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Comorbidity and the Injured Worker

Background

- Board Certified Orthopaedic Surgeon
- Fellowship Trained Sports Medicine and Arthroscopy
 - Methodist Sports Medicine Center
- Orthopedic Surgery Residency
 - Des Peres Hospital
- University of New England
- St. Charles Orthopaedic Surgery Associates
- Signature Medical Group

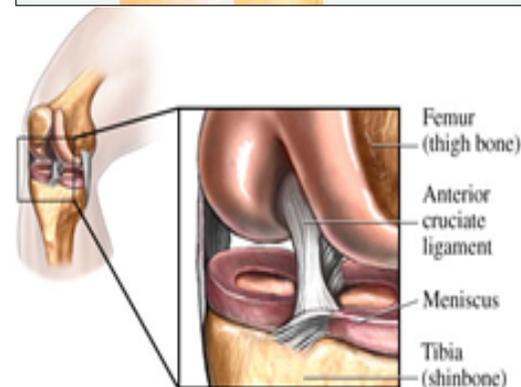
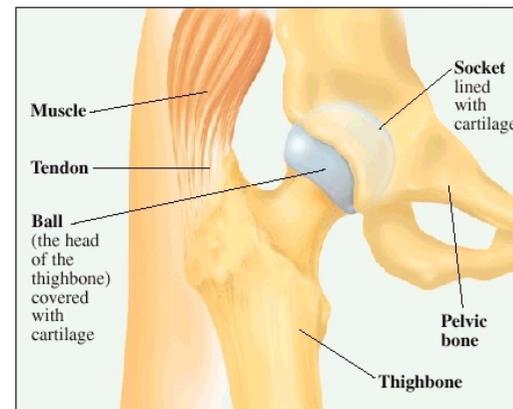
Experience

- Private Practice 9 years
- Over 3,000 arthroscopic surgeries specializing in shoulder, hip and knee
- Practice currently comprised of 15% Workers' Compensation cases



Specialties

- Advanced arthroscopy of the shoulder, knee, and hip
- Ligament reconstruction of the ACL
- Arthroscopic rotator cuff repair
- Sports medicine
- Workers' compensation



Did You Know?

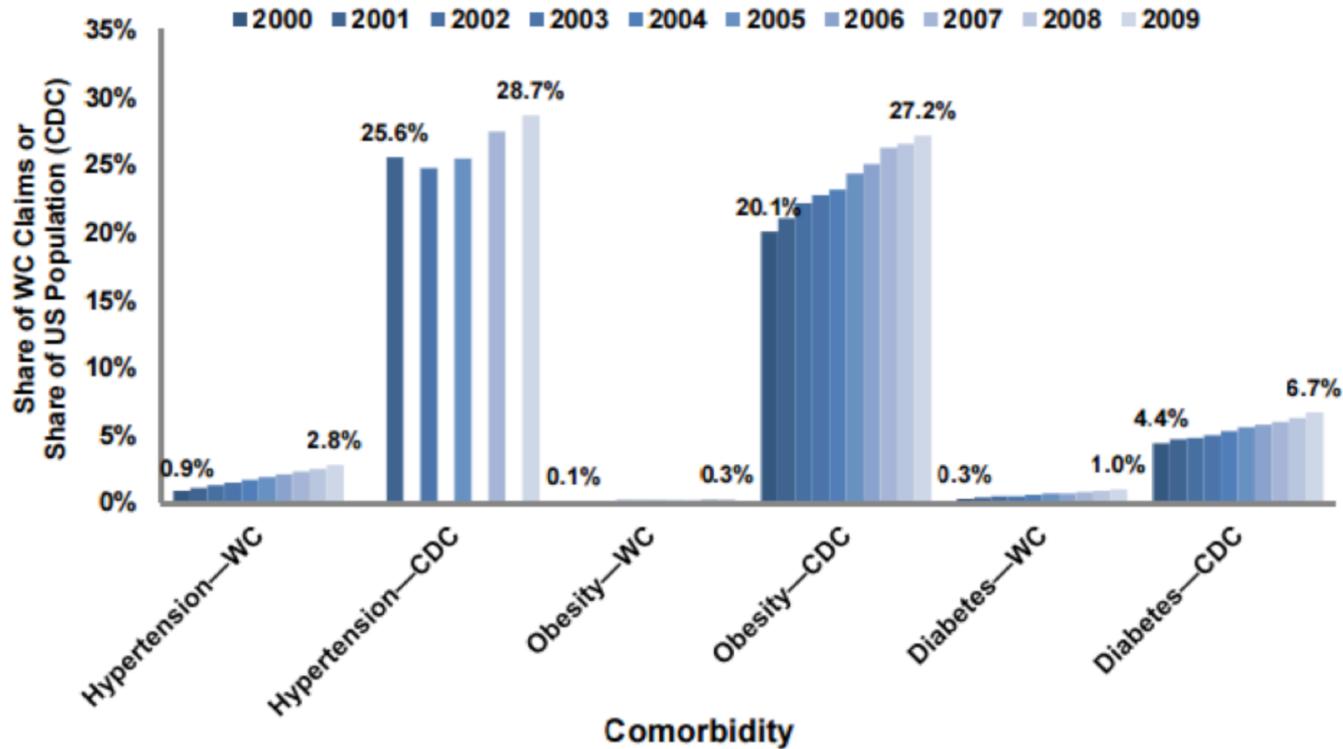
- Approximately 68% of Americans suffer from multi-morbidities
- Workers' compensation (WC) claims with comorbidities on average pay out double the cost
- Comorbidity is likely to confound diagnoses, complicate injury, and delay return to work.
- National Healthcare Expenditure grew 5.8% to **\$3.2 trillion** in 2015, or **\$9,990 per person**, and accounted for 17.8% of Gross Domestic Product (GDP).¹
- Among the total population of the United States, 25 percent have multiple or comorbidities²
- Benefit payments under workers' compensation programs totaled \$63.6 billion in 2013³

