

## 30.6 Pain Equilibration

"In my opinion, Mr. Jones suffered the pain equivalent of 388 heart attacks and 183 molar tooth extractions."

(trial testimony of plaintiff's expert pharmacologist)

### A. Introduction

This section is included in this chapter on pain medications because it addresses the use of drugs to treat pain following injuries. There is no issue about liabilities for the use of drugs, although the issues of analgesic induced ADRs and dependency following narcotic pain relieving drug use are real. Rather, it is included because the litigant who addresses drug related cases will frequently find themselves presented with a myriad variety of drugs to treat pain from injuries of a variety of types, not just malpractice. The pain equilibration analysis has been employed by this author in approximately forty cases. It is usually employed in a settlement brochure, as a video report, and is sometimes offered for deposition and trial testimony. Only once has this testimony been given in trial. In that one trial experience, the pharmacologist expert reviewed the painful conditions of the burned plaintiff and explained the use of analgesics and how the various pain killing drugs compared to one another. The defense in the case argued unsuccessfully in a motion in limine that the "pain equilibration" discussion was junk science, and that the jury did not need an expert to discuss the pain killing drug use. The judge denied the motion and allowed the testimony. The jury was asked to award the plaintiff \$1.5 million for pain and suffering; the jury awarded \$1.75 million! (*Machajewski vs Wisconsin Natural Gas Company*, 93 CV 001530, State of Wisconsin, Circuit Court, Milwaukee County.)

This section is designed to describe various types of pain, and compare pain of various types to a common denominator amount of pain; that is, that those types of pain which have been fully described in the literature, as well as those types of pain which have served as models for clinical pharmacology studies designed to test efficacy and safety of new drugs used to treat pain (analgesics). The common denominator for EQUILIBRATION will be the pain medication used for analgesia, pain relief. The final result is to provide the reader with a method of expressing or quantifying pain in a description which translates to accepted, common pain types, for which a well agreed upon dosage amount of medication is used for analgesia. This will help the lay reader understand the level of pain and suffering experienced by the injured person requiring pain relief.

The objective is to quantify the use of analgesic drugs beyond simply listing the dosages and number of drug administrations. The common and quantified painful experiences of a heart attack (MI-myocardial infarction), pain from labor experiences, terminal cancer pain, and pain from extraction of a molar tooth are selected as comparisons for the pain experiences. These will be related and compared to the amount and types of drugs used to treat and relieve a patient's pain to that amount reported to relieve these commonly recognized types (MI, labor, cancer, dental).

Pain and pain management literature describe clinical pain, its measurement, as well as research in pain assessment, measurement, and investigation are addressed and referenced.

"Pain is an unpleasant sensory and emotional experience associated with actual or potential tissue damage or described in terms of such damage."<sup>3</sup>

One of the most critical aspects in the investigation of pain is the question of its quantitative documentation. Pain is a subjective experience and, because of its large emotional components, is quite dependent upon the circumstances of the person being affected. But pain is also a consequence of the activation of nociceptive (pain) afferent nerves, which of course can be measured with the methods usually applied in sensory physiology in humans. The basic expression of pain is a verbal report, and various methods are available to scale subjective pain experience.

Pain relief and analgesia are not synonyms and have no necessary relationship. They derive

from two different approaches to the measurement of human suffering: clinical assessment and laboratory studies. Pain relief, however, must be measured in terms of the three dimensions of clinical pain: intensity, quality, and evaluation. It is far more than the lack of a response to a known stimulus. Analgesia is defined as, "the absence of pain in response to stimulation which would normally be painful." This should better be described as hypalgesia: a partial or diminished sensibility to noxious stimulation. Pain relief is defined as behavior on the part of the animal or human which indicates a reduction in the noxiousness of an externally applied stimulus, or in humans, the report of or behavior indicating that an unobservable internal event is less noxious. It is obvious that there are degrees of pain relief, and that the patient's verbal report and behaviors are our only methods of assessing pain relief. Even though we can quantify pain behaviors and measure pain relief by such an evaluation, we measure the behaviors, not the perceptions or affects of the patients.<sup>4</sup>

