DSHS Grand Rounds

April 23

Pain Management:
Evidence Based Strategies

Presenter: Jeffrey Higginbotham, MD,
Pain Management Specialist

Logistics

Registration for free continuing education (CE) hours or certificate of attendance through TRAIN at:

https://tx.train.org

Streamlined registration
for individuals not requesting CE hours
or a certificate of attendance

1. webinar: http://extra.dshs.state.tx.us/grandrounds/webinar-noCE.htm

2. live audience: sign in at the door

For registration questions, please contact Annette Lara,
CE.Service@dshs.state.tx.us

Logistics (cont.)

Slides and recorded webinar available at:
www.dshs.state.tx.us/grandrounds

Questions?

There will be a question and answer period at the end of the presentation. Remote sites can send in questions throughout the presentation by using the GoToWebinar chat box or email GrandRounds@dshs.state.tx.us.

For those in the auditorium, please come to the microphone to ask your question.

For technical difficulties, please contact:

GoToWebinar 1-800-263-6317(toll free) or 1-805-617-7000

Disclosure to the Learner

Requirement of Learner

Participants requesting continuing education contact hours or a certificate of attendance must register in TRAIN, attend the entire session, and complete the online evaluation within two weeks of the presentation.

Commercial Support

This educational activity received no commercial support.

Disclosure of Financial Interests

Our speaker, Jeff Higginbotham, MD is employed by Pain Management Consultants, PA

Planning committee members have no relevant financial relationships to disclose.

Off Label Use

There will be no discussion of off-label use during this presentation.

Non-Endorsement Statement

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David Lakey, MD
DSHS Commissioner
is pleased to introduce today's
DSHS Grand Rounds speakers

Pain Management:
Evidence Based Strategies

Jeff Higginbotham, MD
Diplomat American Board of Anesthesiology
Added Qualifications in Pain Management

Learning Objectives

Participants will be able to:

- Understand multidisciplinary pain management, focusing on pain relieving strategies aimed at easing suffering and preserving function.
- Understand the role of the pain management practitioner as part of the solution to limit the spread of prescription drug abuse.
- Gain knowledge of future research targets in the treatment of chronic pain.

Many Americans Suffer

- Approx. 30 million Americans suffer from moderate to severe non-cancer-related chronic pain
- Chronic pain results in over 40 million doctor visits and 515 million lost workdays annually
- Approx. 300,000 back surgeries are performed in the U.S. per year to treat chronic lumbar pain with failure rates as high as 40%
- The success rate decreases significantly with each subsequent back surgery

Recent from Medpage Today:

- Global Burden of Disease (GBD) 2010 study (published in Lancet)
  - The number of disability-adjusted life years (DALYS) due to low back pain increased from 58.2 million (95% CI 39.9 million-78.1 million) in 1990 to 83 million (95% CI 56.6 million-111.9 million) in 2010
  - "The global point prevalence of [low back pain] was 9.4% (95% CI 9.0-9.8)"
  - Low back pain causes more global disability than any other condition.

What is a Pain Management Physician

- Non-surgical conservative treatments aimed at preventing spinal surgery
- Diagnostics to identify pain generators
- Management of failed back surgery
- Alleviate suffering from degenerative and chronic pain conditions for which there is no cure…

Treating Chronic Pain

- Chronic pain has been historically ignored or under-treated because:
  - Considered a byproduct of treatment
  - Fear of addicting the patient
  - Lack of understanding about the pain itself
- Increasingly recognized as a major medical problem

Multidisciplinary Approach

- In order to manage the chronic pain patient and evaluate them for various pain management modalities, the following team members often come into play:
  - Referring Physician Team
  - Physician's Assistants & Nurse Practitioners
  - Pain Management Physician
  - Psychologist
  - Physical and Occupational Therapists
  - Social Workers

Principles Of Pain Management

1. Reduction of Pain

   Medications, nerve blocks, surgery

2. Rehabilitation

   Reconditioning and prevention

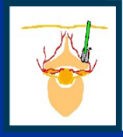
3. Coping

   Management of residual pain with biofeedback, cognitive therapies

Pain Management Treatment Options

Patients With Chronic Pain Often Seek a Myriad of Opinions and See Numerous Physicians of Varying Disciplines for Treatment

