

A Model for the Prevention of Iatrogenic Disease Associated with Work-Related Low Back Pain

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"First Do No Harm"

A review of national statistics related to workers' compensation strongly suggests that the current system for managing work-related back pain is not only ineffective but may actually promote disability. It is this author's view that a comprehensive unifying solution exists within the military "forward treatment" model used to prevent iatrogenic disability in battle fatigue casualties. Because military personnel and employed workers are similarly entitled it is felt that this proven model may likewise be effective in the prevention of iatrogenic disability in the worker with a job-related back injury. The model, acronymed SPICE, includes five components: Simplicity, Proximity, Immediacy, Centrality, and Expectancy.

KEY WORDS: iatrogenic disability; work-related back injury; battle fatigue; forward treatment.

INTRODUCTION

A review of national statistics related to workers' compensation strongly suggests that the current system for managing work-related back pain is not only extremely ineffective, but may actually promote disability. It is this author's opinion that a treatment model exists, and has been proven efficacious over the past century, with hundreds of thousands of similarly entitled individuals.

The militaries have discovered over the past 60 years that when certain entitled individuals with relatively benign complaints were left to heal alone, or received inappropriate treatment for physical complaints only, the system caused many to become permanently and totally disabled. (1) To address the problem, the militaries evolved a successful treatment model, referred to as "Forward Treatment, (2) for the prevention of such system-induced disability within this highly stressed and "entitled," or compensated, population.

"Forward Treatment" is based on the discovery that in certain individuals, under conditions such as combat anxiety and stress, psychological defense mecha-

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nisms may form to "protect" the individual. These have the potential to transform a relatively benign disorder, such as "fatigue" into an "illness" that is acceptably serious. Once this "illness" is justified by others, it can then serve to either subconsciously or consciously release the individual from the emotional stress of his/her duties. Jones and Hales outline the chain of events leading from stress to disability in such cases: "The soldier who has succumbed to fear and departed the battle will begin to develop severe guilt feelings for having abandoned his 'buddies.' Psychiatric symptoms develop as a defense to salvage self-esteem and assuage guilt. These symptoms present an honorable method of escaping combat. The further the soldier is from return to his unit, the more intense the symptoms become as he must more strongly justify his defection" (3).

The efficacy of forward treatment was validated by the Israeli military during recent conflicts with the Arabs and Lebanese. During the 1973 war, Israel treated many soldiers who presented with minor physical impairments, yet considered themselves greatly disabled. Standard treatment resulted in many of these soldiers becoming permanently disabled; none returned to active duty (4). Nine years later, Israel adopted the "Forward Treatment" concept during the 1982 war with Lebanon, and consequently returned 60% of these soldiers to full duty within 72 hours (5-7).

Prior to any injury or illness, a number of similarities become apparent between military personnel with individuals employed in a workers' compensation environment:

1. The populations of both groups are basically young and predominantly male. A certain degree of intelligence has been tested for and is required, and those with preexisting disabilities or serious illnesses have been screened out (8,9).
2. In both settings, individuals are expected to function in terms of the needs of the 'team' rather than the needs of the individual (10).
3. Both groups have legally mandated entitlement programs for "on-the-job" injuries.
4. With respect to both groups it has been identified that the number and type of disability complaints are directly related to the intensity of psychosocial stressors to which the subjects are exposed (11).

The similarities of these two populations suggests that the military model of "Forward Treatment," which has been validated in the prevention of iatrogenic disability in soldiers, provides an extremely useful mechanism for the prevention of recovery delays in the compensated low-back patient.

SPICE

When applied to the "entitled" or compensated industrial patient, this "forward treatment" model, acronymed SPICE, consists of five primary components.

Simplicity deals with the fact that when simple, benign conditions are treated in a complicated fashion, they become complicated.

Proximity involves the need to keep the injured worker emotionally and geographically tied to the workforce.

Table I

Simplicity
Proximity
Immediacy
Centrality
Expectancy

Immediacy reflects the need to deal with industrial injuries in a timely manner, to avoid establishing "disabled" behavior.

Centrality means that all parties involved with the injured worker must share a common vision and common goals for successful return to work.

