

Common Comorbidities Found in Workers' Compensation

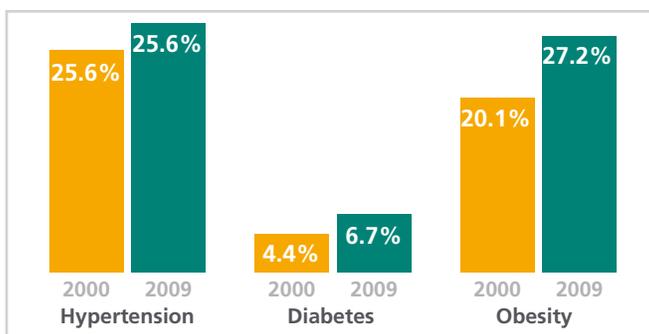
Common Comorbidities Found in Workers' Compensation: How Comorbid Conditions Impact Claims

Comorbid conditions or comorbidities are medical disorders and diseases that can either accompany or affect the primary condition or injury and as such can impact a workers' compensation claim. Common comorbidities include high blood pressure, heart disease, insomnia, obesity, depression, arthritis, diabetes, tobacco use and alcohol abuse.

While the presence of comorbid conditions influences the treatment of workers' compensation injuries, the comorbidity itself may or may not be compensable. For example, a worker may have preexisting diabetes when he fractures his ankle from a slip and fall injury while at work. Consequently, his underlying diabetes may complicate or delay the healing process, but treatment for diabetes would likely not be compensable. On the other hand, if the work-related injury results in the development of a new disorder or comorbid condition, it may be compensable. An injured worker, for instance, who has sustained a low back injury and suffers from chronic pain, is at increased risk for developing depression. Furthermore, decreased energy levels and lack of restorative sleep that may accompany chronic pain might place the injured worker at an increased risk for weight gain and obesity. In some jurisdictions, the addition of antidepressants and prescription sleep aids can become part of the workers' compensation claim.

Whether comorbid conditions are preexisting or work-related, their presence can adversely influence claim outcomes. In a 2012 research study, the National Council of Compensation Insurance (NCCI) looked at the impact of comorbidities on workers' compensation claims. According to this study, the percentage of workers' compensation claims with a comorbid diagnosis, such as diabetes, hypertension and obesity, increased from 2.4 percent to 6.6 percent between the years 2000 and 2009.¹ One of the causes for the observed increase is the overall progression of illness rates among the general population.

Rates of workers' compensation claim with comorbid condition, 2000-2009



According to the data from the Centers for Disease Control (CDC), between 2000 and 2009²:

- Hypertension rates increased from 25.6% to 28.7%
- Diabetes cases increased from 4.4% to 6.7%
- Obesity rates rose from 20.1% to 27.2%

1. Law, C. & Colon, D. (2012) Comorbidities in Workers' Compensation, NCCI.

2. Centers for Disease Control and Prevention. (2014). Retrieved from: <http://www.cdc.gov/niosh/topics/healthyagingatwork/>

While the aforementioned certainly play a role in workers' compensation, such increases do not account for the tripled growth in the number of claims with a comorbid diagnosis. The NCCI study speculates that the additional growth is the result of increased provider awareness.

More providers are noting the presence of comorbid conditions and are adding the diagnosis to the medical file. This is a positive trend because it allows for safer, more efficacious and holistic care management. An accurate comorbidity diagnosis can give the provider, the injured worker and the payer more realistic expectations for return-to-work and recovery. The key is to ensure that the therapy regimen, pharmacologic and non-pharmacologic, proactively manages and accurately treats the underlying condition or conditions.

Following is information on the most common comorbid conditions found in workers' compensation and their impact on claims.

Hypertension

Hypertension or high blood pressure is the condition where the arteries are under constantly high pressure to pump blood through the body. When left untreated, high blood pressure can affect multiple organs throughout the body and can result in serious health problems, including stroke, heart attack and kidney failure.

Nearly one in three adults in the United States suffer from hypertension and only about half have their blood pressure under control, as there are usually minimal to no physical symptoms of the condition.³ Up to 75 percent of adults with diabetes also have hypertension, and those with hypertension alone often show evidence of insulin resistance.⁴ According to the CDC, about seven of every ten people who have a heart attack have high blood pressure, and eight out of every ten who have a stroke have high blood pressure.