Oral Meds


Nerve Blocks

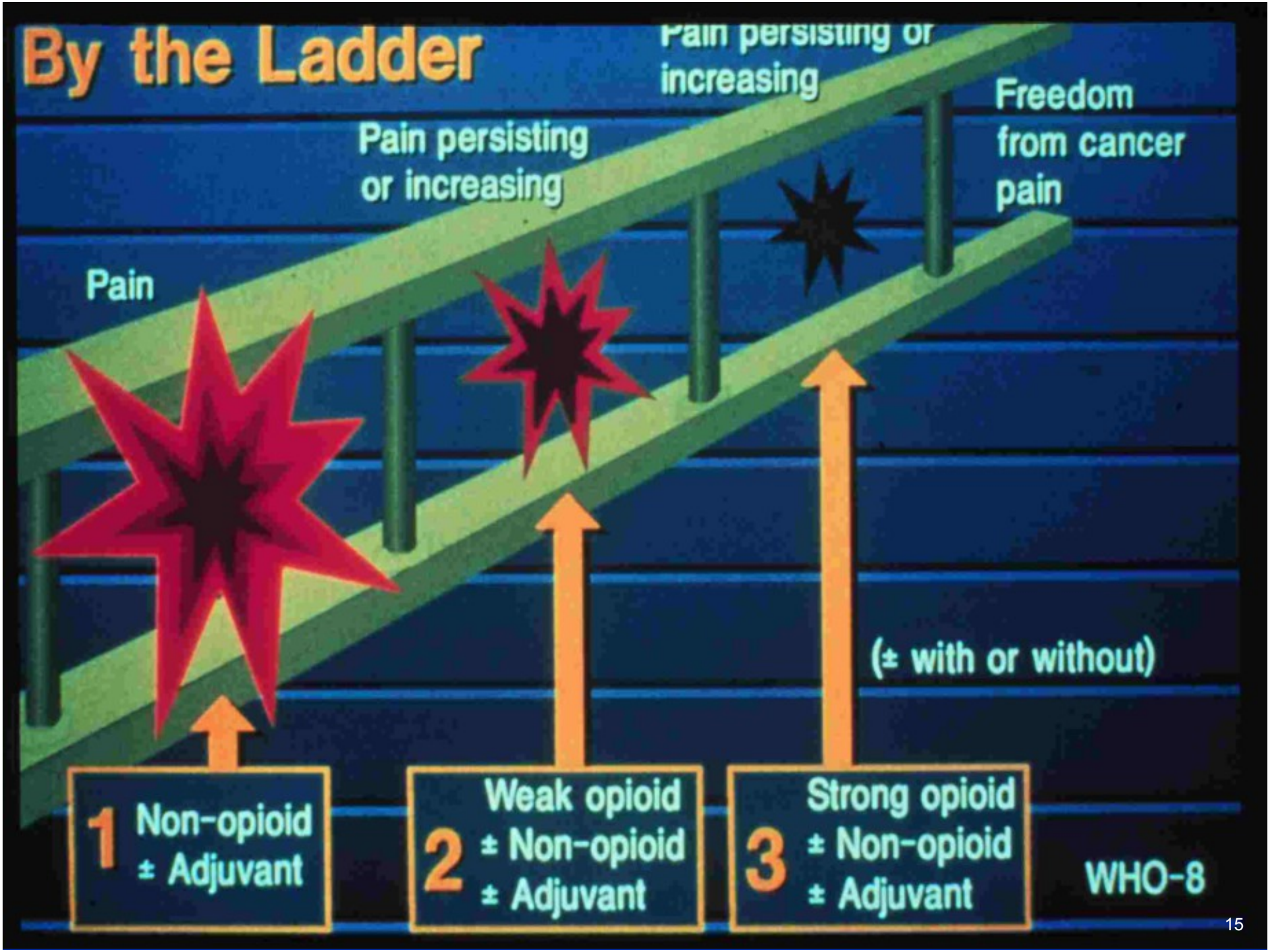
Corticosteroid Injections

Physical Therapy

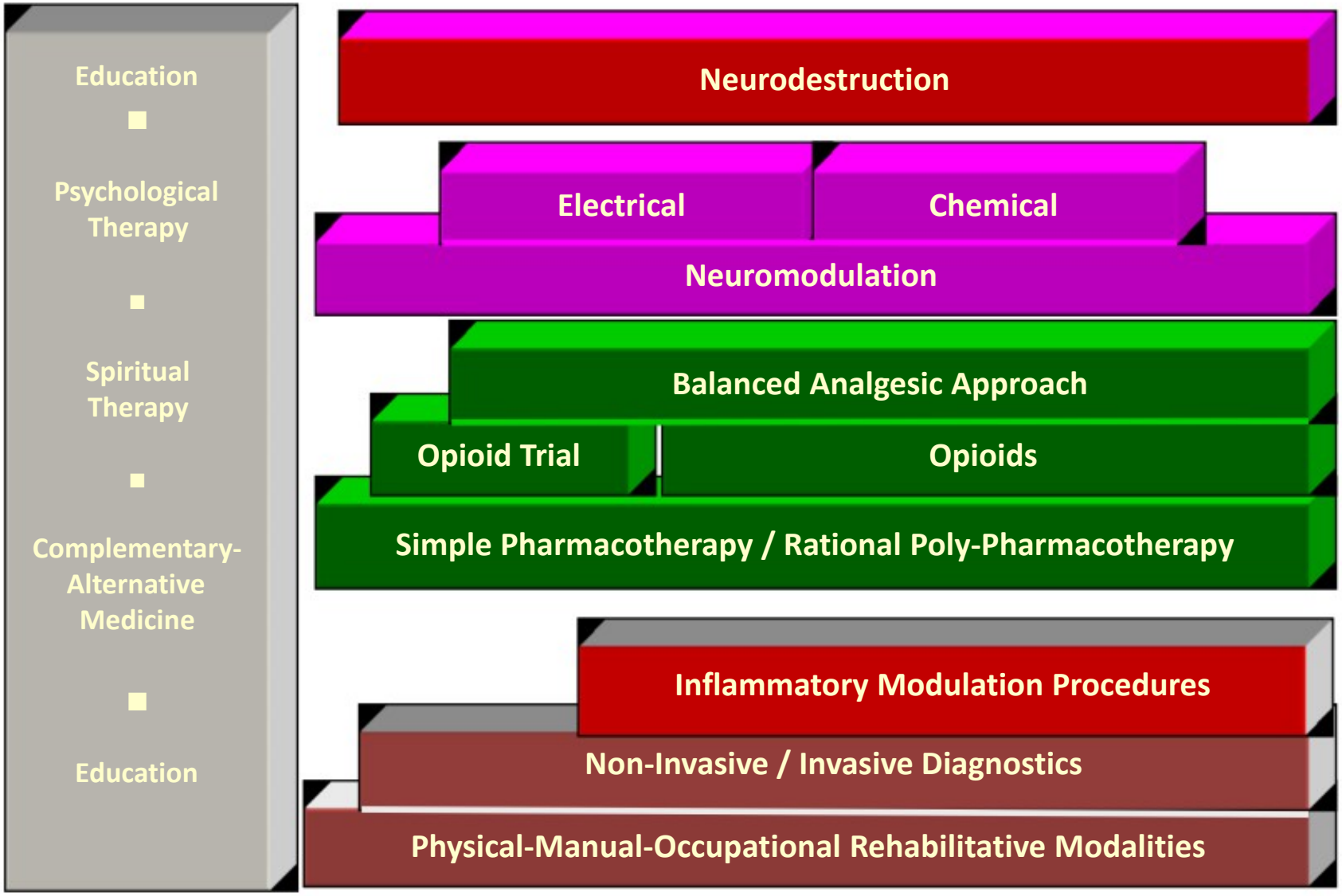
Chiropractic Care

Fixation Surgery

Repeated Surgeries


By the Ladder
Pain persisting or increasing
Pain persisting or increasing
Freedom from cancer pain
Pain
(± with or without)
1 Non-opioid ± Adjuvant
2 Weak opioid ± Non-opioid ± Adjuvant
3 Strong opioid ± Non-opioid ± Adjuvant
WHO-8

21st Century Integrative Paradigm



LCDriver adaptation from Daniel Bennett, MD

pain
acupuncture
Syndrome
depression
Disease
Problems
constipation
menstruation
migraine
infertility
arthritis
back
Chronic
injuries
menopausal
tendonitis
painful
smoking
stroke
strains
sprains
stress
shoulder
Bowel
Medicine
strengthen
knee
Neurological
Infertility
energy
Health
sinusitis
IBS
allergies
muscle
Acne
nausea
Tunnel
drug
chronic
Rheumatoid
Stones
Dermatitis
Carpal
sciatica
Addiction
bronchitis
Asthma
post-operative
diarrhea
stop
rejuvenation
Pain
indigestion
asthma
Cancer
post
ulcers
PMS
weight
Eczema
Respiratory
weakness
Arthritis
Breast
neck
Gynecological
facial
abdominal
common
immune
Irritable
anxiety
Fatigue
TMJ
headache
low
problems
neuralgia
hypertension
syndrome
Emotional
Fibromyalgia
sports
colitis
management
Urinary
system
symptoms
Infection
Bell's
Stroke
Trigeminal
Musculo-Skeletal
residuals
cold
irregular
Depression
Mental
oversleeping
hot
GERD
conditions
palpitations
Diarrhea
Edema
wrist
Back
dreaming
DIGESTIVE
Tract
urinary
Meniere's
skin
vomiting
beat
Glaucoma
Parkinson's
ear
Crohn's
Premenstrual
endometriosis
AIDS
Self-Help
nervousness
hypotension
Fibroids
Hypertension
Anxiety
nerve
Kidney
Prostatic
mood
Women's
vertigo
Shingles
Palsy
flashes
urination
menopause
swings
libido
operative
Hemorrhoids
Stones
Dermatitis
Rheumatoid
morning
Shingles
blood
Indigestion

- Complex Regional Pain Syndrome (CRPS)

  → pain, allodynia or hyperalgesia disproportionate to inciting event

  - Occurs in approximately 1-15% of peripheral nerve injury cases
  - Incidence after fractures and contusions ranges from 10-30%

CAMAS Menu

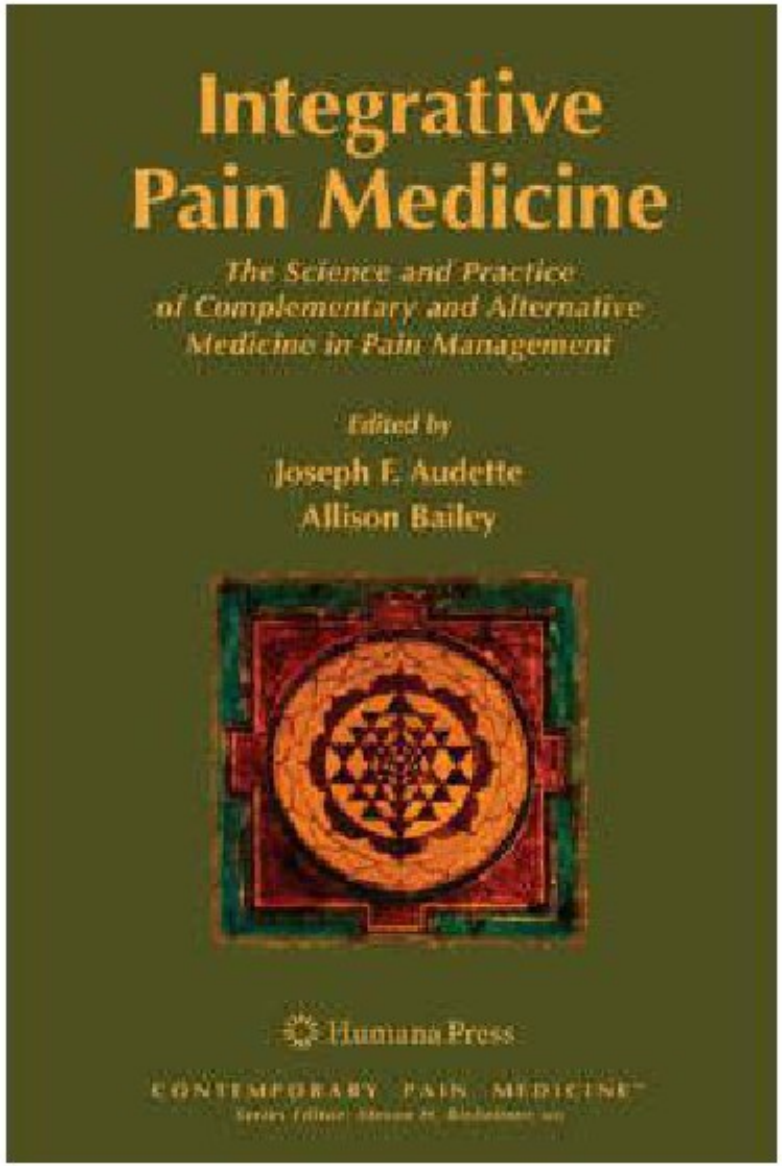
- Chemotherapy
- Surgery
- Radiation
- Pharmacy