## **B. Experimental and clinical pain**

Experimentally induced pain in the laboratory environment differs from pain as seen by the physician in the clinic. The experimental pain stimulus applied to the healthy subject can always be interrupted or definitely stopped. These facts emphasize the rational component in the laboratory pain experiment, and what we do measure is primarily the sensory discriminative component of pain. In contrast, patients' pain is essentially characterized by an aversive, emotional component, causing a feeling of severe illness and forcing the individual to visit the doctor. This component is particularly accompanied by vegetative responses, such as changes in blood pressure, circulation, heart beat and transpiration. Both components of pain do interact and influence each other; as such, it might be possible to estimate the degree of clinical pain or to evaluate the efficacy of any pain reducing treatment, by measuring pain reactions to defined noxious stimuli in healthy volunteers.

Pain is a subjective experience, and we have to give credence to the pain report of the individual. But the subjective report is not only a function of the sensory input activated; it is also influenced by psychological, social, cultural and economic factors. To differentiate between pathophysiological factors and other sources as modulators of pain, it seems necessary to measure, in addition to the verbal report, pain related physiological variables. Similar problems arise if the success of any analgesic treatment is to be verified.

## **C. Clinical pain**

Clinical pain is often persistent, unbearable, beyond the patient's control, and accompanied by high levels of anxiety. It is not surprising, therefore, that there are marked differences in drug and placebo effects on clinical and laboratory-produced pain.<sup>5</sup> Further, Beecher classifies pain with the use of words such as 'mild', 'moderate' and 'severe', and subjects are asked to choose the word that best describes the intensity of their pain. A method consists of a 5 point scale which ranges from 1 = mild to 5 = unbearable pain, and subjects are asked to choose the most appropriate number. Clearly, then, it is desirable to study pain in patients who are suffering it for a variety of reasons—acute injury, arthritis, surgical incision, cancer, and so forth. Most clinical pain problems are acute. Acute pain appears, it lessens over a period of hours to days to weeks, and it resolves. Such pain can be treated easily in most cases with symptomatic medications as needed (PRN). If acute pain is not treated adequately, however, it can result in a chronic pain syndrome characterized by excessive medication usage, mood changes, multiple surgeries and inability to carry out normal activities of daily living.<sup>6</sup>

## **D. Pain studies**

Chronic pain often presents as a symptom complex.<sup>7</sup> Successful treatment of all symptoms is

usually not possible without inducing an unacceptably high risk of side effects. Pain and anxiety are key to breaking the complex. Most currently available analgesics are effective drugs. However, they may not work in many chronic pain patients unless the principal causes of the patients' anxiety also are addressed. If an effective analgesic with a duration of action of four hours is administered every six hours, or only after the pain has become firmly reestablished, anxiety about the continual return of pain commonly occurs. This anxiety lowers the patients's pain threshold resulting in an increased perception of pain. Therefore, to establish initial pain control for patients with agonizing, chronic pain, medications should be administered on a regular schedule, i.e. a time contingent basis, according to the duration of useful analgesic activity. This regular schedule should be continued until the patients's anxiety about return of pain has abated, usually several days to weeks.

### **E. Therapeutic trials**

Methods employed in the clinical evaluation of analgesics and problems encountered in these studies because of the complex nature of the subjective variables of pain and pain relief, have been reviewed extensively. The choice of a pain model requires careful consideration in any clinical evaluation of analgesics. The most sensitive assays of analgesic efficacy are single dose studies in patients with acute pain, while multiple dose studies in patients with acute or chronic pain provide information on the general clinical acceptability and safety of the analgesic. Some painful conditions, such as oral surgical pain (Dental Pain Model), episiotomy pain and acute orthopedic pain, have proved to be particularly suitable models for analgesic efficacy studies, as the source of pain is understood, the duration of pain is fairly predictable, and a relatively homogeneous population of otherwise healthy subjects may be selected. Instances in which acute pain is likely to be more variable, but which represent important uses of analgesics, include headache and postoperative pain.

