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Use and Abuse of Prescription Pain Medication in Workers' Compensation: Assessment, Guidance, and Implementation of Client Protocols

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Prescription pain medications are a commonly-chosen treatment of medical providers, secondary to their effectiveness in the management of acute pain symptoms, which is a chief complaint among many workers with disabilities. However, the chemical structure of active ingredients in these pain medications, which is often opium-derived medications, also has the potential adverse effect of high abuse potential and misapplication. This article explores the prescription of narcotic pain medication for workplace, related injuries in the United States (U.S.) since the late 20th century. The intent of this article is provision of resources for assessment, guidance and implementation of appropriate treatment that will result in a constructive and direct impact to the workers with disabilities' medical and overall physical status. An analysis of the current data and research suggests that prescription pain medication provides short term gain for selected scenarios, to relieve the symptom of pain, but may have long term negative consequences to not only the workers with disabilities' physical and mental function, but to the worker's compensation system as a whole. It is recommended that the rehabilitation professional be aware of not only rehabilitation protocol, but also the human reality of both short and long term pain medication usage by the worker with a disability.

Above all, the goal of most workers' compensation systems is to return the worker with a disability to their highest level of physical functioning as quickly and economically as possible. Multiple individuals in this role include rehabilitation counselors, nurse case managers, physical therapists, occupational therapists, forensic economists, a variety of physicians and medical providers. It has been estimated that there were nearly three million nonfatal workers' compensation injuries in 2011 (U.S. Department of Labor, 2013), with the numbers still pending for 2012, and 2013. Data suggests as few as 32% (Dembe, Wickizer, Sieck, Partridge, & Balchick, 2012) or as voluminous as 85% (Stahl, 2012) of workers with disabilities are prescribed pain medication as a component of their post-accident treatment.

Implementation of pain management as a treatment protocol represents a large cost and costs workers' compensation carriers $1.4 billion annually (Meier, 2012a). Moreover, pain medication usage represents a definitive human element, in the form of not only pain medication addiction, but also in the requirement for subsequent substance abuse treatment. As such, the practice of pain medication prescribing and follow-up deserves further consideration, particularly related to rehabilitation protocol. This article will examine not only the practice of prescribing pain medications, but also the knowledge of follow-up and precautions that a rehabilitation professional may utilize as an integral tool for maintenance of professional competence.

Positive Application of Prescription Pain Medications

Pain, in its simplest form, is disenabling. Its primary purpose is to notify the body of illness or injury which is motivation in guiding the person to seek treatment or reduce pain inciting activity. Pain, during exercise may be indicative of nutrient depletion or dehydration resulting in a physiological manifestation which in turn may encourage an individual to take action.

However, chronic pain, while offering the body a mechanism to monitor itself, may be disabling for an individual, rendering one not only not able to perform work-related activity, but also activities of daily living. Deployment of a pain medication management at the onset of such an injury may significantly reduce pain, not only offering physical and psychological relief, but, prospectively, enabling a person to realize an improvement in both daily activities and work place capability. Conversely, pain medication may also have negative consequences, warranting further investigation and care on behalf of the rehabilitation professional.

Potential Misapplication and Misappropriation of Prescription Pain Medications, Limited Review of the Research

Within a rehabilitation system, multiple modalities may be available for a worker with a disability. The modalities may be invasive, such as surgery, or more conservative, such as allotment of time to heal with activity modification or rest, physical therapy, occupational therapy, or an alternative medicine option. Another preference of physicians in the treatment of disability and pain is the prescribing and utilization of pain medications which is a widely accepted solution by a worker that is experiencing pain and the resulting associated disability. While, it is the supposed goal for pain medications to promote independence, and, ultimately, increase function, this goal may not ultimately be accomplished in particular scenarios. It has been proposed that the common practice of treating workers with disabilities with prescription pain medication may, in actuality, further reduce both the social and vocational functioning, of an individual following a workplace injury.

