

MANAGEMENT OF OCCUPATIONAL LOW BACK INJURIES

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1. This chapter will briefly review the history and uniqueness of injuries that occur on the job with the associated mandated entitled benefits.
2. Programs that are in place to assist injured workers

- to return to their occupation can actually facilitate delayed healing times, increase costs, and create disability.
3. Solutions for health-care providers and employers to prevent and deal with system-induced disability will be discussed extensively under the well-published SPICE model.

INTRODUCTION TO WORKERS' COMPENSATION

The concept of compensating people for injuries received "on the job" has been around for a long time. Even pirates who roamed and plundered in the seventh century had their own elaborate code of "compensation."¹ In the United States "workers' compensation" became a legislated right in the early twentieth century. By 1949, all 50 states had adopted some form of workers' compensation legislation,² with each state designing its system to ensure the worker prompt but limited benefits, and to assign to the employer sure and predictable compulsory liability insurance within established parameters. The principal components of these US systems include (1) a statutory program, (2) expeditious resolution of disputed issues, and (3) limited liability without fault. Because workers' compensation is a no-fault insurance program (determining negligence or blame is generally irrelevant), automatic benefits include the following:

- (a) Medical treatment coverage including the clinical care, services, and supplies necessary to cure or relieve the effects of an on-the-job injury. This means that the employee does not incur any deductible or out-of-pocket expense for the treatment of a work-related injury or illness.
- (b) Indemnity payments replacing wages while the injured employee recovers from an industrial injury and/or reaches clinical stability.³ All states have varying formulas for the calculation of these indemnity payments, which are often tax-free.
- (c) Death benefits, providing weekly payments to the surviving spouse and dependent children of a worker whose work-related injury results in death. Burial and funeral expenses are also paid.
- (d) An impairment settlement giving compensation to an injured worker for permanent physical loss from a work-related injury (i.e., scars, disfigurement, amputation, etc.), according to a defined compensation schedule.

As with the other benefits, there are significant differences between the states on the value of settlement amounts and the *methodology used* to calculate permanent partial impairment and disability benefits.⁴ The laws of the particular state in which the worker is injured govern the scope and amount of payments for these agreed-upon services.

Notably these systems, adopted to assist injured workers, have become a significant cost to business and paradoxically have been shown to, at times, adversely affect recovery,^{5,6} increase disability,^{7,8} and decrease the potential to return to work.^{9,10} Since

their adoption, the cost for administering these programs in the United States has increased exponentially and has now reached 171 billion dollars annually,¹¹ with the average workers' compensation claim costing \$13,182 and each lost time claim averaging \$20,000.

Occupational Musculoskeletal Pain

Common musculoskeletal injuries are a particular concern. Most common musculoskeletal ailments are benign and even if they occur at work, most people recover quickly with minimal or no lost time. However, a small number recover much more slowly than expected and generate a considerably greater cost. A 1992 review of 106,961 workers' compensation low back injury cases found that approximately 86% of the costs were incurred by 10% of the injured workers.¹³ A similar study of 21,338 work-related musculoskeletal disorders of the upper extremities found that 25% of the claims account for 89% of the costs.¹⁴ Recent statistics from the State of Washington found that 5% of their claims (accounting for 84% of the costs) are not from individuals who have lost limbs or suffered other catastrophic injuries while at work, but rather are from nonverifiable muscle and back complaints.¹⁵

Clinical Pearl: In the United States, of all work-related injuries, 28% are for soft tissue musculoskeletal strains, which account for approximately 40% of all lost-time injuries.¹²

In the United States, injured workers with skeletal fractures incur an average of 21 days off work and those with amputations incur 18 lost days, while workers with carpal tunnel syndrome complaints average 25 days away from work.¹⁶ Yet a recent study of 3000 randomly selected individuals found carpal tunnel symptoms in 14% of the population.¹⁷ Likewise back pain appears to be a part of living with a recent survey indicating a yearly prevalence in the US population of 15%–20%.¹⁸ Among working-age people surveyed, 50% report back pain symptoms each year.^{19,20}

Occupational Back Pain

Throughout the world, occupational low back pain is one of the most commonly encountered conditions in the industrial setting and perhaps best exemplifies the refractory nature of workplace musculoskeletal injuries. Each year approximately 10 million employees in the United States suffer back pain that impairs their work performance and an estimated 1 million employees file workers' compensation claims for back pain.²¹ In a survey of 12 states, the US National Safety Council found that occupational back injuries, the

most frequently occurring workplace disorder,²² account for 22% of workplace injuries/illnesses and 32% of workers' compensation costs. In 1986, it was estimated that the total compensable cost of occupational low back cases in the United States was more than 10 billion dollars.²³ Back pain is now the single most expensive category of industrial injury, responsible for 31% of total industrial expenses and is second only to the common cold as a reason for physician office visits in the United States.²⁴ Back pain results in a loss of 93 million to 250 million workdays per year and is the most common cause of disability in workers under the age of 45.²⁵ Yet it is important to note that back discomfort appears to be a part of living, with 28% of the adult population reporting some back pain discomfort at any given time and 50% of the population reporting back pain in the previous 6 months.^{18,26}

Studies have shown that back pain prevalence rates are comparable for industrialized nations, in particular for the United States and the United Kingdom, but that approaches to treatment vary greatly. Still, the evidence indicates that these variations in treatment have little effect on outcomes.²⁷

There is a general lack of consistency in the treatment of back pain in the United States.²⁸ Increasing awareness of this has led to governmental concern that many patients may be subjected to clinical care that is inappropriate or at least less than optimal.^{29,30} As the late Dr. Henry LaRocca stated, "This predicament is not the result of an inadequate fund of available information with which to address the matter. Instead the problem emanates from the lack of a comprehensive and unifying problem-solving strategy."³¹

Many published studies have suggested clinical or rehabilitation tools that can be used to affect this problem; however, the quality of life for disabled individuals and their families, along with significant cost savings for business and industry, depend on identifying and instituting a dynamic, comprehensive system that decreases employee disability, maintains worker productivity, and reduces compensation costs. The SPICE model represents a multifactor system to optimizing clinical and rehabilitation services for injured workers. It represents a philosophical approach to the treatment of injured worker versus a medical treatment guideline. The purpose of this chapter is to outline and summarize the main components of the SPICE model and indicate how this model, if successfully implemented, can be used to reduce work-related disability, reduce compensation cost, and improve patient satisfaction. Generally, statistics from the United States are used to illustrate the concepts of the SPICE model. However, the authors believe the SPICE principles are universally applicable.

SPICE Model for Prevention of Occupational Disability

It is the authors' view that comprehensive application of the SPICE model prevents injuries, facilitates effective treatment, reduces workers' compensation costs, and reduces system-induced disability. Originally published in *The Journal of Occupational Rehabilitation* in 1993,³² and updated in 2000,³³ the SPICE model continues to be updated and expanded to include clinical and management techniques demonstrated in the literature and in practice to both prevent and manage injuries efficiently and fairly.

SPICE

Over the course of modern warfare and throughout the world, militaries discovered that when soldiers with relatively simple physical complaints were left to heal alone, or received inappropriate treatment for battle-related stress, some became permanently and totally disabled.³⁴ Placed under combat-induced conditions of anxiety and stress, the soldiers' protective psychological reserves eroded and defense mechanisms began to form. Unchecked, these defenses transformed a relatively simple disorder, such as "fatigue," into an "illness" that was both socially acceptable and serious. Further, once this "illness" was validated by the system, it released the soldier, either consciously or subconsciously, from the unpleasant emotional stress of his or her duties. In response, the militaries evolved a successful treatment model, referred to as "Forward Treatment," to prevent this system-induced disability. Forward treatment is a comprehensive, proactive model developed with over 100 years of experiences of military physicians all over the world to prevent system-induced permanent disability. The model, acronymed SPICE, includes five components, Simplicity, Proximity, Immediacy, Centrality, and Expectancy, and has been adapted for those who deal with injured workers to facilitate return to duty and subsequently reduce claim rates and costs.