### **F. Treatment of pain**

For acute pain, analgesics and other symptomatic medications are all the treatment that is needed. Initially severe pain usually becomes moderate, then mild, then resolves (usually). Drug therapy may be adjusted as follows:

For advanced pain, the opioid analgesics (like morphine and oxycodone) remain the drugs of choice in most cases. There is little difference in the efficacy of the various schedule II controlled substance opioid analgesics when the drugs are administered in equianalgesic doses according to their durations of action.

Opiate agonists (drugs from opium, i.e. morphine, codeine, percocet) are generally used to provide temporary analgesia in the symptomatic treatment of moderate to severe pain such as that associated with acute and some chronic medical disorders including renal or biliary colic, myocardial infarction, acute trauma, postoperative pain, and terminal cancer. The drugs may also be used to provide analgesia during diagnostic and orthopedic procedures, dressing changes, and during labor. The drugs are also used to provide preoperative sedation and as a supplement to anesthesia. Although most of the opiates produce similar analgesia in equianalgesic doses, such factors as oral effectiveness, duration of action, other CNS effects such as euphoria or sedation, degree of action on smooth muscle, and individual variation in patient response should be considered in the selection of a specific drug. In patients with chronic pain who do not have a terminal illness, opiates should be used only if the patient is not afforded relief by non-opiate analgesics. If opiates must be used, the following procedures have been recommended to delay the development of tolerance and to assure the patient maximum comfort over a prolonged period of time. For initial therapy, a mild, oral opiate such as codeine should be used. Parenteral dosage forms (IV or IM) should be reserved for use if needed in the latter stages of therapy, if oral

dosage forms are ineffective.

In the management of severe, chronic pain associated with terminal illness such as cancer, the principal goal of analgesic therapy is to make the patient relatively pain free while maintaining as good a quality of life as possible. Analgesic therapy must be individualized and titrated according to patient response and tolerance. When non-opiate (Motrin, Naprosyn, synthetic controlled substances such as Darvocet N) or combinations of opiate analgesics (Tylenol with Codeine) are ineffective, oral administration of an opiate on a regular schedule generally will provide adequate relief of severe, chronic pain and the fear of its recurrence.

### **G. Goodman and Gilman discussion of morphine<sup>8</sup>**

In man, morphine produces analgesia, drowsiness, changes in mood, and mental clouding. A significant feature of analgesia is that it occurs without loss of consciousness. When therapeutic doses of morphine are given to patients with pain, they report that the pain is less intense, less discomforting, or entirely gone. Nausea is common, and vomiting may also occur. Feelings of drowsiness and inability to concentrate, difficulty in mentation, apathy, lessened physical activity, reduced visual acuity, and lethargy may ensue. As the dose is increased, subjective effects become more pronounced; there is increased drowsiness that leads to sleep. In individuals who experience euphoria, the euphoric effect is accentuated. Patients with severe pain that is not adequately relieved by smaller doses of morphine are usually relieved by larger doses (15 to 20 mg). The incidence of nausea and vomiting is also increased, and respiratory depression, the major toxic effect of morphine-like drugs, may become pronounced.

**Analgesia.** The relief of pain by morphine and its surrogates (Demerol, Nubain) is relatively selective, in that other sensory modalities (touch, vibration, vision, hearing, etc.) are not obtunded. Patients frequently report that the pain is still present but that they feel more comfortable. Continuous dull pain is relieved more effectively than sharp intermittent pain, but with sufficient amounts of morphine it is possible to relieve even the severe pain associated with renal colic.