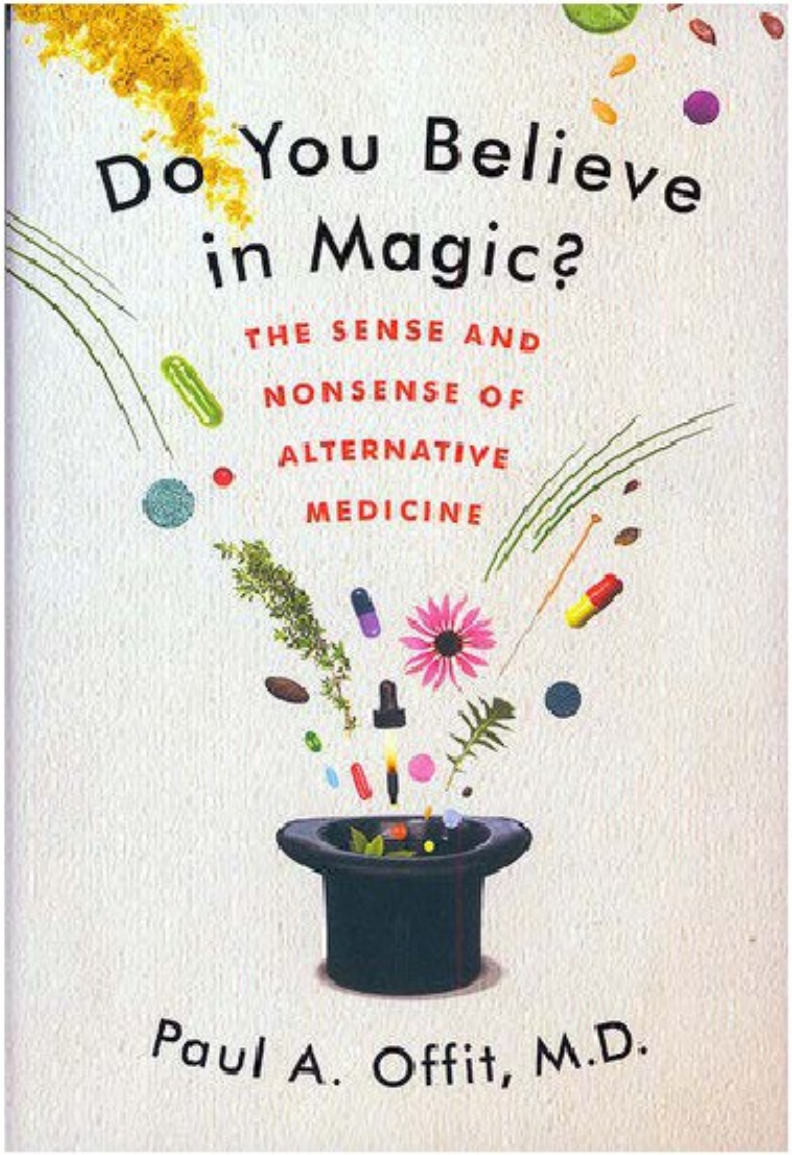
- Nutrition
- Exercise
- Massage
- Acupuncture
- Rehabilitation

- Music Therapy
- Psychiatry
- Cognitive Behavior

- Chaplaincy
- Meditation
- Yoga
- Qigong/Tai chi

- Patient Advocacy
- Social Work
- Cultural Competency
- Support Groups
- Family/Friends
- Education


Integrative Pain Medicine
The Science and Practice of Complementary and Alternative Medicine in Pain Management
Edited by
Joseph E. Audette
Allison Bailey
Humana Press
CONTEMPORARY PAIN MEDICINE


Do You Believe in Magic?
THE SENSE AND NONSENSE OF ALTERNATIVE MEDICINE
Paul A. Offit, M.D.

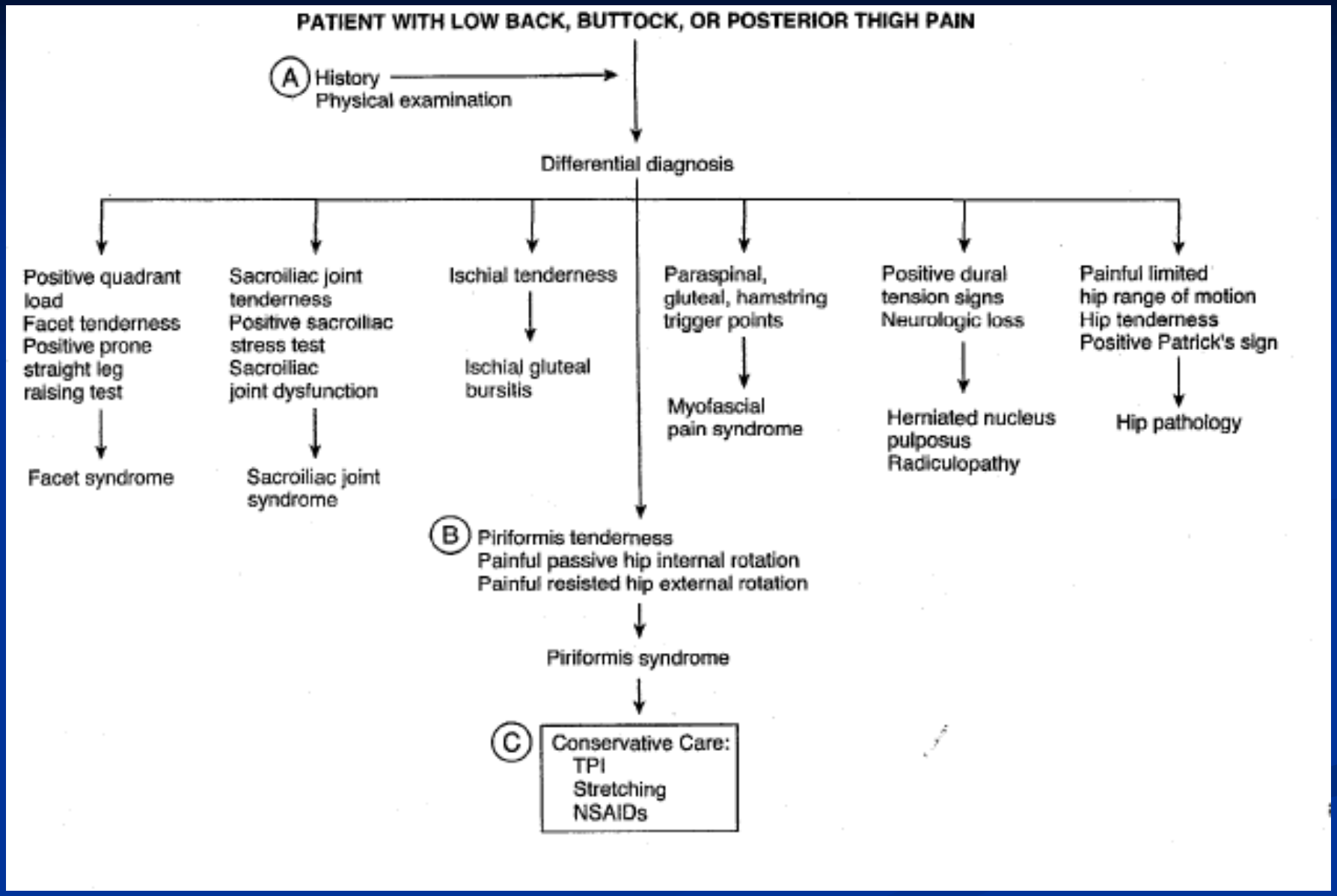
LOW BACK PAIN

Pathophysiology of DDD

- As the disc degenerates – 2 pathways

1. Spondolytic change – facet joint hypertrophy and anterior osteophytes

2. Herniated Nucleus Pulposus



Ramamurthry, Somayaji, MD, Rogers, James N., MD, Alanmanou, Euleche, MD, Decision Making in Pain Management, Second Edition, 2006.

Epidural Steroid Injection

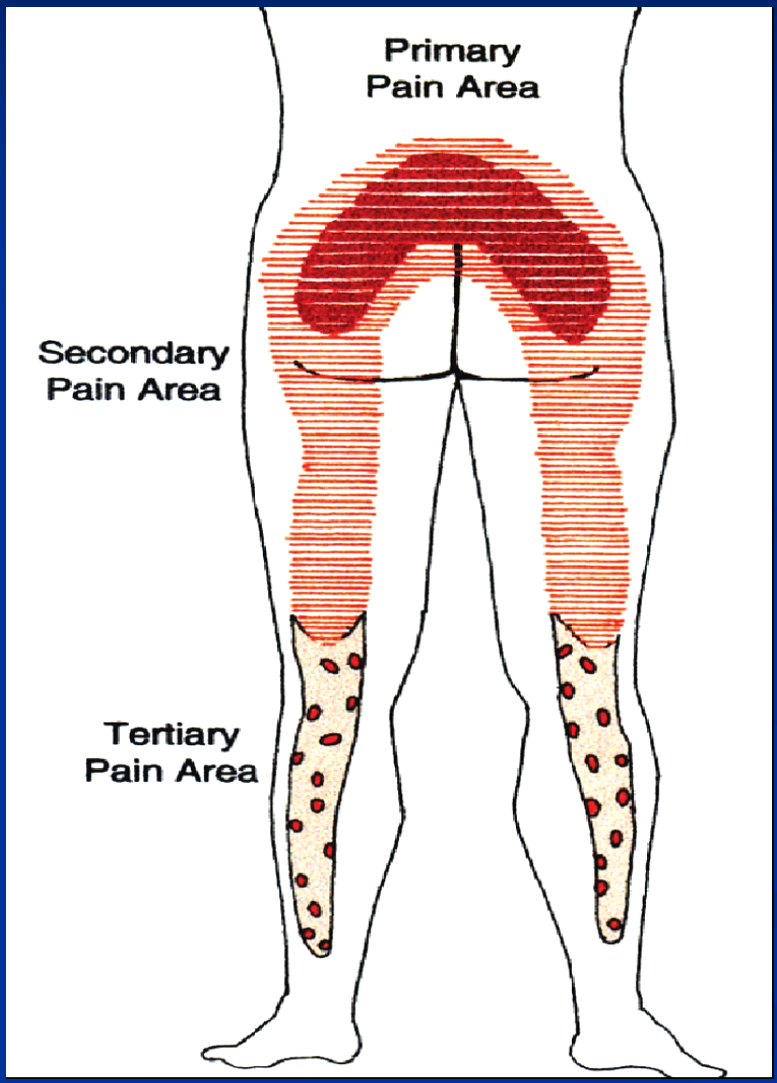
- Most over utilized procedure in pain medicine
- Recent Literature suggests that ESI are not helpful for back Pain