In selected studies, research has suggested that when a worker with a disability is prescribed more than a seven-day supply or more than one prescription of pain medication, the risk of long term work disability doubles (Franklin, Stover, Turner, Fulton-Kehoe, & Wickizer, 2008). Additional exploration demonstrates that greater than fifty percent of compensated workers on prescription pain medication for longer than three months, will not only continue to receive indemnity benefits (Temporary Total Disability, Temporary Partial Disability, Permanent Impairment, Vocational Rehabilitation services, etc.) but will also continue treating with the prescriber (Franklin, 2012). There is overwhelming evidence of a direct correlation between the increase in pain medication dosage and declining functional abilities of an injured and or disabled worker (Agency Medical Directors' Group [AMDG], 2010).

A study of work-related claims by the California Workers' Compensation Institute in 2008, found that the workers with disabilities who received high dosages of narcotic, prescription pain medications (levels typified beyond traditional, daily pain relief) were inclined to remain out of work three times longer than those on lower doses of similar, pain relief medication (Meier, 2012a). This suggests, based on longer time off periods for workers on higher dosages of medications to treat pain, specifically narcotics, that a workers' compensation claim inclusive of treatment with these prescription pain medications are more costly than claims without medical treatment inclusive of prescription drug treatment. Accident Fund Holdings (AFI), an insurer that operates in 18 states examined their claim data from 2010 to determine the cost of a typical workplace injury. It was found that this cost or the sum of an employee's medical expenses and lost wage payments averages to approximately $13,000. Data revealed that when a short-acting pain medication, such as Percocet® or longer-acting formulation like OxyContin® (see Table 1) is prescribed, the average claim rises to $39,000 and $117,000, respectively, based on the prescribed medication (Meier, 2012a). Additionally, AFI further determined short-acting and long-acting prescription pain medications usage increased the likelihood of a claim exceeding $100,000 by 1.76 and 3.94 times respectively (White, Tao, Talreja, Tower, & Bernacki, 2012).

These statistics lead to pondering of the ongoing questions as to who is inevitably in charge of the workers' compensation medicine cabinet, and ultimately the treatment outcomes and resulting functionality of and injured worker. A worker with a disability is examined, assessed, and recommended treatment by a treating physician, which in many instances include the prescribing of medications for pain management.

Table 1
Percocet® & OxyContin®

Percocet® is described by its manufacturer, Endo Pharmaceuticals (2013) as a semi-synthetic prescription pain medication for the relief of moderate to moderately severe pain. OxyContin® according to its manufacturer, Perdue Pharma (2013), is used for "management of moderate to severe pain when a continuous, around the clock [pain relief] is needed..." (p.1). OxyContin®'s label (and other long-acting prescription pain medications) recently changed to indicate use only in severe pain which alternative treatment options are inadequate (Food and Drug Administration [FDA], 2013).

When a treating physician or other medical provider begins prescribing pain medication, they become the prescriber. It may be proposed that the prescriber becomes responsible for not only regularly monitoring the medications effectiveness and improvement of function, but also the safety of initiating and ongoing prescribing of pain medication for the patient (AMDG, 2010). The AMDG (2010) recommends a daily dose threshold not to exceed 120 mg morphine equivalent dose (MED) without a consultation from a pain management expert and demonstrated improvement in both function and pain during routine follow up appointments with the prescriber. (An MED represents a calculation which standardizes prescription pain medications of different potencies for comparison with the recommended threshold.)

Selected state narcotic policies place this threshold below 100mg MED (Franklin, 2012) resultant from research that demonstrated that daily MED doses of 100mg or more have a nine fold increase in overdose risk (AMDG, 2010). More than half of drug overdoses with a specified drug in 2010 involved a prescription pain medication. This has contributed to a drug induced death rate that has nearly doubled in the last decade and surpasses the rate of traffic, firearm, and alcohol induced deaths in the U.S. (Center for Disease Control and Prevention [CDC], 2013).

Assessment, Monitoring and Protocol in Prescription Pain Medications Management Regimes

Prescribers should comprehensively assess the risk and benefits of prescription pain medications prior to prescribing (AMDG, 2010). This assessment should be conducted before administering, or re-administering prescription pain medications and criteria for recommendation of prescription refills should include evidence of the worker with a disability's improvement of function and pain as well as evaluation of potential adverse effects to the current dosage such as psychiatric disorders, drug combinations, or relative contraindications to the use of prescription pain medication (AMDG, 2010). Comprehensive assessments lead to the determination of the appropriateness of prescription pain medication as a current treatment protocol or it may result in an indication for alternative pain management treatments (see Table 2).