Comorbidities

- A simultaneous presence of two or more chronic diseases or conditions in a patient
- Top 5 comorbid conditions
 - Hypertension
 - Obesity
 - Diabetes
 - Conditions related to tobacco use
 - Depression
- Orthopaedic Comorbidity
 - Osteoarthritis

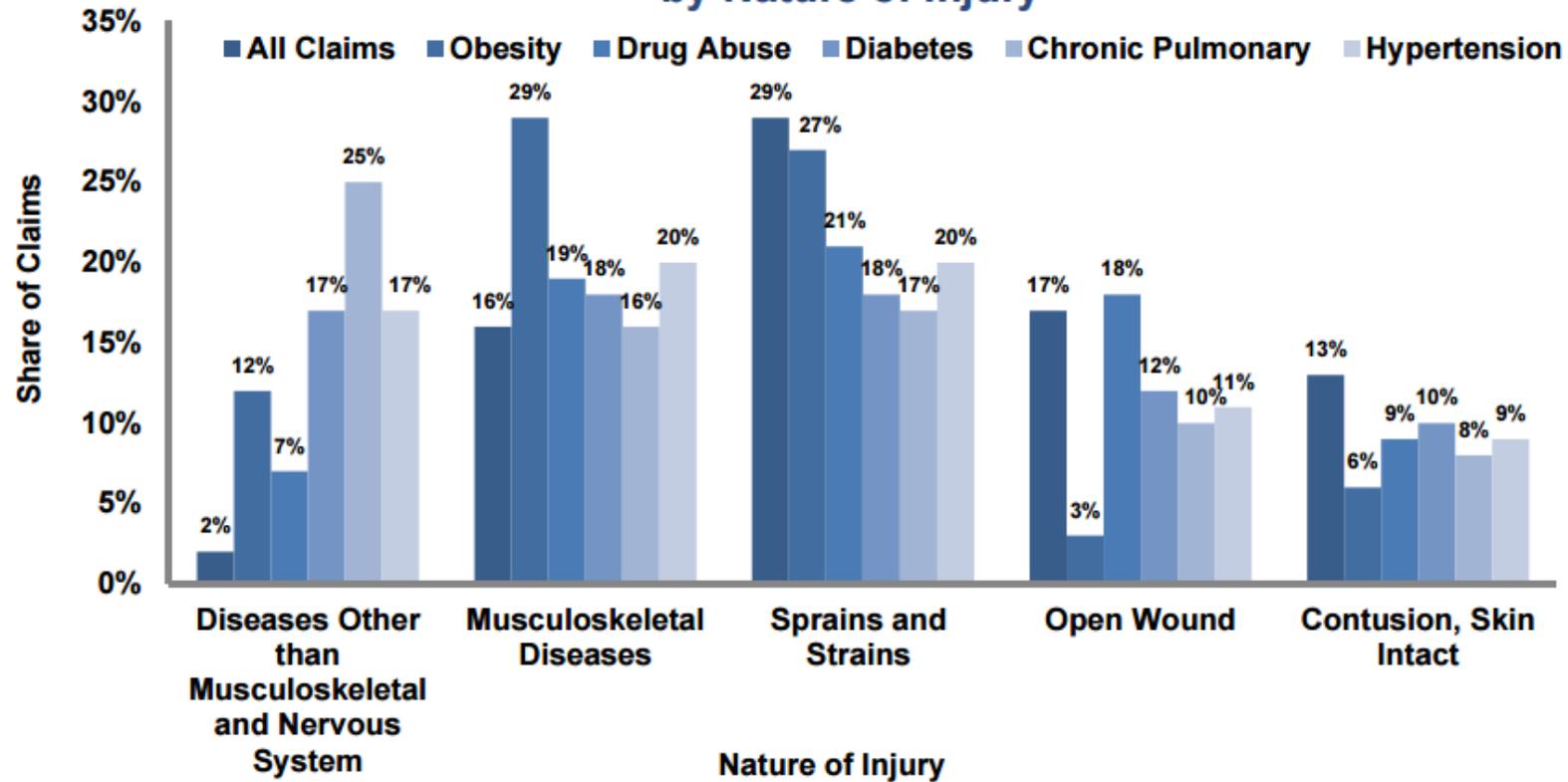


Illness Rates in the General Population Are Increasing



A claim is considered to be a comorbidity claim if its first comorbidity diagnosis occurs within 12 months after injury
 Analysis based on sample data provided by carriers for all US states and DC except ND, OH, WA, WV, and WY
 Years represent injury years for WC and survey years for CDC
 CDC hypertension estimates are only available every other year

Distribution of Claims With a Comorbidity Diagnosis by Nature of Injury



Injury Years 1996 through 2009

All Claims includes claims with and without a comorbidity diagnosis

A claim is considered to be a comorbidity claim if its first comorbidity diagnosis occurs within 12 months after injury

There are 22 natures of injury based on first ICD9 (non-comorbidity) code occurring on the claim

Only natures of injury with more than 12% in at least one category are displayed

Analysis based on sample data provided by carriers for all US states and DC except ND, OH, WA, WV, and WY

Treatment of Workplace Injuries

- Expectations Vs. Reality
 - Comorbidities can lead to treatment complications
 - An increased number of therapy, work conditioning, and/or work hardening may be required
 - Return to work status without restrictions is delayed

