

Drug Seeking Behavior

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ABSTRACT

Concept: Drug seeking behavior (DSB) is often mixed in illicit drug diversion confounding legitimate attempts to control acute and chronic pain. *Objective:* To review the literature of acute and chronic pain control against the medical and legal context of DSB. *Design:* Retrospective literature review from National Library of Medical Computerized Data Base 1990–2004. *Patients:* Preference to human prospective on retrospective clinical trials. *Results:* Drug use and abuse have significant adverse consequences. Pain control is desirable and necessary with chronic pain syndromes more prone to DSB. This behavior can be accurately profiled and information used to assist recovery. *Conclusion:* It is desirable to address DSB stressing acceptance and a multidisciplinary approach to recovery.

Key Words: Narcotic; Drug seeking, behavior; Drug abuse; Addiction; Pain control; Analgesia.

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INTRODUCTION

The understanding of pain has progressed through the 1960s when pain was first considered a direct sensory response to tissue damage, without modification by genetic differences, experiences, anxiety, or expectation. However, in 1968 the Melzack-Wall Gate Control Theory hypothesized central nervous control that helps to modulate the afferent peripheral noxious stimulus balanced by the efferent modulation of this stimulus (1).

Perhaps the best definition of pain comes from the International Association for the Study of Pain stating that “pain is an unpleasant sensory and emotional experience associated with actual or potential tissue damage or described in terms of damage” (2).

Those items are crucial since pain is the most common reason to give medical care (3). Better understanding is offered by a mechanistic classification system analyzing the pain milieu subcategorized into nociception or the perception of “pain” as injury itself mediated by A-delta and C-fibers inducing an inflammatory condition (4).

Pain is modulated by perception of the stimulus, which is perhaps more important in chronic pain occurring independently of severity of injury. Next, suffering is a negative response induced by pain but modified by fear, anxiety, stress, or loss. Lastly, we acknowledge pain behaviors as overt physical or subtle adaptive response to pain.

However, the more commonly used classification system involves the timing and duration of pain, acute associated with significant injury and inflammation of brief (<2 weeks) duration, or subacute (2 weeks–2 months) duration, and chronic (>3 months), which is triggered by injury but perpetuated by other psychosocial factors.

An area of significant interest is the neurobiology of pain stressing the plasticity of pain and analgesia explaining the two major types of pain—neuropathic and inflammatory pain (5). The particular target is a mechanistic explanation of treatment focusing on fast sodium channel activity of peripheral nerves, opioids activity on pre- or post-sympathetic inhibition of peripheral C-fibers, as well as central activity of the N-methyl-D-aspartate glutamate receptor.

CLASSIFICATION

The understanding of pain control and management can be facilitated by classification systems emphasizing chronicity, character, cause, and location, which are modified by cultural, personality factors or psychosocial stressors (6) (Table 1).

Table 1. Pain classification systems.

<i>Temporal</i>	<i>Mechanistic</i>
Acute	Neuropathic
Subacute	Nociceptive
Chronic	Anatomic
<i>Characterization</i>	Headache
Dull	Back
Burning	Neck
Lancinating	Facial
Referred	Limb
Intermittent	Abdominal
Intractable	<i>Origin</i>
<i>Diagnostic</i>	Central
Cancer	Brain
Vascular	Spinal cord
Arthritic	Peripheral
Nerve	<i>Psychiatric</i>
Muscle	Psychogenic
Fibromyalgia	Psychosomatic
Myofascial	
Sympathetic	
Phantom	
Regional	

Source: Ref. (6).

Likewise, Caudill offered this model to understand pain and its complexity (7). This approach suggests a biological-injury based nature, psychological-emotional suffering, behavioral-action, cognitively pondering meaning or remedy, spiritually coming to grips with mortality, and culturally testing fortitude.

Even the major psychiatric classification system, the Diagnostic Symptoms Manual (DSM IV), specifies pain disorder associated with psychological factors (Section 307.80) and with both psychological factors and general pain condition (Section 307.89) (8).

The basis of pain management is understanding the three small sensory fibers carrying signals to the brain, specifically the myelinated fast fibers A-Beta and A-Delta and the C-unmyelinated slow fibers (6). The A-Beta fibers carry deep, long lasting lancinating pain; the A-Delta fibers convey sharp, lancinating, easily localized transient pain; and the C-fibers are primitive, slowly conducting to subcortical brain areas perceived as generalized burning, or longer lasting aching pain (Table 2).

Table 2. Peripheral nerve fibers.

Class	Transmission	Function/ Perception	Velocity (M/sec)	Diameter (μ)	Myelination
A-Alpha	Efferent	Motor Contraction	30–85	12–22	+ + +
A-Beta	Afferent	Visitation Pressure	30–70	5–12	+ + +
A-Delta	Afferent	Cold Fast pain Touch	5–25	1–4	+ +
C-Fibers		Hot Slow pain Generalized touch	0.7–2.0	0.3–1.3	–

Source: Ref. (6).

Lastly, the most effective rubric is a pathophysiologic approach analyzing nociception associated with normal functioning of pain-free nerve endings more focused on acute pain syndromes such as strains, trauma, or fractures (6). The second is neuropathic pain where actual nerve damage results in hypo- or hyperactivity found with radiculopathy or peripheral neuropathy. Third, there is a central nervous system pathway malfunction found in fibromyalgia, phantom pain, or psychiatric problems.