The final component, *Expectancy*, reflects the concept that injured workers often fulfill the clinical and labeling expectations placed on them. Likewise, complex diagnostic labels and vague return-to-work goals serve to reinforce "sick behavior" in the injured worker, and potentially delay recovery.

The *SPICE* model is outlined here within the context of the industrial patient with a low back injury. Back pain has been selected because it accounts for nearly 40% of all industrial injuries (12), and is currently one of the most expensive health problems in the industrialized world.

SIMPLICITY

The concept of simplicity evolved 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 was indeed seriously ill (13).

Patients with low back pain, like soldiers with "battle fatigue," often believe strongly they are suffering from a serious ailment. In one clinic treating low back pain, it was noted that 60% of back-pain patients believed or had been told they had a "disc prolapse," although only 11% had any evidence of nerve root pain or dysfunction (14).

To prevent iatrogenic complications from forming, it is necessary to apply the concept of simplicity to the diagnosis, terminology, testing, and treatment of low back pain.

Diagnostic Terminology

The history of "battle fatigue" has been closely tied with the history of warfare. It was first recognized among persons in combat, and has been given many names. During the American Civil War it was "nostalgia"; during World War I, "shell shock"; during World War II, "war neurosis" and "combat exhaustion." During the Korean War, it was referred to as "combat fatigue." It was found that many times the "diagnosis" given to stressed soldiers became literally a self-fulfilling

prophecy, with the prognosis directly related to the initial label placed on the individual soldier.

The concerns related to diagnostic "labeling" have also been identified in other areas of medicine. Investigators have shown that simply informing a person who feels well that he has a "disease" (such as asymptomatic hypertension) can cause an increase in "sick behavior" (15). 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."

Unjustified "psuedopathologic diagnoses" must be avoided and replaced with clear, nonthreatening terms such as "simple strain" or "nonspecific low back pain." Because it is often impossible to make a precise diagnosis, the primary physician should apply concepts of simplicity, by (a) providing an explanation of the most likely pain mechanisms; (b) reassuring the patient when serious disease is absent; and (c) providing information about the favorable prognosis of acute back pain.

Testing

Sophisticated testing procedures can have an adverse effect on the patient's illness behavior by reinforcing the severity of the "illness." Because specific pathodiagnosis is rare, physicians should refrain from using expensive diagnostic tests unless it is *strongly suspected that the results of such tests would significantly change the course of treatment*. Adequate reassurance is often more effective in the long-term treatment of the compensated patient and no more time consuming (16). This approach can forestall the pattern whereby a doctor's overemphasis on the potential seriousness of a low back patient's symptoms leads to the patient's overreaction to his illness and subsequently affects his recovery (17).

Treatment

During World War II, the military used such exotic and complex-sounding treatments as "narcosynthesis" or "electroconvulsive therapy" (18). It was found that the application of these modalities was not only ineffective, but commonly strengthened the soldier's rationalization that he was significantly physically or mentally ill.

Current treatments for back pain often fare no better than the exotic "cures" applied during World War II. And like those "cures," present day medical care often prolongs disability by reinforcing illness behavior. It is interesting to note that in third world countries where expensive diagnostic and treatment modalities are not available, there is little evidence of back disability being a problem (19-22).

PROXIMITY

"Proximity" deals with the need to keep an injured worker as close to the workplace as possible, throughout the healing and rehabilitation process.

Prior to 1917, the British routinely removed "battle-stressed" casualties from their duty stations, sending them home. It seemed logical that if a soldier was suffering from debilitating stress and anxiety, he should be removed from the source of that stress, i.e., the battle. Unfortunately, the converse was found to be true. The British learned that many of those returned to England for "battle stress" became refractory to treatment (23). Of the 200,000 soldiers on England's pension list, 1/5 had a permanent diagnosis of "war neurosis" (24).

Later, in World War II, British and French physicians noted that the most successful recovery for soldiers with battle stress was found when encouragement, rest, persuasion, and suggestion ("Simplicity") were given within the combat organization itself ("Proximity") (25).