During the 1973 Israeli-Arab war, Israeli physicians noted many soldiers had relatively minor physical impairments, yet behaved in a greatly disabled fashion. The best medical care at the time was given to these soldiers, with the shocking result that many of them became permanently disabled and few returning to active duty.³⁵ Treatment appeared to create iatrogenic (i.e., physician-induced) disability. During the 9 years between the Arab war and the war with Lebanon, Israel had adopted the United States' Forward Treatment concept, as described in this chapter in greater detail. During this Lebanon war, by applying the Forward Treatment philosophy, Israel was able

to return 60% of soldiers with injuries similar to the 1973 casualties to full duty within 72 hours.³⁶

There are many similarities between military personnel and individuals involved in the disability/workers' compensation environment:

1. Both groups are basically healthy. A certain degree of job-related intelligence has been tested for and is required, and those with preexisting disabilities or serious illnesses have been screened out.
2. Individuals are expected to function in terms of the needs of the "team" rather than the individual.
3. Both groups have legally mandated entitlement programs for "on-the-job" injuries.
4. The number and type of disability complaints are directly related to the intensity of psychosocial stressors to which the subjects are exposed.³⁷
5. Psychosocial stressors arise from factors other than the duty that the individual is exposed to. These factors may include personal performance, poor social support, team morale, duty satisfaction, personal belief in supervisors, and economic downturns.^{38,39}

While certainly soldiers exposed to battle are highly stressed, many current workers are likewise subjected to unprecedented daily personal stress that carries over into the workplace. Many employees, as they deal with life difficulties, find their life out of control. This includes family relationships, care for elderly parents, reduced job security, and more expectations from employers.

These similarities suggest that the military model of Forward Treatment, validated on the battlefield, provides an extremely useful model for the prevention and treatment of entitled individual's claims and costs.

SIMPLICITY

"Simplicity" comes from the military observation that ominous-sounding diagnostic terminology, complicated tests, and treatment for fairly minor problems (like battle fatigue) only served to strengthen the soldier's rationalization that he or she was indeed seriously ill. Injured workers, like soldiers with stress, at times believe they are suffering from a serious ailment. For example, in one study 60% of patients with back pain believed or had been told they had a "disc prolapse" although only 11% had any evidence of nerve root pain or dysfunction.⁴⁰ Another study of 140 patients with mechanical low back pain found 67% were concerned with a serious illness causing their pain. This contrasts with actual statistical experience that only 2% of persons with back pain may require surgery, and less than 1% will have any underlying systemic illness.⁴¹ Regardless of the cause

of back pain, approximately 70% of affected people recover in 2-3 weeks and 90% in 6 weeks.^{42,43}

Clinical Pearl: This model, given the acronym SPICE, consists of five general components:

Simplicity: The concept that simple, benign conditions, treated in a complicated fashion, become complicated.

Proximity: The need to keep the worker associated with the workplace by building morale and support of employees.

Immediacy: The need to deal with industrial claims in a timely manner.

Centrality: All parties involved with workers share a common philosophy and ultimate goal of returning the individual back to gainful employment as quickly as possible.

Expectancy: The concept that individuals often fulfill the expectations placed on them.

Diagnostic Terminology

"Battle fatigue" has been closely tied with the history of warfare and has been given many names. During the American Civil War it was called "nostalgia"; during World War I, "shell shock"; during World War II, "war neurosis" and "combat exhaustion"; and during the Korean War it was referred to as "combat fatigue." It was discovered that the more ominous-sounding the "diagnosis," the worse the soldier responded. Many times it appeared that the diagnosis given to stressed soldiers became a self-fulfilling prophecy with the prognosis directly related to the initial diagnostic label given to the individual soldier.)

Concerns about diagnostic "labeling" (which refers to the unintended, and usually adverse, consequences of simply assigning a diagnostic label to an anxious individual) have long been recognized. Researchers have shown that simply informing a person who feels that he or she has a "disease" (such as asymptomatic hypertension) can cause an increase in "sick behavior."⁴⁴ For this reason, the military abandoned ominous-sounding labels such as "shell shock" or "war neurosis" and replaced them with more benign names, such as "battle fatigue" or "combat reaction."

The problem of back pain terminology is well recognized. A recent review of over 7000 low back pain medical articles revealed a pronounced lack of uniformity in diagnostic terminology. This lack of common terminology has been identified as a major barrier to research and a key challenge to defining methods of treatment.⁴⁵ One study showed 20 current diagnostic terms ranging from the mundane "lumbar strain" to the exotic "metameric cellulotenoperiostomyalgic syndrome."⁴⁶ In reality, only 10%-20% of patients can be given a precise pathoanatomical diagnosis.⁴⁷

Health-care providers should apply concepts of simplicity by (a) providing an explanation of the most likely pain mechanisms; (b) reassuring the patient that serious disease is absent and that only benign conditions exist; and (c) providing information about the favorable prognosis of the natural history of the condition. Business and disability claim managers should reemphasize the simplicity of the diagnosis and discuss the likelihood of return to regular duty in the time frames given by the treating practitioner. Return-to-work programs should emphasize the clinician's findings and allow light-duty and other return-to-work activities that specifically follow the natural healing process of the injury.

Clinical Pearl: Unjustified diagnoses must be replaced with clear, nonthreatening terms such as "simple strain."

Testing

Sophisticated testing procedures can at times reinforce severity of the illness to the injured worker. Clinicians should limit the use of expensive diagnostic tests unless it is strongly suspected that the results of such tests would significantly change the course of treatment. Health care practitioners must remember that many of the imaging "findings" will have nothing to do with the patient's current symptoms and are more likely the result of the natural aging process. A recent study of spinal MRIs in 98 asymptomatic subjects revealed that while 36% of the subjects had normal disks at all levels, 52% had at least one bulge involving at least one level, 27% had a protrusion, 1% an extrusion, and 38% had abnormalities involving more than one intervertebral disk. Not surprisingly, physical findings increased with the age of the subject. The conclusion is that many asymptomatic people have disk bulges or protrusions and the discovery of disk bulges or protrusions in people with back pain may often be merely coincidence.⁴⁸ In general, current image findings correlate poorly with back pain⁴⁹⁻⁵² and are performed more frequently on workers' compensation patients than on comparative group health patients.⁵³ In addition to the psychological impact of expensive testing and the results thereof, one must consider the impact on physical health. It is estimated that, depending on technique, a 5-view LS spine x-ray series exposes the patient to the same amount of gonadal radiation as nearly 200 chest x-rays. The impact on the health and well-being of the patient and his or her reproductive potential may be significant, especially in those undergoing multiple back x-rays, CT scans, and other radiological procedures. Because specific diagnoses are rare, and sophisticated testing procedures can have an adverse effect on the patient's illness behavior, adequate reassurance

and education is often more effective in the long-term treatment of the compensated patient and is no more time-consuming.

Clinical Pearl: Overemphasizing the potential seriousness of a patient's symptoms can lead to the injured employee overreacting to his or her illness and subsequently negatively affecting recovery.

Psychosocial Sensitivity

Health-care providers and managers dealing with claimants should be sensitive to the psychosocial impact on the somatic components of the claim with their associated clinical impacts on the long-term outcome of the case. Clinicians must keep in mind the increasing volume of valid studies demonstrating the role of pain and illness behavior in certain patients. Behavioral signs of distress should not be immediately interpreted as physical disorders. The behavior component of a patient's condition can often be more important than the underlying presumed physical problem. The *Performance APGAR*, discussed later in this chapter, provides an effective tool for practitioners to use to help quantify patient motivation and sincerity of effort.⁵⁴ With this information, the practitioner can more readily quantify other subjective reports and findings of the examination.

Treatment

During World War II, the military used such exotic and complex-sounding treatments as "narcosynthesis" or "electroconvulsive therapy."⁵⁵ The use of these treatment modalities often strengthened the soldier's rationalization that he or she was significantly physically or mentally ill, or as Barsky suggests, "Attention to a symptom amplifies it, whereas distractions diminish it."⁵⁶

Current treatments for musculoskeletal pain often fare no better than the exotic "cures" applied during World War II and, like those cures, today's medical care has the potential to prolong disability by reinforcing illness behavior. Recent studies have shown that some providers are using expensive, time-consuming treatment modalities, with little attention to the efficacy of the treatments used.^{57,58} A recent review of workers' compensation cases in eight states for claims that had incurred over 7 days lost time for the same type injury found the cost could vary as much as 200%. As described previously, in third world countries, where expensive diagnostic and treatment modalities are not available, there is little evidence of back disability being a problem.⁵⁹⁻⁶¹ This inconsistency among providers for the same condition creates a high degree of unnecessary variability among providers, increased costs, controversy over billings, increasing

administrative time and worker frustration, litigation, and subsequent payer costs.