TYPES OF PAIN

The understanding of pain can be greatly facilitated by classifying it into acute or chronic pain syndromes. Characteristically, there is delineation based on timing acute (0–2 weeks), subacute (2 weeks–3 months), and chronic (> 3 months) in duration. As well, acute pain tends to be a direct result of nociceptive stimulation due to musculoskeletal injury compared to chronic pain, which is more often related to supratentorial processing of neuropathic stimuli.

Lastly, the site of care delivery can be important—emergency department, postoperative area, primary care office, or rehabilitation facility. Interestingly, the American Society of Anesthesiologists Practice Guidelines suggested that “acute pain in the perioperative setting has not been specifically defined in the available literature” (9).

However, the anesthesia discipline serves to be prominent in the acute pain management arena with 42% of hospitals having acute pain

management programs (10). Interestingly, pain is common: 77% of adult patients reported pain after surgery, with 80% of that number experiencing moderate to severe pain.

Perhaps, the most comprehensive pain compendium is offered by the American Pain Society with subcategories of acute, chronic, and cancer pain noted (11). There is little controversy over the treatment of cancer pain, but more discussion is given to the proper treatment of chronic pain.

This controversy specifically starts with the self-evident nature of acute pain with prominent physical signs of autonomic nervous system dysfunction such as tachycardia, hypertension, diaphoresis, mydriasis, and pallor opposed to chronic pain where these accompanying signs are absent as the patient adapts to a continual pain scenario.

The remaining area of controversy was at what point is the patient with acute pain treated. The recommendation is to treat, to ensure patient comfort irregardless of the proper diagnosis being made.

The overall management of acute pain involves the use of 1) nonopioid analgesics—aspirin, acetaminophen, and nonsteroidal anti-inflammatory drugs (NSAIDs); 2) opioid analgesics and analgesic adjuvants. The strategy would involve the use of low-dose opioids and nonopioid analgesics for mild pain and high-dose opioids in combination with nonopioid analgesics for moderate to severe pain (Table 3).

Table 3. Proper use of opioid analgesics.

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1. Individualize the route, dosage, and schedule.
 2. Administer analgesics regularly, not only PRN if pain is present most of the day.
 3. Become familiar with the dose and time course of several strong opioids.
 4. Give infants and children adequate opioid doses.
 5. Follow patients closely, particularly when beginning or changing analgesic regimens.
 6. When changing to a new opioid or a different route, first use an equianalgesic dose then modify based on the clinical situation and specific drug.
 7. Recognize and treat side effects.
 8. Be aware of the potential hazards of meperidine (Demerol®) and mixed agonist analgesics such as pentazocine (Talwin®).
 9. Do not use placebos to assess the nature of pain.
 10. Watch for the development of tolerance and treat appropriately.
 11. Be aware of the development of physical dependence and prevent withdrawal.
 12. Do not label a patient addicted (psychologically dependent) if you merely mean physically dependent or tolerant to opioids.
 13. Be alert to the psychological state of the patient.
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Source: Ref. (11).

An important adjunct to analgesics, especially for chronic or neuropathic pain, is the use of analgesic adjuvants such as tricyclic antidepressants (TCAs), antihistamines, benzodiazepines, caffeine, dextro-amphetamine, steroids, phenothiazines, anticonvulsants, and clonidine. The most success has been found with anticonvulsant agents such as gabapentin or carbamazepine. The TCAs, specifically amitriptyline, have been utilized in a low-dose strategy (10–25 mg a day). In some cases even anti-dysrhythmic drugs, such as mexiletine or lidocaine are effective due to their membrane-stabilizing effect.

Pain of Illness

Clearly, there is little debate over treatment of pain in those with cancer or significant illness. Weiss's analysis of terminally ill patients, 98% of whom had been treated for pain, found 50% reported moderate to severe pain, where 62% wanted therapy to remain the same, 29% wanted more therapy, and 9% wanted to reduce analgesic therapy (12). Interestingly, those with the most severe illness show only a minority who wish additional pain medicine.

Likewise, those with critical or chronic illness have pain as a significant issue in their illness. Decisions in an observational cohort study of over 13,000 patients found that those who had the highest pain severity at the onset tended to have the highest pain severity (39.5%) six months later as well (13). This raises issues of adequate pain control during the hospital and convalescent phase of illness.

Desbiens and coworkers further analyzed this group in interview fashion and nearly 50% of the population had pain that 15% classified as severe and 15% stated they were dissatisfied with pain control (14). After controlling for confounding variables, patients with more dependencies in activities of daily living, comorbid conditions, depression, anxiety, and poor quality of life reported greater severity of pain, as opposed to those older and sicker who reported less pain.

Similarly, dissatisfaction with pain management was more likely with those with more severe pain, greater anxiety, depression, and alteration of mental status, and lower reported income, as well as different study hospitals and physicians.

Therefore, it appears that both the amount of pain reported and satisfaction with pain management have apparently do as much relation to psychosocial issues as do as much as more objective aspects of pain.

Another recent counterintuitive study evaluated outcome of the critically ill as related to pain management. Freire evaluated 400 intensive care unit (ICU) patients, 36% of whom had received narcotic analgesics (15). Multiple logistic regression analysis showed that analgesic use was

independently associated with sedation, neuromuscular blockade, and PA catheter utilization. These patients also had prolonged mechanical ventilation (5 vs. 2 days); ICU stay (4 vs. 2 days); and hospital length of stay (11 vs. 7 days).

Obviously, this may be a noncausal correlation, but the trend towards less efficient care with therapeutic narcotic analgesic use is interesting.