The Israeli Defense Force again validated the concept of proximity during the 1982 war with Lebanon. Prior to this, in the 1973 conflict, all "psychiatric casualties" were evacuated to the rear of the battle front. These soldiers sustained no clear physical injury, and had negative findings on multiple examinations. Yet they persisted with incapacitating, subjective symptoms that included somnambulism, anxiety dreams with talking or shouting, syncope and vertigo, narcolepsy-like complaints, "seizures," musculoskeletal-type complaints, amnesia, blurred vision, stuttering, particularly following exposure to loud noises or automatic weapons fire; "aphonias," or other speech disturbances, persistent nausea or abdominal pain, or severe headaches. None of these casualties were returned to combat duty during the war, and many became chronically disabled (26). 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. With this approach, 60% of combat reaction cases were returned to duty within 72 hours. It is important to note that the further from the front these casualties were treated, the lower the return to active duty. Those treated at the rear of a division had a success rate of only 40%.

Proximity for the industrial low back patient is not limited to geographical location but expanded to include all elements which have been identified as generally improving the work environment, including physical, mental, and social elements.

In one study involving a geriatric hospital (27), 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, 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 they 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. This hospital's experience clearly illustrates that making employees feel that they are valued and needed at the workplace can have a significant impact on the employer's bottom line.

In addition to recognizing and managing workplace stress, personnel policies that are clear and enforced can prevent undue employee frustration, and help to maintain a productive attitude among employees (28,29). The majority of compensation-related litigation is directly related to the frustration level, or fear level, of injured workers (30). Human resource policies that educate, accommodate, and reduce fear in the worker may also reduce litigation.

IMMEDIACY

When dealing with "battle fatigue," the need for immediate treatment was one of the first principles identified. This became very obvious when the vicissitudes of combat prevented early treatment of war neurosis. When there was a large influx of casualties, soldiers suffering from "war neurosis" were not treated immediately, while attention was focused on more life-threatening injuries. Left to their own devices, these soldiers became more refractory to treatment when it was eventually offered, and more likely to need further rearward evacuation. The soldier's time away from his unit weakened his bonds with the unit and allowed him to consolidate the rationalization 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.

Delta Airlines has long recognized the value of immediacy and early intervention as a tool for reducing compensation losses. A vivid illustration was recounted in a Wall Street Journal article describing the aftermath of the 1985 crash at the Dallas/Forth Worth Airport (31). On August 2, 1985, windshear 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 management sought only for ways to comfort the bereaved. Within hours of the crash, the airline had dispatched employees to be with every family, providing clothing, assist in looking for lost articles, or just to provide a listening ear.

The article goes on to state that 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. According to author D. Bean, Delta Airlines legal counsel stated that this early bonding, although humanistic on the surface, was in fact a legal tactic, carefully planned and executed with the intent of creating relationships that preclude costly litigation. Of a possible 152 passenger claims in the crash, only 65 suits have been filed. Fifty of these suits have been settled, most without litigation. This is startling when compared with the 1982 Pan Am crash in New Orleans. Pan Am did not employ "early bonding" tactics, and at least 3/4 of the 146 passenger deaths resulted in litigation.

As with casualties of war or crash victims, immediate attention and treatment for compensated patients with back pain should decrease iatrogenic and nomogenic factors in low back pain, and may assist in alleviating the current clinical stagnation that can lead to chronically disabled workers.

CENTRALITY

In her article, "The Failed Health Care Revolution," Regina Herzlinger outlines perhaps the primary disability-promoting flaw in our current health care system: "Despite a widespread cry for health care revolution, medical services are still fragmented and organized around medical specialties. Get a back problem and you see a neurologist here, an orthopedic surgeon there, a radiologist somewhere else. *No one has ultimate responsibility for treatment*" (32). The fragmentation Ms. Herzlinger refers to significantly inhibits holistic treatment of the individual. Often it is made worse by poor communication, and with no one to take full responsibility for, or direction of treatment, the other members of the management team (the patient and industry) are often confused as to what to expect and when to expect it. To prevent this from occurring, healthcare providers must become more professionally coordinated, using immediate communication and uniform expectations in approaching the full spectrum of the injured worker's needs: biological, psychological, and social. The development and adoption of comprehensive health care management protocols may also assist the medical provider in the treatment of these difficult work-related back cases. A multidisciplinary treatment team is needed, allowing medical providers, employers, and patients to approach treatment and recovery from the same perspective. This approach ensures that all the patient's issues, including sociological and psychological concerns, are addressed and obstacles to recovery are removed.