  (Most trained Pain management physicians perform ESI for radiculopathy NOT back pain)

Facet Syndrome

- Incidence 15-45% of low back pain.
- Most maneuvers used in physical exam are likely to simultaneously stimulate several structures including discs, joints, muscles.
- Imaging studies have not provided valid or reliable means of identifying symptomatic joints.

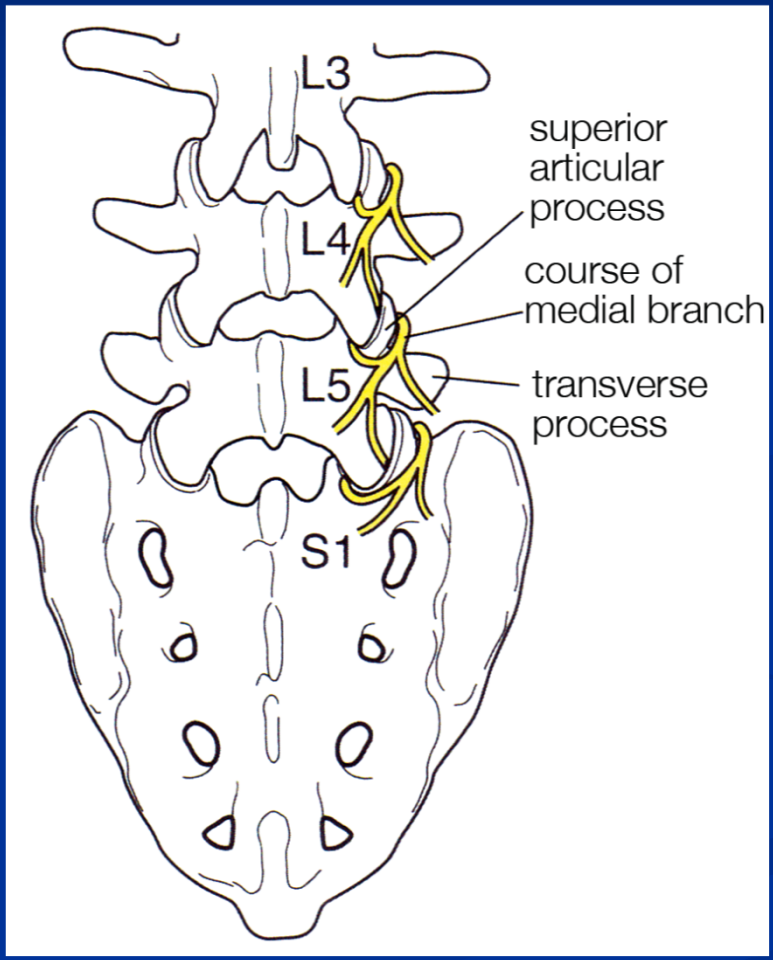
Pain Referral Pattern



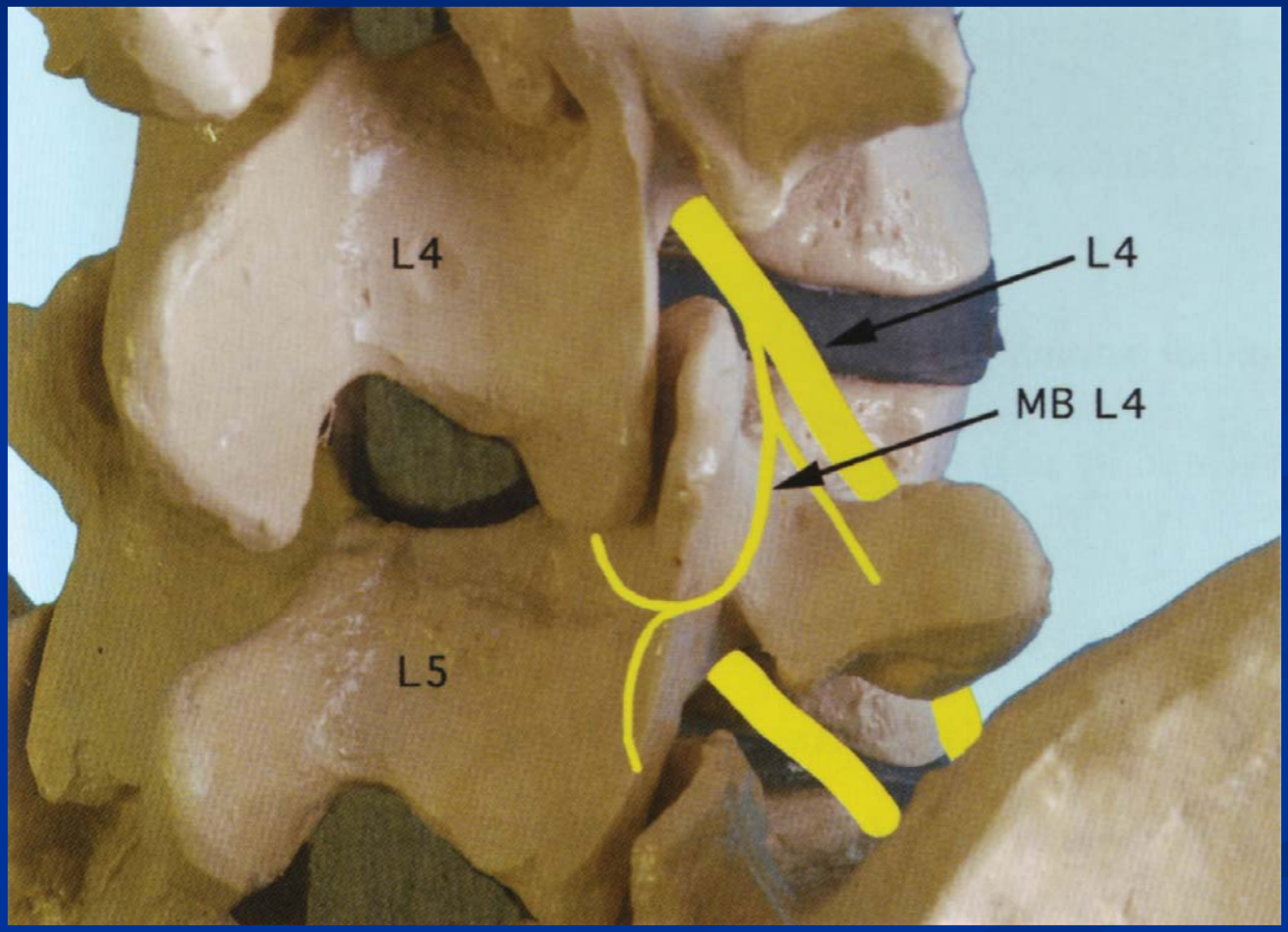
Interventional Management

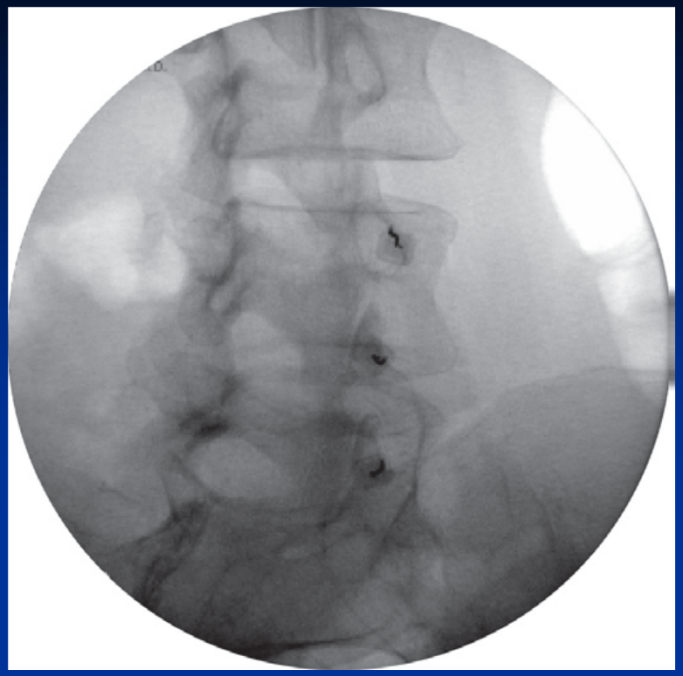
- Double diagnostic medial branch blocks
  - Must be image guided
    - Fluoroscopy
    - Ultrasound
    - CT
- If positive Radiofrequency Lesioning