An all-inclusive assessment is likely to result in diagnosis clarification and it may prompt additional referral for a worker with a disability in attempt to allay further issues related to the prescribing of pain medications. An injured worker that is experiencing pain accompanied by disabilities is at highest risk of abusing prescription pain medication when there is a confirmed history of substance abuse or those that have an "underlying, undiagnosed vulnerability to abuse substances" (Meier, 2003, p.1). According to the National Institute of Drug Abuse (NIDA) (2010) 5.1 million people were current abusers of prescription pain medications. Risk factors may include personal or family history with substance abuse, adverse childhood experiences, psychological stress, and mental illness (Feinberg, 2013). Due to the universality of these factors it is paramount to assess and identify claimants at risk for abuse before prescribing pain medication and thus embarking on a potentially harmful course of treatment. Prescription pain medication abuse has prompted manufacturers of these medications to make label changes (FDA, 2013) and pharmaceutical changes (see Table 3) to help deter their abuse (FDA, 2010).

Table 2
Pain Treatment

Chronic pain symptoms can be treated by interventions other than prescription pain medication and these options should be discussed with a pain specialist. Acupuncture, chiropractic manipulation, and exercise may stimulate endorphin and dopamine release while cognitive behavioral therapy and stress reduction techniques may be beneficial in coping with the stress associated with chronic pain. Supplements, vitamins, and medical marijuana are typically used when other treatments have failed (Griffin, 2011).

Table 3
Pharmaceutical Changes

Perdue Pharma developed a time release mechanism in OxyContin® to help deter the use of the medication other than prescribed. This time release mechanism was easily disabled by crushing the pill into a powder, which leads to rapid release and absorption of the entire dose of oxycodone when ingested. The result is a "rush" of dopamine which creates a state of "euphoria", defined by Inaba and Cohen (2007) as a feeling of well-being, excitement, and extreme satisfaction. The FDA (2010) approved a new OxyContin® formulation which prevents it from being cut, broken, chewed, crushed or dissolved.

Substance Abuse Treatment Options and Plans

Admissions to publically funded substance abuse treatment programs that reported a primary substance which included prescription pain medication increased 496% over the last decade (Substance Abuse and Mental Health Services Administration [SAMHSA], 2013). In 2011, about 1 in 10 people over 12 years old in the U.S. population required treatment for a drug or alcohol use issue but, only about 20% received any form of treatment (Han, 2012). A gateway to receiving substance abuse treatment is typically a diagnosis by a qualified clinician, which compares patient assessment and presentation to established criteria. The current Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition (American Psychiatric Association, 2013) identifies a "*substance use disorder*" as recognized criteria for diagnosis (see Table 4).

Unfortunately there is no single substance abuse treatment that is effective for everyone to treat substance use disorders (NIDA, 2009) and the expense of substance abuse treatment varies with professional and geographical factors. Treatment recommendations and evaluation of substance disorder treatment programs require the knowledge of skilled medical professionals to be successful, as treatment must be highly individualized and focused on the unique physical and psychosocial traits of the person affected by the substance disorder. After initial treatment of detoxification is completed, substance abuse treatment can occur residentially in a short or long term setting (which is less than 30 days or more than 30 days respectively) or in an outpatient capacity. Residential treatment cost is based on amenities and duration and can range up to over $64,000 for a short term residential treatment facility including a view in Malibu, California (Haldeman, 2013).

Intensive outpatient (IOP) therapy offers less structure than residential treatment and usually delivers treatment services two or more hours per day for three or more days per week.

Outpatient (OP) therapy is less structured than IOP or residential treatment. Moreover, it is scheduled once a week, month, or year based on the individual's needs. Also, it is frequently reimbursed at an hourly rate (SAMHSA, 2003).

Both, IOP and OP therapy offer professionally directed evaluation, treatment, and substance abuse recovery services. The therapies focus on skill acquisition for the individual's identified triggers, urges, or cravings to use the substance. An example of an acquired skill may be emotional regulation techniques, which focus on the identification and management of emotions, and coping skill such as taking a walk, or listening to music which elicits positive emotions. The application of the acquired skills are demonstrated during IOP and OP therapy and applied independently as needed by the individual (SAMHSA, 2012).