EXPECTANCY

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

Again, the military provides a startling illustration of the role expectancy plays in the recovery of compensated individuals. Soldiers in World War I, who were diagnosed as suffering from "Shell Shock" indeed acted as if they had sustained a "shock" to the central nervous system. As recounted by Biley and others, "there were descriptions of cases with staring eyes, violent tremors, a look of terror, and blue, cold extremities. Some were deaf and some were dumb; others were blind or paralyzed" (33).

When physicians realized that concussion was not the etiologic agent, as "Shell Shock" would imply, the term "war neurosis" was adopted (34). This was hardly an improvement, as the general public associated "neurosis" with chronic, and sometimes severe mental illness. The soldiers just as readily grasped this medical diagnosis as "proof" of their illness and responded accordingly (35).

Later, military medical personnel were instructed to label such casualties as "NYD (Nervous)" (for "Not Yet Diagnosed—Nervous") (36). The term was obscure enough that it gave casualties little to cling to. Also, no suggestion was made that would initiate the transformation of the disorder into something generally recognized as incapacitating, thus honorably releasing the soldier from combat duty.

Additionally, this vague diagnostic label left the casualties open to the suggestion that they were just tired and a little nervous, and that with rest they would be fit for duty. Eventually, this disorder became referred to as simply "exhaustion." In World War II, it was referred to as "combat exhaustion." Finally, the term "combat fatigue" became preferable because it expressed more exactly the expectation desired, i.e., combat has fatigued the soldier, who requires only appropriate rest before quickly returning to full duties.

To fully understand why Expectancy plays such a vital role, it is necessary to recognize the role of motivation in human performance. Its dimensions include that inward drive to rise above our situations in life, whatever they may be.

Motivation is manifested in varying degrees in the entitled individuals. It has been demonstrated that psychosocial, demographic, and functional traits are very predictive of rehabilitation outcomes in patients with low back pain. In fact, some authors suggest that these factors may be more predictive than physical examination and may influence outcomes more strongly than any clinical therapy (37).

In one study of participants in the Canadian Back Education Unit, Hall and Icton found that patients who believed their pain was due to a non-threatening problem (i.e., pulled muscle or facet arthritis) had more subjective improvement than those who thought their pain was due to a more serious problem (i.e., degenerative disc or pinched nerve) (38).

If physicians are advocates of patients and of society, they should encourage *ability*, not *disability*. They should help patients retain a sense of purpose and self-worth which, for many, means return to gainful employment.

Treatment programs designed specifically for compensated patients with work-related back injuries have recently demonstrated program features that may enhance success. Cathlove and Cohen utilize a "Directive Return to Work" approach in a multi-modality rehabilitation program for workers' compensation patients (39). 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." It was explained that return to work was an integral element of the ongoing rehabilitation, and not the end product of the treatment. 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. Patients were informed that resuming work after a lengthy period of relative inactivity would initially be tiring and difficult. Sixty percent of patients in the directed group became gainfully employed. This is striking when compared to the nondirective group, where only 25% returned to gainful employment. Perhaps more important than these initial return to work statistics is the fact that the directed group sustained greater long-term success than the non-directed group. Nine months later, 90% of the directive patients who had resumed work were still working. In contrast, only 75% of the nondirective group who had returned to work remained employed.

This directive return-to-work study illustrates how vital goal setting is to returning compensated low back patients to productive activity. According to the re-

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search of Locke and associates, the setting of specific goals is remarkably effective in substantially improving performance in almost all individuals, regardless of educational level, age, or sex (40). Locke also found a direct, nearly linear relationship between goal difficulty and task performance, assuming that a person has sufficient innate ability to learn and perform the task. Challenging goals are consistently associated with increased performance.

Comprehensive problem-solving solutions are now mandatory to prevent the creation of costly disability. We must redirect 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" (41). 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.*"

The SPICE model, as outlined above, provides the much needed solutions, returning the focus to the individual, and recognizing the wide range of factors which can help minimize the effects of injury, illness, and disability. Many health care professionals may have recognized some individual aspects of the approach recommended herein and possibly already incorporated them into treatment protocols. The evidence in support of this approach, however, is thus far largely indirect. The field could benefit from a controlled outcome study that incorporates each of the five components in the SPICE model. Indeed a series of outcome studies would be necessary.

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