Currently, those treating patients must remember that of all that is done in routine medical practice, only about 10%–20% has a basis in published scientific research.⁶² This means that 80% of current treatment is subjective, based upon expert opinion or consensus, or simply not substantiated by current evidence. This partially explains the significant practice variations that exist for treatment of some conditions throughout the United States.^{63–65} One needs to be cognizant of the fact that various studies use different end points as measures of success. Some studies measure the ability to return to gainful employment whereas others measure subjective pain relief. Outcomes, such as reporting those injured workers who are able to return to an occupational role, have been considered by some to be a “harsh” or “inappropriate” measure of success.⁶⁶ One study reported that 52% of injured workers undergoing spinal cord stimulation for pain obtained good to very good relief; however, less than 5% returned to any kind of work.⁶⁷

Clinical Pearl: From the practical point of view, returning an injured/disabled worker back to productive employment should be the ultimate measure of successful worker rehabilitation.

Medication

Relief of pain and improvement in function is a major goal of workers presenting with low back pain. Several classes of medications (and combinations thereof) are commonly used, including nonsteroidal anti-inflammatory drugs (NSAIDs), acetaminophen, muscle relaxers, and narcotics analgesic. These medications provide temporary pain relief until the body’s natural healing process is able to provide more longer-lasting relief.

It appears that the most effective medications for reducing mechanical low back pain are acetaminophen and NSAIDs, such as ibuprofen and aspirin, which are generally safe and relatively inexpensive.^{68,69} NSAIDs have been demonstrated to be effective in treating low back pain. Specific choice of the nonsteroidal, however, is less likely to be important as there is no particular NSAID that has been demonstrated to be superior to the others. However, if one NSAID is not working, one may be considered from another class of NSAIDs before abandoning the class or adding on other medications. For the elderly chronic steroid users, or those with upper gastrointestinal (GI) symptoms, one may consider beginning with COX-2 inhibitors or Tylenol. NSAIDs are less clearly effective for neurogenic back pain. Acetaminophen may also be just as effective as NSAIDs. In the elderly, pregnant, renally impaired, or those

with upper GI disease, it should be considered as first-line therapy. Newer, longer-acting preparations may make its use more practical.

Muscle relaxers, although also effective for the treatment of low back pain, should be used for more severe symptoms. They should be considered before narcotics for symptoms beyond NSAIDs and acetaminophen. Benzodiazepines, despite sometimes being used as a muscle relaxer, have been shown to be addictive in treating low back pain. Narcotics have been shown to provide pain relief, but with more risk of addiction. In addition to reduced efficacy, narcotic medications have significant side effects including tolerance, addiction, depression and repression of endorphins.⁷¹ When controlled substances are prescribed, it should be for a fixed time interval, before reevaluation.

Clinical Pearl: Caution must be taken with patients taking daily or high doses of NSAIDs. Studies have reported up to 31% of patients developing endoscopic confirmed gastric duodenal ulcers with chronic use.⁷⁰

Treatment of neurogenic low back pain with oral steroids is somewhat controversial. There are no well-designed placebo controlled studies that demonstrate a clear benefit. Potential deterrents such as hyperglycemia, steroid psychosis, and avascular necrosis should limit their potential use to those with severe neurogenic acute back pain.

Injections and Other Invasive Techniques

A number of studies have looked at the use of injection procedures for the treatment of low back pain.^{46,72,73} Infiltration of trigger points has not been shown to be particularly effective. Epidural injections of cortisone and local anesthetics have been the topic of a number of clinical studies, with variable results, and their use remains controversial.⁷⁴ Facet joint injections are also a common injection therapy. However, like trigger point injections, no significant studies are available which verify their effectiveness. Selective nerve root injections have, however, been proven effective in identifying the site of the origin of the pain. Radio frequency lesioning for the treatment of back pain has likewise shown limited success.⁷⁵

Bed Rest

Overemphasis of pain and discomfort alone and overprescription of rest may indeed be a major factor of iatrogenic disability. The rationale for bed rest is the observation that intradiscal pressure is lowest in the lying position and many patients actually feel better with bed rest. However, protracted bed rest leads to a catabolic state with general malaise, bone demineralization, and loss of muscle strength.^{76,77} There is also

evidence that rest and inactivity actually inhibit healing and lead to increased psychological distress and depression, loss of work habit, and progressive loss of job opportunity.⁷⁸ Feeling better in the short term and getting better in the long term can often be two entirely different outcomes. Return to normal activities (including work) should be the objective of all treatment and management efforts.

Treatment Guidelines

Over the past decade aggressive and coordinated attempts have been undertaken to facilitate improvement, reduce variation, and standardize care in the provider and payer systems. These have mostly been done through the development of comprehensive treatment guidelines. Unfortunately, these guidelines appear to have done little to modify treatment patterns and have come under severe criticism.⁷⁹ These guidelines have been developed by systematically reviewing the current available medical literature, and where there are deficiencies, experts have developed consensus on interpretation.⁸⁰ Most often, these reviews of the literature generally find the available evidence to be "sparse and of poor quality,"^{81,82} necessitating the guidelines or recommendations to be published largely on the consensus of members of the given task force.⁴⁶ Naturally, the major criticism of guidelines is selection bias of the panel members based upon the criteria of what literature was reviewed. Therefore, the composition of the reviewing panel and the sponsoring organization often interjects bias that can influence the final guideline recommendations. Another criticism of guidelines is that they seem only to focus on utilization issues often without addressing the role of psychosocial distress. Therefore it is the authors' opinions that rather than providers argue from a bias selection of the literature to substantiate their treatment plan, the providers should be able to readily demonstrate their treatment's value by objectifying and quantifying improvement in their patient's function.

Physical Medicine Modalities

Currently there is a marked increase in the use of physical medicine for injured workers, now accounting for nearly 40% of the medical dollars billed in some states.⁸³ Yet, passive modalities, such as traction, electrical stimulation, ultrasound, thermal agents, acupuncture, and diathermy are controversial as to their value in healing tissues.^{27,29,46,81,82} Although these modalities may provide some measure of temporary symptom relief, they are expensive with minimal evidence of long-term efficacy. Unfortunately, passive modalities can create dependency and can distract patients from more responsible and effective treatment.⁸⁵ An example of a passive modality illustrating this point is hot/cold packs. For over a decade,

the medical literature is explicit that there is insufficient value to justify the cost of these modalities. Yet according to the 1996 report of the California Workers' Compensation Institute, 35 million dollars were spent on the passive modalities of electrical stimulation, hot or cold packs, massage, and ultrasound, with 15 million being spent on manipulation and 18 million being spent on active conditioning.⁸⁶ Likewise a recent review of physical medicine charges for a major insurer of group health care found that 62% of physical therapy and 82% chiropractic charges were for these same passive modalities, with the remaining percent of billing for active treatment.* This has provoked some to observe that, irrespective of what we know from the medical literature, as long as a procedure is reimbursed, that procedure will continue to be performed and billed.⁸⁷ This continues to be true for the use of other physical modalities including diathermy, massage, ultrasound, cutaneous laser treatment, massage and electrical stimulation. Although they may provide some measure of temporary symptom relief, the Agency of Health Care Research, almost a decade ago, stated that their "use is of insufficiently proven benefit to justify their cost."⁸⁵

Ergonomics

Although originally promising, prospective studies utilizing ergonomics and education have failed to demonstrate significant reduction in claims.⁸⁸ Ergonomic interventions apparently reach a point of diminishing returns. The 50-year quest to eliminate offending biomechanical stresses from the workplace has not had any positive impact on back pain or back pain claims in the workplace.⁸⁹

Conditioning

The key to musculoskeletal symptom control is balancing mechanical stress against the more debilitating effect of inactivity on the protective musculature. Aerobic exercise, physical conditioning, and psychosocial support appear to be very beneficial for the worker with a soft tissue injury.^{90,91} Recovery is inevitably dependent on conditioning of the protective and supportive musculature to compensate for any structural deficit caused by the injury. If strength is sufficient, a patient may return to full function, not because the back is "cured," but because there is sufficient muscular compensation to tolerate the discomfort of activity.

Surgery

Since the first article describing surgical decompression for disc herniation causing sciatica appeared in 1934,⁹² the number of spinal surgeries performed in the United States has increased exponentially.

* Authors data collection of 2002 billings of physical medicine services comparing trends of active to passive treatment.

According to the National Hospital Discharge Survey, spinal fusion rates increased 200% from 1979 to 1987.⁹³ This increase in surgery appears to parallel an increase in related disability.⁹⁴ Too often, surgery is performed on patients who encourage it, expecting it to be a cure. Some patients, consciously or subconsciously, desire surgery to validate their disability, or even to assuage guilt.^{95,96} The natural history of a "herniated disc" is to stabilize itself. Failure to operate very seldom produces serious adverse effects, even in patients with discogenic paresis.^{97,98} Long-term outcomes demonstrate that nonoperative treatment of a disc herniation is often as effective as surgical intervention and much more cost-effective.⁹⁹ In fact, Weber has demonstrated that surgery in the working age group is a "luxury for speeding recovery when there are very strong pre-operative indications."¹⁰⁰ Likewise, the outcomes for spinal fusion in compensated low back surgery patients appear less than optimal.