The success of substance abuse treatment is difficult to predict and it is dependent on a variety of factors such as the extent and nature of the abuse and motivation of the individual to change (NIDA, 2011). When an abstinent individual resumes substance use it is called a relapse. The relapse rate or rate of recidivism after substance abuse treatment is between 40% and 60% (NIDA, 2012).

The Evolution of Pain Treatment and the Use of Medications for Pain Relief

Treatment of pain and attempts at pain relief, have evolved from the use of substances which were readily available to our early ancestors such as mud, sticks, and plants. Planet Earth has more than 4,000 plants which yield a chemical that alters the normal functioning of the central nervous system (CNS). Approximately 60 of these plants have been in continuous use somewhere in the world throughout history, secondary to their pain relieving properties (Inaba & Cohen, 2007). Many of us are familiar with infamous healers and shamans (combination priest and medicine man) who created concoctions using these plants. These so called potions were the original medicines that induced altered states of consciousness and were alleged to "heal" the internal and external aliments of the medicine's recipients in an unknown period of time.

The holy grail of pain relief was found within the Papaver Somniferum poppy plant as the evolution of attempts to control pain continued. Over time, the plant was scored, milked, burned and inhaled, and reduced to a tea which humans ingested to produce its pain relieving and depressing effects on the CNS. The substance found within the poppy plant, opium, mim-

Table 4
Substance Use Disorder

A substance use disorder is defined by 11 criteria seen in specific behaviors within the last year which assess impaired control, social impairments and risky behaviors. Cravings to use the substance, tolerance, and withdrawal also contribute to a substance use disorder diagnosis. The endorsed criteria can diagnose a mild, moderate, or severe substance use disorder (American Psychiatric Association, 2013).

ics the body's natural endorphins whose origins can have both a pain relieving and pleasurable affect.

There are remnants of ancient opium poppy plantations across Europe and North Africa indicating widespread, early use of opium. Ancient Egyptian medical texts referred to opium as both a medicine to treat pain and as a poison. Although the danger was learned, and understood, opium was still used to calm babies and alter mental states because of its efficacy (Inaba & Cohen, 2007). In early Greece, Hippocrates, the "father of medicine" (Inaba & Cohen, 2007, p. 8) recommended opium for its pain relieving properties and for treatment of "female hysteria." Further evidence of early opium use is Marcus Aurelius, the Roman emperor in the second century AD, who was known to mix opium with his daily wine (Inaba & Cohen, 2007).

In the 16th century opium was introduced into western medicine as a powder added to an alcoholic herbal drink and was used as a cure-all medication for pain relief, headaches, bleeding noses and insomnia (Inaba & Cohen, 2007). These concoctions continued to be produced and sold to the public until the "Pure Food and Drug Act" of 1906 made it mandatory for labels to list any of the 10 ingredients which were deemed dangerous by the Federal Government. Opium, and the morphine and codeine found within it, were on this list which instigated the demise of the patent medicine industry.

The pendulum began to swing towards support for the research and resulting data that deemed these substances dangerous. This marked a time of increased legislation for prescribing pain medication which signified a reduction in the number of willing prescribers and prescriptions. Furthermore, introduction of the modern insurance driven healthcare system and reimbursement for prescription medications created a market which was filled by pharmaceutical companies creating, lobbying, and advertising medications and their various usages.

Until the late twentieth century prescription pain medications were largely used for postoperative care, cancer treatment, or end-of-life care (Meier, 2012b). This practice was modified based on research with non-cancer induced pain (Portenoy & Foley, 1986) and testimonials from organizations that advised prescribers to consider use of these medications in the treatment of chronic pain patients because of a low risk of addiction (American Academy of Pain Medicine & American Pain Society, 1997). This differing practice created a fresh new market for prescription pain medication as more than an estimated 100 million American adults are affected by chronic pain (Institute of Medicine, 2011). American's filled a total of 3,764,698,318 prescriptions in 2011 according to SDI Health, a medical auditing company and OxyContin® was prescribed in the U.S. more than 5.5 million times between 7/2011 and 5/2012 (Castillo, 2012).