### **H. Types of pain**

#### **1. Myocardial infarction (heart attack) crushing pain of chest/arm**

"In its most characteristic form the clinical picture of acute coronary occlusion with myocardial infarction is dominated by severe and prolonged pain in the region of the sternum (breastbone), the precordium or the upper abdomen. The victim is stricken while at rest or at work, when awake or sleep, with or without the dubious benefit of premonitory pain. The pain either may begin as a relatively mild but persistent discomfort which becomes increasingly severe, or it may strike with sudden terrifying intensity. The pain of acute myocardial infarction has the same quality of constriction, oppression or compression that characterizes angina pectoris, but as a rule it is more crushing in intensity and becomes intolerable because of its prolonged duration. Usually the pain is characterized as squeezing, constricting, choking, viselike, or like a heavy weight, but it has also been described as expanding, stabbing, knifelike, dull and boring or burning in quality. Like the pain of angina pectoris, that of acute myocardial infarction radiates frequently to the shoulders and both upper extremities, to the neck and jaw and to the interscapular region. Radiation of the pain to the neck is often described as causing clutching or choking sensation. The pain in the upper extremities, more often in the left, may either extend continuously from the shoulder to the fingers, or reach only to the arms, or skip directly to the forearms or wrist. The pain persists in varying degree for at least an hour, but often for several hours, and occasionally as a milder soreness for 1 to 3 days. The duration of the pain is abbreviated frequently by the administration of morphine, but occasionally even opiates may hardly diminish the pain or at best leave a persistent dull ache or pressure."<sup>9</sup>

## 2. Headache pain

Any clinician who assesses a chronic pain sufferer is aware of the complex changes that have occurred in the sufferer's emotional state, cognition, and behavior patterns. These changes are not incidental but form an integral part of the sufferer's pain problem and may even contribute to its self perpetuation.<sup>10</sup> When acute injury occurs, the resultant tissue damage is associated with anxiety and pain. The pain appears to serve an important function, motivating a whole set of behaviors that promote tissue healing and recuperation. (i.e., not using the body, for fear of pain, further damage, exhaustion from the effort). The individual rests, sleeps, withdraws from his normal routines, and appears disinterested in his environment. These behaviors motivated by pain can thus be seen as serving a rather special function. They actively influence recovery and are associated over time with pain diminution. A somewhat different situation is evident in an individual with a chronic pain problem such as headache, backache, or facial pains. The same types of behaviors can be detected, but in this case they persist and are elaborated extensively, even though no tissue damage is evident. But more importantly, the pain recovery system appears to be disordered, in that the behaviors occur without any pain decrease. There is no recuperation, and pain does not gradually reduce. Over longer periods, these behaviors increasingly replace and disrupt normal activities so that the behavior can be seen only as unadaptive and may actively delay recovery. It has long been thought that the behavior of those in pain is simply and directly a result of the intensity of their subjective experience. Thus, clinical assessments have focused on the subjective reports of sufferers concerning the severity of their pain, and from this the extent of behavioral disruption is predicted. The greater the pain experienced, the more extensive this pain behavior is presumed to be. It is important to assess the behavioral aspect of a chronic pain problem in its own right in order to establish the extent of the behavioral incapacities. In the past, this has been done by obtaining a count of the rate of medication use for pain. This single behavioral measure has been particularly popular in the headache treatment literature and has been used as the valid spokesman of the myriad of pain behaviors that in fact occurs. Unfortunately, pharmacological aids are used only by sufferers with certain attitudes to drugs—attitudes that are often independent of the severity of their pain. Thus, this measure has proved a blunt and inadequate single measure of pain behavior. (In other words, the pain can be greater than it appears based only on headache drug use.)

The most important measure of pain in man is the verbal report. Only humans are able to verbalize their sensations, and this makes experiments in man indispensable in pain research. Meanwhile, many pain rating scales have been proposed, and an extensive section of the literature deals with the quantification of the different components of pain perception, the application of multidimensional scaling procedures, and abilities to discriminate between analgesic treatments. In the category scale, pain is classified by a set of given descriptors such as faint, mild, moderate, strong pain.

Certain assumptions and conversions also need to be defined. They are:

1. Morphine is the reference analgesic, and all other drugs used are compared to morphine. Morphine is recognized as the standard, the most effective, the drug against which all other analgesics are measured and compared.
2. The route of administration will affect the potency of any drug administered. IV is the most potent, other parenteral forms (Intramuscular = IM, Subcutaneous = SQ) are less potent, and the oral route is the least potent. This means that it takes less milligrams of morphine IV compared to IM; put another way, IV morphine is two to three times as potent as IM. IV morphine is six times more potent than oral.