Chronic Pain

The pathophysiology of chronic pain is often poorly understood. Elliot evaluated a random sample of 5036 patients in the United Kingdom where 71.6% returned questionnaires and half (50.4%) of them reported chronic pain, especially back pain (15.9%) and arthritis (15.8%) (16). However, stepwise logistic regression modeling identified age, sex, housing tenure, and employment status as significant predictors of chronic pain.

Our current strategy with chronic pain is a hit-or-miss approach focusing on small therapeutic efficacy studies. Moulin and coworkers conducted a randomized trial of oral morphine for treatment-resistant chronic regional pain of soft tissue or musculoskeletal origin (17). They found that doses of up to 120 mg daily may confer analgesic benefit, but they were unlikely to yield psychological or function improvement.

Another particularly difficult area of chronic pain management is in rheumatic disease. Ytterberg et al. evaluated 644 rheumatology clinic patients and found opioids used in 45% and reduced pain severity scores from 8.2 to 3.6 (0–10 scale, $p=0.001$) in this population (18). The approach was successful with mild side effects such as nausea, dyspepsia, constipation, and sedation in 38% dose escalation was required in 24% (32), with abuse behavior found in only 3% (4) of patients.

However, there is perhaps no disease where pain so defines the condition as sickle cell disease. Montanez and coworkers reported on 144 sickle cell patients where 97% were admitted for refractory pain (19). They suggested a protocol that included use of opioids agents, loading and maintenance not P.R.N. dosing, dose adjustment based on patient's experience, avoidance of meperidine, and synergistic use of acetaminophen or ibuprofen resulting in faster (80%) pain relief, decreased hospital length of stay (50%), and fewer repeat visits (40%).

The endpoint of chronic pain management is a comprehensive management strategy. The American Society of Anesthesiologists defined chronic pain as “persistent or episodic pain of a duration or intensity that adversely affects the function or well-being of the patient, attributable to any nonmalignant etiology” (20).

The purpose of these guidelines is to 1) optimize pain control, recognizing a pain-free state may not be achievable; 2) minimize adverse

Table 4. Chronic pain management.

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1. Comprehensive history and physical.
 2. Diagnostic evaluation.
 3. Counseling and coordination of care.
 4. Periodic monitoring and measurement of clinical outcomes.
 5. Multidisciplinary pain management.
 6. Multimodality pain management.
 7. Adjuvant analgesics
 - a. Antidepressants
 - b. Membrane-stabilizing agents (anticonvulsants)
 - c. NSAIDS
 8. Regional sympathetic blockade.
 9. Corticosteroid injection therapy.
 10. Neurostimulation therapy.
 11. Opioid therapy.
 12. Neuroablative techniques.
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Adapted from practice guidelines for chronic pain management, American Society of Anesthesiologists Task Force on Pain Management.

Source: Ref. (20).

outcome and costs; 3) enhance functional abilities, and physical and psychological well-being; and 4) enhance the quality of life. This group suggests a goal-oriented strategy stressing comprehensive guidelines to achieve a valid pain treatment endpoint (Table 4).

Specifically, they commented that the opioid therapy literature supports the efficacy, but may be associated with adverse sequelae, specifically tolerance, dependence, pruritus, nausea, and respiratory depression. Opioid therapy may be considered when analgesia provided by other modalities are no longer adequate to manage chronic pain.

This approach to opioid therapy requiring a logistic system responding to patient needs, in the concept of federal regulations balanced against the adverse sequelae of long-term use, requires frequent follow up, consultations with pain specialist, and potentially, signing a controlled substance agreement or contract for appropriate behavior.

EMERGENCY DEPARTMENT PAIN ASSESSMENT

Clearly, the assessment and treatment of pain in the emergency department is unique. Boisaubin describes a rubric for understanding pain

syndromes to include acute, self-limited disorders; chronic medical or surgical syndromes with acute exacerbation, and psychic pain syndromes with undetermined etiology (21).

Clinical concerns discussed include a tendency to ignore or undertreat pain, the need for flexible dosing schedules, and concerns about masking signs and symptoms. Oral NSAIDS were cited as the safest and most effective analgesics.

They specifically cited two problematic patient categories; those with chronic pain who need special follow-up but do not benefit from additional analgesic therapy. Likewise, those who seek and abuse drugs are difficult to identify, may have true underlying medical pathology, and should not be given narcotic prescriptions.

A specific area of focus has been the impact of ethnicity on analgesic administration. Todd et al. previously reported oligoanalgesia in an Hispanic population presenting to a single ED (22). A more recent study of a cohort of 217 African American and white patients with isolated extremity fractures found white patients were more likely to receive ED analgesics (74% vs. 57%, $p = 0.01$) (23).

The pediatric population has also been targeted for evaluation for inadequate analgesia. Petrack and colleagues evaluated 40 adult and pediatric patients with extremity fractures presenting to both academic and community centers (24). They suggested pediatric patients received fewer analgesics in the ED compared to adults (53% vs. 73%), but there were no differences, however, in discharge analgesic prescriptions.

Selbst and Clark published a similar retrospective review of 112 pediatric and 156 adult patients with acute pain due to sickle cell crisis (20%), lower extremity fractures (31%), and second/third degree burns (49%) (25). They found only 40% of patients received analgesics with decreased administration in pediatric patients (<19 years), especially the very young (<2 years), as well as less use of discharge analgesics. They observed a reluctance to use pain medication in this cohort.

