METHODS TO PROVE PHYSICAL PAIN & SUFFERING

Pain Equilibration

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EQUILIBRATE

- **e·quil·i·brate** (i -kwil -i brat)
- *v.* **e·quil·i·brat·ed**, **e·quil·i·brat·ing**, **e·quil·i·brates**
- *v.intr.*
- To be in or bring about equilibrium.
- *v.tr.*
- To maintain in or bring into equilibrium.

PAIN EQUILIBRATION

- COMPARE THE PAIN EXPERIENCED BY THE PATIENT TO COMMONLY EXPERIENCED PAINFUL CONDITIONS EXPERIENCED BY OR KNOWN BY THE LAY PUBLIC
- BASED ON CONCEPTS OF EQUIPOTENCY OF ANALGESIC MEDICATIONS

Equivalency

Most opiates produce similar analgesia in equianalgesic doses

Equipotency of analgesics

- POTENCY – RATIO OF EQUI-EFFECTIVE DOSES MAY BE USED IN COMPARING ONE DRUG WITH ANOTHER
- *Katzung B. Basic & Clinical Pharmacology, 8th Ed. Lange, Phila.2001*

Efficacy v. Potency

- Efficacy refers to the maximum effect that can be achieved with a drug
- Potency refers to the strength of a drug, that is, the amount of the drug necessary to produce a certain level of analgesia

EQUIPOTENCY

- **Does ALEVE have a dosing advantage over other pain relievers?**
- ALEVE ® is simpler to use than other common, over-the-counter (OTC) pain relievers because just two ALEVE provide relief that can last all day.
- Compare it! Based on labeled dosing, you could take eight Extra Strength Tylenol ® or four Advil ® to get the same all-day relief as just two ALEVE.
- And, two ALEVE cost about one-fourth the price of eight Extra Strength Tylenol and one-half that of four Advil, per day.
- http://www.aleve.com/faqs.html#g16

Definition of Terms

- "Pain is an unpleasant sensory and emotional experience associated with actual or potential tissue damage or described in terms of such damage."

Categories of Pain

- (1) acute pain, in which a specific noxious stimulus of limited duration can be identified (e.g., postoperative pain, renal colic, or a fractured bone);
- (2) continuous pain in terminally ill patients (most often caused by cancer); and
- (3) other forms of chronic pain

Acute v Chronic Pain

- chronic pain - present for six or more months.
- persists well beyond the expected resolution based on the natural history of the problem.
- Medications used for acute pain are often different than in chronic pain and, when the same drugs are used, they may be used differently.

Neuropathic Pain

Pain may develop in response to an injury to peripheral or central sensory afferents.

- This type of pain is termed neuropathic, or deafferentation pain
- Such pain may be produced by amputation, nerve avulsion, cordotomy, or peripheral neuropathy
- Phantom limb pain, causalgia, postherpetic neuralgia, and thalamic pain are all forms of neuropathic pain

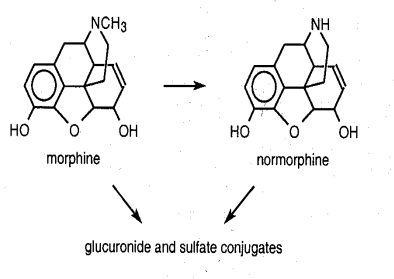
RDS

- Complex regional pain syndrome (CRPS) is a chronic pain condition. The key symptom of CRPS is continuous, intense pain out of proportion to the severity of the injury, which gets worse rather than better over time.
- http://www.ninds.nih.gov/disorders/reflex_sympathetic_dystrophy/reflex_sympathetic_dystrophy.htm

Experimental versus clinical pain

- 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

Morphine Metabolism



Morphine

- Morphine remains the major drug for the treatment of moderate-to-severe pain
- Given either subcutaneously or intramuscularly, morphine at a dose of 10 mg/70 kg of body weight is sufficient to relieve moderate-to-severe pain in 70 percent of patients.
- Classic/benchmark opiate

Morphine is the Standard Reference

- Morphine is the reference analgesic, and all other drugs used are compared to morphine.
- Morphine is recognized as the standard and is the most effective in treatment of acute pain.
- Morphine is the drug against which all other analgesics are measured and compared.