Case Studies: Scenarios Exemplifying Variant Injury, Work and Psychosocial Circumstance Related to Negative Impact of Pain Medication Usage

Case Study 1: Sal's Story

An unsuspecting victim of a work related injury compounded by development of a substance abuse disorder.

Pain can be experienced by anyone, at any age, and from any demographic circumstance. Whether you are an employer, insurance adjuster, rehabilitation counselor, nurse medical case manager, or a coworker, friend, or relative of a worker with a disability, you may already be all too familiar with the example to follow. This case study's subject's name is Sal. Sal has always been a hard working individual, who everyone in his life depended upon.

Sal is a 53 year old Caucasian male who is 20 pounds overweight. He resides with his wife and teenage son in Danville, California. He is a pack a day cigarette smoker and works for a small chocolate company, boxing, shipping and storing the product they produce. Sal has worked his way up to a production supervisor during his 28 year history with the company. He is High School educated and he has an impeccable work attendance record. The physical requirement of Sal's position, require him to climb a ladder during the day. One day, late in his shift, he slipped from the third rung and fell awkwardly and "pulled something" in his lower back. After completing his shift, he was examined by his primary care physician (PCP).

Sal reported his back pain as an eight (on a one to ten scale) and his PCP prescribed Percocet® 5mg every six hours. The PCP recommended and released Sal to return to work with restrictions. Physical therapy (PT) twice a week, and a monthly follow up appointment with his PCP was further recommended. Sal returned to his PCP for follow up and soon it had been three months since the initial injury. The PCP determined his injury had little improvement and his symptoms had transformed from acute to chronic pain. Chronic pain is generally considered pain which persists for more than three months (AMDG, 2010) and requires a long acting medication. Secondary to a continuation of Sal's complaints, the PCP prescribed OxyContin® 10mg.

Despite taking OxyContin® twice a day, Sal did not realize a decrease in his symptoms but rather a decrease in effective pain relief over the next month. He

reported this change to his PCP, who's also the treating physician and prescriber. Consequently, the PCP, once again, increased the dosage of OxyContin® in attempt to achieve pain relief and management.

Treating physicians and prescribers should be aware of their patient's tolerance level as this may prompt a dosage adjustment for continued pain relief or re-evaluation of the treatment plan's potential for long term and overall effectiveness. Tolerance is also an indication the individual has developed a physical dependence to the prescription pain medication (see Table 5). According to the makers of OxyContin® (Perdue Pharma, 2013) and Vicodin® (AbbVie Inc., 2013) physical dependence occurs in as little as several days to several weeks of continued treatment. All patients who are treated with prescription pain medication, chronically, will develop physical dependence (Franklin, 2012).

For months, Sal and his PCP continued this cycle of re-evaluation and dose escalation to account for his tolerance to prescription pain medication along with the institution of various treatments to include PT, injections as well as diagnostics, in attempt to decrease his symptoms, and to improve his physical functioning. Sal underwent Magnetic Resonance Imaging (MRI) and was subsequently evaluated by a neurosurgeon that diagnosed a bulging disk and recommended conservative medical management. This was disputed by the insurance adjuster who had Sal undergo an Independent Medical Examination (IME). IME results suggested that Sal's continuation of symptoms could be attributed to "degenerative disk disease" rather than his workplace injury. The examiner also shed light on Sal's recent behaviors of non-compliance with non-opioid treatment appointments such as PT and multiple requests for early pain medication refills.

Sal described "losing" his prescription pain medication and that he was unable to participate in PT because of pain, which prompted him to obtain multiple supplies of prescription pain medication from alternative prescribers. Sal's employer also noted a decrease in his productivity and attendance which Sal attributed to his deteriorating home life and pain. Sal reported his focus had shifted from his family and work to his next dose of prescription pain medication for the temporary relief it provided. "It is the only thing that makes me feel good anymore" he said.

Eventually, Sal was referred by the employer and insurance adjuster to a drug and rehabilitation specialist who conducted a thorough assessment of his current psychosocial status to determine if Sal was abusing his prescription pain medication. Sal reported he had not been taking the medication as ordered by the prescriber and he was admittedly taking more medication per dose than was intended which lead to his increased prescription refill rate. Also, Sal had attempted to obtain his medication from non-medical sources which led to legal ramifications that likewise compromised his employment.