A common area of discussion is the discrepancy between patient and physician pain assessment. Singer et al. evaluated 1171 patient procedures with a mean pain estimate by Visual Analog Scale (VAS) of 20.8 ± 25.1 mm for patients and 23.5 ± 20.3 mm for practitioners (26). The mean difference between groups was 3.0 mm (95% CI, 1.3–4.1), and overall correlation was poor to fair ($R = .26-.68$) between patient and practitioner. They concluded practitioners should be attentive to patient pain needs during procedural intervention.

A specific look at analgesia expectations was provided by Fosnocht and colleagues evaluation of 458 ED patients (27). They found a discrepancy between the patients' reported expectation for a reasonable waiting time for analgesic administration compared to actual (23 vs. 78 minutes), and 70%

had their needs met (83 mm vs. 51 mm, $p < 0.001$). They concluded that patients expect rapid pain medication delivery, but rapid administration does not meet expectations unless pain is actually controlled.

DRUG SEEKING BEHAVIOR

The drug-seeking patient may be one who is “determined at all costs to support their narcotic dependency” as described in a management approach by Vissers (28). The prototypical patient is described as presenting with an inappropriate focus on obtaining a desired pharmaceutical agent, without concern of other more appropriate issues, such as diagnosis or treatment alternatives (Table 5). Vissers stressed remaining objective and using superior therapeutic alternatives such as antidepressants and anticonvulsants for neurogenic pain and anti-inflammatory drugs for headache or renal colic.

An interesting issue is the ability of the practitioner to predict who is opioid dependent. Waldrop performed a survey of analgesia that found a significant overestimation of perceived opioid dependence, which was highest for residents (9%), nurses (7%), and staff physicians (4%) compared to historic controls (29). This suggests that objectifying criteria for Drug

Table 5. Prototypical drug seeking behavior.

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1. Multiple visits for same complaint.
 2. Unable to focus on anything other than the medicine.
 3. Lost prescription.
 4. Doctor unavailable.
 5. Allergic to new narcotic alternatives.
 6. Desires narcotics
 - a. Oral-codeine, oxycodone
 - b. IV-demerol, morphine
 7. Substitute benzodiazepines
 8. Common conditions that cannot be measured
 - a. Headache
 - b. Urethral colic
 - c. Toothache
 - d. Abdominal pain
 9. “Unbearable” pain.
 10. Overly creative requests.
 11. Appearance change or alias.
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Source: Refs. (28,29) and (31).

Seeking Behavior (DSB) is necessary to make a proper diagnosis and provide assistance.

Historically, these patients were treated using “problems patient” files, and information was transferred between facilities potentially violating confidentiality and HIPPA issues of the “frequent flyer” population. Graber performed an evaluation in 1994 when over half (58%) of EDs kept problem patient lists with nearly all facilities tracking information with no control of access to the lists (30). Thankfully, this practice has been largely culled from ED operations making identification of DSB even more difficult.

Probably the best demographic profile of DSB was provided by Egerton in a community-wide evaluation of at risk patients (31). A population of 30 patients with mean age 34.3 (range 21–55) years, who were 50% male, with 12.6 (range 2–33) annual visits to 4.1 (range 1–7) different hospitals using 2.2 (range 1–6) different aliases with two drug overdose deaths were identified.

Interestingly, the cohort that was to receive no further narcotics received controlled substances from another facility in 93% and the same facility in 71% of the visits. They suggested improved interfacility communication to address this information sharing issue.

Another DSB profile was offered by Egerton (31), a veteran family practitioner, suggesting heightened vigilance with 1) unavailable colleague on crossover; 2) aversion to other drugs; 3) unbearable pain; 4) overly creative request; 5) wearing-you-down approach; and 6) the quick change artist or name switch.

Perhaps, the most helpful approach is to define the taxonomy of the patient’s pain behavior from the cognitive psychology realm. Lechnyr and Holmes describe the functional overlay syndrome as “whatever else the patient brings along with their organic pathology” to the table including psychological, emotional, coping, and interactional styles (32).

These taxonomic labels have been summarized to include the frightened: “please hear me,” “I hurt everywhere,” and “overwhelmed;” angry/blaming, somatizers; passive, “secondary gain/malingering;” hysterical; psychiatric; and “normal” patient types (Table 6). Although, this model is not helpful in all circumstances, it may help to understand some patient presentations.

They also helped to define the psychologic interference with chronic pain suggesting 1) pain treatment improves psychiatric disorders; 2) focusing only on pain relief without problem solving worsens physical disability, anxiety, and reduced function; 3) 40% of pain patients have depression resulting from chronic pain; 4) cognitive behavior therapy improves coping; 5) preop psychological evaluation improves surgical

Table 6. Taxonomy of patient pain behaviors.

Patient types	Issue	Approach
1. Frightened	—	Education
2. “Please help me”	—	Listen
3. “Hurts everywhere”	Low pain tolerance	Recognize exhaustion
4. “Overwhelmed”	Life stressors	Crisis intervention
5. Angry/blaming	—	Validate
6. Somatizes	Emotional	Relationship
7. Passive	—	Firm expectation
8. Secondary gain	Malingering	Avoid confrontation
9. Hysterical	Overdramatization	Holding environment
10. Major psychiatric	—	Dual management
11. “Normal”	—	Uncharacteristic
	—	Response

Source: Ref. (32).

outcome; and 6) any psychiatric assessment tool is a guide to treatment intervention not the endpoint.