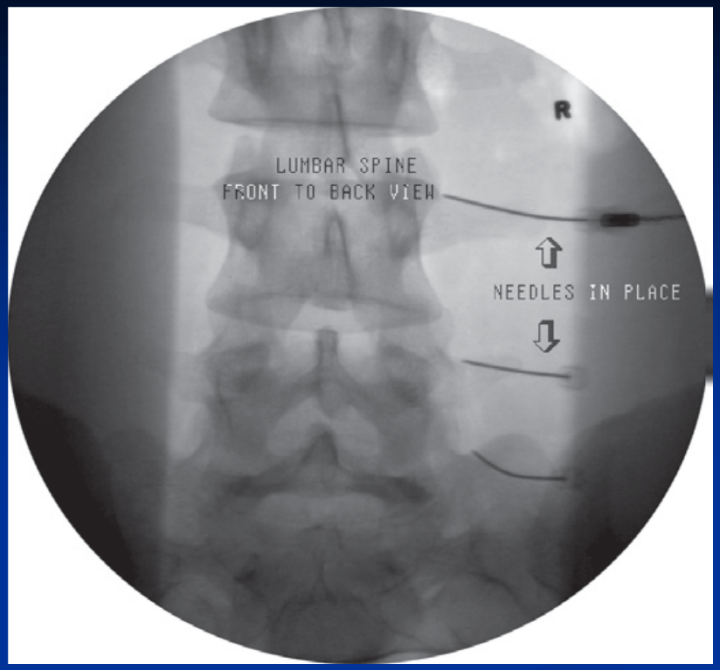
Medial Branch

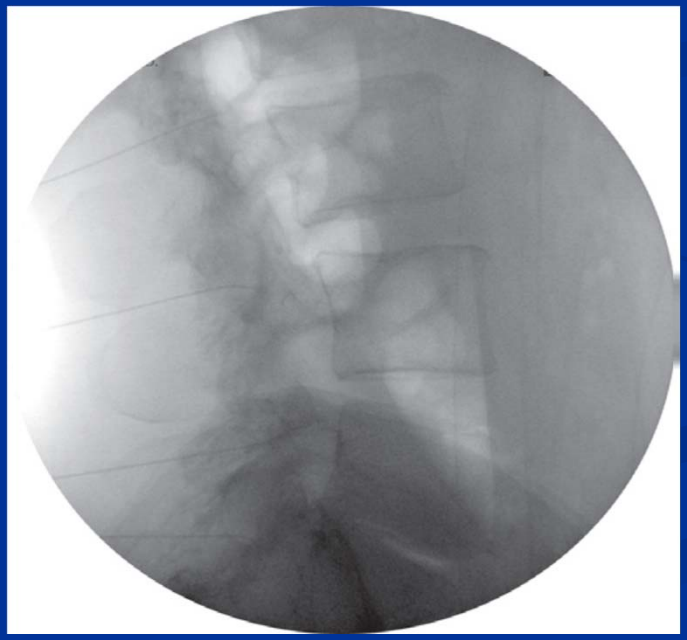


Medial Branch






R
LUMBAR SPINE
FRONT TO BACK VIEW
NEEDLES IN PLACE



Advances in Pain Therapy

My surgeon says there is nothing (more) he can do.. (OR surgery didn't help the first time, why would I want to do it again)

Injections aren't helping…

I would prefer not to take medications if there was any other alternative…

Neurostimulation Therapy

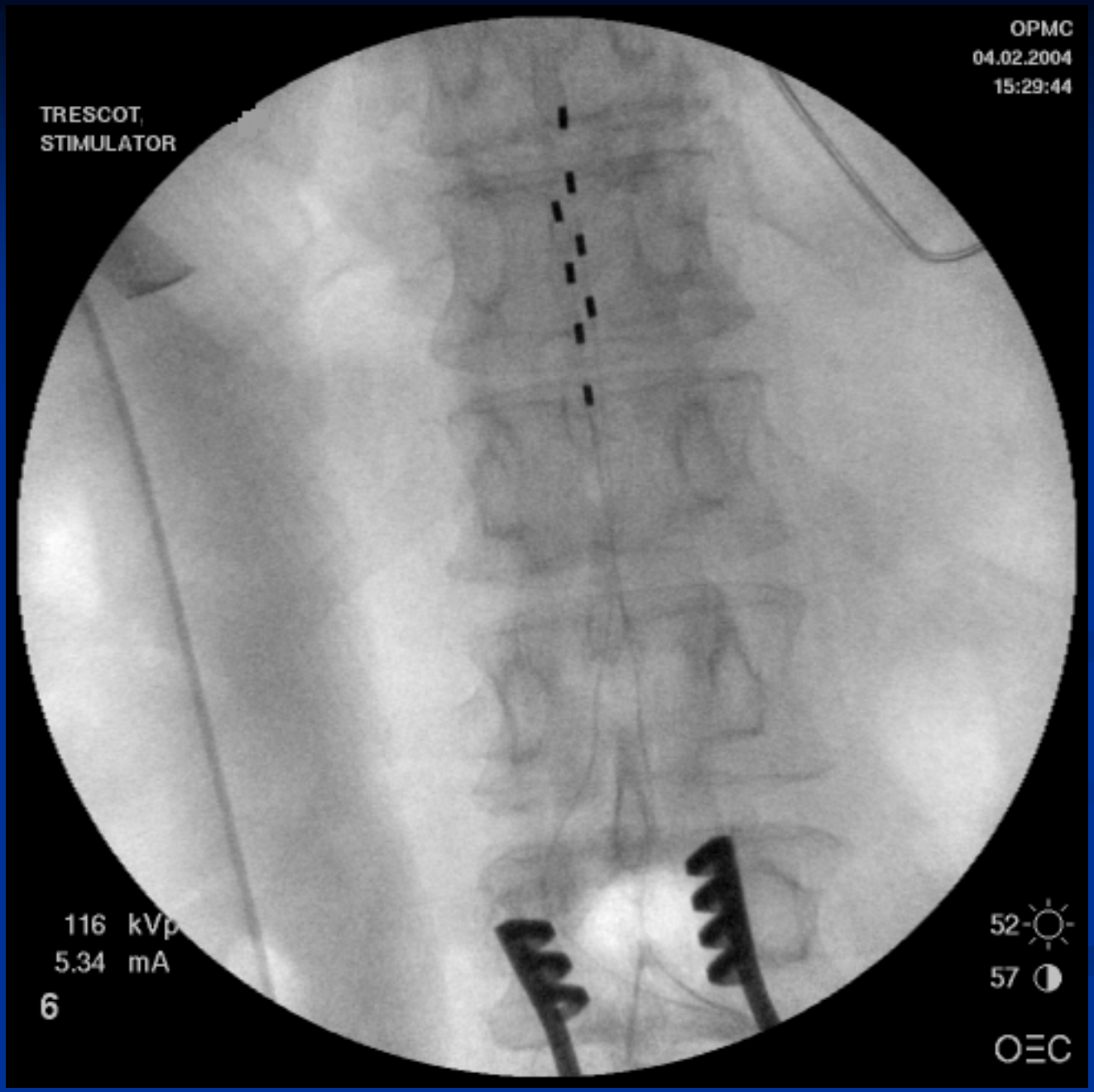
- Delivers small electrical signals to the epidural space
- Inhibits pain signals before they reach the brain and replaces them with a tingling sensation that covers the specific areas where pain was felt
- Indicated for treatment of chronic, intractable pain of the trunk and/or limbs, including unilateral or bilateral pain

Benefits of Neurostimulation

- An effective method of pain control for many patients
- Reduces or eliminates pain medications
- Non-destructive and less invasive than surgical alternatives
- Reversible – can be discontinued or surgically removed
- Systems reprogrammable without surgery
- Trial helps assess patient response
- Patient control within physician-set limits

