Untreated Chronic Pain is Acute Pain
The physiological changes associated with acute pain, and their intimate neurological relationship with brain centers controlling emotion, and the evolutionary purpose of these normal bodily responses, are classically understood as the "Fight or Flight" reaction, which was elegantly explained by W.B. Cannon in "The Emergency Function of the Adrenal Medulla in Pain and the Major Emotions", published in 1914. 1

Cannon describes how adrenalin, "Liberated Normally in Fear, Rage, Asphyxia and Pain," a reflex response to pain and major emotion, leads to hyperglycemia necessary "for putting forth supreme muscular efforts," and to vascular changes that shunt blood away from vital organs in the gastrointestinal and urinary system in order that "the 'tripod of life' - the heart, lungs and brain (as well as the skeletal muscles) - are, in times of excitement... abundantly supplied with blood..." Cannon concludes this most basic and well known medical tract with these words:

These changes in the body are, each one of them, directly serviceable in making the organism more efficient in the struggle which fear or rage or pain may involve; for fear and rage are organic preparations for action, and pain is the most powerful known stimulus to supreme exertion.2 (bold emphasis added)

"Fight or Flight", Chronically Thwarted, Leads to Pathophysiological Changes
When these adaptive physiologic responses outlive there usefulness, as when access to effective dosage of analgesic medications is denied, then the fight or flight response becomes pathological, leading to chronic cardiovascular stress, hyperglycemia which both predisposes to and worsens diabetes, splanchnic vasoconstriction leading to impaired digestive function and potentially to catastrophic consequences such as mesenteric insufficiency, etc.

Unrelieved pain can be accurately thought of as the "universal complicator" which worsens all co-existing medical or psychiatric problems through the stress mechanisms reviewed above, and by inducing cognitive and behavioral changes in the sufferer that can interfere with obtaining needed medical care.3 In a New York Times Magazine article in 2001, Dr. Daniel Carr, director of the New England Medical Center, put it this way:

"Some of my patients are on the border of human life. Chronic pain is like water damage to a house - if it goes on long enough, the house collapses," [sighs Dr. Carr] "By the time most patients make their way to a pain clinic, it's very late." What the majority of doctors see in a chronic-pain patient is an overwhelming, off-putting ruin: a ruined body and a ruined life.4 (emphasis mine)

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Specific Consequences of Untreated and Inadequately-treated Pain

Following our discussion in the preceding section, the medical consequences of untreated pain are legion. In addition to the direct morbidity of pain induced physiologic stress, including chronic hypertension, ischemic cardiac disease, renal insufficiency, stroke, and gastrointestinal bleeding, we must also consider the very real risk of suicide, often profound decrements in family and occupational functioning, iatrogenic morbidity consequent to the very common mis-identification of pain patient as drug seeker.

What happens to patients denied needed pharmacological pain relief is well documented. For example, morbidity and mortality resulting from the high incidence of moderate to severe postoperative pain continues to be a major problem despite an array of available advanced analgesic technology. In a study of pain following hip fracture, undertreated pain was demonstrated to significantly increase the risk of delirium:

Patients who received less than 10 mg of parenteral morphine sulfate equivalents per day were more likely to develop delirium than patients who received more analgesia (RR 5.4, 95% CI 2.4–12.3). Avoiding opioids or using very low doses of opioids increased the risk of delirium. Cognitively intact patients with undertreated pain were nine times more likely to develop delirium than patients whose pain was adequately treated. Undertreated pain and inadequate analgesia appear to be risk factors for delirium in frail older adults.

Pain Sufferers are a Medically Discriminated Against

One very important reason that untreated pain is a medical emergency, particularly in the United States, has nothing to do with neuropathology or cardiovascular complications or even the current state of the medical art. It is that chronic pain patients are routinely treated as a special class of patient, often with severely restricted liberties - prevented from consulting multiple physicians and using multiple pharmacies as they please, for example - that are unquestioned in a free society for every other class of sufferer.