Comparative studies of surgery rates in the United States and the United Kingdom show the disparity between treatment patterns. With comparable prevalence of back injuries in the two countries, approximately 20% of those in the United States who see an orthopedic surgeon will have back surgery, whereas only 3% of those in the United Kingdom who see a surgeon will have back surgery.²⁷

Clinical Pearl: A number of studies¹⁰¹ have shown that between 30% and 60% of compensated patients show evidence of poor outcomes following lumbar fusion.

Outcomes and Common Goals of Providers, Payors, and Patients

While relieving pain is certainly desirable, pain is very subjective, its measurement is unreliable, and pain does not always correlate with function. In treating injured workers the primary focus of treatment for health care providers should not be reducing pain but improving function, with an emphasis on return to gainful employment. Achieving this goal requires a coordinated commitment that measures and records objective improvement. In the United States, The Labor Commission of the State of Utah has developed an instrument that performs this function. Called the "Restorative Services Agreement" (or RSA), the instrument requires a provider who bills for restorative services to benchmark and then demonstrate improvements in three objective areas. Those areas are (1) functional ability as it relates to the essential job functions, (2) hours the injured worker is able to work each day, and (3) the patient's own report of pain reduction with a pain

scale. Regarding function, the provider is to obtain at least three measurable and objective essential physical job functions (i.e., lifting, carrying, range of motion, sitting, tolerance, etc.) necessary for the injured worker to return to work. The injured worker's capacity is then tested and benchmarked to these essential functions as part of the initial evaluation. Every sixth visit, the capacity is extrapolated from the job-specific conditioning, and authorization for continued treatment is granted depending on the patient's functional improvement. Increased function and reduced cost have validated the use of the RSA.¹⁰²

Summary

Application of Simplicity in treating and managing a disability claimant allows an approach to recovery that parallels the natural history of the injury. Intervention is provided to improve function, and continued only as long as the worker is able to demonstrate objective improvement. As the patient receives more efficacious treatment, there is a concomitant reduction in disability, in patient impairment, and in costs for employers.

PROXIMITY

"Proximity" deals with the need to evolve a work family both by developing worker morale and, when a claim occurs, by keeping the injured individual as closely involved and associated with the workplace as possible.

Prior to 1917, the British army routinely removed "battle-stressed" casualties from its duty stations, sending them home to England. It was assumed that returning the soldier to a more comfortable, stable environment would relieve the "battle stress" symptoms. Unfortunately, the reverse was found to be true. Many of those who returned to England for "battle stress" became refractory to treatment. After World War II, one seventh of all military discharges were due to mental conditions. Of the 200,000 soldiers on England's pension list, one fifth had a permanent diagnosis of "war neurosis."

Later, in World War II, British and French physicians noted that soldiers with battle stress improved more rapidly when treated in permanent hospitals near the battlefield. The recovery rate was better still for those simply treated in casualty-clearing stations near the front line. The most successful recovery was found when encouragement, rest, persuasion, and suggestion (Simplicity) were given within the combat organization itself, close to battle lines (Proximity).

The Israeli Defense Forces (IDF) validated the concept of proximity during the 1973 Arab-Israeli War and the 1982 war with Lebanon. In the 1973 conflict, all psychiatric casualties were evacuated to the rear of

the battlefield. None of these casualties were returned to combat duty during the war, and many became chronically disabled.¹⁰³

Sobered by the incidence of these psychiatric casualties, and the failure of the Israeli medical system to successfully rehabilitate any of them, the Israeli military adopted the doctrine of Forward Treatment, i.e., brief treatment (physical replenishment—water, food, sleep, and the opportunity to recount battle experiences) near the front, with a rapid return to combat duty. To implement this new approach, the IDF deployed mental health specialists with each medical battalion, operating from 2 to 5 km from the front. With this system in place, 60% of combat reaction cases were returned to combat duty within 72 hours.^{36,103}

The second element of Proximity is the concept of developing and maintaining soldier morale. The military found that in addition to battle intensity and battle stress, a variety of personal and unit factors influence whether an injured soldier performs well or becomes a psychiatric casualty. In 1973, IDF soldiers from units with good leadership, good unit cohesion, and who had stable personal and family lives were less likely to become psychiatric casualties³⁹ and more likely to perform well and to be decorated for heroism.^{104,105} In 1982, good personal and unit morale also protected IDF soldiers from psychiatric breakdown.³⁶

Often the unhappy and disappointing aspects of a worker's home life can be mitigated at work. Work creates status and builds self-esteem. Work defines identity, breeds self-reliance, provides personal security, and offers an opportunity for personal advancement. Through work we gain skills and develop personal efficacy.¹⁰⁶ Being away from work, especially as the result of a disability, encourages introspection and maladaptive behavior that can lead to increased illness behavior. Many workers, once injured, feel abandoned by their employers and coworkers. That feeling leads to erosion of the personal benefits of work. One major United States review of 8500 injured workers in six states who were losing work time found that only 48% of employers had taken the trouble to call them during their recovery time with only 33% of employers offering a return-to-work program.¹⁰⁷

Clinical Pearl: All those involved with managing entitlement claims must remember that working is one of the most potent modalities in preventing iatrogenic disability.

Proximity for the industrial worker is not limited to simply maintaining geographical closeness. Proximity includes all elements identified as generally improving the physical, mental, and social work environment. Perceptive employers agree with W. Edward

Demming that the individual worker is the company's most important asset and that respect for individuals is paramount for business success.¹⁰⁸ Today, employees are under unprecedented stress with marked increases in single parenting, divorce, teenage pregnancy, caring for grandchildren, and suicide. Consider the following demographic changes in the United States during the last 30 years:

- Illegitimate birth rates have increased by more than 400%.¹⁰⁹
- The percentage of families headed by a single parent has more than tripled.¹¹⁰
- The divorce rate has more than doubled.¹¹¹ Many project that about half of all new marriages will end in divorce.
- Teenage suicide has increased by almost 300%.¹¹²
- Scholastic Aptitude Test scores among all students have dropped 73 points.¹¹³
- Every year, four million women are beaten by their partners.¹¹⁴
- One fourth of all adolescents contract a sexually transmitted disease before they graduate from high school.¹¹¹

The challenge for employers is finding a means of developing a "work family" and assisting their employees in being able to come to work ready to give 100%, managing their life's stresses, and fulfilling their individual goals and purposes in life. Figure 34-1 represents a comprehensive overview of occupational services that an employer can implement to help select a healthy employee population, what they can do to keep them healthy, and programs to incorporate when an injury occurs to prevent delayed recovery from occurring. Indicators of the erosion of an individual's or employee's psychosocial reserves and an attendant potential for an injury claim can be indirectly measured by levels of tardiness, use of health insurance, quality of work, employee turnover, reduced productivity, accident and illness rates, property damage, grievances filed, and percentage of employees using employee assistance programs.

Human Resources

Personnel policies that are clear and evenly enforced can prevent undue employee frustration, and help to maintain a productive attitude among employees.^{115,116} Occasionally employees will have an unrealistic idea about the financial benefits associated with being disabled. All employees should be educated about their rights as employees and what to expect, medically as well as financially, if a work-related accident occurs. A major review of injured workers found that one half of injured workers had received