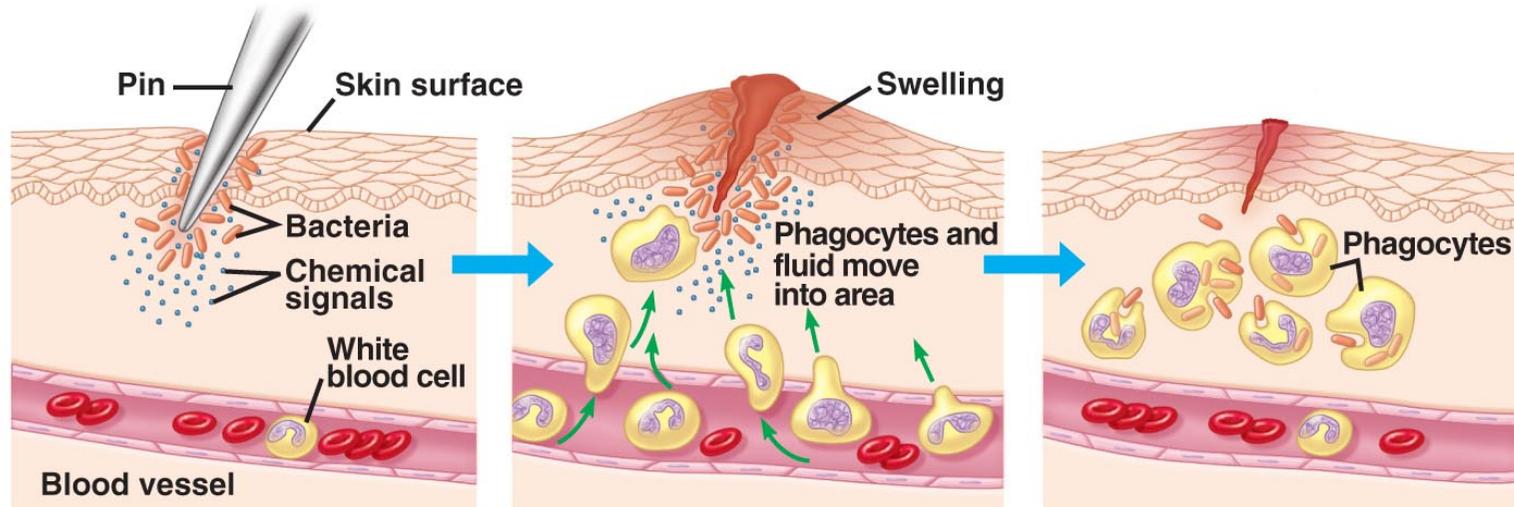
The Injured Worker

- Common Orthopaedic Injuries
 - Sprains and strains
 - Fractures
 - Lacerations
 - Bursitis
 - Tendonitis, tendinopathy



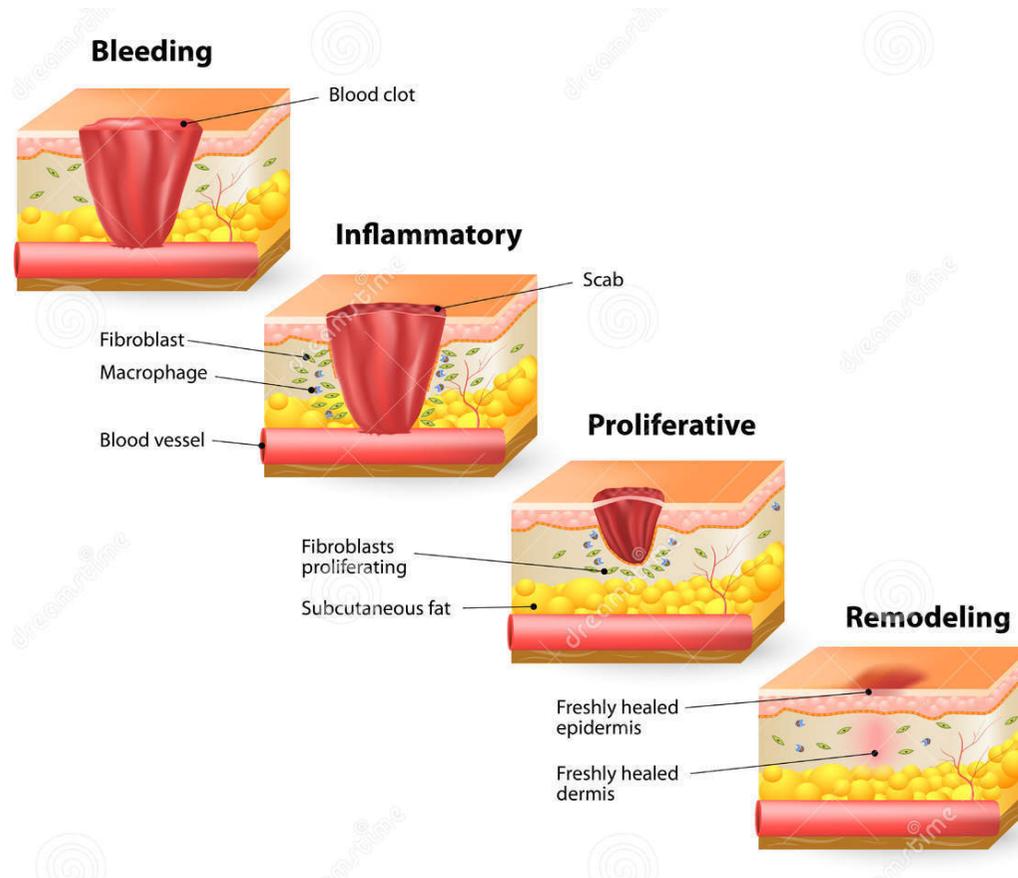
Injury Response

- The body's natural response to injury is inflammation
 - Automatic defense mechanism that begins within seconds of injury.
 - Blood flow increases
 - Clotting agents, white blood cells, prostaglandins, bradykinin, phagocytes
 - Ionic balance is disrupted