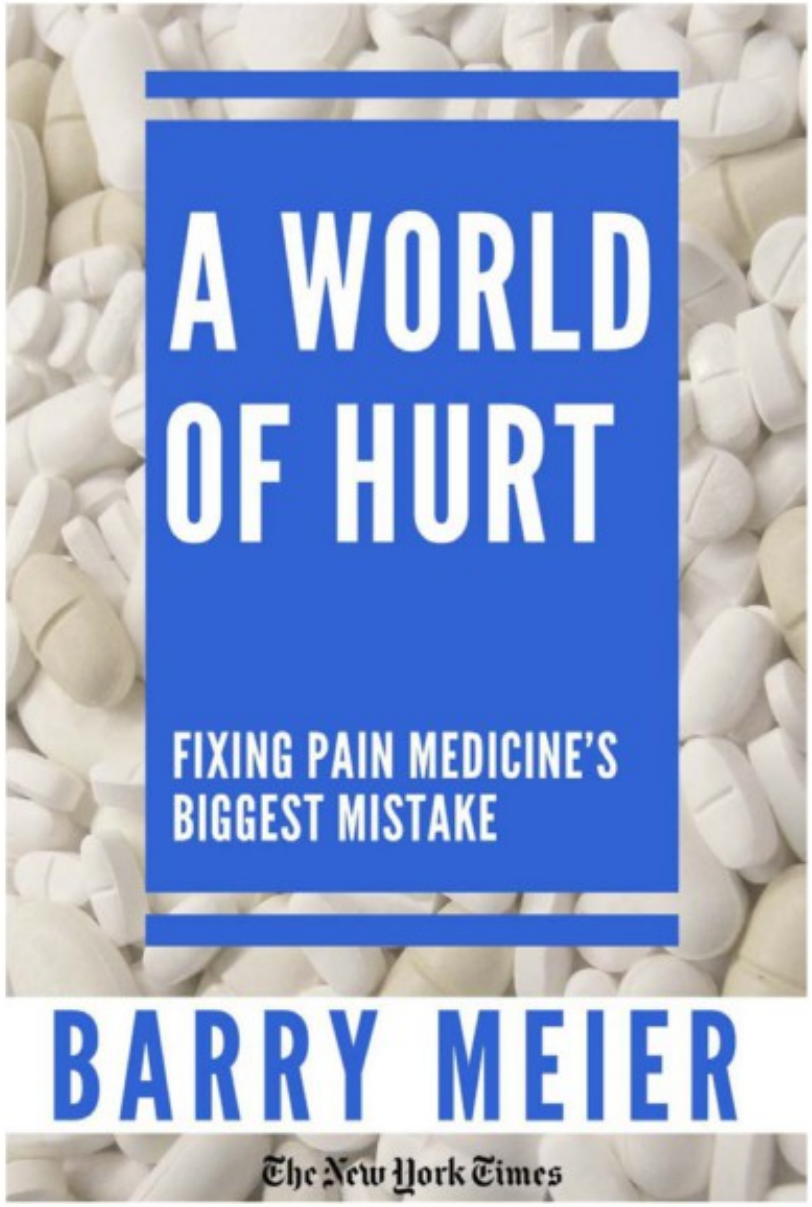
Neurostimulation Trial

- Pain Therapy Trial provides an opportunity to measure the effectiveness of neurostimulation without making a long-term commitment
  - Gauge patient response
  - Provide an adjustment period
  - Explore therapy parameters
  - Improve therapy cost-effectiveness
- The goal is at least a 50% reduction in pain without intolerable side effects
  - Patient-specific goals may include less pain reduction but improved quality of life


OPMC
04.02.2004
15:29:44
TRESCOT,
STIMULATOR
116 kVp
5.34 mA
6
52
57
OEC

RESTOREULTRA® System

“MedicaNation”



Principle of Double-Effect?

Beneficent Intentions

but

Unintended Consequences

“MedicaNation”

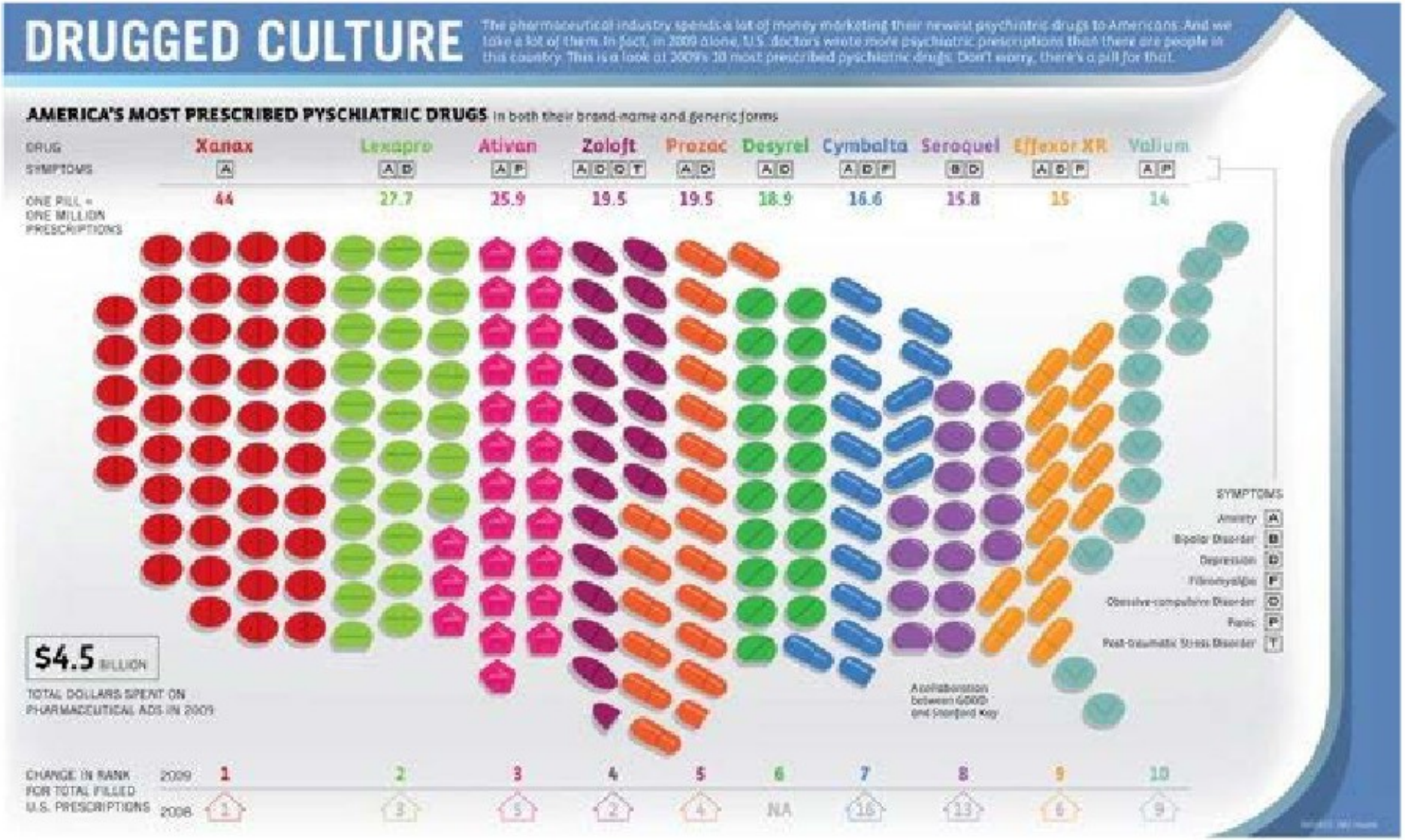
Prescription drug abuse remains a significant problem in the United States.
In 2010, approximately 7.0 million persons were current users of psychotherapeutic drugs taken nonmedically (2.7 percent of the U.S. population), an estimate similar to that in 2009. This class of drugs is broadly described as those targeting the central nervous system, including drugs used to treat psychiatric disorders (NSDUH, 2010). The medications most commonly abused are:

- Pain relievers - 5.1 million
- Tranquilizers - 2.2 million
- Stimulants - 1.1 million
- Sedatives - 0.4 million

Among adolescents, prescription and over-the-counter medications account for most of the commonly abused illicit drugs by high school seniors (see chart).