Nearly one in three adults in the U.S. suffer from hypertension³

Influence on Medication Therapy

Several therapeutic classes commonly seen in workers' compensation claims can worsen high blood pressure, particularly pain relievers and antidepressants. The pain medications of most concern include those from the anti-inflammatory class. The antidepressants carrying higher risks for worsening blood pressure levels include venlafaxine and bupropion.

Cardiovascular Disease and Stroke

Cardiovascular disease is the leading global cause of death, accounting for 17.3 million deaths per year, a number that is expected to grow to more than 23.6 million by 2030.⁵ It is also the number one cause of death in the United States, killing over 375,000 people a year — striking someone in the U.S. about once every 43 seconds. Additionally, an estimated 735,000 people in the U.S. have a heart attack each year.

A stroke occurs when one or more of the blood vessels that carry oxygen and nutrients to the brain is either blocked or ruptured; because of the brain not receiving the oxygen it needs, brain cells die. Stroke is the number five cause of death and the leading cause of adult disability in the United States. About 795,000 Americans each year suffer from a new or recurrent stroke. That means, on average, a stroke occurs every 40 seconds.

Direct and indirect costs of cardiovascular disease and stroke total more than \$320.1

3. Centers for Disease Control and Prevention. (2015). High Blood Pressure. Retrieved from: <http://www.cdc.gov/bloodpressure/index.htm>

4. Long, A. & Dagogo-Jack, S. (2011). The Comorbidities of Diabetes and Hypertension Mechanisms and Approach to Target Organ Protection. *Journal of Clinical Hypertension*, 244-251.

5. American Heart Association (2015, February 6). Heart Disease and Stroke Statistics. Retrieved from: http://www.heart.org/idc/groups/ahamamah-public/@wcm/@sop/@smd/documents/downloadable/ucm_470704.pdf

billion each year. That includes health expenditures and lost productivity.⁶ It can also impact a workers' compensation claim.

Influence on Medication Therapy

Injured workers with a history of heart disease or stroke must be cautious about using certain medications, similar to patients with hypertension or diabetes, both of which are risk factors for heart disease and stroke. The careful monitoring of blood pressure control and blood sugar levels while taking certain pain medications and antidepressants is warranted.

Insomnia

Insomnia is defined as "difficulty falling asleep, staying asleep, or non-restorative sleep, occurring at least three times per week for at least a month." About 30 percent of adults have symptoms of insomnia, with 10 percent having it severe enough to cause disruption to their day. A high rate of insomnia is seen in middle-aged and older adults, with women more likely to develop insomnia than men. Those with a medical or psychiatric illness, including chronic pain and depression, are at risk for insomnia. Additionally, medications, such as some antidepressants and corticosteroids, can also cause insomnia as a side effect.⁷

With the majority of workers' compensation cases involving an injury that results in pain, many injured workers suffer from insomnia. Since sleep is a restorative process for the human body, a lack of sleep can cause cyclical issues for an injured person where a lack of sleep increases pain and pain increases insomnia. Sleeplessness can also influence other comorbid conditions, such as obesity, anxiety or depression, and high blood pressure. This makes proper treatment of both pain and insomnia essential to recovery.

A number of diagnostic tools can be used to determine if a patient is suffering from insomnia, from sleep diaries to polysomnography studies that monitor a patient while they sleep. Once a diagnosis of insomnia is confirmed, any contributing underlying medical conditions should be assessed. In the case of insomnia related to chronic pain, adequate treatment of pain and any comorbid conditions should be optimized. Often appropriate treatment of the underlying medical condition alleviates insomnia and enables the patient to obtain adequate sleep.

Influence on Medication Therapy

If the underlying condition is already being treated optimally and insomnia persists, there are two methods to address it:

- **Non-pharmacological intervention** - Includes stimulus control, behavioral intervention, sleep hygiene and relaxation therapy, such as deep breathing exercises, and yoga and meditation.
- **Pharmacological Intervention** - Includes benzodiazepines, non-benzodiazepine hypnotics, melatonin-receptor agonists and over-the-counter products. These medications can be helpful initially, but they usually do not allow for a natural sleep cycle to be obtained and can come with adverse side effects or dependence. (Optum® standard Medication Plans and formularies require prior authorization for hypnotics.)