Sal's aberrant behavior's (see Table 6) and opioid abuse had rendered his current prescription pain medication treatment as inappropriate, and counterproductive to any medical improvement. The drug and rehabilitation specialist's opinion was that Sal was an appropriate candidate for an opioid detoxification (see Table 7) taper managed weekly on an outpatient basis from a qualified physician's office. It was determined that an opioid medication taper would assist in managing Sal's withdrawal symptoms (see Table 8) and it would allow him to detoxify from his bodies physical dependence of prescription pain medications more comfortably.

After Sal's injury he became depressed consequential to his change in employment and employability status. The probability of someone developing depression after a workplace injury is increased by 43% (LexisNexis, 2013). This is evidenced by Sal's further decline in mental health secondary to his abuse of prescription pain medication and resulting family confrontations. His outpatient detoxification minimized

Table 5
Tolerance and Physical Dependence

The decrease in pain relief from the same dose of prescription pain medication is known as tolerance. This means an increased amount of a prescription pain medication is needed to achieve the desired effect (American Psychiatric Association, 2013). Physical dependence occurs when an individual's body chemistry changes to rely on a prescription pain medication to stay "normal" (Inaba & Cohen, 2007).

Table 6
Aberrant Behaviors

Behaviors can identify a potential substance abuse issue, and should prompt a referral for assessment. A review of refill rates, locations, and prescribers may be suggestive of an individual abusing prescription pain medication (Rice, White, Birnbaum, Schiller, Brown, & Roland, 2012).

Table 7
Detoxification

Detoxification should be medically supervised and can occur during an inpatient hospital stay or within an outpatient setting. Cost of detoxification can vary by location, insurance coverage, the medication administered, and physician time. The more intensive levels of care are typically more expensive because of their professional staffing. In a survey of inpatient hospital detoxification programs in Maine, Oregon, Texas and Florida cost ranged from $495 to $1,750 per night. An outpatient, or "office based detox" can range in cost from $119 per appointment to $2,500 for the detoxification process including medication costs.

Table 8
Withdrawal

Withdrawal occurs when the body's physical dependence is disrupted by cessation and adapts to functioning without a prescription pain medication. Withdrawal symptoms include vomiting, diarrhea and sweating and are very unpleasant (American Psychiatric Association, 2013).

Table 9
Psychological Dependence

The *American Psychological Association's Dictionary of Psychology* (2007) defines psychological dependence as a "dependence on a substance for the reinforcement it provides". According to Steven Feinberg, MD (2013), Chief Medical officer at American Pain Solutions, psychological dependence occurs when an individual becomes emotionally tied to taking a specific drug and develops anxiety with its planned cessation.

Table 10
Dopamine

Dopamine is known as the pleasure chemical and makes us feel good when doing something we enjoy (NIDA, 2013). According to Sanford Silverman, MD (2012), medical director for Comprehensive Pain Medicine in Pompano Beach, Florida the brain-reward mechanisms typically affected by food and sex are those which are affected by an addictive drug. An addictive drug derives its power by activating these mechanisms more powerfully than natural experiences which raise dopamine levels in the brain. This rewarding effect promotes associative learning between the behavior which elicits dopamine release and dopamine's pleasurable effects. Due to the effects of dopamine on the brain all opium derived substances are highly abusable (Inaba & Cohen, 2007).

the withdrawal symptoms associated with his physical dependence and cessation of prescription pain medication. However, the drug and rehabilitation specialist determined that Sal had developed a psychological dependence from the affect that abusing prescription pain medication had on the brain (see Table 9).

Sal was referred to an outpatient substance abuse clinician for further evaluation and treatment of his psychological dependence. The association in Sal's brain between taking prescription pain medication and the release of dopamine was the architect of his abuse (see Table 10). After he was assessed by the substance abuse clinician, a treatment plan was developed with quantifiable, time limited goals based on his abuse of prescription pain medication and current psychological and social status. Sal had difficulties complying with his outpatient substance abuse treatment which extended the anticipated completion date of his treatment goals. After months of substance abuse counseling, Sal had accomplished his treatment goals and was encouraged to attend self-help (Narcotics Anonymous, twelve-step, etc.) meetings for additional support if needed to maintain abstinence.

