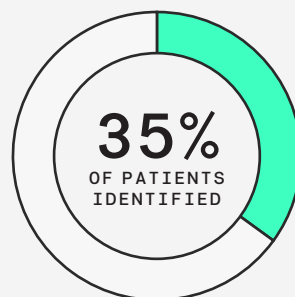
#### MSK Wear and Tear: Prevalence of Comorbidity and Effect on Spend

##### OBESITY



**80%**  
higher spend than patients without obesity identified

##### BEHAVIORAL HEALTH



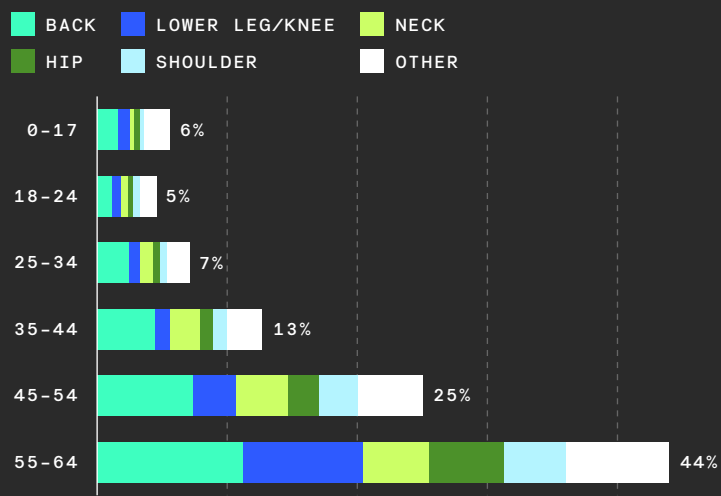
**66%**  
higher spend than patients without behavioral health identified

# Focusing on the back and neck

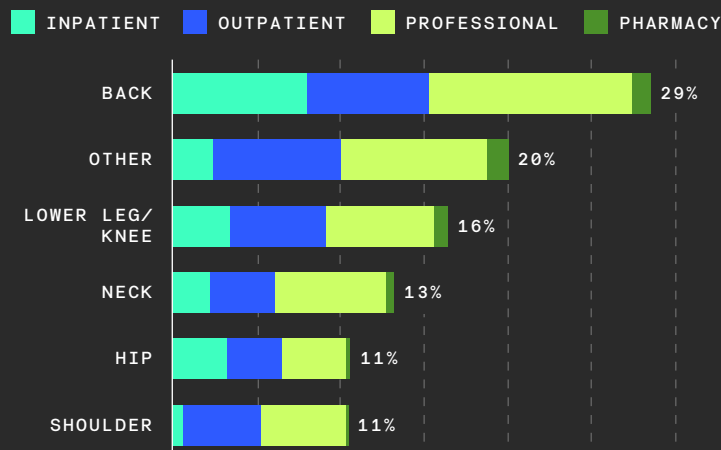
American working conditions, including both heavy lifting and sitting for long periods of time, contribute to increased pain in the back and neck. Together, the back and neck account for 42% of spending on wear and tear of the MSK system across all age groups, with the back being the top driver among anatomic sites (29%). However, back conditions also present the greatest opportunity to affect change in usage and spending on low-value services.

**29%**  
of plan spending on wear and tear across all age groups is for back pain

**MSK Wear and Tear: Percentage of Spend by Age Group, with Anatomic Site Comparison, 2020**

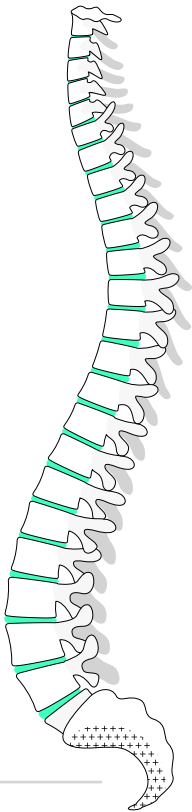


**MSK Wear And Tear: Percentage of Spend by Anatomic Site, with Service Type Comparison, 2020**



Among back conditions, the main cost drivers are osteoarthritis and conditions of the vertebrae and discs involving inflammation (called spondylopathies). Overall, the top three conditions—all related to wear and tear—account for nearly 90% of total spending on the back.