In effect, chronic pain patients are often seen by medical professionals as primarily as prescription or medication problems, rather than as whole individuals who very often present an array of complex comorbid medical, psychological, and social problems, all of which demand expert medical assessment and stabilization in the untreated or undertreated pain patient. This phenomenon is painfully on display in Wichita, Kansas in the early months of 2008, as the entire country watches droves of ordinary Kansans unable to access basic primary care services, basic medical assessment and stabilization; instead these complex general medical patients are 'cared for' as if their primary and only medical problem was taking prescribed analgesic medication. Obviously the major medical problem of these patients is that they have been forcibly cleaved from their physician, and their obvious primary medical need is for medical stabilization, not knee-jerk detoxification. [See Appendices: 1) The Distortion of Medical Practice and, 2) The Ethical Obligation to Relieve Suffering]

Finally it is well known and documented that special groups of pain sufferers have even higher rates of unrelieved pain. These include the elderly or those with neurological conditions, children, minorities, and

those with more severe pain, and pain patients accessing emergency room services.  

**Chronic Pain is a Legitimate Medical Disease**

Chronic pain was established as a legitimate, progressive, neurodegenerative disease state in exhaustive research in the 1990's and reported in very widely read academic review articles in 2000. Chronic pain is probably the most disabling, and most preventable, sequela to untreated, and inadequately treated, severe pain.

The etiology and pathophysiology of chronic pain are very well understood and have been widely published in the medical literature, and have stood the test of time. This understanding is the literal basis of the current legally relevant "reasonable physician" standard of care. Following a painful trauma or disease, chronicity of pain may develop in the absence of effective relief. A continuous flow of pain signals into the pain mediating pathways of the dorsal horn of the spinal cord alters those pathways through physiological processes known as central sensitization, and neuroplasticity. The end result is the disease of chronic pain in which a damaged nervous system becomes the pain source generator separated from whatever the initial pain source was.

Aggressive treatment of severe pain, capable of protecting these critical spinal pain tracts, is the standard care recommended in order to achieve satisfactory relief and prevention of intractable chronic pain. For example, Pappagallo, in an authoritative monograph of the Rheumatic Disease Clinics of North America thoroughly reviewing the pharmacology of nociception as well as the classes of drugs used for pain control, and concluding:

> Medications represent the mainstay therapeutic approach to patients with acute or chronic pain syndromes... aimed at controlling the mechanisms of nociception, [the] complex biochemical activity [occurring] along and within the pain pathways of the peripheral and central nervous system (CNS)... Aggressive treatment of severe pain is recommended in order to achieve satisfactory relief and prevention of intractable chronic pain.

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8 Chronic Pain in America: Roadblocks to Relief,” a study conducted by Roper Starch Worldwide for American Academy of Pain Medicine, American Pain Society and Janssen Pharmaceutica, 1999
11 Brookoff, D. wrote two very widely read and hugely important review articles, Chronic Pain I - A New Disease? (Available: [http://www.doctordeluca.com/Library/Pain/CP1NewDisease2K.htm](http://www.doctordeluca.com/Library/Pain/CP1NewDisease2K.htm)), and, Chronic Pain II -The Case for Opiates (Available: [http://www.doctordeluca.com/Library/Pain/CP2CaseForOpiates2K.htm](http://www.doctordeluca.com/Library/Pain/CP2CaseForOpiates2K.htm)). Hospital Practice; Volume 35; Issues 7 and 9, respectively; 2000.
12 Rich,B.A Medical Custom and Medical Ethics; Cambridge Quarterly of Healthcare Ethics; 14: 27-29; 2005. From p. 39: "When credible evidence has been presented that not just a particular physician, or an isolated, retrograde group of them, but a majority of the profession has failed to adopt practices that would materially reduce patient suffering, courts may properly conclude, in the tradition of great justices like Holmes and Hand, that a reasonable physician would not practice in this way and those who do should be called to account for the adverse consequences such practice has on the well-being of patients." (emphasis added)
14 Brookoff D. Chronic Pain: Part 1. A New Disease?; Hospital Practice, 35(7); 2000.
15 Brookoff D. Chronic Pain: Part 2. The Case for Opiates; Hospital Practice, 35(9); 2000.
More recently, we are seeing ominous scientific evidence in modern imaging studies of a maladaptive and abnormal persistence of brain activity associated with loss of brain mass in the chronic pain, especially in the areas of the brain that process pain and emotions. In a 2006 news article, a researcher into the pathophysiological effects of chronic pain on brain anatomy and cognitive/emotional functioning.