Analgesics

Analgesics may be divided into:

- peripherally acting analgesics, which are useful for mild to moderate pain; (aspirin and nsaids)
- Centrally acting analgesics, which are used for severe pain. (opiates)

Uses of opiate analgesics

- Strong opiate analgesics may also be used to provide pain relief during diagnostic and orthopedic procedures, dressing changes, and during labor.

Peripherally Acting Analgesics

- The prototypes are acetaminophen (APAP) and aspirin (ASA).
- ASA remains the standard for comparison.
- Acetaminophen (Tylenol) is effective for mild to moderate pain. Primarily an analgesic - minimal anti-inflammatory action.

Peripherally Acting Analgesics

- NSAIDs are Non-Steroidal Anti-Inflammatory Drugs
- All NSAIDs have much in common and therefore can be discussed as a group.
- Aspirin (ASA) is effective for mild to moderate pain.
- Non-aspirin NSAID drugs have become the mainstay of treatment of mild to moderate acute and subacute pain.

Therapeutic effects of NSAIDs

antipyretic – lower fever

analgesic – relieve pain

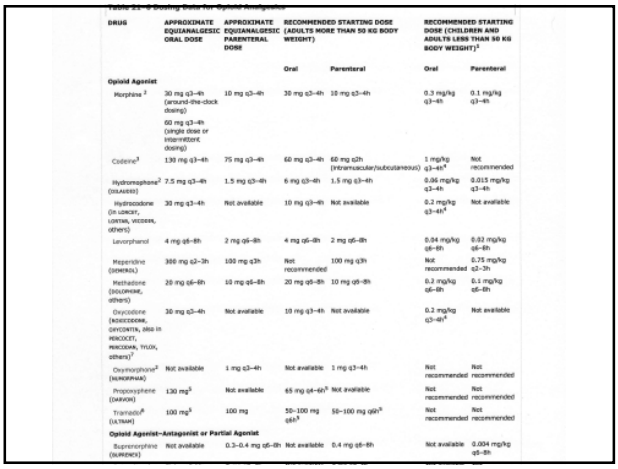
anti-inflammatory – lessen or stop inflammation through interference with biochemical pathway

Multiple Options for Pain Relief

- The availability of a wide range of agents provides a therapeutic flexibility that is too often underutilized. For many types of pain, aspirin or any number of NSAIDs provides relief equivalent to 60 mg of oral codeine

Treatment

- For severe 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.



DRUG	APPROXIMATE EQUIANALGESIC ORAL DOSE	APPROXIMATE EQUIANALGESIC PARENTERAL DOSE	RECOMMENDED STARTING DOSE (ADULTS MORE THAN 50 KG BODY WEIGHT)		RECOMMENDED STARTING DOSE (CHILDREN AND ADULTS LESS THAN 50 KG BODY WEIGHT)[1]	
			Oral	Parenteral	Oral	Parenteral
Opioid Agonist						
Morphine[2]	30 mg q3–4h (around-the-clock dosing) 60 mg q3–4h (single dose or intermittent dosing)	10 mg q3–4h	30 mg q3–4h	10 mg q3–4h	0.3 mg/kg q3–4h	0.1 mg/kg q3–4h
Codeine[3]	130 mg q3–4h	75 mg q3–4h	60 mg q3–4h	60 mg q2h (intramuscular/subcutaneous)	1 mg/kg q3–4h[4]	Not recommended
Hydromorphone[2] (DILAUDID)	7.5 mg q3–4h	1.5 mg q3–4h	6 mg q3–4h	1.5 mg q3–4h	0.06 mg/kg q3–4h	0.015 mg/kg q3–4h
Hydrocodone (in LORCET, LORTAB, VICODIN, others)	30 mg q3–4h	Not available	10 mg q3–4h	Not available	0.2 mg/kg q3–4h[4]	Not available
Levorphanol	4 mg q6–8h	2 mg q6–8h	4 mg q6–8h	2 mg q6–8h	0.04 mg/kg q6–8h	0.02 mg/kg q6–8h
Meperidine (DEMEROL)	300 mg q2–3h	100 mg q3h	Not recommended	100 mg q3h	Not recommended	0.75 mg/kg q2–3h
Methadone (DOLOPHINE, others)	20 mg q6–8h	10 mg q6–8h	20 mg q6–8h	10 mg q6–8h	0.2 mg/kg q6–8h	0.1 mg/kg q6–8h
Oxycodone (ROXICODONE, OXYCONTIN, also in PERCOCET, PERCODAN, TYLOX, others)[7]	30 mg q3–4h	Not available	10 mg q3–4h	Not available	0.2 mg/kg q3–4h[4]	Not available
Oxymorphone[2] (NUMORPHAN)	Not available	1 mg q3–4h	Not available	1 mg q3–4h	Not recommended	Not recommended
Propoxyphene (DARVON)	130 mg[5]	Not available	65 mg q4–6h[5]	Not available	Not recommended	Not recommended
Tramadol[6] (ULTRAM)	100 mg[5]	100 mg	50–100 mg q6h[5]	50–100 mg q6h[5]	Not recommended	Not recommended
Opioid Agonist–Antagonist or Partial Agonist						
Buprenorphine (BUPRENEX)	Not available	0.3–0.4 mg q6–8h	Not available	0.4 mg q6–8h	Not available	0.004 mg/kg q6–8h

