

Occupational Injuries and Workers' Compensation Management Strategies

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Last Update: January 19, 2019.

Introduction

An occupational injury describes any type of injury or illness that occurs to a patient as related to his or her specific occupational demands or requirements. Occupational injuries or illnesses represent a substantial percentage of emergency department visits[1] as well as primary care and subspecialty clinical practices[2]. The most common organs involved are the hands, eyes, spine, head, lungs, skeleton, and skin[3].

Occupational injuries result from physical, biological, chemical, or psychosocial hazards such as noise, temperature, insect or animal bites, aerosols, blood-borne pathogens, hazardous chemicals, radiation, and occupational burnout. While prevention methods are available, many injuries still occur due to poor ergonomics, manual handling of heavy loads, misuse of equipment, general hazards, and inadequate safety training[0].

Healthcare providers should strive to maintain awareness regarding the overall financial burden of the direct and indirect costs attributed to the long-term and permanent disability, as well as the pertinent role of the workers' compensation system to facilitate the flow and efficiency of healthcare provided to these workers to mitigate associated negative downstream effects.

Etiology

Slipping or tripping which causes a fall are common work-related injuries, accounting for 20% to 40% of disabling occupational injuries[0]. Given the mechanical nature of most of these injuries, it is no surprise that a 2018 emergency department report analyzing nearly 50,000 emergency department visits for work-related injuries resulting in the orthopaedic surgery service being the most frequently consulted specialty service [6].

The upper extremity is the most common location for work-related injuries[7]. Common musculoskeletal injuries that can occur in association with occupational demands include shoulder impingement conditions [8], rotator cuff injuries [9][10], and carpal tunnel syndrome [11]. The latter is associated with overuse of the hands and wrists as well as forceful repetitive gripping requirements.

Noise exposure can cause hearing loss, which accounts for about 15% of occupational injuries[0]. Accidental needlestick injuries are common, and as a result of the biologics used, needlestick injuries may result in bacterial or fungal infections, lacerations, inflammation, vaccine or antibiotic reactions, miscarriage, amputations, and death.

Epidemiology

Age is perhaps the most common personal factor that predisposes a person to an increased risk of work-related injury. Workers aged 65 years and older are more likely to suffer from occupational injuries compared to their younger occupational counterparts. Occupational injuries, in general, occur at a higher rate in workers over age 65 years compared to workers aged 25 to 34 years[1]. According to the Bureau of Labor Statistics (BLS) report, 4,836 fatal

work injuries occurred in 2015, with the fatal injury rate seen in the older working population about four-fold higher compared to the younger working population[1].

Older workers also are more likely to be killed in construction falls. They are also at higher risk for hearing loss, visual impairment, and the use of multiple prescription medications that are linked to higher rates of work-related injuries.

Worldwide [0][0][0][16][0][0]

Approximately 350,000 workplace fatalities and 300 million workplace injuries occur annually. Per 1,000 workers, occupational injuries reduce the healthy lifespan by 3.5 years.

The most common hazard occupations:

- Farming
- Fishing
- Forestry
- Construction
- Manufacturing

Common injuries:

Slips, trips, and falls account for over a third of all injuries. Incorrect handling of items was the most common cause of injuries that led to absences from work for more than 7 days. Upper limb injuries represented 50% of workplace injuries.

United States

In 2007, 5,657 workers suffered fatal occupational injuries, representing fewer than 0.1% of total work-related injuries [18]. Over the last decade, the total number of work-related fatalities decreased based on the 2015 BLS report noting fewer than 5,000 reported occupational deaths. Over 90% of occupational injuries occur to male workers. In addition, Work-related injuries cost approximately \$250 billion, totaling the second highest national healthcare cost aggregate behind only cardiovascular disease. In 2007, direct medical costs of \$67 billion and indirect costs (attributed to working time lost and other secondary associated societal costs) totaled \$183 billion[19]

According to data from the National Institute for Occupational Safety and Health and the Bureau of Labor Statistics, approximately 15 workers die from traumatic injuries each day in the United States, and 200 are hospitalized.

United Kingdom

Common causes of death include:

- Agriculture
- Construction
- Waste management

Of accidents that resulted in death, the most common were falls from height, contact with moving machinery, and being struck by a vehicle. These types of accidents resulted in half of the work-related deaths.

History and Physical

Getting to know the injured worker and the kind of work is imperative. The history should record:

- Probable cause of the injury
- Date/time of the injury and start of symptoms
- History of prior injuries or related disease
- Location of where the injuries occurred
- Mechanism of injury
- Whether or not the injury was witnessed
- When the injury was first reported
- Whether any psychiatric issues are present

The physical exam should include:

- Assess the genuineness of injury
- Observe the patient as they enter or leave the examination
- Observe movement from the chair to the examination table and removal of clothes
- Compare behavior, attitude, and movements with the office staff
- Note the time it takes to change into an examination gown.
- Note how they grip a pen.