This constant firing of neurons in these regions of the brain could cause permanent damage, Chialvo said. "We know when neurons fire too much they may change their connections with other neurons or even die because they can't sustain high activity for so long," he explained.\(^{17}\)

It is well known that chronic pain can result in anxiety, depression and reduced quality of life. Recent evidence indicates that chronic pain is associated with a specific cognitive deficit, which may impact everyday behavior especially in risky, emotionally laden, situations.\(^{18}\) The areas involved include the prefrontal cortex and the thalamus, the part of the brain especially involved with cognition and emotions, and it is these same areas that were found in 2004 to undergo striking atrophy in chronic back pain patients, compared to normal controls:

Patients with CBP showed 5-11\% less neocortical gray matter volume than control subjects. The magnitude of this decrease is equivalent to the gray matter volume lost in 10-20 years of normal aging. The decreased volume was related to pain duration, indicating a 1.3 cm\(^3\) loss of gray matter for every year of chronic pain... Gray matter density was reduced in bilateral dorsolateral prefrontal cortex and right thalamus...\(^{19}\)

Medical science is not conflicted on this very important point. That chronic pain is a disease whose etiology and basic pathophysiology are quite well understood in the published literature since the 1990's. That medical science has had a firm grip on the pathophysiological mechanisms and consequences of untreated or undertreated pain since the 1914 publication of Dr. Cannon's seminal and classic research. Further, there can be no question but that Dr. Schneider's patients in Kansas 2008, many with multiple chronic medical problems, or any pain patient maintained on opioid analgesic medication with good result, will be at high risk of serious medical harm if withdrawn from these medications in any precipitous manner.


APPENDICES

1) The Distortion of Medical Practice
2) The Ethical Obligation to Relieve Suffering
3) A Modern Understanding of Chronic Pain and Opioid Therapy

Appendix 1 - A Brief Discussion of the Distortion of Medical Practice, the Standard of Care, and Medical Community Norms

In fields of medicine involving controlled substances, especially addiction medicine and pain medicine, the doctor-patient relationship has become grossly distorted.

This distortion is profound and significant. One manifestation is the 'chilling effect' - the 'chilling effect' is the withdrawal, for fear of litigation or loss of livelihood, by physicians from the appropriate treatment of pain.  
It is important to note that much of the public health damage here is caused not by the doctors accused of wrongdoing, rather it is caused by doctors-in-good-standing who, faced with a patient in pain and therefore at risk of triggering an investigation, modify their treatment in an attempt to avoid regulatory attention. The chilling effect on appropriate pain management leads inexorably to the national problems of the undertreatment of pain and the shortage of physicians knowledgeable and experienced in opioid therapy for chronic pain, and willing to provide this legitimate professional service.

This distortion of the doctor-patient relationship is complex and can be gross or subtle. Examples include a blanket refusal to prescribe controlled substances even when clearly indicated, or selecting less effective and more toxic non-controlled medications when a trial of opioid analgesics would be in the best interests of a particular patient. At the very least, some degree of suspicion and mistrust will surely arise in any medical relationship involving controlled substances.

For most common medical conditions (not involving controlled substances) the quality of care most physicians provide is fairly close to the medical standard of care which is what the textbooks say one should do, and which is generally in line with core medical ethical obligations such as holding the interests of the individual patient before you above all other interests, patient confidentiality, etc. For example, the care a person would receive for an acute asthma attack is pretty much the same no matter what ER he walked into, and that care would be pretty much by-the-book. So, in most medical fields we could say: "How most reputable physicians practice approaches the (textbook) standard of care."

This is NOT true in the fields of addiction and pain medicine. For example, modern pain management textbooks universally recommend 'titration to effect' (simplistically: gradually increasing the opioid dose until the pain is relieved or until untreatable side effects prevent further dosage increase) as the procedure by which one properly treats chronic pain with opioid medications. Yet the overwhelmingly physicians in America do not practice titration to effect, or anything even vaguely resembling it, for fear of becoming 'high dose prescriber' targets of federal or state law enforcement.

In pain medicine we have the deeply disturbing situation that what most doctors do (medical community norm) is at odds with the medical standard of care. Literally, in the treatment of chronic pain, an ethical physician attempting to practice in good faith, according to the clinical literature, is an outlier, deviating from how most reputable physicians would practice.21

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21 See also, Vastag B. Mixed message on prescription drug abuse. JAMA; 285(17):2183-2184; 2001. (Available:
Appendix 2 - The Ethical Obligation of Physicians to Relieve Suffering

It is a foundation of medicine back to ancient times that a primary obligation of a physician is to relieve suffering. A physician also has a fiduciary duty to act in the best interests of the individual patient at all times, and that the interests of the patient are to be held above all others, including those of family or the state. These ethical obligations incumbent on all individual physicians extend to state licensing and regulatory boards which are composed of physicians monitoring and regulating themselves.