NSAIDs with Opioids

Because they exert their effects by different mechanisms, combinations of these two classes of drugs usually can achieve an analgesic effect that would otherwise require a higher dose of opioid, but with fewer side effects

Additive Effects with Combined Drugs

- Most often, codeine or its equivalent is prescribed as a combination product with APAP or aspirin. These combinations have additive analgesic effects and also offer the advantage of fewer side effects for similar degrees of analgesia, since less opioid is needed
- Less dependency risk,lower CS classification

ROUTES OF ADMINISTRATION

- INTRAVENOUS
- INTRAMUSCULAR
- SUBCUTANEOUS
- TRANSDERMAL
- ORAL
- EPIDURAL
- Determines onset of action and potency

Comparison of NSAIDs and Weak Opioids

- Relative effectiveness of NSAIDs versus the "weak" opioids:
  - Propoxyphene
  - Codeine
  - Hydrocodone
  - Dihydrocodeine
  - Pentazocine.

  Most studies compare these analgesics in acute pain such as tooth extraction or post-operative pain

Pain Equilibration

- **"In my opinion, during the period of her severe burns in October, 2006 until January, 2009, this patient suffered the pain equivalent of:"**
  - **543 heart attacks**
  - **OR**
  - **1087 - 2174 hours of severe obstetrical labor pain**
  - **and 750 dental molar teeth extractions**
- (testimony of plaintiff's expert pharmacologist)

Utility of Pain Equilibration

- Pain Equilibration addresses the use of drugs to treat pain following injury
- There is no issue about liabilities for the use of drugs, although the issues of analgesic induced ADRs (respiratory toxicity due to opiates), and dependency following narcotic pain relieving drug use are real

UTILILTY OF PAIN EQUILIBRATION

- Litigants who address injury cases will frequently find themselves presented with a myriad of drugs given by a variety of routes of administration ordered by different practitioners to treat pain of differing causes, not just medical malpractice

Pain Equilibration Utility

- The common denominator for EQUILIBRATION will be the pain medication used for analgesia or pain relief.
- method of expressing or quantifying pain which translates to accepted, common pain types, for which a well agreed upon dosage amount of medication is used for analgesia.
- lay person understand the level of pain and suffering experienced by the injured person requiring pain relief.

Therapeutic Trials

- 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.
- Required by FDA to approve new analgesics.

Extracted Molar

PAIN MODELS

- Some painful conditions, such as oral surgical pain (Dental Pain Model), episiotomy pain and acute orthopedic pain,
- suitable models for analgesic efficacy studies,
- source of pain is understood,
- the duration of pain is fairly predictable,
- and a relatively homogeneous population

OPIATE ANALGESICS

- Opiate agonists (drugs derived from opium, i.e. morphine, hydromorphone, 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, and postoperative pain.