MANAGEMENT

The issue of pain management has even made it to the legal arena. The recent case of Dr. Chin, a veteran internist, who was accused of elder abuse for not treating a patient’s pain has brought this issue to the medicolegal forefront (33). Clearly, the precedent has been set, at least in the cancer population, for legal forces influencing pain management.

However, a more likely issue is the legal implication for failing to monitor use and abuse of narcotic analgesics. The dilemma is whether you are more likely to be used for divulging confidential patient information, such as previous visits or use of narcotics; or failure to monitor a patient abusing narcotics and subsequently discharging with additional medications resulting in untoward effects (34).

It is suggested that the prevailing practice of reasonable verbal discussions and attempts to attain appropriate medical history even about drug use would be acceptable with a valid endpoint for proper patient care even in the light of new Health Care Privacy and Portability Act (HIPPA) regulations.

Johnson (34) suggested a risk management strategy to address diversion of prescription narcotics to include education; a process to assess

Table 7. Drug seeking behavior protocol.

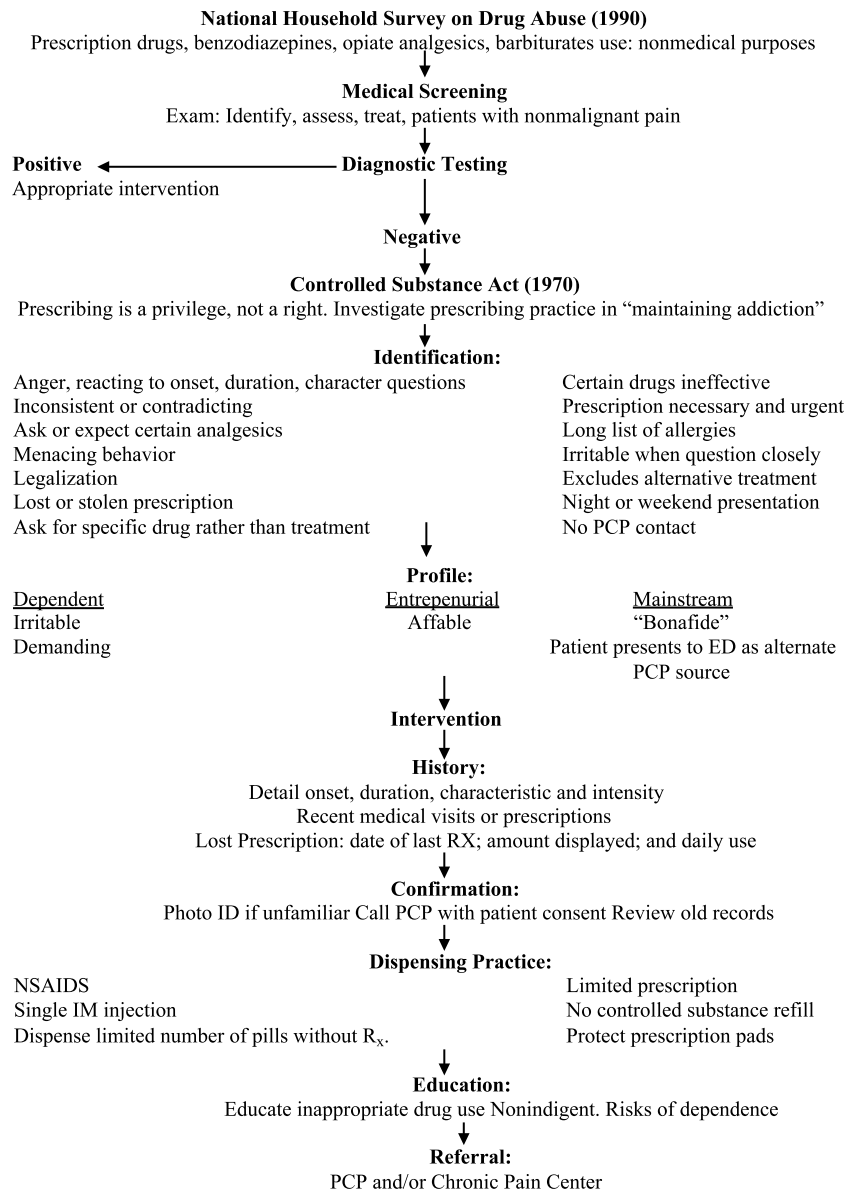
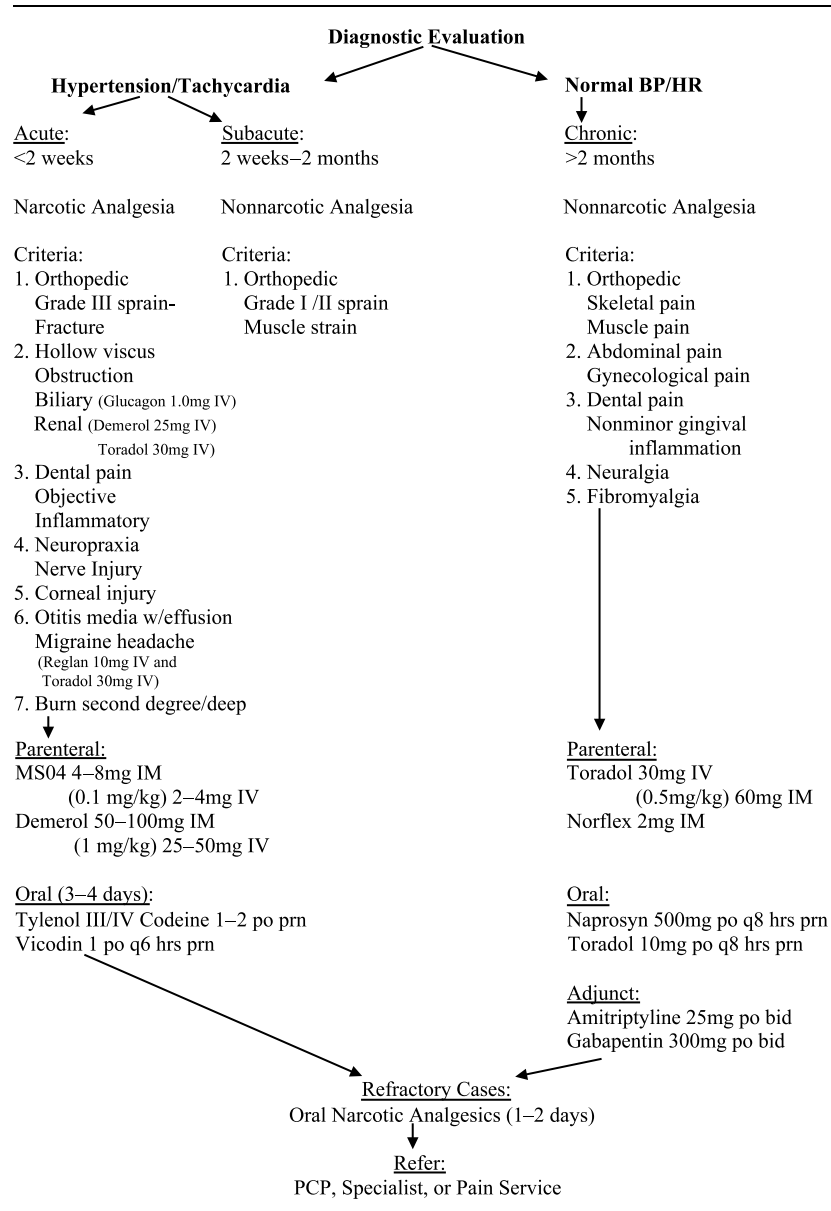