The pharmacologic treatment of insomnia requires careful evaluation of all medications

6. Ibid

7. American Academy of Sleep Medicine. (2015, February 6). Fact Sheet - Insomnia. Retrieved from: <http://www.aasmnet.org/resources/factsheets/insomnia.pdf>

an injured worker is taking, both prescription and nonprescription, due to the significant risks of drug-drug interactions. Any combination of sedating medication classes, such as hypnotics, opioid analgesics, muscle relaxants and benzodiazepines, can substantially increase the risk of respiratory depression and death. For this reason, insomnia is best treated with proper training in effective sleep hygiene techniques and other non pharmacological measures to help restore normal sleep patterns. If hypnotics or sedatives are prescribed, they should be only be taken with caution and for the shortest amount of time necessary.

Obesity

Many Americans are getting heavier. In fact, in June 2013, the American Medical Association voted to label obesity — a condition that affects an estimated 97 million Americans — as a disease.

Impact of obesity on the workplace⁸



A Duke University study looked specifically at obesity's role in workers' compensation claims and found that medical costs were seven times higher among employees who were outside of the recommended Body Mass Index or BMI.⁹ It also showed that the costs and the amount of lost workdays increased linearly with an increase in BMI.

A follow-up study in 2009 by NCCI showed that workers' compensation claims involving obese injured workers are nearly three times more expensive than claims involving non-obese injured workers at the 12-month mark, but climb to a factor of 4.5 at the three-year mark and 5.3 at the five-year mark.¹⁰

While millions of Americans are obese, obesity is most prevalent among middle-aged adults, ages 40-59 years old. Obesity is associated with increased pain and musculoskeletal problems, especially in the lower back, knees and hips. It can also lead to additional complications or conditions that can increase a person's risk of serious illness and death, such as diabetes, stroke, heart disease, high blood pressure, high cholesterol and gallbladder disorders.

Historically, in workers' compensation, a medical provider might include an obesity comorbidity code on their medical bill if they felt the condition needed to be addressed before the injury could be treated, such as the case where an obese injured worker

8. Wolf, A. & Colditz, G. (1998, March 2). Current Estimates of the Economic Cost of Obesity in the United States. *Obesity Research*, 97-106.

9. Ostbye, M., Dement, P. & Krause, M. (2007). Obesity and Workers' Compensation. *Archives of Internal Medicine*, 167, 766-773.

10. Laws, C. & Schmid, F. (2009). Reserving in the Age of Obesity. NCCI.

needs to lose weight before surgery. Now, it's possible that obesity, as a result of injury — such as when an injured worker gains weight due to lack of exercise or as a result of a medication prescribed during recovery — is compensable. Certain medications, including several narcotics, antidepressants and anti-inflammatory medications commonly used in workers' compensation claims, can cause weight gain.

Influence on Medication Therapy

While the effect of a medication differs for everyone, an injured party's weight increase may lead to additional complications, such as a slower recovery and higher risk of chronic pain. The result can be an increase in both the amount of pain medications required and the length of the claim. Additionally, the multiple comorbid conditions that frequently accompany obesity, such as high blood pressure and heart disease, can limit the safe use of non-opioid pain relievers, such as non-steroidal anti-inflammatories (NSAIDs), which can raise blood pressure.

Depression

Nearly one in five adults age 18 and over suffer from a diagnosable mental disorder in a given year, including major depressive disorder, chronic mild depression and anxiety disorders.¹¹

For injured workers, the cumulative effects of stress, the decrease in daily activities, concerns over money, feelings of worthlessness or hopelessness and even side effects from certain medications can result in feelings of depression. This in turn can prolong and increase the effects of pain — a cycle that can have a profound impact on a claim through increased medication usage and/or extended claim duration. **Approximately 50 percent of patients with chronic pain have some degree of depression,** and chronic pain patients are four times more likely to experience anxiety or depression than those not affected by chronic pain.¹²

Influence on Medication Therapy

When counseling and other psychological interventions are successful in relieving feelings of depression, it may be necessary to add pharmacologic management. A variety of antidepressants with distinct mechanisms of action are available for the treatment of depression, allowing the physician to try different medications if success is not achieved with initial attempts.

In situations where pain is ongoing, the use of antidepressants with pain relieving properties is an option. Serotonin norepinephrine reuptake inhibitors (SNRIs) may be quite effective at treating depression, while providing additional pain relief. As with any medication however, the potential side effects and drug-drug interactions when used alongside other medications must be thoroughly evaluated.