Sal is currently receiving non-pharmacological treatment for his chronic back pain. With the assistance of a vocational rehabilitation counselor he was able to return to the original employer in a less physically demanding position that accommodated his residual restrictions.

Case Study 2: Jen's Story

An example of the effects of past psycho-social history and substance abuse history on the prescribing of narcotic pain medication for treatment of acute pain related to a workplace injury.

Jen is a Hispanic female who is 32 years old and of average weight. She lives with her fiancée in Worcester, Massachusetts. She is a pack and a half a day cigarette smoker who is employed by a large retail clothing store. She has a high school education and the physical demands of her job include inspecting, sorting, and hanging garments to prepare them for the sales floor. She has been employed for two years in her current position, and has rarely missed a day of work. One day after completion of her shift, Jen slipped on ice in the parking lot while walking to her car and landed on her right shoulder. She reported immediate pain and was taken to a local hospital's emergency department (ED).

Jen was examined by an ED physician and when asked about her symptoms she indicated that her pain was a 10 (on a one to ten scale). She underwent a limited physical examination and a diagnosis of "bruised shoulder" was rendered resulting in administration of Morphine 5mg intravenously. As noted in *Buzzed: The Straight Facts About the Most Used and Abused Drugs* (2008), "morphine hits the backs of the legs first, then the back of the neck, a spreading wave of relaxation slackening the muscle away from the bones so that you seem to float without outlines, like lying in warm salt water" (p. 192). X-ray evaluations of Jen's shoulder were negative for pathology and she was discharged to home from the ED with her fiancée and a referral for orthopedic evaluation the following day. It was further recommended that she remain out of work until her appointment with the orthopedist.

Jen did not disclose to the ED physician that when she was in her mid-20s she had abused heroin and she had been through detoxification and long term residential treatment for heroin dependence. She negated to report to the medical provider that she had begun using heroin and had been addicted for more than 4 years prior to entering substance abuse treatment at age 30. On the way home from the ED she stopped to "see an old friend" and told him about her pain and how the morphine "didn't even touch it". She was offered and accepted her friends leftover Percocet® 5mg's to "hold off her pain" until her appointment the next day and she immediately took them orally.

The pleasurable associations created by Jen's brain during her heroin dependence began to drive her thinking and behavior. Heroin and prescription pain medication bind to the same receptor in the CNS and produce the same effect (Inaba & Cohen, 2007). She convinced her fiancée that using heroin "just once won't hurt" and would help her pain until the upcoming appointment. Jen obtained, from another old friend, and injected a single bag of heroin intravenously in the bathroom of her home. Her two years of sobriety resulted in a lowering of her tolerance to her previously tolerated self-prescribed heroin dosage. This low tolerance coupled with the previously ingested Percocet® 5mg's produced CNS depression and Jen was found unconsciousness on the floor of her bathroom. Heroin's depressing effects on the CNS progressed and slowed her breathing until it stopped and she died of overdose. Generally, about half of the users of heroin experience an overdose and more than half are accidental (Inaba & Cohen, 2007). If treatment with Narcan® is initiated almost immediately, it reverses the depressing effects of an overdose of heroin or prescription pain medication (Kuhn, Swartzwelder, Wilson, 2008).

Case Study 3: Tom's Story

An illustration of the benefits of effectual rehabilitation and medical case management in assessment, coordination and monitoring of a pain management regime, resulting in successful pain control and restoration of functional ability after a work related injury.

Tom is a Caucasian male who is 38 years old and 80 pounds overweight which categorizes him as being obese. He lives alone in West Palm Beach, Florida and works part time as a recreational scuba tour guide. He has a high school education and has had previous job experience in recreational occupations. While at work he was lifting a full scuba tank and he felt an immediate sharp pain. As he had started to lift the tank, Tom stated that "It felt like someone stuck a sharp knife in my left shoulder." He left his position immediately and was driven to a local ED, by his supervisor. He was examined by an ED physician and reported his pain as a four (on a one to ten scale). After undergoing an X-ray of his shoulder he was referred to the hospital's orthopedic department. The ED physician restricted Tom from returning to work. Tom was examined next by an orthopedic surgeon who recommended an MRI. Upon review of the MRI, the orthopedic surgeon diagnosed Tom with a "full thickness rotator cuff tear" and an arthroscopic rotator cuff repair was recommended and scheduled. The orthopedic surgeon restricted Tom from returning to work and using his left arm until surgery.