Wound Healing

- Four phases
 - Hemostasis
 - Inflammation
 - Proliferation
 - Remodeling



Comorbid Conditions and Healing

- **Obesity**
 - 2013 AMA voted to label obesity as a disease- 97 million Americans affected.
 - Increased rate of surgical site infection
- Effects on injury
 - Obesity increases the amount of stress across weight bearing joints
 - Increased chance of osteoarthritis in weight bearing joints
- Effects on post-operative healing
 - Increased tension on the wound edges contributes to wound dehiscence
 - Increased tissue pressure reduces the availability of oxygen to the wound which can slow healing



Comorbid Conditions and Healing

- **Obesity**

- 2007 Duke University study showed medical costs were up to 7 times higher among employees who were outside of the recommended BMI.
 - Cost and lost workdays increased linearly with an increase in BMI.
- 2013 NCCI study showed the duration of total permanent indemnity benefit payments for obese claimant was 5 times longer than for claimants who were not obese.



Common Comorbidities Found in Workers' Compensation, Optum, 2016

Comorbid Conditions and Healing

- **Hypertension**

- Decreased oxygen and nutrient delivery to the wound site
- Blood is pumped less efficiently through the body
- Prolonged edema at injury site



Comorbid Conditions and Healing

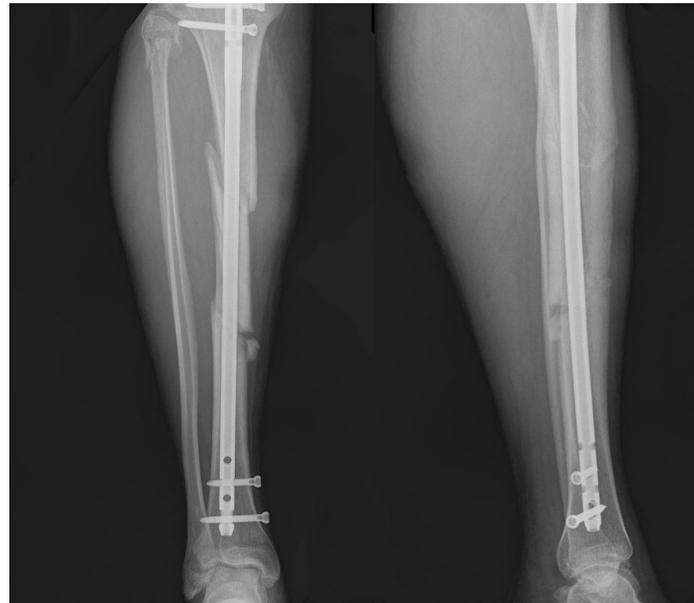
- **Diabetes**

- Increased protease activity supports tissue destruction and inhibits normal wound repair process.
- Hyperglycemia can add oxidative stress on tissue healing.
- Increased chance of neuropathy



Comorbid Conditions and Healing

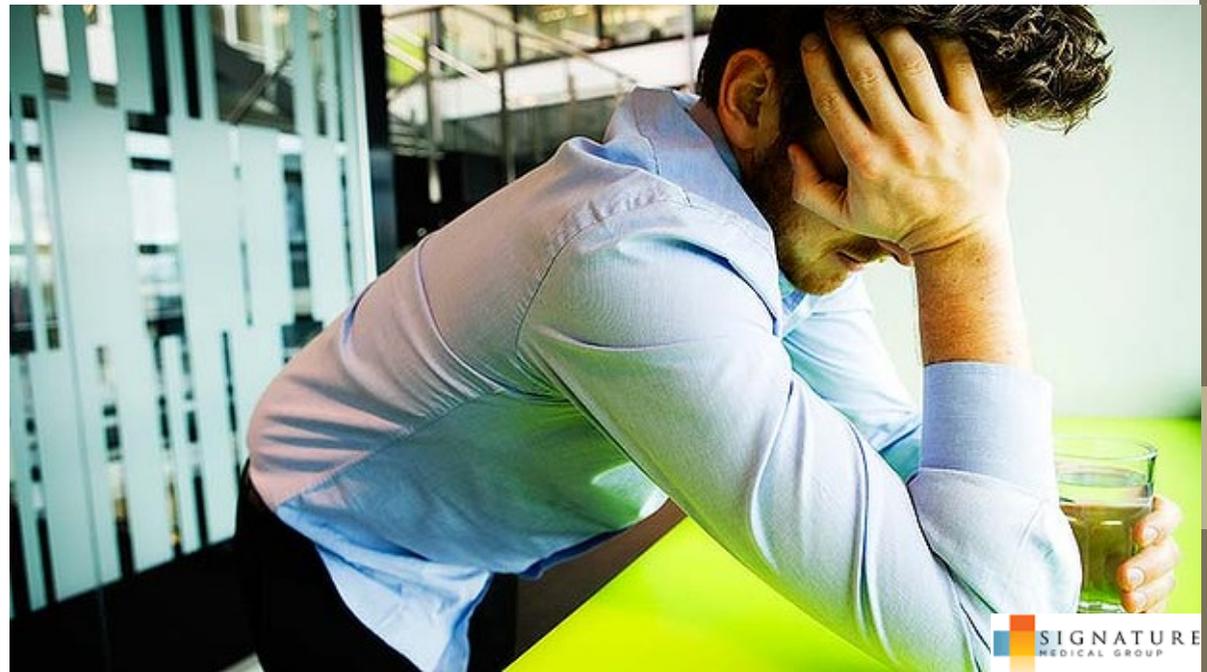
- **Conditions secondary to tobacco use**
 - Nicotine acts as a vasoconstrictor interfering with oxygen supply by inducing tissue ischemia.
 - Carbon monoxide in cigarette smoke causes tissue hypoxia
 - Greater rates of fracture non-unions and soft tissue infections
 - Post-operatively, patients who smoke show a delay in wound healing and an increase in a variety of complications such as infection and a decrease in the tensile strength of wounds.