Therapeutic Effect of Morphine

- When therapeutic doses of morphine are given to patients with pain, they report that the pain is less intense, less discomforting, or entirely gone (Goodman & Gillman)
- **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

Left Arm Pain

Types of Pain

- Acute Myocardial Infarction (AMI)
  - The same quality of chest pain as Angina Pectoris
    - Constriction
    - Oppression
    - Compression
    - As a rule AMI is greater in intensity than Angina and becomes intolerable because of its prolonged duration

Variation in the Pain of AMI

- Stabbing
- Crushing
- Dull and boring
- Burning
- Pain originating in the heart radiates frequently to:
  - the shoulders
  - both upper extremities
  - the neck and jaw
  - the interscapular region of the back

Acute Myocardial Infarction

Morphine for Relief of AMI Pain

- 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.

Route of Administration for Morphine Sulfate (MS)

- IV is the most potent
- Other parenteral forms
  - (Intramuscular (IM) and Subcutaneous (SQ) are less potent
- Oral route is the least potent (PO)
- IV is 2-3 times as potent as IM; 6 times as potent as Oral

  MS IV 4 mg = 10mg IM = 25 mg PO

Morphine for heart attack

- Morphine is usually considered the most effective and the drug of choice in relieving the pain of AMI.
- To relieve pain of AMI clinicians report using an IV dose of 2-4 mg
- Text references describe parenteral doses as high as 8-15 mg for treatment of AMI pain

Morphine, 4 mg is the Reference Dose

- *For purposes of our pain level comparison, 4 mg morphine, IV is 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

Authority for MI MS Dose

- [1] Drug Information, American Hospital Formulary Service. ASHP, Bethesda, MD, 1986 at p 914
- [1] Anthony S. Fauci, Eugene Braunwald, Dennis L. Kasper, Stephen L. Hauser, Dan L. Longo, J. Larry Jameson, and Joseph Loscalzo, Eds.: *Harrison's Principles of Internal Medicine*, 17th Edition: http://www.accessmedicine.

Morphine for OB Labor

- Morphine 10mg IM = Morphine 4 mg IV
  - –Pain relief of 2-4 hours of labor

Relief of Severe Labor Pain

- Morphine, 4 mg, IV is the standard of reference for pain relief during extended severe labor lasting 2-4 hours

Woman in Labor

Labor Pain

- **Labor pain** ranks among the severest forms of pain recorded with the McGill Pain Questionnaire (MPQ).
- This is not to be confused with the pain of a single 'bearable' uterine contraction.
- It refers to the intractable, unbearable severe labor contraction pain experience which can last for 2 to 4 hours
- 10 mg morphine Intramuscular (or equivalent) would be given to relieve the severe pain of this kind of extended labor experience over 4 hours

Labor Pain

Oral Analgesics

- 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

Types of Pain Treated with Oral Analgesics

- Dental extraction of molars
- Post operative pain
- Laparoscopic sterilization
- Muscle contraction
- Headache
- Episiotomy pain
- Acute orthopedic pain
- Oral surgical pain
- Cancer pain

Dental Molar Extraction

Dental Pain Model

- Peer reviewed journal articles describe:
  - Standard NSAID drugs
  - Acetaminophen 300/codeine 30 mg
- Provide effective relief of at least two-thirds of the pain associated with a molar tooth extraction for up to six hours
  - Tylenol #3
  - Naprosyn
  - Darvocet N 100
  - Percocet
  - Other equivalent drugs