Back conditions are also the top driver of patient volume across every age group. In addition, physical therapy and interventional pain injection usage per 1,000 patients with back conditions is more than double the amount used for conditions related to any other anatomic site, including knee and hip. And there is limited long-term improvement for many individuals receiving spine-related injections for pain management.<sup>3</sup>



### Top Five Back Conditions by Percentage of Spend

CONDITION	AVERAGE PATIENT AGE	% FEMALE	% OF PATIENTS*	% OF SPEND
Osteoarthritis	47	56.9%	44.7%	68.9%
Spondylopathies	50	57.4%	7.3%	10.8%
Non-specific pains	41	54.2%	34.2%	9.4%
Bone diseases	39	53.9%	21.5%	7.2%
Acquired deformities	28	62.2%	1.9%	2.0%

*\*Patients can have more than one condition.*

**3**

conditions  
(all wear and tear)  
account for nearly  
90% of spending  
on back pain





# Back conditions: Exploring specific cost drivers

Diving deeper into the data may be the key to reducing unwanted variability and overall costs of back conditions related to wear and tear.

For example, patients who undergo advanced imaging have higher medical costs, increased health care usage and more work absences than patients who do not have such imaging. Surgery and spinal pain injections are also significant cost drivers even though, together, they represent less than 20% of services used by patients. Yet the International Association for the Study of Pain considers all these services, along with the use of opioids, to be of limited value for addressing low back pain.<sup>4,5</sup>

Studies link preoperative use of opioids to poor postoperative clinical quality of life and financial outcomes.<sup>6,7</sup> Other studies find interventional corticosteroid pain injections are not superior to placebo interventions, result in only short-term improvements in pain and function, and are not sustainable in the long term.<sup>3</sup>



**Patients who  
undergo advanced  
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Additionally, despite a 20%–40% failure rate for spinal fusion surgery,<sup>8</sup> there was an increase in the average use of multiple providers, advanced imaging and surgery among patients with high spending, with a large portion of surgery to alleviate low back pain.<sup>9,10,11</sup> And patients with high spending have an average of ten unique providers for their back condition compared to just two providers for patients with lower spending.



**20%–40%**  
of spinal fusion  
surgeries  
do not improve  
health outcomes  
for patients<sup>8</sup>



How can these expensive yet often  
low-value services be avoided?

**We present three  
potential options.**



INSIGHT

1

# Predictive models identify patients at risk for avoidable surgery



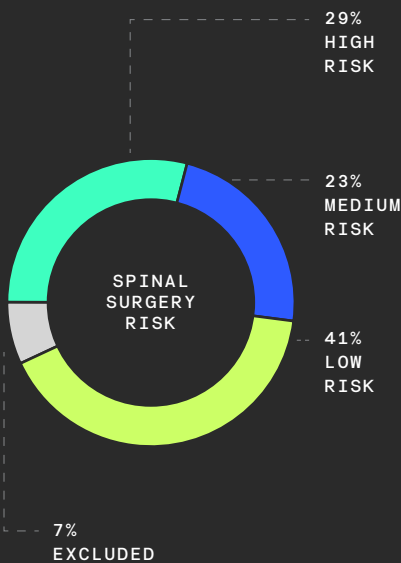
**60%**  
**lower cost**  
related to early adherence to physical therapy for low back pain in a two-year follow-up period<sup>12,13</sup>

Predictive models can identify patients at risk for avoidable surgery who may still benefit from underutilized, conservative measures, such as physical therapy.

Studies show that adherence to physical therapy—especially early during treatment for low back pain due to wear and tear—reduces usage of expensive, low-value services, such as spinal fusion surgery.<sup>12,13</sup>

By analyzing medical, pharmacy, lab and behavioral health data, plan sponsors can predict which patients are at high, medium and low risk for surgery and coordinate personalized outreach to them and their providers, as appropriate.

## Predictive Model Example: Spinal Surgery



**HIGH RISK:** Sees multiple specialists for pain management; has advanced imaging; is not yet referred to or is noncompliant with physical therapy



**MEDIUM RISK:** Has advanced imaging; gets pain injections; shows inconsistent compliance with physical therapy



**LOW RISK:** Is knowledgeable about condition; gets evidence-based treatment, such as cognitive behavioral therapy; is very compliant with physical therapy