Comorbid Conditions and Healing

- **Depression**

- Can develop as a comorbidity of injury
- If depression already exists in patient, then non-compliance with medication regimens, therapy, etc. are more likely to occur.
- Willingness to get better decreases



Orthopedic Comorbidity

- **Osteoarthritis**

- According to the Arthritis Foundation, >50 million Americans suffer from arthritis.
 - Osteoarthritis is the most common form of arthritis.
 - Most commonly seen in the shoulder, knee, spine, hip, and hands.
- Increased stress across an arthritic joint can increase pain, thus increasing recovery time due to reduced activity levels and willingness to participate in physical rehabilitation.

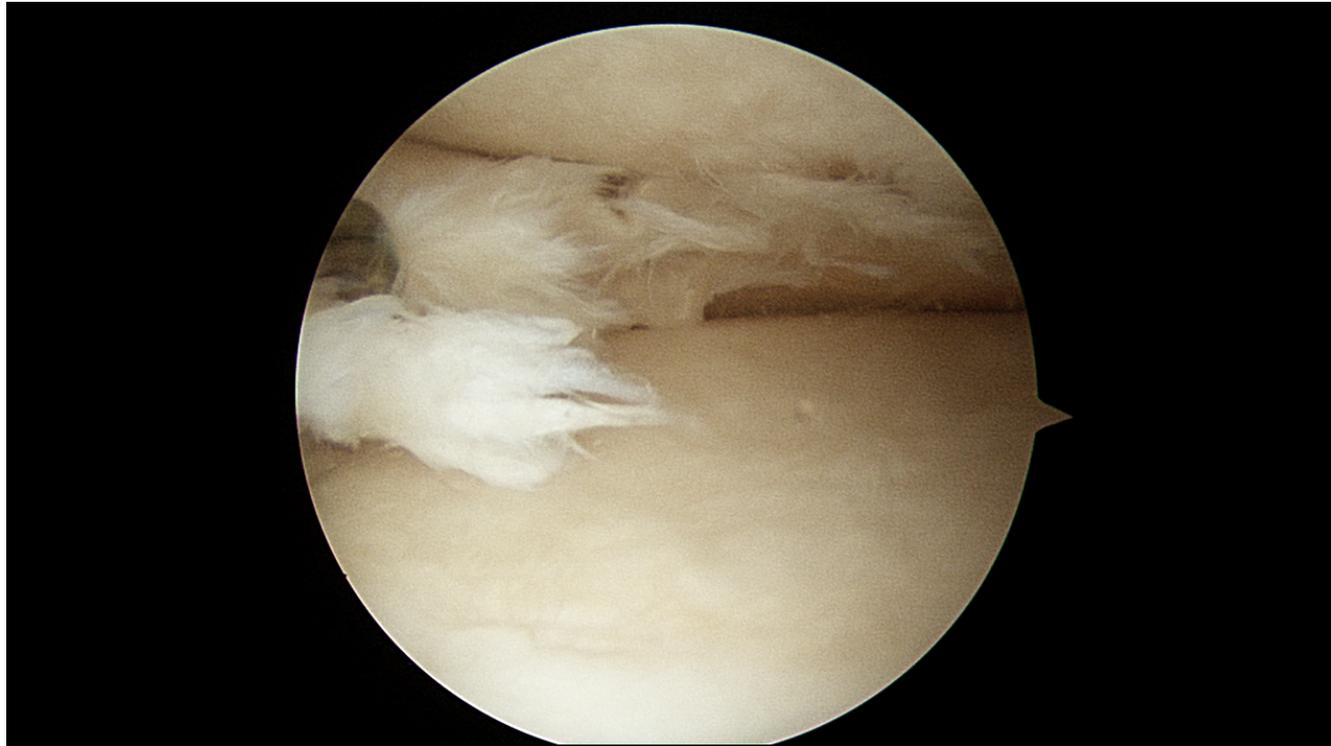


Orthopedic Comorbidity

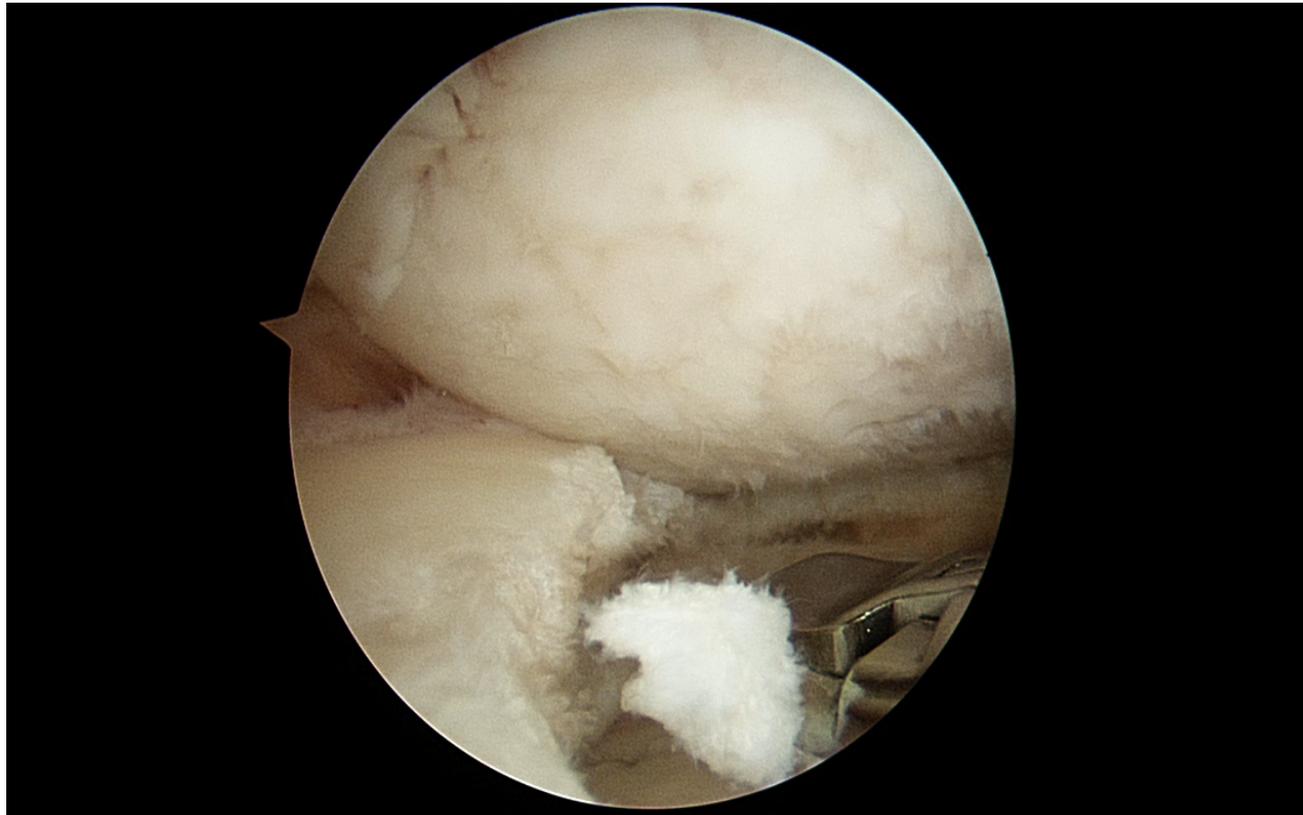
- **Osteoarthritis**
 - Which came first, OA or meniscus tear?