IV	IM	ORAL
4 mg	= 10mg	= 25 mg

The IV/oral conversion will be especially helpful in comparing the drug used to treat terminal cancer pain to the amount of morphine used by the patient for the relief of his pain. Assuming that in the Memorial Sloan-Kettering study, 61percent of patients had their terminal cancer pain relieved by a range of 60-240 mg of oral morphine, assigning a conversion figure of 6 for the potency to the IV morphine, the range for daily relief of the equivalent amount of pain would be

10-24 mg IV = one day terminal cancer pain relief  
 25-60 mg IM = one day terminal cancer pain relief

Significantly more drug is necessary to relieve the "terminal cancer pain" since it is constant. Pain is among the foremost problems related to cancer, perhaps in part because of the fear with which lay and professional persons view it. Although not all people with cancer develop pain, for those who do, it can be a terrible and potentially unmanageable problem. Several types of pain in cancer patients have been described: pain related to direct tumor involvement, pain related to cancer therapy, and pain unrelated to either tumor or therapy. In addition, cancer pain may be acute, chronic, or a combination of the two. Pain associated with direct tumor involvement is the most common syndrome experienced by cancer patients and is also the most common type of pain seen by healthcare professionals in various settings—especially hospitals. Patients with cancer pain often need doses of narcotics that seem excessively large when compared with recommended standard doses of drugs. Parenteral administration (IM, IV, SQ) of narcotics becomes the route of choice when high doses or oral drugs provide less effective control of pain or when patients have gastrointestinal alterations, in contrast to MI pain, which resolves at the end of the heart attack, and the labor pain, which resolves with the birth of the baby, and is also quantifiable by the amount, frequency, amplitude, and duration of the uterine contractions which cause the pain.

Other comparisons to be used are

morphine 4 mg IV = pain relief of MI (myocardial infarction)  
 = pain relief of 2-4 hours of labor  
 morphine 10mg IM = pain relief of MI  
 = pain relief of 2-4 hours of labor

## I. Sample report

This report compares a quantification of intensity of pain, not precisely the same type of pain. Pain description varies with the individual, the culture, the experience, and so on. The only thing that is being compared (i.e. EQUILIBRATED) is that the analgesic drug use in a particular patient compared to how much drug would be used to relieve pain in short term, time limited events (i.e. MI and labor), or quantifiable/measurable repeating/daily drug use to relieve terminal cancer pain, or the pain relieved by standard oral analgesics (i.e. Tylenol #3, etc.) when measured by qualified investigators, and submitted to the Food and Drug Administration in support for efficacy and safety claims for the various products tested.<sup>11</sup>

Clinical and research literature describe certain types of medical injuries, or certain types of common surgeries or health experiences, and further describe the common types and amounts and effectiveness (efficacy) of various drugs used to relieve any acute pain associated with these

occurrences, conditions, surgeries, etc. For instance, the heart attack is described as an excruciating, debilitating, crushing pain in the left chest over the sternum and radiating down the left arm. Morphine is usually considered the most effective and the drug of choice in relieving the pain of myocardial infarction.<sup>12,13</sup> To relieve pain of myocardial infarction, clinicians report an IV dose of 2-4 mg, and texts report parenteral doses as high as 8-15 mg,<sup>14</sup> which would include SQ and IM dosing figures, which convert to 1/3 to 1/2 the potency of an Intravenous administration.

*For purposes of our pain level comparison, 4 mg morphine is assessed as the amount of morphine used to relieve the pain of a heart attack.*

Morphine is the principal alkaloid of the opiate family, derived from the poppy. A number of synthetic opiate drugs have been manufactured and are in clinical use. (see Table 30.2) Opiate drugs are generally used to provide temporary analgesia in the symptomatic treatment of moderate to severe pain such as that associated with acute and some chronic medical disorders, including renal or biliary colic, myocardial infarction, labor, acute trauma, postoperative pain, and terminal cancer. These drugs may also be used to provide analgesia during diagnostic and orthopedic procedures.