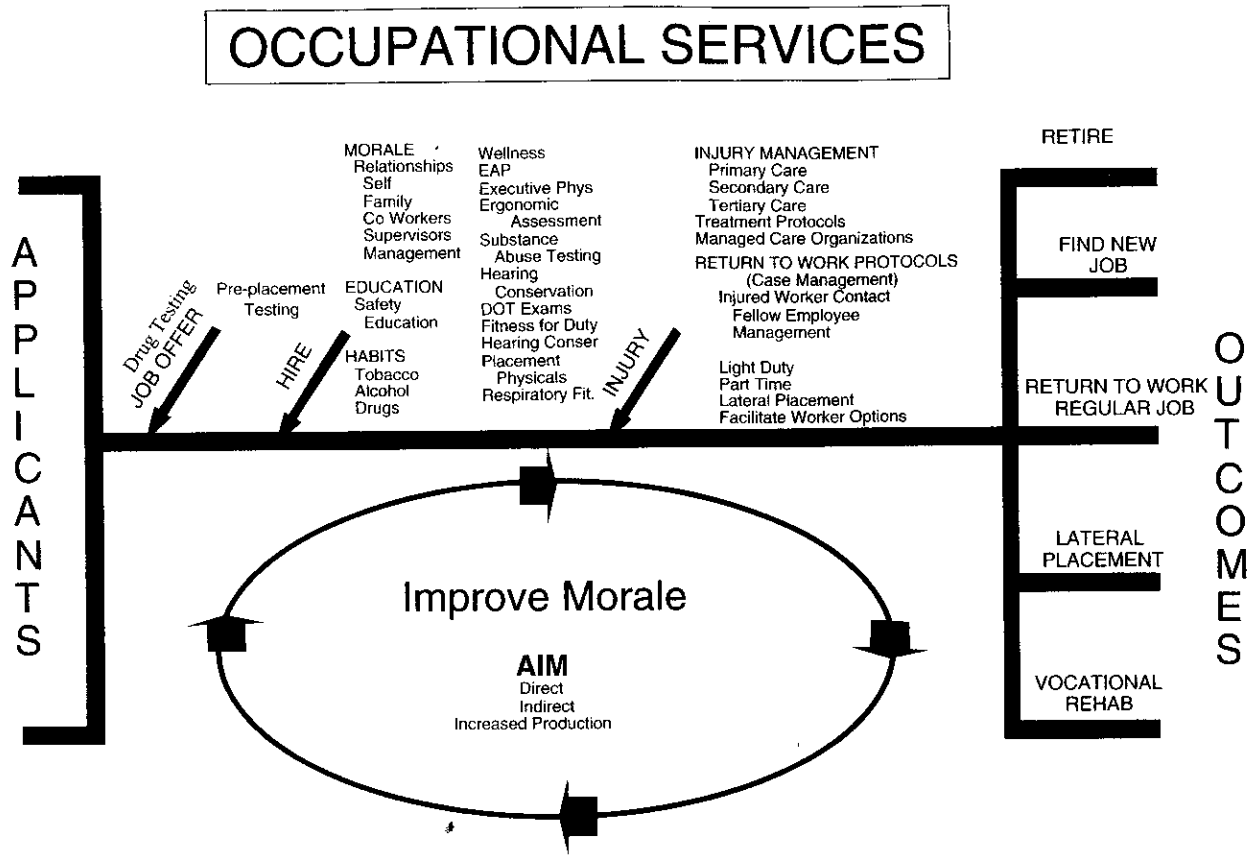


FIGURE 34-1. Comprehensive employer services.

no information from their employer regarding what procedure to follow to get appropriate treatment.¹⁰⁷

Qualified human resources staff should also provide channels for communication and dispute resolution. The majority of compensation-related litigation is directly related to the frustration, ignorance, unrealistic expectations, and/or fear level of the injured workers.¹¹⁷ Human resource policies that educate, accommodate return-to-work programs, and reduce anxiety in the worker also reduce litigation.^{107,117}

In one study involving a Canadian geriatric hospital¹¹⁸ it was found that 46% of nursing aids initiated low back industrial claims, with an 82% recurrence rate. The hospital, in an effort to control these workers' compensation losses, implemented a program of back school training, with individual education on injury prevention and careful follow-up of reported injuries. They found that there was essentially no change in the injury and recurrence rates among their employees.

However, when this same hospital began a *personnel policy* of immediate contact following an injury and regular 10-day follow-up contacts, coupled with evaluation of retraining and early return-to-work possibilities, they found they were three times more effective in reducing time loss and recurrence rates for low back injuries. In another study of 31,200 Boeing

employees,³⁷ a strong correlation was found between the incidence of lost-time soft tissue injuries and a poor supervisor relationship. This was manifest through a poor appraisal rating performed within the 6 months preceding an injury. A similar recent major study has been completed with urban transit operators.¹¹⁹ These studies demonstrate that an employer's policies can often be more successful in returning employees to work in a timely manner and in reducing the number of claims, than clinicians can be by treating injuries.

Clinical Pearl: The lesson to be learned here is that making employees feel that they are valued in the workplace can have a significant impact on the employer's bottom line.

Safety

A major review of injured workers in the United States found that only 44% had received special training or information on how to prevent injuries.¹⁰⁷ Companies utilizing safety teams, videotaped safety meetings, incentives for worker participation, safety audits, safety management review of all accidents, placement of safety coordinators, and fatigue prevention programs have demonstrated a 30%-90% reduction in claims.¹²⁰ Management commitment to safety

should focus on identifying and reducing hazards, not injuries.

Drug Testing Program

In 1990 the United States Navy found that 41% of sailors under the age of 25 tested positive for some drug use. Now with 10 years of random drug testing the current rate has been cut to 2%.¹²¹ Of 4375 US Postal Service employees, nationwide, that underwent pre-employment drug tests, 8.4% tested positive.^{122,123} The group testing positive had 41% higher absenteeism, 1.5 times more involuntary turnover, and 1.7 times greater likelihood of quitting than the group that had negative drug tests. A major study of 1500 of the state of Louisiana's largest workers' compensation policyholders performed a 1-year study of implementing preemployment, postincident, and random drug screening and demonstrated 50% reduction in workplace accidents with a cost savings of 22%.¹²⁴

Unions

Many employers have found that rather than fight a union's involvement in their workplace, they can benefit from involving union officials in the development of safety and disability prevention programs. Unions should assist with lateral placement for injured employees, and establishment and enforcement of light-duty or alternative duty programs, as mandated under the Americans with Disability Act.¹²⁵ Such participation by Union representatives gives ownership and support that will help ensure the program's success.

Wellness

The general health of an individual worker contributes to any incident that may occur, as well as contributing to the worker's response to that incident. A US study of 1652 firefighters tested several areas of general fitness including endurance, isometric strength, spine flexibility, blood pressure, and postexercise heart rate. Participants were divided into three groups, highest fitness, middle fitness, and lowest fitness, based on the results of the testing. The subsequent workers' compensation back injuries and costs for these firefighters were then analyzed in relation to their prior fitness results. The frequency of subsequent injury for the lowest fitness firefighters was 10 times higher than that of the highest fitness group. The cost per claim for the lowest fitness group was 13% higher than for the middle fitness group. The highest fitness group had too few claims to make an accurate estimation of future costs per claim.¹²⁶

Employers can contribute to a higher level of health and wellness by providing a work-site culture, which encourages healthy lifestyles. Travelers Insurance, with 36,000 employees, introduced the Tak-

ing Care Program in 1986. Based on 4 years of experience, Travelers now reports an estimated return of approximately \$3.40 for every dollar invested in health promotion.¹²⁷

Clinical Pearl: Successful employee wellness programs include convenience, supportive corporate culture, management support, and employee involvement in decision making, clear goals, and comprehensive, long-range planning.

Injury Response

When injuries do occur, the safety program should enforce the management's concern for the injured worker and the impact of the injury on other workers. Work-site injuries should be investigated, but not in an atmosphere of distrust. Investigations should focus on clarification of how the injury occurred, both to assist the injured worker and to take steps to prevent similar accidents from occurring in the future. This does not reduce the need to monitor all disability claims for potential fraud. However, an immediate positive response, while investigating facts of the claim, greatly increases trust and confidence in the system. With that trust established fraud is more readily identified since the desire to "get back at the company" is greatly reduced.

Return to Work

Resumption of work has also been shown to be a significant part of the treatment for an injury or illness, even benefiting patients suffering from chronic pain.¹²⁸ Studies have shown that workers who return to their original employer are usually better off financially than workers who choose other options, such as alternative vocational rehabilitation plans that include retraining or new job placement.^{129,130} Conversely, prolonged time away from work makes recovery and eventually returning to work progressively less likely. The longer an injured worker is kept away from the work site, the less likely it becomes that he or she will ever return to productive employment.^{131,132} A recent Canadian study revealed that promptly offering modified duty reduced lost time by 30%–50%.¹³³ Unfortunately, clinicians, management, and labor all too often encourage disability by prolonging the injured worker's separation from the workplace. This is particularly true when the employer requires "100% recovery" prior to any work release. A "100% recovery" policy may prove more costly to the employer than any modified duty expense. Effective accomplishment of returning impaired individuals to work requires the combined efforts, of the individual, health-care provider, and employer, to carefully evaluate the patient's ability and then, if necessary, consider efforts to provide reasonable accommodations.