Within a week, Tom underwent an arthroscopic rotator cuff repair without complication. This was an ambulatory surgical procedure and Tom was sent home on the day of the procedure with a prescription for a small supply of Percocet® 10 mg for "managing Tom's short-term pain" post-operatively. His shoulder was immobilized and he was referred to PT at the post-surgical follow up appointment. At the time of

the post-operative appointment, Tom had reportedly taken his medication as prescribed and had no further issues with pain that was not being controlled with non-steroidal anti-inflammatory drugs.

Tom progressed in PT and he was compliant with a home exercise program as recommended by the orthopedic surgeon during his recovery period. He was also assigned a Nurse Case Manager (NCM) and Rehab Counselor (RC) by the insurance carrier that that was managing his Workers' Compensation claim. His physical capacities were determined and clarified during his follow up appointments over the next several months. The NCM and RC maintained contact with the employer and facilitated Tom's return to work with restrictions in an accommodated position. Eventually he was released to return to work without restriction and returned to work in his original position as a tour guide for the Scuba Company.

Common Signs and Symptoms of Abuse Potential and Abuse Behaviors.

As illustrated in Sal's, Jen's, and Tom's case studies, there are numerous variables and indicators in the abuse of prescription pain medications. Workers with disabilities with a personal or family history of substance abuse, adverse childhood experiences, psychological stress and mental illness are at the largest risk to abuse prescription pain medication. However, abuse of pain medications can occur, when anyone is exposed to the use of opiates. (Feinberg, 2013). Abusers of prescription pain medications that procured prescriptions at more than three pharmacies were 9 times more likely to receive an early refill, and received prescriptions from four times as many prescribers (Rice et al., 2012). Intoxication, problematic behavioral, psychological changes, pupil constriction, drowsiness, slurred speech, and impairment in attention or memory are signs of prescription pain medication abuse that are demonstrated by patients, clients and injured (American Psychiatric Association, 2013)

An Overview of Treatment Options

As previously discussed in the case study of Sal, there are a variety of treatment options available for treatment of substance use disorder. A single substance abuse treatment that is universally effective does not exist and the financial cost of substance abuse treatment varies (NIDA, 2009). Treatment can occur residentially or in an outpatient capacity, and is rendered based on an individual's need for service (SAMHSA, 2003). Success of substance abuse treatment cannot be predetermined by scientific research and it varies according to an individual's history and motivation (NIDA, 2012).

Conclusion

The use of opium and its derivatives has been present throughout history, and will continue in the future because of their effect on the body, which cannot be changed by legislation, assessment, or monitoring. To stigmatize the millions of people who are prescribed pain medications is biased, as it is demonizing the majority because of the adverse experiences of the minority. It is akin to labeling an occasional drinker, as an abuser or someone physically and psychologically dependent on alcohol. As long as a substance exists which stimulates an effect on the brain, it will be abused by someone, somewhere.

The issue surrounding the abuse of prescription pain medication is similar to the abuse of alcohol, cigarettes, and various other substances. It is estimated that between 4% and 26% of patients receiving long term prescription pain medication have an opioid use disorder (Physicians for Responsible Opioid Prescribing, 2011). According to Steven Stack, MD, of the American Medical Association there are "woefully inadequate options" to treat individuals who have already become dependent upon these medications (Rehm, 2013). But there are substance abuse treatments that are affordable and locally available.

Options for substance abuse treatment should be extended to the worker with a disability and treatment alternatives should be tailored to the worker with a disability based on the individual's evidenced based criteria that is determined by the treating provider. A precursor to treatment option should always be a confirmation that the worker with a disability is willing to actively participate in the rehabilitation process. This will allow the disabled worker who has been overprescribed prescription pain medication an opportunity for a successful outcome as evidenced by a return to work and pre-injury level of function, which is the original goal of the Workers' Compensation system.

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Author Notes

Three case scenarios are reflected in the above publication. The case scenarios were derived based on a variety of client experiences, not based on particular individuals' case studies.