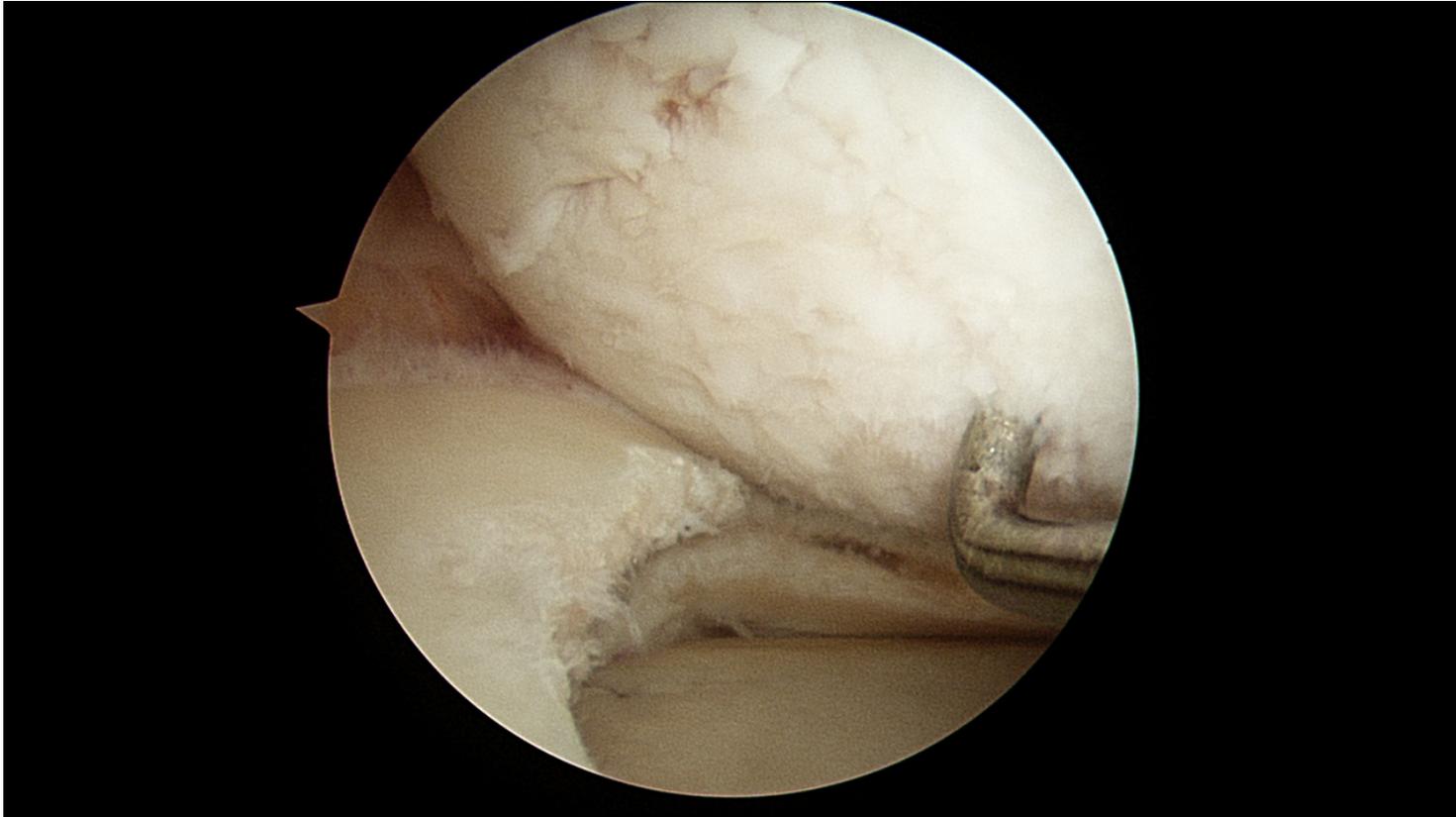
Osteoarthritis and Meniscus Tears



Osteoarthritis and Meniscus Tears



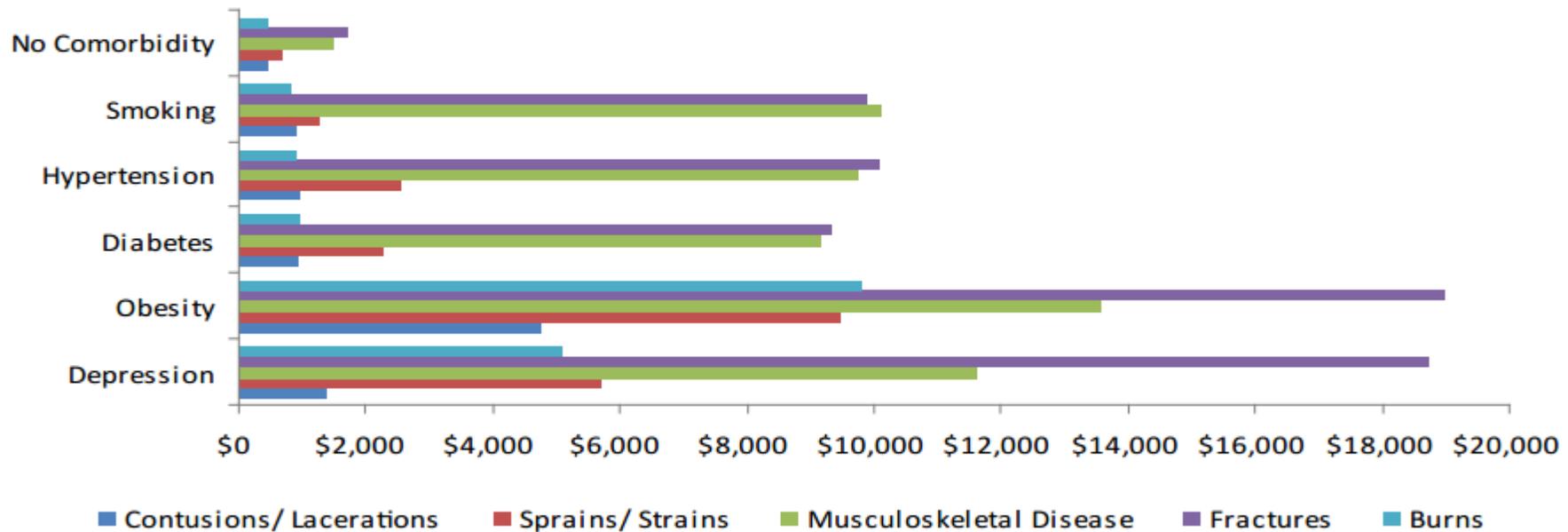
Osteoarthritis and Meniscus Tears



What's the Cost?

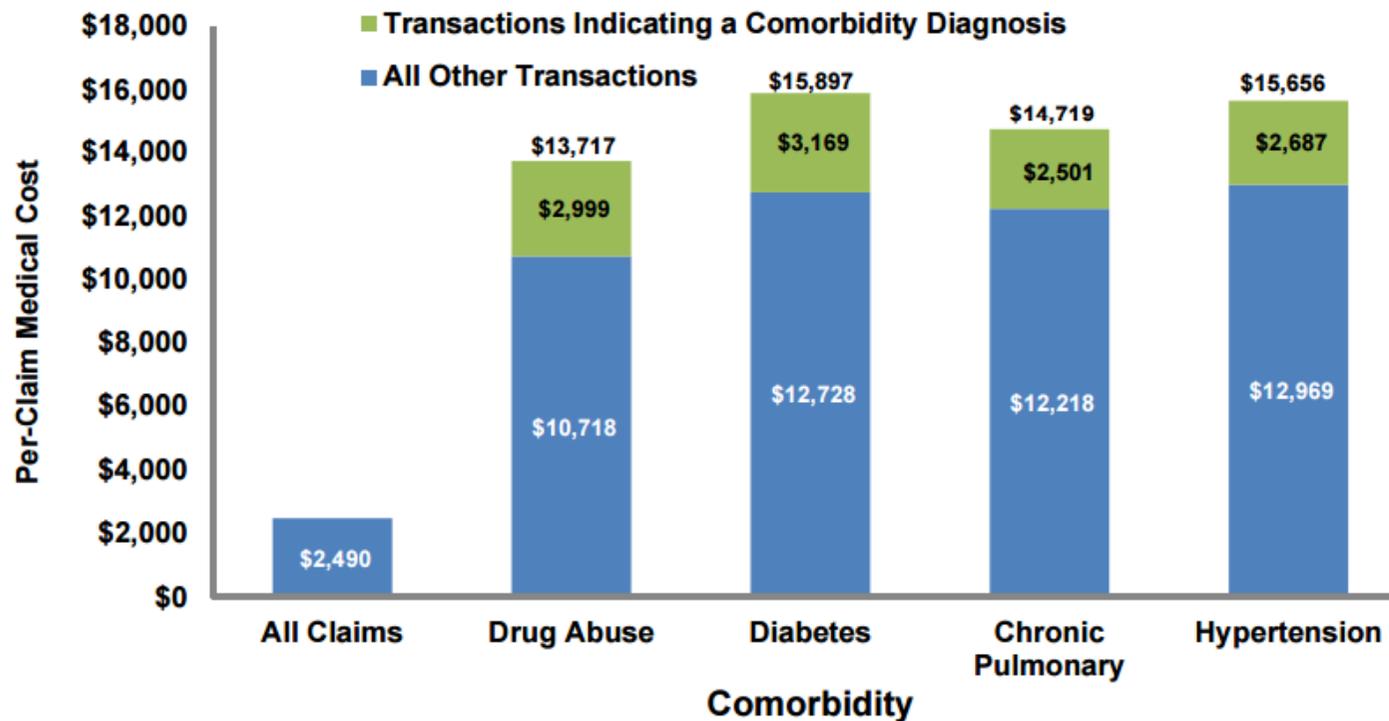
When a comorbid condition was found on a workers' compensation claim, CWCS' study confirmed what other research has indicated: the medical experience was significantly more costly. Exhibit A demonstrates the difference in median 12 month medical allowed amounts for several high volume diagnosis categories.