Arthritis

Arthritis is one of the leading causes of disability in the U.S., with more than 50 million Americans suffering from the disease.¹³ Workers who develop the disease report some sort of work limitation.

Osteoarthritis is the most common form of arthritis and is associated with a breakdown of cartilage and narrowing of the joint space. It can develop in just about any joint of the body but most commonly affects the hips, knees, spine, shoulders and hands. The pain

The Arthritis Foundation states that arthritis is a more frequent cause of activity limitations than heart disease, cancer or diabetes.¹³

11. Substance Abuse and Mental Health Services Administration, Center for Behavioral Health Statistics. (2014). The NSDUH Report: Substance Use and Mental Health Estimates. Rockville, MD: SAMHSA.

12. Centers for Disease Control and Prevention. (2015, February 6). Fast Stats - Mental Health. Retrieved from: www.cdc.gov

13. Arthritis Foundation. (2015, February 6). Understanding Arthritis. Retrieved from: <http://www.arthritis.org/arthritis-facts/understanding-arthritis.php>

experienced when placing weight on an arthritic joint can lengthen an injured worker's recovery time and decrease his or her overall activity levels, resulting in a more sedentary lifestyle and higher risk for other comorbidities, such as obesity, depression and heart disease.

Rheumatoid arthritis is another form of the disease that only affects about one percent of Americans. It is an autoimmune disease, meaning the body's immune system attacks its own tissues. After triggering the immune system, immune cells migrate from the blood into the joints and joint-lining tissue, called synovium. There, the immune cells make inflammatory substances that cause irritation, wearing down of cartilage and causing swelling and inflammation of the joint lining. Rheumatoid arthritis is two to three times more common in women than men.¹⁴

Influence on Medication Therapy

The medications used for the treatment of arthritis focus on the prevention of further joint space damage and pain relief. In both osteoarthritis and rheumatoid arthritis, the inflammatory component of the condition is usually treated with an anti-inflammatory medication. In the management of rheumatoid arthritis, as opposed to osteoarthritis, pharmacologic intervention to address the autoimmune component of the disease has become the standard of care. In this case, specialty medications called disease-modifying antirheumatic medications (DMARDs) are being used to suppress the body's abnormal immune response.

Non-opioid analgesics and anti-inflammatories are the preferred treatment for arthritis-related pain. Those injured workers who are already receiving medication therapy for their underlying arthritis are at risk of over-utilization if they receive additional medication in the same class for the treatment of their work-related injury.

Diabetes Mellitus

Diabetes mellitus is the condition in which the body does not properly maintain normal concentrations of sugar in the bloodstream, resulting in hyperglycemia or high blood sugar. Diabetes occurs when the body either does not make enough insulin (type 1 Diabetes) or does not use its own insulin as well as it should (type 2 diabetes). According to the American Diabetes Association, 29.1 million people have diabetes mellitus — that is about one out of every 11 people.

People with diabetes have a higher risk of serious health complications, such as blindness, kidney failure, heart disease, stroke and amputation of the toes, feet and legs. Diabetes can lengthen recovery time for burns, wounds, and fractures and diabetic nerve pain (neuropathy) can prolong recovery time. Further complicating the impact of diabetes on a claim, one out of every four people does not know they have diabetes.¹⁵

Influence on Medication Therapy

The elevated blood sugar levels in diabetes necessitate a more cautious selection of medication therapy in the treatment of injuries. For instance, steroids, which are often prescribed following an acute injury to reduce inflammation, can profoundly elevate blood sugar levels. In most circumstances, steroid courses for the treatment of inflammation-related pain are short in duration; however, people with inhalation-related lung injuries, such as chronic obstructive pulmonary disease (COPD), may be placed on a more prolonged course of steroids.

One out of every 11 people have diabetes mellitus.

One out of every four people does not know they have diabetes.¹⁵

14. Ibid

15. American Diabetes Association. (2014). Statistics About Diabetes. Retrieved from: <http://www.diabetes.org/diabetes-basics/statistics/?loc=db-slabnav>

Other non-steroid medications that may raise blood sugar levels in some diabetics and are often seen in workers' compensation claims include duloxetine (an antidepressant commonly prescribed for nerve pain) and olanzapine (an antipsychotic medication sometimes taken for severe depression).