Utilizing the concepts of Proximity in the treatment of disability and occupational injury claims can significantly affect a company's profitability and employee morale, along with creating a very real reduction in human suffering.

IMMEDIACY

The need for immediate treatment was one of the first principles identified in dealing with soldiers suffering from "battle fatigue." Often, when there was a large influx of casualties, soldiers suffering from "war neurosis" were not treated immediately. Instead, attention was focused on more life-threatening injuries. Left to their own devices, these same soldiers were found to be more refractory to treatment when it was eventually offered, and more likely to need further rearward evacuation. The soldier's time away weakened his bonds with the unit and allowed him to solidify and rationalize the severity of his symptoms. In other words, a soldier near to his unit in space (proximity) and time (immediacy) can generally expect to return to it. This expectation decreases with distance, in space and/or time.

A vivid illustration of the effectiveness of applying "Immediacy" was recounted in a Wall Street Journal article describing the aftermath of a 1985 airline crash at the Dallas/Fort Worth (United States) airport. On August 2, 1985, wind shear slammed a Delta L-1011 to the ground, short of the runway. The accident severely injured many, and killed 137 people. In the immediate aftermath of the accident Delta Airlines' management sought for ways to comfort the bereaved. Within hours of the crash, the airline had dispatched employees to be with the family of every casualty. These Delta representatives provided clothing, financial aid, assistance in locating lost articles, and in general made themselves available to provide whatever was necessary at this most critical period in these families' lives.

As a result of the bonds created by this early intervention, many crash victims and their families found it difficult to sue Delta, whom they had come to see as a friend instead of an adversary. Of a possible 152 passenger claims in the crash, only 65 suits were filed, and about 50 of these suits have been settled, most without litigation. This is impressive when compared with the 1982 US Pan Am crash in New Orleans, Louisiana. In this incident Pan Am did not employ "early bonding" tactics and at least three fourths of the 146 passenger deaths resulted in litigation.¹³⁴

Critical Time Periods

If, however, the absence from work is prolonged, permanent disability may be reinforced, and the chance to return to that job diminishes significantly.^{131,132}

Clinical Pearl: Many clinical studies have validated the concept that timely treatment and return to work facilitates return to productivity.

Within these studies of return-to-work parameters, several critical time periods have been identified.¹³⁵ All musculoskeletal soft tissue injuries should show some objective improvement within 2 weeks regardless of the treatment imposed. Delay of expected time periods alerts the management team to potential recovery delays, triggering movement to a more aggressive treatment mode.²⁹ If pain persists beyond 3 months, treatment should expand to concentrate on psychosocial factors associated with pain that might be complicating the clinical problem.

CENTRALITY

"Centrality" refers to the military's practice of making certain that all combat medical decisions, treatments, and evacuations are funneled through a central screening process. This ensures that only skilled personnel, trained in the Forward Treatment philosophy, are in contact with the soldiers at this critical period. This aspect of Centrality prevents the anxious soldiers from being exposed to confusing terminology, diagnostics, and treatments, thereby reducing iatrogenic disorders.

Too often in today's health-care system a patient encounters a confusing maze of conflicting diagnosis and treatments. Specialists will sometimes recommend tests that have already been performed and often it is perceived that no one is directing care. With no one to take full responsibility for the direction of treatment, other members of the management team (the patient and employer) are often confused as to what to expect and when to expect it.

To prevent this from occurring, health-care providers must become more professionally coordinated, using the concepts of immediacy and expectancy in approaching the full spectrum of the patient's biological, psychological, and social needs. Often, at this point, like the soldier left to his own devices or subjected to inappropriate and poorly coordinated care, the will or ability to work has been lost, disability is well established, and irretrievable harm has come to the patient and his or her family. To prevent such adverse outcomes the concept of centrality is embodied in the case manager. Many workers' compensation insurance carriers as well as provider networks employ case managers to act as a central point of contact for the clinician, employer, and injured worker. Studies have shown the effectiveness of case manager involvement in workers' compensation cases. Efforts, such as case management, that improve centrality will

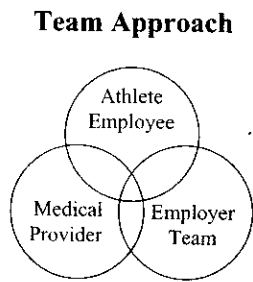


FIGURE 34-2. Athletic and employer model.

help minimize adverse outcomes and improve return-to-work potential.

The Athletic Model

The team concept is not unique to the military. Athletic teams consistently rely on the collective energy and abilities of each member to attain success. It is well recognized that athletes recover from injuries very quickly. This efficient recovery is the result of a treatment model wherein common recovery goals are shared by a "team," including the clinician, the coach, team members, and the injured athlete. The result of this "team" approach is that an athlete, highly motivated and well supported, is able to return quickly to full function. If any supportive team element is missing or if all does not share the same goal, return to activity can be delayed (see Fig. 34-2).

Team Approach. This model approaches treatment by sharing accountability equally among all involved entities with a return to productivity as the common goal (see *Expectancy*). Just as with the injured athlete, the entitled (compensated) worker needs a structured, comprehensive approach to recovery. When the athletic model is applied, the worker becomes the "athlete" and the employer takes the role of "coach" and fellow workers the "team." The success of this model is dependent on three components: (1) motivation and physical capability of the injured worker (the "athlete"), (2) appropriate treatment, (3) the desire of the employer (the "coach") and coworkers (the "fellow athletes") to have the injured worker return to work, manifested by the employer's willingness to support and accommodate the worker. Together, these components provide a structured and comprehensive approach to optimize recovery outcomes for the compensated worker. These include increased employee/employer communication, reduction in lost time and associated indirect costs, disability management, avoidance of litigation, and the reduction of unnecessary medical costs. This approach ensures that all the patient's issues, including sociological and psychological concerns, are addressed and obstacles to recovery are removed. Injured or disabled employees usually seek legal assistance because of misinterpreta-

tion and miscommunication. A multidisciplinary, centralized team approach could potentially avert such cases by resolving communication issues before they require litigation.¹³⁹

Employee Motivation

Most compensated injuries are minor and heal uneventfully with little or no disability. However, in some injured workers, recovery can take longer than can be explained by physical symptoms alone, indicating the presence of nonbiological issues that serve to prolong the disability. A review of the available literature demonstrates that compensation benefits alone can significantly affect motivation toward recovery.^{137,138}

The principal difference in recovery rates between compensated and noncompensated patients appears to lie in motivation—motivation of the injured employee, the employer, the insurance carrier, government, and providers. All parties involved in the recovery of a compensated patient are required to recognize the unique set of expectations, critical periods, and specific needs that must be met to attain return-to-work status.

Current research has shown conclusively that in cases of delayed recovery, nonphysical factors are often present directly impacting the injured employee's motivation.¹³⁹⁻¹⁴¹ There might be a single factor or a combination of factors present, i.e., social, emotional, neurotic, economic, and even sometimes-vindictive motives. Beneath this lies the original physical complaint that maintains the disability compensation payment.

Epidemiological studies reveal distinct characteristics in the occupational and psychological profiles of people disabled by soft tissue injuries, particularly low back pain.^{142,143} For example, job dissatisfaction, monotony, and stress are common characteristics. Persons facing these problems are more likely to suffer from depression, anxiety, hypochondriasis, and hysteria.

These nonbiological factors have an even greater impact on motivation when the entitled patient retains an attorney and becomes a legal claimant.^{136,139} Once this happens the patient is obligated to prove and preserve injury or illness. To improve physically jeopardizes the ability to prevail in a suit. Additionally, the worker's own credibility is placed at risk. Hence, the disability continues throughout the litigation process, even in the absence of any objective clinical basis for the disability. Because legal counsel is usually sought only after a patient feels abandoned or "wronged" by the employer, personnel policies that prevent such adversarial relationships can have a significant financial impact on the company, as they may prevent costly litigation. Simple personnel policies can provide

positive reinforcement for an injured worker, and also allow the employer to maintain control of an industrial claim.

Measuring Employee Motivation and Sincerity of Effort: The Performance APGAR

Making an objective determination of the amount of effort an individual expends to recover from injury or illness is an essential component in making stability and capability statements. Individuals whose effort and motivation are less than optimal may overuse treatment, have increased medical costs, more disability payments, and a prolonged recovery.

Clinical Pearl: The Performance APGAR (Acceptance, Pain, Gut, Acting, and Reimbursement) is a new standardized reporting methodology, which is a comprehensive summary of current methods used to measure the amount of personal commitment and effort the injured worker is currently expending or has expended to improve their condition.