Exhibit A: Median 12-month Medical Allowed Amount by Complicating Condition & Injury Classification



- Coventry Workers' Compensation Study, 2009

Claims With a Comorbidity Diagnosis Are Generally More Costly Than Other Claims



Injury Years 1996 through 2007

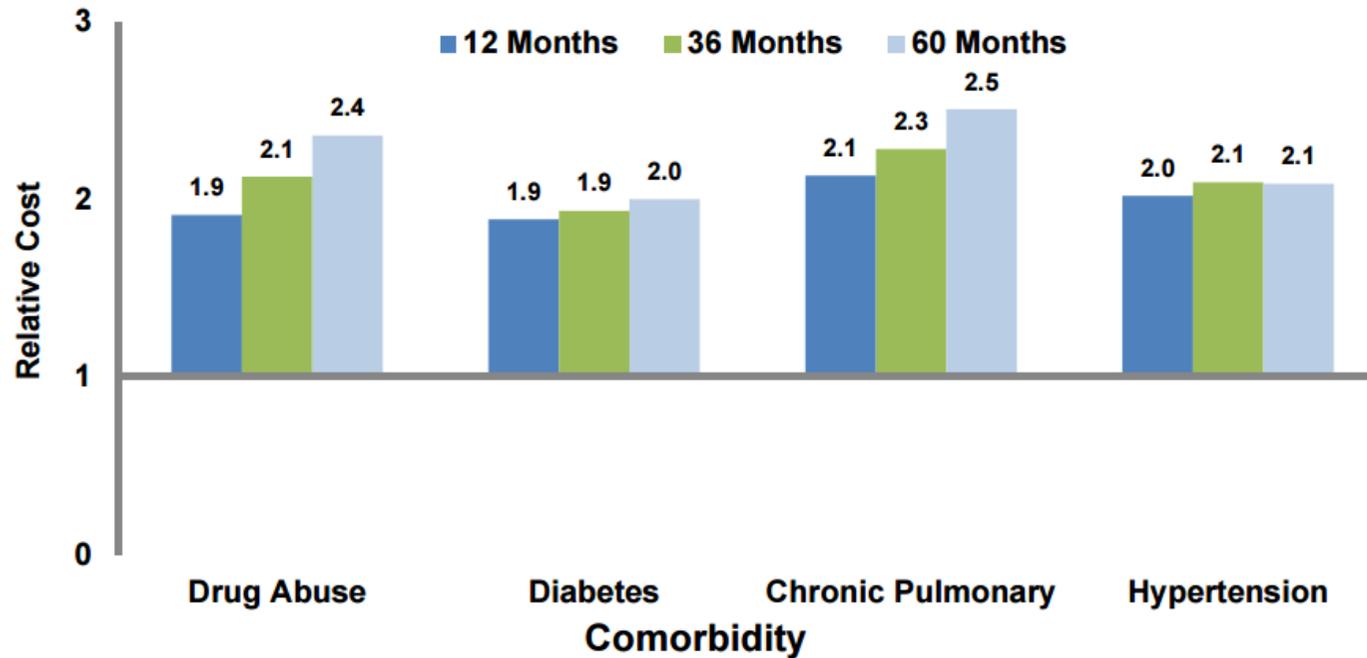
Relative Service Years 1 through 4

All Claims includes claims with and without a comorbidity diagnosis

A claim is considered to be a comorbidity claim if its first comorbidity diagnosis occurs within 12 months after injury

Analysis based on sample data provided by carriers for all US states and DC except ND, OH, WA, WV, and WY

Claims With a Comorbidity Diagnosis Cost Twice as Much as Comparable Claims



Injury Years 1998 through 2004 (evaluated at 60 months), 2006 (36 months), or 2008 (12 months)
Analysis based on sample data provided by carriers for all US states and DC except CA, DE, MA, MN, ND, NJ, NY, OH, PA, WA, WV, and WY

Timetable for Return to Work

- What dictates work status?
- Injury recover limited by comorbid conditions?
- Increased cost
- Increased time
- Delay RTW

MMI

- At what point is the claim closed?
- Recovered from injury and RFD
- OA and divided PPI? AMA guidelines?
- Final rating independent of comorbidities, but effects are costly

Conclusions

- Comorbid conditions are a significant drain on workers compensation claims
- The aging worker will drive up costs, as more comorbidities present
- Comprehensive RTW/RFD protocols to “cancel the noise”
- Expect some patients longer recovery/healing times, possible need for additional surgery
- My staff and I are dedicated to transparency, expediency and complete care of your injured worker, minimizing lost work days and maximizing patient and adjuster satisfaction with superior outcomes



Thank You!