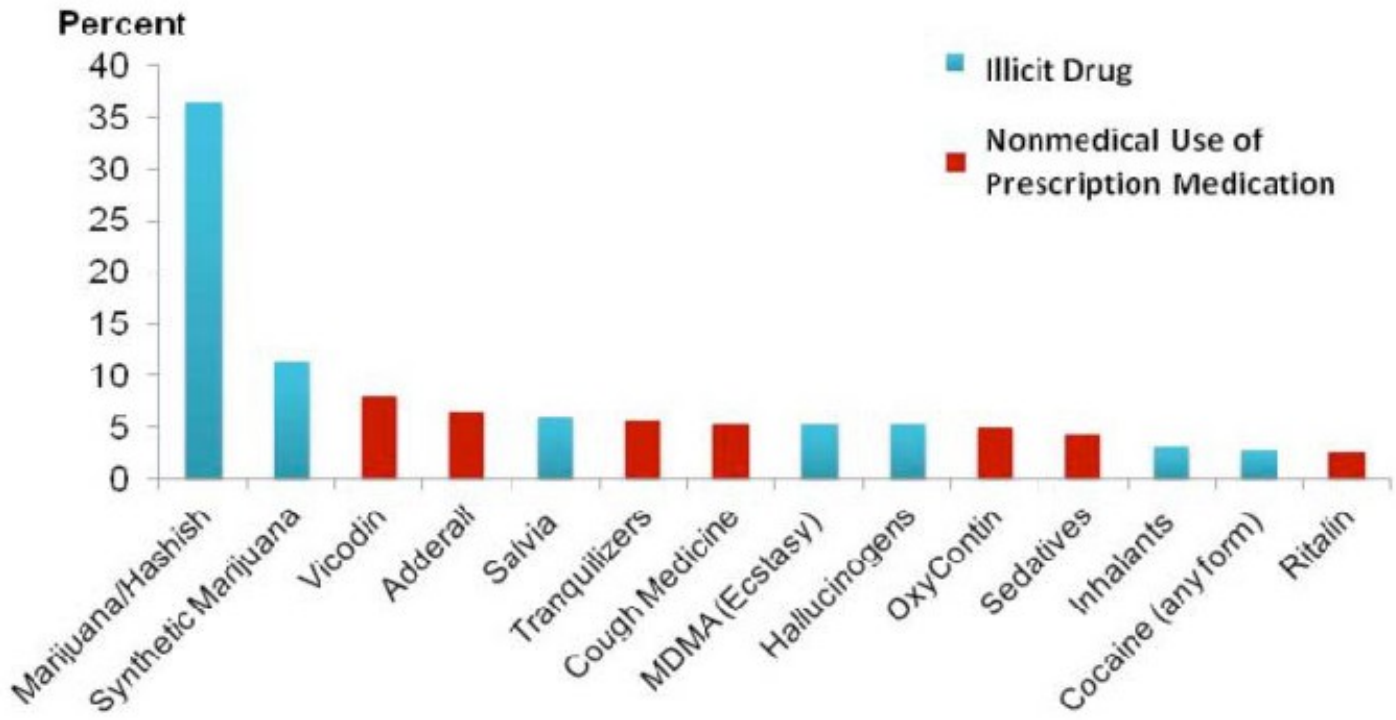
- Nearly 1 in 12 high school seniors reported nonmedical use of Vicodin; 1 in 20 reported abuse of OxyContin.
- When asked how prescription narcotics were obtained for nonmedical use, 70% of 12th graders said they were given to them by a friend or relative (MTF 2011). The number obtaining them over the internet was negligible.

“MedicaNation”



"MedicaNation"

After Cannabis, Nonmedical use of Prescription and Over-the-Counter Medications Account for Most of the Commonly Abused Drugs in 12th Graders (*in the past year*)

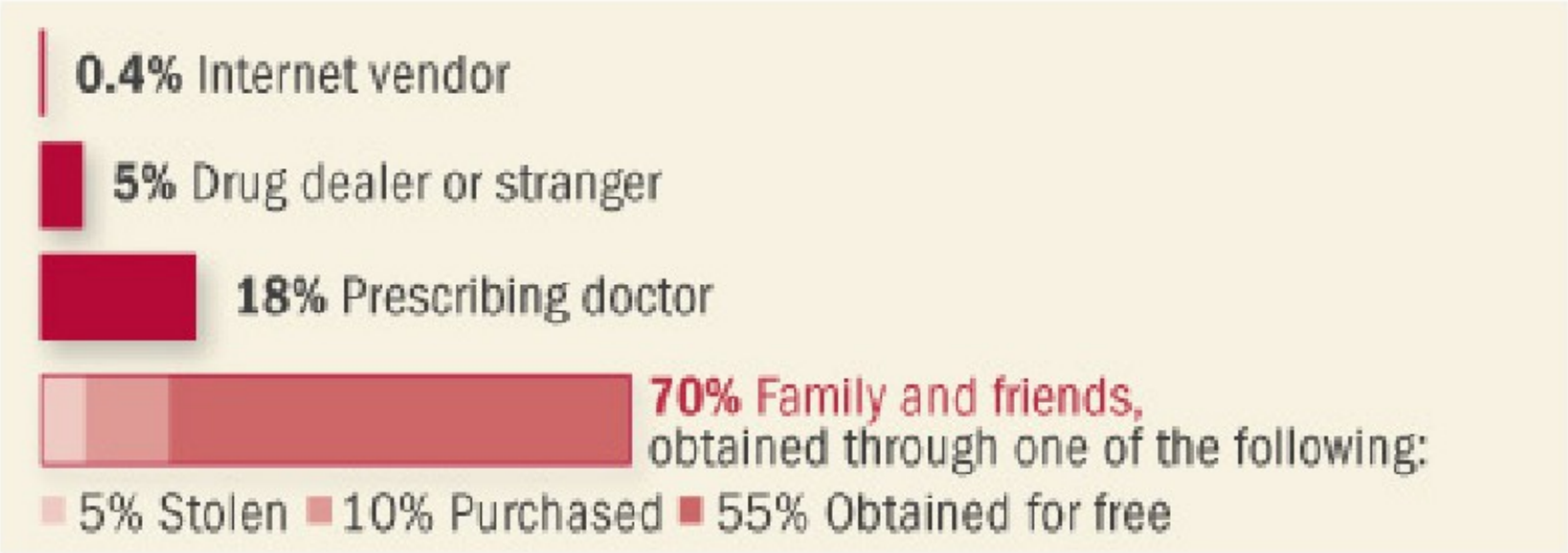


Categories are not mutually exclusive
SOURCE: University of Michigan, 2011 Monitoring the Future Study

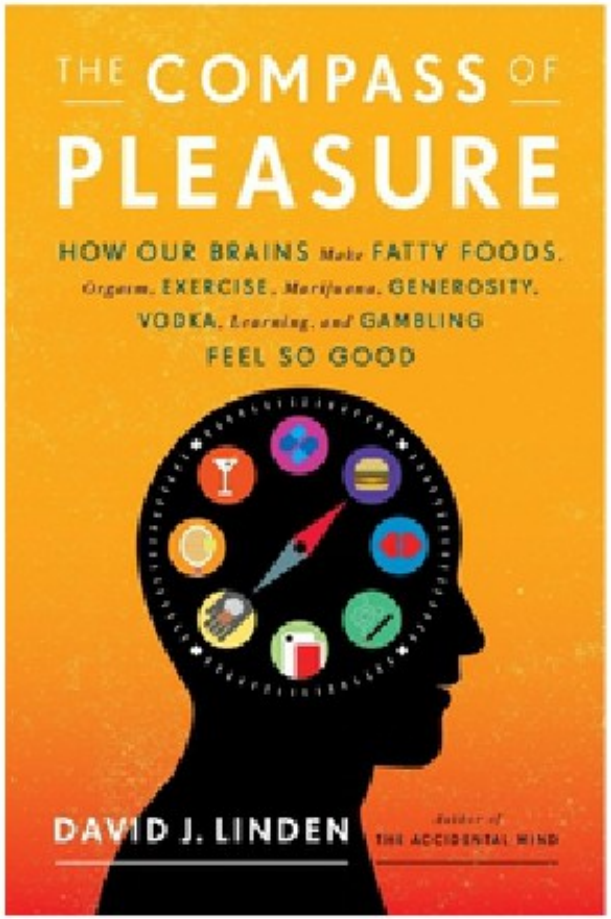
“MedicaNation”

Sources of painkillers

2009 National Survey on Drug Use and Health revealed that when painkillers are used for nonmedical reasons, they are usually obtained from a friend or family member