In order to simplify and justify assessments of motivation, effort, and credibility, the authors have developed the *Performance APGAR*. Originally developed by Virginia Apgar in 1951, to measure a newborn's health, others in the literature have built on this model as a basis for other types of measures.¹⁴⁴⁻¹⁴⁷ Most APGAR models are rated on a scale of 0-10, with 10 representing normal. As with others, this Performance APGAR score is scaled from 0 to 10 and can be used to quantify effort at the initial visit, as a summary of progress at subsequent visits, or on the final determination of capability.

Motivation and effort can conceivably be plotted along a continuum with the physiologic bone ligament complex responses to loading conditions^{148,149} and with psychosocial factors determining how one performs in relationship to these physiological limits. Elite athletes perform much closer to their physiological limits than most persons.

Currently, a number of procedures are promoted for a clinician to objectively assess motivation, including Waddell's nonorganic signs,¹⁵⁰ dynamometric grip strength variation,¹⁵¹ bell-shaped force curves,¹⁵² Rey 15-Item Test for Malingering,¹⁵³ and rapid exchange grip.¹⁵⁴ Other evaluations include the correlation between musculoskeletal evaluation and functional capacity evaluation,¹⁵⁵ documentation of pain behaviors and symptom magnification,^{156,157} and the ratio of heart rate to pain intensity.¹⁵⁸ The Social Security Administration uses an assessment of the credibility of allegations in their overall disability evaluation process. Table 34-1 provides an example of a tabular assessment of credibility for use within the Performance APGAR.

Like the infant APGAR, which is given at birth, the Performance APGAR is a composite summary of methods used to determine patient motivation level and is rated on a scale of 1-10. A score of 7-10 is consistent with what is optimally expected from a motivated patient, a score of 4-6 indicates concern about motivation, and a score of 0-3 suggests poor patient motivation to improve their functional abilities. The Performance APGAR scores can be used for many different types of impairments. These scores can be given at each visit or over a series of visits and provide the reader with an indication of the motivation a patient is currently expending to improve their condition.

A work sheet for the comprehensive Performance APGAR score is shown in Table 34-2 along with descriptors for each variable. Each of the five categories of the APGAR can be given a value of up to 2, making the maximum composite score of 10, consistent with acceptable motivation and effort. The five components of the APGAR are described. Each section of the APGAR has multiple possible measures that can be scored. When scoring, the single best method under each letter is chosen which is most appropriate for a particular patient. Alternatively, if there are several items under a specific letter (A, P, G, A, or R) that have been tested, these may be averaged to estimate a mean score for that letter. The Performance APGAR provides an easy mnemonic by which to remember a method to quantify patient motivation, credibility, and effort.¹⁵⁹

Treating the Total Patient—The Health-Care Provider

Such clinicians must be sensitive not only to the biological pathology, but also to psychosocial issues, which may limit motivation for return to work. In sports medicine, the provider must have an understanding of the game, and knowledge of how the team interacts. The same principles apply in the occupational medicine arena.

Clinical Pearl: Clinicians whose treatment regimens have demonstrated the ability to effectively return the employee to work should treat injured workers.

Clinicians who treat the injured worker should be comfortable with the type of work required for an injured worker to perform his or her job and determine the capability of the patient. Health care providers providing regular care to certain employers or plants should tour the facilities and review the job descriptions to become familiar with the jobs performed by their patients. These ability decisions carry

TABLE 34-1. APGAR Creditability Assessment

	Not Consistent with the Objective Evidence and/or Expected Outcome/Severity (0 Points)	Partially Consistent with the Objective Evidence and/or Expected Outcome/Severity (1 Point)	Fully Consistent with the Objective Evidence and/or Expected Outcome/Severity (2 Points)
Impact of symptoms or condition on ADLs			
Type, dosage, effectiveness, and side effects of medications			
Treatment sought and received			
Opinions about function given by other treating and examining sources in the file			
Inconsistencies or conflicts in the allegations, statements, or medical evidence in the file			
		Total credibility score = ____ (0-10)	
Credibility determination:			Result of credibility determination to be used in the APGAR table
Total credibility score of 0-3 = Not credible			
Total credibility score of 4-7 = Partially credible			
Total credibility score of 8-10 = Fully credible			

Note: Each of the five areas should be scored 0, 1 or 2 points. The five area scores are then totaled for an overall credibility score of x/10. This score is then used in the credibility section of table 1 (not, partially, or fully credible).

heavy legal and ethical responsibilities as fitness for duty decisions are often directly related to the individual's earning capacity and/or disability benefits. The clinician should also be well informed on workplace parameters such as the availability of modified duty.

Employer's Responsibility

Applying the concept of centrality, employers have two main responsibilities: (1) to prevent injuries from occurring and (2) creating a favorable return-to-work environment for the injured employee. To accomplish this the employer must understand and support the concept that timely work integration is critical to the rehabilitation of the injured employee.

Clinical Pearl: Clinicians should very seldom remove the injured employees from work. They should make clinical determinations of physical capability, with the administrative decisions of accommodations being left to the employer.¹²⁵

Employers should evaluate work restrictions given by the clinician and make an administrative de-

cision, in consultation with the provider, about when and in what capacity the injured worker may return to the work site, whether in the same job or a modified position. Employers must be willing to accommodate early return to work during the rehabilitation phase, prior to the worker's full recovery.

Limited Residual Physical Capacity

Many essential job functions require a significant amount of physical capability to perform. All individuals are at points in their lives, irrespective of motivation, health care, or employment concerns, where they may not be able to physically do what they would like. Just as injured athletes all reach a time where a change in careers is inevitable, so workers doing significant physical work will need to have serious discussion regarding accommodation of the labor-intensive essential functions of their work. Employers would do well to identify those jobs in which it is unlikely that anyone could continue till retirement and develop plans for engineering changes that will accommodate physical limits or, if necessary, shifting aging workers to less physically demanding work.

TABLE 34-2. Work Sheet for the Performance APGAR

			Scoring Options			Score up to 2 points
			0.	1	2	
A	Acceptance (choose best test or average)	If this just does not get any better, what will you do?	I can't live like this	I am going to have some problems	I will live with it	A = ____
		Are you satisfied with your job?	Not satisfied	Partially satisfied	Satisfied	
P	Pain (choose best test or average)	Pain drawing	Nonphysiologic	Some of it physiologic	Physiologic	P = ____
		Pain behaviors score (AMA Guides Table 18-5)	Exaggerated or nonphysiologic	Mixed or ambiguous	Appropriate and confirm clinical findings	
G	Gut (intuition) (choose best test or average)	Credibility tool (see Table 2)	Not credible	Partially credible	Credible	G = ____
		Intuition of effort Duration	Poor effort Much longer than expected	Partial effort Longer than expected	Excellent effort As expected	
A	Acting (choose best test or average)	Consistency with distractions	Poor consistency	Partial consistency	Excellent consistency	A = ____
		Waddell signs	More than 2 Waddell signs	2 Waddell signs	0 to 1 Waddell sign	
		Grip strength testing	Unreliable grip strength (high variance, etc.)	Partial validity	Reliable grip strength	
R	Reimbursement	Compensation/litigation	Someone else liable WC, PI, disability application Attorney representing	Someone else liable WC, PI, disability application	No one liable	R = ____

Total Performance APGAR Score = ____

(Add A, P, G, A, R sections for a maximum of 10)

EXPECTANCY

"Expectancy," the final component of the SPICE model, reflects the fact that injured workers often fulfill the clinical and labeling expectations placed on them.

Again, the military system provides a startling illustration of the role Expectancy plays in the recovery of compensated individuals.

To fully understand why Expectancy plays such a vital role in human performance, it is necessary to recognize that belief or expectation can significantly affect the clinical outcomes.¹⁶⁰ Some authors suggest that the patient's expectations may influence outcomes more strongly than any clinical therapy.¹⁶¹ Often referred to as the nonspecific effect of healing, or placebo, these effects have been reported to be strongest when the patient is anxious, the health care provider is perceived as having great expertise, the

patient and clinician believe the treatment is powerful, and the treatment is considered both impressive and expensive. The clinician's friendliness, warmth, interest, sympathy, prestige, empathy, positive attitude toward the patient, and positive attitude toward the treatment have all been found to significantly influence positively the outcomes.^{162,163} All health-care providers should understand the significant role played by the placebo effect in the healing of their patients.