**Labor pain** averaged among a large population of women, ranks among the severest forms of pain recorded with the McGill Pain Questionnaire (MPQ).<sup>15</sup> This is not to be confused with the pain of a single 'bearable' uterine contraction. Rather, it refers to the intractable, unbearable severe labor contraction pain experience, for which 10 mg morphine Intramuscular (or equivalent opiate parenteral narcotic) would be given to relieve the labor experience of two to four hours, the duration of pain relieve provided by this morphine analgesia. This is described, to be conservative, as the relief for a period of two to four hours of severe labor pain. It is possible to compare labor pain with other pains on the basis of a Pain Rating Index (PRI). Recognizing that labor pain is greater with primiparas (first time mothers) than with multiparas, labor pain was ranked more intense than

back pain  
cancer pain  
phantom limb  
Post-herpetic neuralgia  
toothache  
arthritis

in descending order of pain intensity. (Many single dose analgesic efficacy studies use toothache/oral surgery pain as an assessment of efficacy, i.e. non-steroidal anti-inflammatory drugs (NSAIDs), such as Motrin, Naprosyn, Feldene, Anaprox, Meclomen, etc. (see Table 30.3 for a complete listing of NSAIDs). Thus, it is reasonable to conclude that labor pain is a higher intensity and more severe than the above commonly recognized/reported pains.

To provide analgesia during severe labor, 10 mg morphine sulfate is usually administered SQ or IM. (This is equivalent to an IV dose of 4 mg IV).

*For purposes of our pain level comparison, 4 mg IV morphine is assessed as the amount of morphine used to relieve the pain of two to four hours of severe labor.*

Using 4 mg of IV morphine for the relief of pain of a heart attack as well as labor, as a comparison, and also using the equivalent of 10-24 mg IV morphine as the amount of drug used to relieve terminal cancer pain for one day, we can now examine the amount, daily quantity, and frequency of use of the analgesics which were administered to our sample patient.

Mr. Jones (a pseudonym), was struck by an automobile and pinned against a van. He

suffered bone and muscle crushing injuries, requiring seven weeks hospitalization, multiple reparative and reconstructive surgeries, debridement, traction, and received almost 1,400 milligrams of morphine sulfate during his hospitalization. Recalling the conversion factor for morphine to amounts used in common clinical painful conditions, it is apparent that Mr. Jones received the amount of morphine used during this initial hospital stay is the

*pain equivalent of 348 heart attacks*  
 or  
*696-1392 hours of severe labor pains*  
 or  
*52.7 days of terminal cancer pain*

Mr. Jones also received other medications for pain. The other medications were oral tablets of Percocet (oxycodone and acetaminophen).

Assuming that one Percocet contains 4.88 mg oxycodone = 30 mg codeine, and 120 mg codeine = 10 mg IM morphine = 4 mg IV morphine, then

4 tabs of Percocet = 4 mg IV morphine = pain relief equivalent for heart attack = pain relief equivalent for 4 hours of severe labor pain experience.

Based on these assumptions, the pain relieved by the Percocet in Mr. Jones was the

*pain equivalent of 40 heart attacks*  
 or  
*80-160 hours of severe labor pains*

which can be attributed to the Percocet use.

### **J. Oral analgesic medication studies**

Morley describes the clinical pharmacology research in proving the analgesic efficacy of Zomepirac (Zomax, McNeill, since removed from the market). This is an important article, since it compares the new drug Zomax against the more standard and older analgesics for the effectiveness in treating common painful conditions, including:

dental molar extractions	post operative pain
laparoscopic sterilization	muscle contraction headache
acute orthopedic pain	episiotomy pain
cancer pain	oral surgical pain

Medications which are compared include the following:

APC* 2 capsules	APC	with	codeine	30
mg/capsule	Acetaminophen			
Acetaminophen with codeine 30 mg (2 capsules)	Aspirin 650 mg			
Aspirin 650 with codeine 60 mg <sup>22</sup>				

\*APC = Aspirin phenacetin caffeine. Phenacetin was ordered removed from the market in 1982

because it caused severe kidney disease, including interstitial nephritis and kidney cancer.