Table 8. Pain management protocol.

and monitor the patients; prescribe cautiously; use a contract and educate patients regarding the use of narcotic analgesics.

The most successful approach to deter drug diversion is the use of a standardized approach to the dispensing of narcotic analgesics, which addresses Drug Seeking Behavior (Table 7) and acute pain management (Table 8).

First, this approach requires understanding the precise definitions of terms utilized to describe this condition. It is crucial to delineate between the physical component—specifically tolerance or decreased effect from the established dose, physical dependence or adaption to the dose manifested as physical signs in its absence; withdrawal, which is an acute presentation of symptoms with sudden discontinuation of agent; and addiction, which emphasizes a psychologically based inordinate preoccupation with obtaining the agent, therefore, adversely affecting quality of care (36).

Another important issue is to delineate the narcotic class to assist in minimizing the abuse potential (Table 9). The entrepreneurial profile patient is often inappropriately counseled about the necessity of dispensing hydrocodone (Percocet[®]) compared to oxycodone (Vicodin[®]) due to higher street value (\$15 vs. \$10 per pill). Ideally, the prescriber should use the most efficacious dose of the least scheduled class available to minimize

Table 9. Narcotic and nonnarcotic drug basic classes.

<i>Schedule I</i>
Heroin
Methaqualone
Marijuana
<i>Schedule II</i>
Codeine
Hydrocodone
Meperidine
Oxycodone
<i>Schedule III</i>
Codeine up to 90 mg/du to their ingredients
Dihydrocodeine up to 15 mg/du
Hydrocodone up to 15 mg/du
<i>Schedule IV</i>
Dextropropoxyphene
<i>Schedule V</i>
Codeine cough preparation

Source: Ref. (37).

abuse risk, using propoxyphene or dihydrocodeine instead of oxycodone or meperidine, which have higher abuse potential due to the euphoriant risk.

THE ABUSE PROBLEM

Most recently, prescription drug abuse has surpassed illegal drugs in association with patient mortality. A recent six month evaluation by the Florida Medical Examiner found a 5.5-fold increase in lethal overdoses of “legal” narcotic (methadone, oxycodone, hydrocodone) responsible for 35% of 2223 cases compared to 6.3% for “illegal” narcotics such as heroin (38).

One of the oft-voiced concerns by both patients and physicians is the concern over becoming “addicted.” However, in Joranson’s study even though there were large increases in all narcotics used including fentanyl (1168%), morphine (59%), oxycodone (23%), and hydromorphone (19%) except for meperidine with a 35% decrease from 1990–1996. There was only a 6.6% increase in narcotic addiction (39).

However, those who are addicted often have a host of associated medical difficulties. Laine and coworkers evaluated 58,000 patients hospitalized in 1997 to reveal that 55.6% of HIV positive and 37.5% of HIV negative drug users were admitted for 27.5 and 24.5 inpatient days, respectively (40).

A temporal risk of opioid overdose has been defined as an early evening (7:00 p.m.) peak increase of presentation, possibly due to work convenience or circadian variation issues (41).

OPIOID ADDICTION IN HEALTH CARE PROFESSIONALS

A significant amount of experience is offered from the anesthesiology arena in a comprehensive review by Silverstein (42). As the old addiction adage goes, “undetected addicts are found comatose, and untreated addicts are found dead” (43). We as health care professionals must maintain a vigilance to police our own ranks as well.