A review of treatments for angina pectoris, originally believed efficacious but later found to be ineffective or no better than placebo, have demonstrated 63%–100% objective improvements,^{164,165} far better than the usual 30% usually explained by placebo. Other studies have reproduced these findings.¹⁶⁶ A review of 2504 discectomies for lumbar disk disease that report negative surgical exploration found that 37% of the patients reported complete relief from sciatica and 43% complete relief from back pain,¹⁶⁷

results similar to those reporting improvement with surgery.

Goals

The setting of a personal goal higher than would be assigned by another can lead to increased success. Because there is little difference in effectiveness between assigned goals and self-set goals,^{168,169} the clinician is able to exert a healthy influence on patients' goals and expectations without prejudicing the clinical outcome.

Cathlove and Cohen used a "Directive Return to Work" approach in a multimodality rehabilitation program for workers' compensation patients.¹⁷⁰ Patients were divided into two groups, one directed in return to work, the other left to routine treatment, with no specific return-to-work goals identified. In the directed group, patients were informed at program entry that they would need to resume work within 1–2 months. This return-to-work understanding was part of the initial "treatment contract." The staff continually reinforced this concept by actively initiating return-to-work discussions and by guiding patients in setting work goals commensurate with their abilities. Sixty percent of patients in the directed group became gainfully employed. This is striking when compared to the nondirected group, where only 25% returned to gainful employment. Nine months later, 90% of the directed patients who had resumed work were still working. In contrast, only 75% of the nondirected group who had returned to work remained employed.

The Clinician's Role in Treatment and Patient Expectation

Often patients unrealistically expect to be made completely well from a disorder or illness that will likely leave the patient with residual symptoms. The lay press, family members, and other care providers often facilitate such unrealistic expectations. Left with symptoms, frustration with the conventional health care, and with encouragement from peers and family, many desperate workers have resorted to aggressive surgeries or alternative health-care therapies.¹⁷¹ As with anyone being left with a personal loss, these workers will go through the five stages of grief outlined by Kubler Ross: denial, anger, bargaining, depression, and then finally acceptance¹⁷² (see Fig. 34-3). Comprehensive programs have demonstrated that those patients who receive encouragement to engage in normal activities return to work sooner than those who receive more conventional treatment.¹⁶³

Clinical Pearl: The practitioner's goal must be to provide the worker with realistic expectations of a disorder. This includes reviewing with the patient the risk and benefits of intervention as it compares to

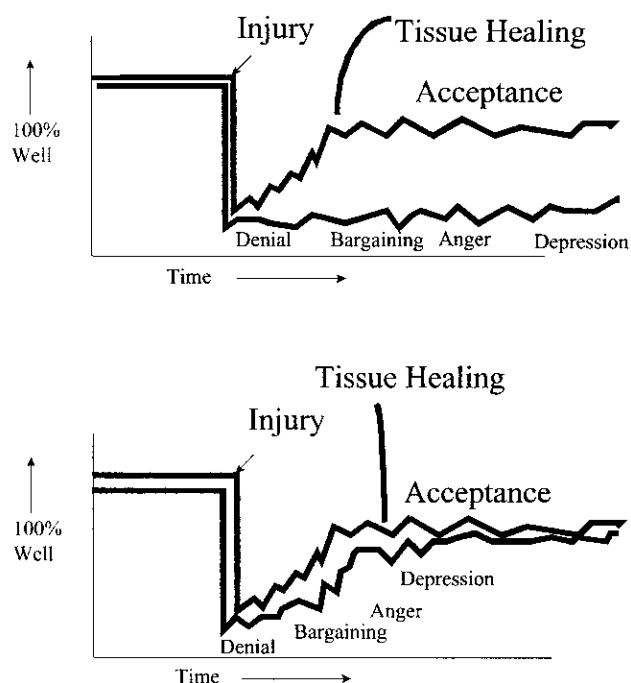


FIGURE 34-3. Recovery curves: Psychological acceptance over time should parallel tissue healing.

the natural history of the disorder and facilitating acceptance and independence.

Expected Administrative Issues Needing to be Completed with Occupational Back Pain

Reporting Information on Injured Workers The unique needs of those responsible for injured workers require that practitioner reports are complete, objective, and defensible. The attending clinician is the person most knowledgeable regarding the condition, progress, and final status of the injured employee. Therefore, it is imperative that this provider renders the final disposition on the care of the worker.

The Clinician's Report at Stability Administrative rules and regulations for occupational health care vary between countries and, indeed, between regions within those countries. This is especially true in the United States, where workers' compensation systems can be quite disparate. The following generic overview of the reporting strategy and process is provided here as a model for the reader to understand the process. Specific reporting rules and regulations must be learned on an individual basis.

The clinical report at stability is a comprehensive report prepared after the injured worker is medically stable, sometimes referred to as maximum medical improvement (MMI), or fixed state of recovery. Other common terms include maximum therapeutic benefit (MTB) and permanent and stationary (P and S). As this is an administrative document, the final

disposition of the examiner should include the following information:

1. *Diagnosis*: The examiner needs to clearly state the diagnosis as substantiated from the medical record. The examiner should also define, as clearly as possible, the relationship of the diagnosis to the industrial event. It is recognized that, in many cases, specific pathological diagnoses are not clearly evident. The examiner has the responsibility to provide a diagnostic impression that is as closely correlated to the clinical findings as possible.
2. *Stability*: Medical stability, MMI, or fixed state of recovery, refers to a date on which the period of healing has ended and the condition of the worker is not expected to materially improve or deteriorate by more than 3% Whole Person in the ensuing year.^{173,174} It is important to note that medical stability may not be used to terminate necessary medical care. The date of medical stability and the date on which the worker qualifies for an impairment rating can be two separate dates.
3. *Calculation of Impairment*: Using appropriate rating criteria for the jurisdiction within which he or she works, the examiner should calculate the residual impairment, based on clinical findings established during the medical examination and information found in the medical records. Those states that use the *American Medical Association (AMA) Guides to the evaluation of permanent impairment (Guides)* must try to be consistent with their rating methodology and be careful to prevent controversy and unnecessary litigation. Unfortunately this lack of consistency inherent within the guides is a concern and has provoked calls for serious revisions to address this issue.^{175,176} A number of studies have demonstrated poor reliability of the AMA Guides' spinal range of motion model to estimate impairment in patients with chronic low back pain.^{177,178} As a solution to this troublesome area, some states have adopted their own methodology to calculate impairment ratings and likewise demonstrated their reliability.^{184,185}

Clinical Pearl: Further studies have shown that spinal range of motion is unreliable and dependent on the age and sex of the patient,^{179,180} osteoarthritis,¹⁸¹ and the time of the day the measurements were taken,¹⁸² and have no relationship to disability.¹⁸³
4. *Apportionment*: The examiner must identify and list any factors, occupational and nonoccupational, which add to, or are a part of, the impairment, but are not directly resultant from the injury.
5. *Capabilities Assessment*: If requested, the clinician should make a statement as to the current functional capacity of the patient. It is his or her responsibility to determine whether the impairment results in functional limitations and to inform the employer about an individual's ability and limitations. It is the employer's responsibility to identify and determine whether reasonable accommodations are possible to enable the individual's performance of the essential job activities.¹⁸⁶ Not only does this clearly establish physical abilities, but also facilitates the patient/employer relationship for return to work. The Workplace Functional Ability Medical Guidelines,^{187,188} is an excellent, comprehensive system review and report form. Functional ability evaluations should be performed or requested only if the carrier or self-insured employer makes a specific request for this service.
6. *Future Medical Treatment*: If requested, the examiner should be specific in identifying what treatment may be required in the future as a direct result of the industrial accident.
7. *Utah Performance APGAR*: Because impairment ratings outcomes are often contingent upon the effort an individual has made to improve his or condition, it is recommended that each impairment rating should include a Performance APGAR score as described above.^{189,190}

CONCLUSION

Comprehensive problem-solving solutions are now mandatory to prevent the creation of costly disability. Health-care providers, disability managers, and business managers must coordinate the redirection of treatment to the whole person, recognizing all the factors that influence successful return to work. Claude Bernard once wrote, "The greatest error in the advancement of medical science has been the search for a single cause for a single disease."¹⁹¹ Or, as Aristotle (384–322 BC) said, "Treatment of the part should never be attempted without treatment of the whole. That is the error of our day, separation of the body from the soul."

SUMMARY

1. The SPICE model, as outlined above, combined with the Performance APGAR and the other methods proposed in this chapter, provides the much-needed structure for a comprehensive problem-solving strategy.
2. The authors feel this strategy will help in preventing work-related claims.

3. When work-related claims do occur this strategy provides for management in an efficient, fair, and timely manner, thereby preventing iatrogenic disability.

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