Substance Use

Alcohol abuse and tobacco use are also considered comorbid conditions. Although tobacco use has declined substantially in the United States, it remains the second leading cause of total deaths and disability.¹⁶ Furthermore, it is well documented that tobacco use can result in medical conditions that impair respiratory function and physical activity, including Chronic Obstructive Pulmonary Disease (COPD). **Businesses pay an average of \$2,189 in workers' compensation costs for smokers, compared with \$176 for nonsmokers.**¹⁷ Tobacco use has also been found to prolong recovery from low back injuries.

With respect to alcohol, numerous studies suggest a significant relationship between work-related stress and the development of drinking problems. Alcohol consumption can cause complications with medications, bring on symptoms of depression, and impair one's ability to do physical activities needed to recover from an injury.

Influence on Medication Therapy

Because smoking can raise blood pressure, there can be an increased risk of stroke and heart disease when people who smoke also use medications that can raise blood pressure, such as Non-Steroidal Anti-Inflammatories (NSAIDs). Smoking cessation can, therefore, be an essential component to the recovery from an injury and pivotal to the future wellness of a worker. While compensability and work-relatedness are valid concerns in workers' compensation, the successful resolution of a claim with a more positive outlook on employee health may make smoking cessation programs and medication options worthwhile.

In recent years, some health benefits of alcohol consumption in moderation have been touted, but the potential interactions between alcohol and medications present an ongoing challenge to safety. For instance, not only can alcohol increase the effects of some anticoagulants (also known as blood thinners), making a bleeding complication more likely, it can also substantially amplify the sedative effects of opioids, benzodiazepines, hypnotics and other sedating medications.

Aging

While aging is not by itself considered to be a medical disorder or disease, clinical research suggests that chronological age may play an important role in the types of workplace injuries observed and the progression of such injuries to more chronic conditions. The natural aging process is one reason. Body functions begin to decrease as early as the third decade of life. Advanced age is typically associated with a higher incidence of pain (e.g., age-related body deterioration), prolonged recovery and more prevalent psychiatric factors, such as depression, anxiety and insomnia.

Beyond age itself, comorbidities such as obesity, high blood pressure, heart disease, arthritis, high cholesterol and diabetes mellitus can be problematic to an aging workforce. Older patients usually require more time to heal from an injury.

Average life expectancy in the U.S. rose to 78.8 years in 2012, according to report on

16. Ibid

17. Musich, S., Napier, D. & Edington, D. (2001). The association of health risks with workers' compensation costs. *Journal of Occupation and Environmental Medicine*, 43(6), 534-541.

mortality published by the CDC.¹⁸ So, **with an older workforce, age and age-related comorbidities will become increasingly more common.** As this occurs, claim cost and duration may rise.

Influence on Medication Therapy

Attention to the potential effects that certain medications can have on the elderly population is essential to minimize the risks of adverse medication reactions. As people age, their metabolism of medications changes and alterations in medication absorption occur. The increase in body fat that older patients often experience results in more storage (and less elimination) of the fat-soluble products found in medications. These changes result in an increased sensitivity and greater side effect potential to medications (particularly opioid analgesics, hypnotics, benzodiazepines and some antidepressants) in older people. Therefore, it is essential to factor advanced age into any decision where a new medication will be added to the injured worker's treatment plan.

Managing Claims with Comorbidities

With comorbidities becoming more common — whether due to increased awareness by providers, an aging workforce or some other reason — it is important for payers understand their impact on claims. Identifying potential comorbidities can help set more realistic expectations for the claim and return to work. A pharmacy benefit manager can help manage claims with comorbid conditions by reviewing medications, identifying any unusual medications or treatments, questioning potential drug-disease interactions and determining if medications care compensable.

18. Xu, M., Kochanek, M., Murphy, B. & Arias, P. (2014). Mortality in the United States, 2012. Washington, D.C.: U.S. Department of Health and Human Services Centers for Disease Control and Prevention.



About Optum for Workers' Compensation

The workers' comp division of Optum collaborates with our clients to deliver value beyond transactional savings while helping ensure injured workers receive safe and effective clinical care. Our innovative and comprehensive medical cost management programs include pharmacy, ancillary and managed care services from first report of injury to settlement.

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