Farley and Arnold (43) suggest analysis noting behavior pattern, monetary legal issues, maintaining confidentiality, and noting mandatory reporting of infractions (42). The evaluation program should include a proper investigation; intervention, stressing therapeutic modalities; and supervision involving random testing, prevention, and the use of peer self-help programs of the impaired professional.

Perhaps, the most helpful approach is a reliable accounting system for controlled substances. Schmidt and Schlesinger describe a multidisciplinary

controlled dispensing and recounting system responsible for a minimal error rate of 0.8% (37 of 7182) of narcotic doses dispensed in an operating room environment (44).

Another comprehensive program was offered by nurses in an emergency department setting to address problems with narcotic reconciliation, container tampering, and tracking issues (45). They developed a comprehensive plan using a policy update, random audits, pharmacy audits, and specific chart audits to address loss issues and approached a near 100% compliance rate.

ADDICTION TREATMENT

It is of crucial importance to understand the myths of addiction. O'Brian and McLellan describe an analytic construction to suggest that addiction is truly a chronic disorder, relapse both common in other disease, and does not necessarily mean failure (46).

They suggest the first myth is that addiction is a "voluntary" disorder and then is of less concern since they "brought it on themselves." The second myth is that no one recovers from drug addiction. The actual six month success rate is 60% for opioid dependence, 55% for cocaine, 50% for alcohol and 30% for nicotine dependence (46). Therefore, it is interesting to note a greater likelihood of recovery for drug dependence than alcohol or tobacco dependence.

The final myth is that the relapse rate for drugs is higher than it is for other disease. In fact, the medication compliance rate is between 30% for asthma and hypertension and 50% for IDDM, while only 30% adhere to dietary regimens responsible for a relapse rate of 30%–50% in IDDM, 50%–60% with hypertension, and 60%–80% with asthma comply.

Therefore, it is obvious that addiction is certainly no worse than any other disease. What are the goals of drug abuse treatment? Seivewright and Greenwood describe the "harm reduction" approach, which minimizes the risk to established addicts and occasional participants as the relapse rate ranges from 46% at six months to as high as 97% at a year (47).

They also address the pharmacologic approach using rapid inpatient opioid detoxification; buprenorphine, a methadone substitute; lofexidine, a clonidine analog; naltrexone, an opioid antagonist to prevent relapse, and specific serotonin reuptake inhibitors (SSRIs), which are helpful in controlling obsessive disorders and cocaine use.

The National Consensus Development Panel on Effective Medical Treatment of Opiate Addiction finds opiate dependence to be a brain-related disorder with significant treatment benefits for both the patient and

Table 10. Acute intoxication/withdrawal symptoms.

Syndrome	Physical symptoms	Psychologic symptoms
Opioid	Pupillary constriction (dilation-meperidine)	Initial euphoria
	Drowsiness or coma	Apathy/dysphoria
	Decreased respiration/HR	Psychomotor agitation/ retardation
	Pulmonary edema	Impaired judgment
	Slurred speech	Impaired social functioning
	Impairment attention/ memory	Impaired occupational functioning
Withdrawal	Dilated pupils	Restlessness
	Runny nose	Voiced complaints
	Watery eyes	Increase in vital signs
	Goose flesh	
	Nausea/vomiting/diarrhea	
	Yawning	
	Cramps	
Sedative-Hypnotic	Slurred speech	Inappropriate behavior
	Incoordination	Mood lability
	Unsteady gait	Impaired judgment
	Nystagmus	Impaired social functioning
	Decreased reflexes	Impaired occupational functioning
	Impaired attention or memory	
Withdrawal	Stupor or coma	
	Temperature	Level of consciousness
	Blood pressure	Involuntary and voluntary movements
		Orientation
	Respiration	Thought content
	Heart rate	
	Autonomic	
Stimulant	Tachycardia/arrhythmia	Affect euphoric to blunted
	BP normal to increased	Hyper
	Hot flashes/chills	Irritable, angry
	Nausea, vomiting	Sensitive, paranoid
	Weakness	Impaired judgment
	Seizure	Impaired social/ occupational function
Hallucinogen	Pupillary dilation	Anxiety/depression
	Tachycardia	Ideas of reference
	Sweating	Fear of losing mind

(continued)

Table 10. Continued.

Syndrome	Physical symptoms	Psychologic symptoms
	Palpitations	Paranoia
	Blurred vision	Impaired judgment
	Tremors	Impaired social/ occupational function
	Incoordination	Intensification of perception
		Depersonalization/derealization
		Illusions/hallucinations
		Synesthesias

Source: Adapted from Refs. (50) and (51).

society (48). They suggest all patients should have access to methadone hydrochloride maintenance therapy in a legally supervised program achieved by increasing physician education, decreasing administrative obstruction to dispersing, and improving insurance coverage for addiction.

Methadone maintenance treatment (MMT) utilizes the drug administration of an oral opioid agonist (49). This therapy modifies this persistent disorder, which is associated with premature death by decreasing overdose and infectious disease risk. The failure rate is increased with decreased (< 60 kg) methadone doses and pressure to become prematurely abstinent. Lastly, they suggest MMT alternatives such as naltrexone or buprenorphine prescribed by the patients' primary care physician to avoid the methadone stigmata.