Several studies are evaluated in the literature which use dental pain model to evaluate the efficacy of analgesics, including ASA/Acetaminophen-Codeine, NSAIDs, etc. Most studies consider standard NSAID drugs as well as the Acetaminophen 300/codeine 30 mg effective for relieving at least two-thirds of the pain associated with a molar tooth extraction for a period of six hours. Therefore, for purposes of equilibrating the oral solid analgesic medication periods following hospitalization in which

Tylenol #3  
Naprosyn  
Darvocet N 100  
Percocet  
or equivalent drugs

were used, equivalent doses of these medications will be evaluated and converted to the equivalent medication to relieve six hours of oral surgery dental molar extraction pain.

References in the medical, dental, and clinical pharmacology literature which are cited to support the use of the Dental Pain Model as well suited for determining the minimally effective dose and defining the linear part of the dose effect curve for peripherally acting analgesics.<sup>17-26</sup>

### **K. Dental extraction pain equivalence**

The Dental Pain model, the equivalent pain medication needed to relieve the pain which follows extraction of a molar tooth for a period of six hours, is selected for comparison for the ambulatory periods in which Darvocet N-100 (propoxyphene with acetaminophen), Tylenol #3 (Acetaminophen 325 mg with codeine 30 mg), and Naprosyn 375 mg (a non-steroidal anti-inflammatory agent similar to ibuprofen, Motrin, Indocin) are used.

Turning now to the analgesics used for moderate pain relieved in Mr. Jones by the administration of the following medications

Tylenol #3	650 tablets
Darvocet N 100	250 tablets
Naprosyn 375mg	<u>180 tablets</u>
1080 tablets	

for an eighteen month period following the hospitalization, and applying the dose equivalent of two tablets of the above three medications equivalent to the pain relieved in a dental pain molar tooth extraction for a six hour period, we can now add the following additional pain equivalent experiences of *1080 molar extractions*.

The cumulative totals for all analgesic pain equivalents, for the inpatient hospitalization, and the outpatient treatment which followed, are summarized below:

*388 heart attacks*  
or  
*776-1552 hours of labor pain*  
or  
*52.7 days terminal cancer pain*  
plus  
*1080 molar extractions*

Restated simply, Mr. Jones received the amount of medication which would have relieved the pain of the above conditions.

Review of the medical charts for the sample patient indicate a substantial period of approximately seven weeks following the accident in which the patient required morphine for the lessening of his pain. Analgesics lessen, not eliminate, pain. The normal duration for the use of morphine post-operatively is two to three days, following by a switch to oral Tylenol with Codeine products. This prolonged necessity for morphine is a further documentation of Mr. Jones' excessive level of suffering. The causes for his pain are described, and should be readily understood. No one can deny that bone-crushing injury, with the attendant soft tissue, muscle, cartilage, and tendon injury is a serious cause for pain.

Further insult to injury is the necessary, repetitive, predictable, excruciatingly painful debridement, dressing changes, and re-operations. These frequent procedures, as well as the unending pain, injects an emotional and anxiolytic component to the pain experience support. Once the pain is experienced, there is an increased degree of anticipation, anxiety, and suffering which the patient experiences once the pain is again present. Chronic pain often presents as a symptom complex.<sup>27</sup> Successful treatment of all symptoms is usually not possible without inducing an unacceptably high risk of side effects. Pain and anxiety are key to breaking the complex. This anxiety lowers the patients's pain threshold resulting in an increased perception of pain. Thus the need for and explanation for the frequent use of Valium (diazepam-benzodiazepine) during the Mr. Jones' hospitalization.

It is clear that the treating physicians and nurses recognized the excruciating agony which the crushing injuries were having on Mr. Jones, and his analgesic orders reflect this recognition.

## **L. Conclusion**

This pain equilibration attempts to show the reader a means of assessing and measuring analgesic medications used to relieve a variety of severe types of pain into commonly recognized pain, comprehensible to the average person.