Observational signs may help, especially when assessing low back pain. The clinician may identify various data during the evaluation that do not correlate. Consider all of the following:

- Does the patient easily bend over
- Is the patient guarding with superficial palpation
- Does the same wincing and guarding persist with distraction
- Is motor weakness due to a lack of effort, or does it correlate with changes in reflexes and muscle atrophy
- Is motor weakness consistent
- Is ROM different with each visit
- Is the area of tenderness different with each visit

All observations cannot be made during a single evaluation because they often require special effort and consideration from visit to visit.

Evaluation

In addition to a comprehensive history and physical examination, a genuine diagnostic workup should be considered. This includes, but is not limited to, radiographs, ultrasound, and advanced imaging modalities.

While the use of magnetic resonance imaging (MRI) is often helpful in delineating the actual clinical pathology,

providers should remain cognizant of the potential for overdiagnosis and the potential for treating a potentially incidental finding that is not the primary source of a patient's current debilitating condition.

MRI has been demonstrated previously in the literature to its known limitations in the appropriate clinical setting. For example, a 2010 study reported on the inconsistent diagnostic accuracy of wrist MRIs being obtained to identify potential source(s) of ulnar-sided wrist pain[20].

In addition, a 2017 study analyzing work-related injuries consistent with unilateral knee or shoulder injury and subsequent bilateral MRI studies being performed during the diagnostic evaluation reported that less than half of patients had degenerative and/or pathologic findings that would be considered worse than the contralateral, asymptomatic, "normal" side[0].

Treatment / Management

Treatment is specific to the specific condition and may include pain management modalities, physical therapy, NSAIDs, injections, and surgery. It is important to recognize that each patient presenting with occupational-related injuries should be managed on an individual basis as not all conditions are created equal.

Surgical considerations

The literature supports in many different types of clinical encounters the potential disparity with respect to postoperative outcomes comparing work-related injury patients compared to their non-work counterparts. For example, total joint replacements are, in general, consistently reproducible procedures that yield excellent outcomes in the vast majority of patients[22][23][24][25]. However, when comparing occupational-based (or workers' compensation) patients to non-workers' compensation control patients via matched cohort or comparative studies, the literature demonstrates the potential for a comparably inferior outcome in the former[26][27][28][29].

Differential Diagnosis

Each work-related injury is different. Thus, providers should first establish whether the injury is pre-existing, directly or indirectly related to the patient's occupational requirements, and if the claim is considered to fall under the workers' compensation system.

Prognosis

Many methods can reduce or prevent injuries and improve the prognosis or outcome for those injured. These include anticipation of challenges by evaluating risk assessment, providing safety training, control banding, personal protective equipment safety guards, safety mechanisms on machinery, and safety barriers.

Past problems can be analyzed to determine the root cause by using a root cause analysis. Inspections, especially focused inspections, may reduce work-related injuries in the long term[0]

Complications

The potential for inferior outcomes in work-related cases has been previously demonstrated in the literature in various types of conditions across primary care and surgical subspecialties.

Deterrence and Patient Education

Patients should be educated regarding the potential for inferior outcomes and delayed or prolonged return to work status in the setting of occupational-based injuries and workers' compensation cases.

Pearls and Other Issues

In many countries, workers compensation is available for the injured worker. Workers' compensation provides wage replacement insurance and medical benefits to workers injured in the course of employment in exchange for the workers relinquishing their right to sue their employer for the tort of negligence. The trade-off is known as "the compensation bargain." This solved the problem of employers becoming insolvent as a result of damage awards. The system of collective liability was created to ensure the security of compensation to the workers.

While plans differ, provision may be made for weekly payments in place of wages and reimbursement for medical expenses. Benefits may be payable to the dependents of workers who are killed during employment. Payment for pain and suffering and punitive damages generally are not available in workers' compensation plans.

Employers use methods to reduce or prevent industrial injuries such as anticipation of problems by risk assessment, safety training, control banding, protective equipment safety guards, safety mechanisms on machinery, and safety barriers. Also, analyzing causes by using root cause analysis may help reduce future injury.

Bundled Payment Initiatives and cost containment

The movement and transition of the United States Healthcare system into an era of alternative payment models[31], such as bundled payment care initiatives (BPCIs)[32][24][25], may eventually influence occupational-based injuries and the entire field of workers' compensation. In addition, given that the older working population is more prone to developing occupational injuries (4-fold higher rate) compared to their younger working counterparts, the risk of these resulting injuries has the potential to generate an exorbitant impact on the healthcare system. For example, fragility fractures most commonly afflict the older population (>65 years old)[33][34] and already generates billions in healthcare related expenses. Thus, the synergistic combination of the older population falling at work in addition to the older population's predisposition to these low-energy injuries, sets up the potential for an overall devastatingly morbid effect on the entire healthcare system.

Documentation and coding have been previously recognized as imperative issues in the field of healthcare[35], and as the occupational-based injury field in general continues to evolve, the literature will continue to produce various studies recognizing the nuances of defining these documentation and coding principles as they apply to this particularly complex field of workers' compensation and occupation-based injuries[36].

Enhancing Healthcare Team Outcomes

Workers' compensation claims and occupational injuries, in general, constitute a significant physical, mental, and financial burden on the entire healthcare system. All healthcare providers are encouraged to manage these patients individually in order to ensure the best possible outcomes.

Level of evidence: III

Questions

To access free multiple choice questions on this topic, [click here](#).

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