NSAID DOSE EQUIVALENTS

- IBUPROPFEN 400MG
- NAPROXEN 250MG
- FENOPROFEN 300MG
- KET0PROFEN 150MG
- FLUBIPROFEN 50MG
- ORAPROZIN 600MG

Peer Reviewed Citations for Dental Pain Model

- Cooper SA, Needle SE, Kruger GO: An analgesic relative potency assay comparing aspirin, ibuprofen and placebo. J. Oral Surg 35:898,1977.
- Cooper SA, Reynolds DC, Kruger GO, et al: An analgesic relative potency assay comparing zomepirac sodium and aspirin. J Clin Pharmacol 20-98, 1980.
- Cooper SA, Wagenberg B, Zissu J et al: The analgesic efficacy of Suprofen in Periodontal and oral surgical pain. Pharmacotherapy 1986, 6 (5) 267-276.
- Forbes JA, Calderazzo JP, Bowser MW et al. A 12 hour evaluation of the Analgesic Efficacy of Diflunisal, Aspirin, and Placebo in Postoperative Dental pain. J. Clin Pharmacol. 1982; 22:89-96.
- Forbes JA, Foor VM, Bowser MW et al. A 12 hour evaluation of the analgesic efficacy of diflunisal, propoxyphene, a propoxyphene-acetaminophen combination, and a placebo in postoperative oral surgery pain. Pharmacotherapy Vol 2, no 1, Jan/Feb 1982.
- Forbes JA, Jones KF, King Smith W and Gongloff CM. Analgesic effect of an aspirin-codeine-butalbital-caffeine combination and an acetaminophen - codeine combination in postoperative oral surgery pain. Pharmacotherapy 6;(5), Sept/Oct 1986, 240-246.
- Forbes JA, Butterworth GA, Burchfield WH et al. Evaluation of flurbiprofen, acetaminophen, and acetaminophen-codeine combination, and placebo in postoperative oral surgery pain. Pharmacotherapy 1989;9(5):322-330).
- Jain AK, Ryan JR, McMahon FG et al. Analgesic Efficacy of Low dose Ibuprofen in Dental Extraction Pain. Pharmacotherapy Vol 6, No. 6, Nov/Dec 1986.
- Mardirossian G and Cooper S. Comparison of the Analgesic Efficacy of Flurbiporfen and aspirin for Postsurgical Dental Pain. J Oral Maxillofac Surg 43:106-109, 1985.

Goal of Pain Equilibration

- 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 a format which allows comparison with commonly recognized pain conditions which can be comprehended by the average person from their own experience

Major 2nd Degree Burn

2nd Degree Burn from glue

Hand, 2nd Degree Burn

Pain Equilibration Case Report

- 26 year old woman was working at a motel on October 31, 2006. She was burned (flame) over 13 – 15% of her body as a result of an explosion of propane gas.
- Burned areas included lower arms, both hands, face, lips, ears, chin, entire face and neck. Surgery on November 3, 2006
  - Tangential excision of the burns to her bilateral forearms and hands;
  - Autograft to the right hand, right forearm, left hand, and left forearm.

Inpatient Burn Care

- Burn Unit October 31-November 17, 2006
  - During her inpatient Burn Unit stay, IV Fentanyl drip at 300mcg/hour was administered to control pain. The analgesics used in the intensive care Burn unit were primarily Fentanyl
- Inpatient Rehab Nov 17 to Dec 11, 2006
  - Upon transfer to the Rehab, Fentanyl transdermal patches were used.
  - Treatments: debridements, skin grafts/harvesting, endoscopies, bronchoscopy, X-rays
  - Therapy, and dressing changes.

Fentanyl and Duragesic TD Patch

- Fentanyl is a synthetic opioid, 100 times more potent than morphine

The Trauma Service Orders for Analgesic Medication

- 11/14/06 Fentanyl transdermal patch 75 mcg/hr apply every 3rd day
- 11/14/06 Lortab 15ml via NG tube every 4 to 6 hours as needed for pain
- Morphine 2 – 4 mg IVP every 4 hours for breakthrough and dressing changed

Treatment for Painful Procedures

- Analgesic orders (primarily Fentanyl) are a response to experience – knowing certain conditions or procedures are painful, and to complaints of the patient and/or clinical condition
- 11/02/06 Patient with noted pain
- 11/08/06 Patient with pain meds. Seen at bedside…noted some withdrawal secondary to pain during treatment session.
- 11/11/06 Increase pain with full range of motion (therapy)
- 11/13/06 "stop, please, stop!" comments by patient during physical therapy

Inpatient Rehab Orders for Analgesic Medication

- Fentanyl 100mcg/hr patch charted on 11/27 and 12/3
- Fentanyl 100mcg/hr patch charted on11/30
- Hydrocodone 30ml (7.5/15) 7 doses charted 12/1 -3
- Morphine 5mg IV push on 11/30;4mg IV x 2 on 12/1
- Fentanyl 100mcg/hour patch 11/30 and 12/03
- Hydrocodone 15ml dose 11/30 x 1; 30ml dose 7 12/01 - 12/03
- Fentanyl 100mcg/hr patch 12/3; 75mcg/hr patch on 12/7
- Naproxen 250mg single dose on 12/4; p. 153 2 x 250mg doses

REHABILITATION NOTES

ANALGESIC ORDERING/CLINICAL NOTES

- PAIN: abdominal pt describes pain as an 8, on a scale of 0 to 10
- Pt c/o pain on the peg-site area, at rate 8
- Dr. was here and seen patient in the room, with orders to give another morphine 2-4mg IV push Q 2 hours for pain, and give the hydrocodone 15mg at the same time via the PEG-Tube.