PRIMARY CARE PHYSICIAN

Perhaps, the most important part of addiction therapy will be the inclusion of the primary care physician (PCP) in both the diagnostic and therapeutic process. Weaver and coworkers provided a comprehensive review of addiction medicine discussing the recognition of intoxication stressing both physical and psychiatric symptoms of opioid, sedative hypnotic, stimulant, and hallucinogenic acute syndromes as well as withdrawal syndromes (Table 10) (50,51).

Their protocol for treating the drug abuser includes recognizing that motivation or the state of readiness to change is crucial to the process regimen with accepting and progressing to recovery (50). The physician is crucial in illuminating the patient to behavioral change, and to assist in practical problem solving.

Lastly, true addiction is a chronic relapsing condition requiring both brief initial intervention to establish the path and long-term treatment options (50).

The most successful treatment approach may utilize any or all care modalities including inpatient acute hospitalization, when baseline medical issues or complicated withdrawal are likely; nonhospital residential treatment, when environmental issues supervene; partial hospital intensive outpatient care for those who can remain in their environment; and outpatient care for those requiring minimal supervision.

Evaluations of programs integrating primary care with addiction treatment have been favorable. Weisner and coworkers evaluated 592 patients and found both a slight increase in abstinence rates and decreased costs in select groups with both substance abuse and medical disorders (52).

Likewise, specific office-based methadone programs have been successful as well. Fiellin et al. treated (47) opioid dependent patients with methadone in an office-based compared to a clinic-based treatment program (53). They did find that although there was a nonsignificant increase in positive drug screening (50% vs 32%), overall there were no clinically unstable patient scenarios and overall patient satisfaction was excellent. Although the authors provided positive conclusions, it still may raise issues of denial or accessibility that may prove adverse in a larger, more adequately powered study.

LEGISLATIVE INITIATIVE

It has been suggested that without a modification of our current legal standards chronic-pain management will continue to encounter difficulties.

Long-acting potent narcotics figure prominently in the medication error area as well. The results of a regional health care initiative found that opioids were associated with almost half (45%) of Category I errors or those causing temporary or permanent patient harm, and were directly causative in one quarter (20.5%) (54). The issue receiving the most concern is the use of transdermal fentanyl or sustained-release oxycodone for acute pain syndromes and the capacity for diversion.

The legal effort begins with the individual physician as Jennifer Bolen, U.S. Attorney, Eastern District of Tennessee, seeks physician help in halting illicit drug diversion by utilizing simple prescribing guidelines (Table 11) (55,56). Simple techniques such as writing prescriptions for small amounts of narcotic analgesics and writing prescriptions for standard dispensing amounts recognized by local pharmacists can help with this burgeoning problem.

Most recently state medical boards have attempted to relax undue regulation so physicians do not have inappropriate fear of needless

Table 11. Preventing drug diversion.

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1. Use tamper proof prescription pads with numbered pages.
 2. Write out numbers “30” can easily be changed to “80.”
 3. List patient address.
 4. Control prescription pads. Do not leave in reception area or exam rooms.
 5. Lock narcotic prescription pads.
 6. Protect your DEA and MD license numbers.
 7. Retain a copy of opioid prescriptions.
 8. Lobby for prescription monitoring programs.
-

Source: Adapted from Ref. (56).

regulatory interference (57). The Pain and Policy Studies Group performed a 10-year analysis to suggest updated guidelines allowing appropriate treatment of both acute and chronic, cancer and noncancer pain without fear of unreliable investigators.

Some theorists have suggested that drug policy should drive the law rather than the converse strategy in place. Berridge explored the open availability model and found clearly a link between lack of regulation and patient death (58). Clearly there needs to be a proper regulatory medium between the freedom of physicians to control pain and inappropriate diversion.

Perhaps, the most useful legislative modification would be the liberalization of the methadone-prescribing process using a program of three legislative initiatives (59).

First, there should be an established program where qualified physicians could prescribe Schedule III, IV, and I medications that are FDA approved specifically for office-based detoxification such as buprenorphine alone or in combination with naloxone after eight hours of approved training.

Second, narcotic treatment programs can apply to the Center for Substance Abuse Treatment to be exempted from federal regulatory requirements allowing office-rather than clinic-dispensed methadone.

Lastly, a process to shift oversight of narcotic maintenance and detoxification from the Food and Drug Administration (FDA) to the Substance Abuse and Mental Health Services Administration to allow outcome-based management is not an inappropriate focus on diversion.

CONCLUSION

The difficulty with pain management is that for the most part it is largely a subjective phenomenon with very little objective input. Even the

“objective” pain scales have little external reference to outcome in morbidity or mortality.

However, the issue is simplified somewhat, there is no debate concerning the treatment of cancer or acute pain syndromes. The therapeutic dilemma is the chronic pain patient who presents without objective pain markers and “25 of 10” pain who requests specific narcotic intervention.

Clearly, chronic the pain scenario finds nonnarcotic analgesics, antidepressants, and mood-stabilizing agents more efficacious than narcotic pain relievers. The key is to isolate the psychic, physical, and functional components and treat each accordingly.

Likewise, those patients who acknowledge narcotic dependency and are manifesting signs of withdrawal should be treated with lower risk, noneuphoria-inducing narcotics such as methadone or buprenorphine where appropriate, emphasizing multidisciplinary addiction therapy.

This strategy is more successful in an established primary care practice with a longitudinal patient relationship than a brief ED encounter. Here, the first step of recovery is acceptance, which minimizes disruptive patient behavior such as threats or administrative complaints, which in and of themselves are part of the diagnostic criteria of Drug Seeking Behavior.

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