Many studies have shown the practice and custom of physicians in managing pain, even in terminal cancer cases, is extremely conservative and below the (textbook) standard of care. In the literature analyzing this discrepancy a number of barriers to effective pain relief have been identified and include:

1. The failure of clinicians to identify pain relief as a priority in patient care;
2. Fear of regulatory scrutiny of prescribing practices for opioid analgesics;
3. The persistence of irrational beliefs and unsubstantiated fears about addiction, tolerance, dependence, and adverse side effects of opioid analgesics.

Regardless of the particular barriers impacting any particular case, in fields of medicine involving the use of controlled substances a rift has developed between the usual custom and practice standard of care (the medical community norm - what most reputable physicians do) and the reasonable physician standard of care (what the textbooks say to do - the medical standard of care), and this raises very serious and difficult dilemma for both individual physicians and medical boards. From an ethical perspective, and on the basis of precedent in criminal law:

“When credible evidence has been presented that not just a particular physician, or an isolated, retrograde group of them, but a majority of the profession has failed to adopt practices that would materially reduce patient suffering, courts may properly conclude, in the tradition of great justices like Holmes and Hand, that a reasonable physician would not practice in this way and those who do should be called to account for the adverse consequences such practice has on the well-being of patients.”

http://www.doctordeluca.com/Library/WOD/MixedMessagePrescripDrugAbuse01.htm), for a stark example. Brown and colleagues reported, at a NIDA symposium in April 2001, on a survey they developed that measured the prescribing practices for benzodiazepines and opioid analgesics by groups of physicians in response to variations of a single presented case. The physicians' prescribing decisions were then compared with recommendations from a panel of pain management experts. The findings:

“While the expert panel recommended that virtually all patients with [common idiopathic back pain] who do not respond to other treatments be given an opioid analgesic, only 20% of physicians said they would actually write that prescription…”

23 Rich, Ethical Analysis; p. 66.
26 Rich. op.cit., p. 54
27 Rich, B.A Medical Custom and Medical Ethics; Cambridge Quarterly of Healthcare Ethics; 14: 27-29; 2005; p. 39
Appendix 3 - A Modern Understanding of Chronic Pain and Opioid Therapy

Research into pathophysiology and natural history of chronic pain have dramatically altered our understanding of what chronic pain is, what causes it, and the changes in spinal cord and brain structure and function that mediate the disease process of chronic pain, which is generally progressive and neurodegenerative. Simply put, a continuous flow of pain signals into the pain mediating pathways of the dorsal horn of the spinal cord alters those pathways through physiological processes described as central sensitization, and neuroplasticity. The end result is the disease of chronic pain in which a damaged nervous system becomes the pain source generator separated from whatever the initial pain source was.

The end result is the disease of chronic pain in which a damaged nervous system becomes the pain source generator separated from whatever the initial pain source was. This understanding explains many clinical observations in chronic pain patients, such as phantom limb syndrome, that the pain spreads to new areas of the body not involved in the initiating injury, and that it generally worsens if not aggressively treated. The progressive, neurodegenerational nature of chronic pain was recently shown in several imaging studies showing significant losses of neocortical grey matter in the prefrontal lobes and thalamus.

The implications for how acute and early chronic pain should be treated, the medical standard of care, are very serious. The analgesic effects of opioids are primarily mediated in the dorsal horn of spinal cord where they bind with receptors blocking pain transmission and thereby protecting the dorsal horn from being bombarded with pain signals which is believed to be the pathophysiological mechanism underlying the development of chronic pain, as just discussed. NSAIDs, antidepressants, and other commonly used non-opioid analgesics do not have this protective property. Therefore, regarding the standard of care for pain management:

1) Delaying aggressive opioid therapy in favor of trying everything else first is not rational based on a modern, scientific understanding of the pathophysiology of chronic pain, and is therefore not the standard of care. Delaying opioid therapy could result in continuous pain signals overwhelming the dorsal horn, would be expected to promote the development of chronic pain and making the patient’s illness progressively more difficult to treat. Opioids in adequate doses can prevent the development of the disease of chronic pain.

2) Opioid titration to analgesic effect represents near ideal treatment for persistent pain, providing both quick relief of acute suffering and possible prevention of neurological damage known to underlie chronic pain.

References:

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