Subsequent Causes of Pain

Continuing Surgical Care March 28, 2007

- ADMISSION SURGERY DR. ENT SURGEON PROGRESSIVE STRIDOR DIRECT LARYNGOSCOPY AND BRONCHOSCOPY/LASER EXCISION OF GRANULATION TISSUE STENOSIS OF LARYNX
- General anesthesia
- Fentanyl 150mcg
- Percocet I – 2 tablets q 4 to 6 hours prn pain; morphine 2mg IV q 2 hour prn breakthrough pain.
  - 2300 3/28, 0727 3/29
  - 2mg iv push q2H (p. 69) (orders)
- Hydrocodone / acetamin liq 7.6/500/15ml) 15ml po pain q 4 hours prn (order)

Analgesic Medication in Burn Unit 10/31/06 to 11/17/06

Opioid Analgesic IV	Morphine Equivalent
Morphine 22 mg IV	22 mg
Fentanyl 113,900 mcg IV	1139 mg
Fentanyl 19,500 as TD Patch	195 mg
Hydrocodone 77.5 mg as Lortab/Vicodin	25 mg
Total	1381 mg

Analgesic Medication in Inpatient Rehab

11/17/06 to 12/11/06

Morphine 20 mg IV	20 mg
Fentanyl 250 mcg IV	2.5 mg
Fentanyl 54,000 mcg TD Patch	540 mg
Hydrocodone 246 mg as Lortab/Vicodin	82 mg
Total	644.5 mg

Pain Equilibration Report

"In my opinion, during the period of her severe burns in October, 2006 until January, 2009, this patient suffered the pain equivalent of:"

- **543 heart attacks OR**
- **1087 - 2174 hours of severe obstetrical labor pain**
- **and 750 dental molar teeth extractions**

Labor Pain

Extended labor pain averaged among a large population of women, ranks among the severest forms of pain recorded with the McGill Pain Questionnaire (MPQ).

Melzack R, Wall PD. Handbook of Pain Management: A Clinical Companion to Wall and Melzack's Textbook of Pain. Churchill Livingstone Edinburgh, 2003

What is Being Compared?

- The only thing that is being compared (i.e. EQUILIBRATED) is the amount of analgesic drugs used in this case report compared to how much drug would be used to relieve pain in short term, time limited events (i.e. MI and labor, dental molar tooth extraction).

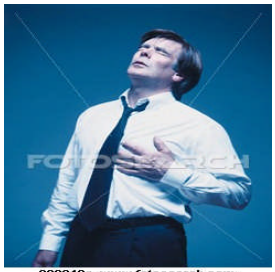
Making Severe Pain Understandable

- The final result is to provide the lay person 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.
- The objective is to quantify the use of analgesic drugs beyond simply listing the dosages and number of drug administrations.

Types of Pain

- **Acute Myocardial Infarction (AMI) or heart attack is a crushing pain of the chest or arm**

Chest Pain



DAUBERT CRITERIA

» Q. Are your pain equilibration opinions **based on** consensus science?
» **A.** Yes.
» Q. Are your pain equilibration opinions based on recognized peer-reviewed publications and learned treatises?
» A. Yes
» Q. Are your pain equilibration ppinions in this case based on accepted pharmacological practice?
» A. Yes

DAUBERT CRITERIA

Q. Is pain equilibration analysis recognized by the Food and Drug Administration?

- Both equipotency and equianalgesic doses are recognized by the Food and Drug Administration and they serve as bases for assessing the safety and efficacy of new analgesics, and that basis is utilized in and relied upon in my report.

DAUBERT CRITERIA

Q. All right. Are the underlying scientific principles relating to this pain equilibration methodology both scientifically and medically reliable?

A. Yes, sir.

Q. And in your opinion is the technique, process and methodology by which you conducted this particular pain equilibration assessment a reliable technique, process and methodology?

- **A. Yes, sir.**

Conclusion

This pain equilibration demonstrates a scientifically valid 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.