**EXCLUDED:** Already has approval for surgery or invasive procedure

## Provider performance ratings help guide patients to optimal treatment

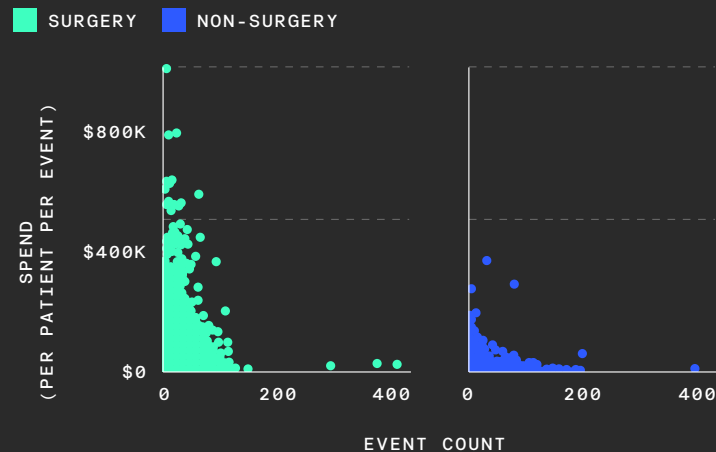
High-performing providers deliver better patient outcomes at lower average costs per patient. Selecting these providers at the onset of a patient's journey is crucial for reducing variability in treatment, as the type of provider seen first can determine both the cost and course of treatment.<sup>14,15,16</sup>

Scoring models can help identify high-performing surgeons who can guide patients to evidence-based, cost-effective treatment. Controlling for differences in the types of patients a surgeon sees, a composite score is made from key quality and cost measures. Clinical experts, including orthopedic surgeons, in collaboration with health services research experts, assign weights to each measure. A similar scoring approach could work for rating other providers and institutions.



With such wide variability in surgical costs, **the type of provider seen first** can determine both the course and cost of treatment

**MSK Wear and Tear: Costs Vary More Widely for Surgical vs. Non-Surgical Back Events**



INSIGHT

3

## Behavioral health treatment leads to savings

Behavioral health comorbidities that are associated with painful MSK conditions include anxiety, depression and substance abuse. According to our analysis of patients experiencing both behavioral health and MSK conditions in a large commercial health plan, appropriate behavioral health treatment can result in savings of \$460 per patient per month (PMPM).

Regardless of the presence of underlying behavioral health conditions, using cognitive behavioral treatment for individuals with low back pain can help reduce the need for surgery.<sup>17</sup>



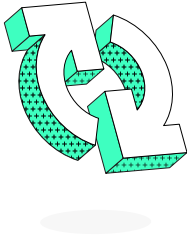
**\$460**  
**savings**  
**PMPM**

when treating  
behavioral health  
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back, hip and  
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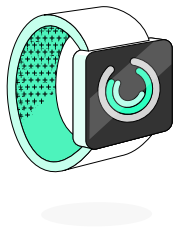
ADDITIONAL  
INSIGHTS

## Connected experiences help drive high-quality, cost-effective care and treatment options<sup>18</sup>



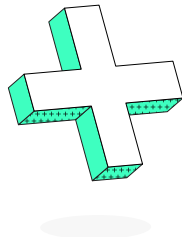
Patients with complex pain experiences benefit greatly from comprehensive care planning among their multiple treatment providers. It is imperative to address modifiable comorbidities, particularly prior to surgical interventions. This may include holistic and conservative approaches, such as cognitive behavioral therapy, weight loss programs, substance use programs, chiropractic care and physical therapy.

## Access to care advocates help empower individuals to take control of their health<sup>18</sup>



Resources such as care advocates, clinical experts and digital tools can help manage use of behavioral health support, physical therapy, chronic condition health coaching, weight loss nutrition programs and more. Navigational support can also reduce the fragmented approach, which may lead to additional customer confusion and cost. Greater access to appropriate, tailored resources can contribute to less usage of low-value services and help avoid unnecessary surgery.

## Avoiding surgery is ideal, but proactive planning is critical when surgery is needed<sup>18</sup>



Mitigating surgical risks and costs starts with the diagnosis. In many cases, conservative and holistic approaches can help patients avoid surgery. But when surgery is necessary, managing health risks, such as weight, tobacco use and sleep, combined with preventive rehabilitation can increase the chances of success. Addressing behavioral issues and tapering opioids, which are not proven to be more effective than over-the-counter medicines for chronic back pain, are also critical for improving patient outcomes. Participation in post-surgery activities such as physical therapy and safe pain management can help prevent complications, opioid dependence and hospital readmissions.

### Moving forward

The insights presented in this report are just the initial steps that plans can take to understand and improve care and affordability for those suffering with MSK conditions. For more information and a more detailed analysis of how MSK is impacting the health of your population, please schedule a visit to join us at The Lab by Evernorth.<sup>SM</sup>

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