Source: Substance Abuse and Mental Health Services Administration

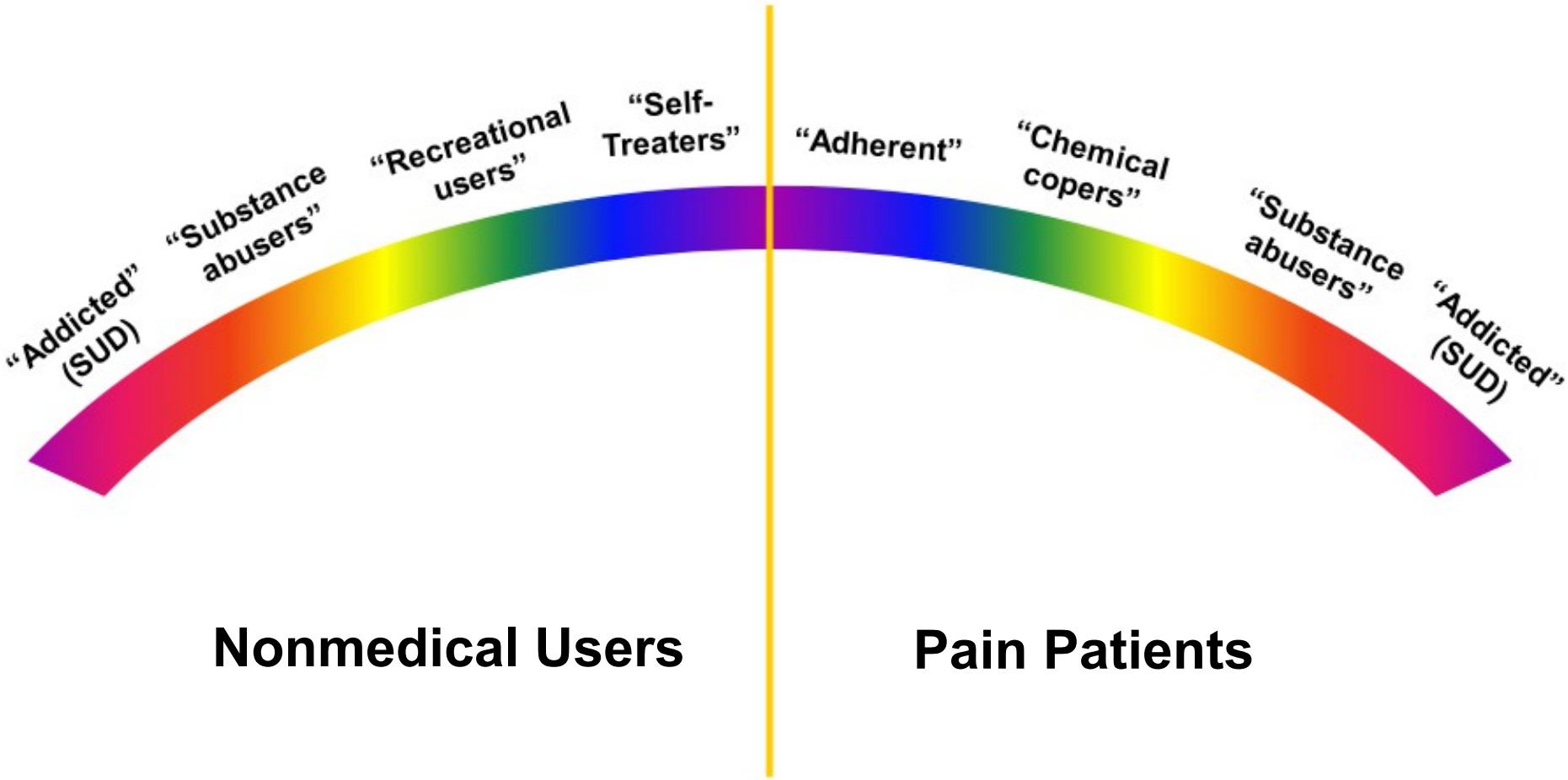


"Any one of us could be an addict at any time," Linden says. "Addiction is not fundamentally a moral failing — it's not a disease of weak-willed losers. When you look at the biology, the only model of addiction that makes sense is a disease-based model, and the only attitude towards addicts that makes sense is one of compassion.“

Though it may be hard to be compassionate when addiction is used to justify inappropriate behavior, Linden argues that true addicts aren't just resorting to vices because of desire. Rather than seeking pleasure, addicts are fulfilling a need.

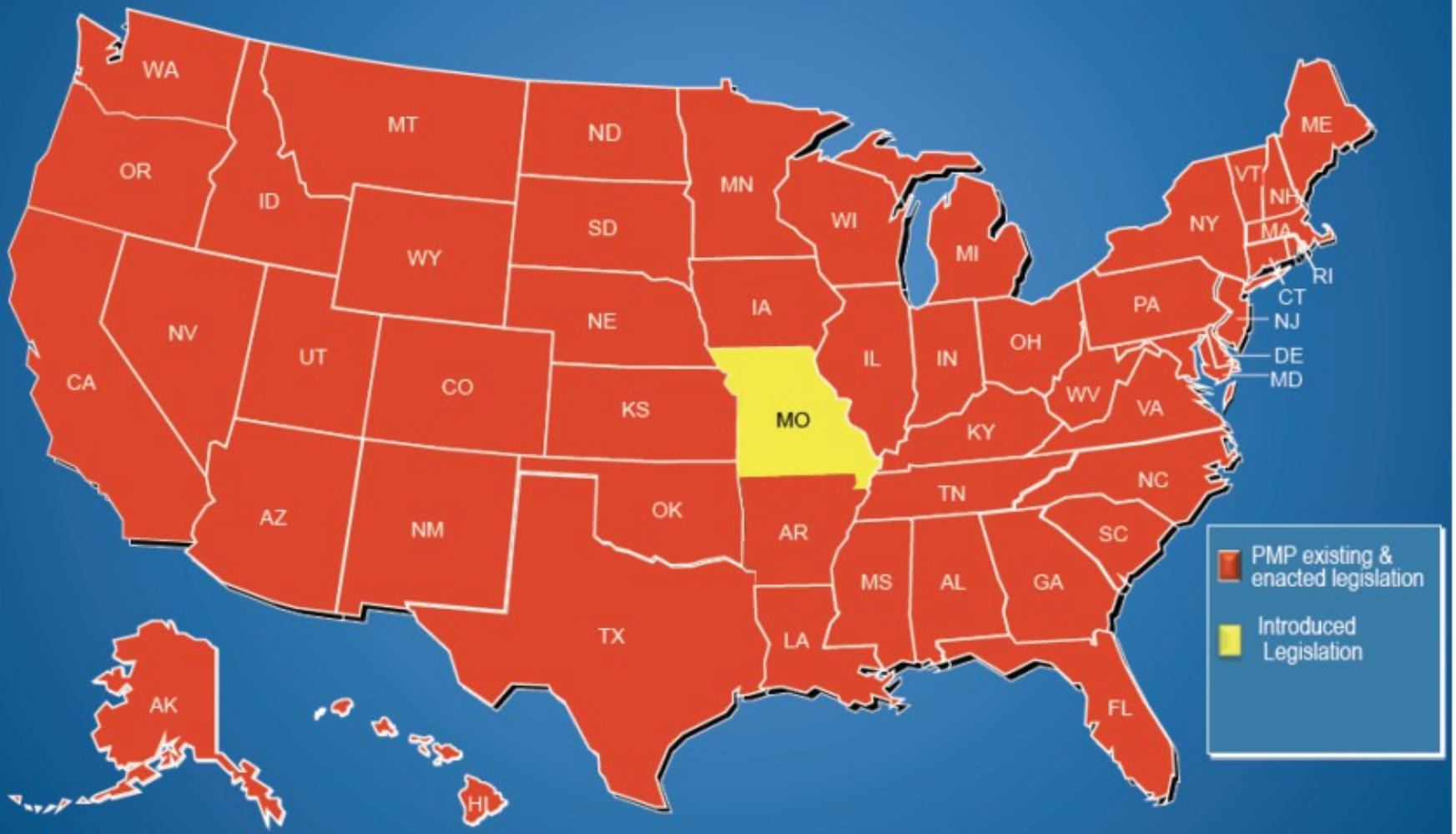
??? How do we simultaneously treat the coexisting diseases of chronic pain and addiction ???

Population of Rx Opioid Users is a Heterogeneous Spectrum



Passik, SD, and Kirsch, KL. Exp Clin Psychopharmacol 2008;16(5):400-404.

State Prescription Monitoring Programs



PAT Login - Windows Internet Explorer provided by M. D. Anderson Cancer Center

https://www.texaspatx.com/Login.aspx?ReturnUrl=%2fdefault.aspx

www.texaspatx.com

Texas Department of Public Safety

Courtesy ~ Service ~ Protection

Prescription Access in Texas

Register or log in

Username

Password

Forgot/Reset Password?

Login

New User? Register

FAQ

Registration Tutorial

Law Enforcement Registration Tutorial

Changing Temporary Password Tutorial

If you have lost your password or have questions please call Support Line at: Phone: (866) 683-2476 Email:txrxreport@otech.com

Access to prescription data is statutorily restricted in accordance with the Texas Health and Safety Code Chapter 481.076. The director may not permit any person to have access to information submitted to the director under Section 481.074(q) or 481.075 except for: (1) an investigator for the Texas Medical Board, the Texas State Board of Podiatric Medical Examiners, the State Board of Dental Examiners, the State Board of Veterinary Medical Examiners, the Texas Board of Nursing, or the Texas State Board of Pharmacy; (2) an authorized officer or member of the department engaged in the administration, investigation, or enforcement of this chapter or another law governing illicit drugs in this state or another state; or (3) if the director finds that proper need has been shown to the director: (A) a law enforcement or prosecutorial official engaged in the administration, investigation, or enforcement of this chapter or another law governing illicit drugs in this state or another state; (B) a pharmacist or practitioner who is a physician, dentist, veterinarian, podiatrist, or advanced practice nurse or physician assistant described by Section 481.002(39)(D) and is inquiring about a recent Schedule II, III, IV, or V prescription history of a particular patient of the practitioner; or (C) a pharmacist or practitioner who is inquiring about the person's own dispensing or prescribing activity.

All records reflect personal medical information protected by the Health Insurance Portability and Accountability Act of 1996 (HIPAA).

Done | Internet | Protected Mode: On | 100%

5:35 PM 10/7/2013

Pain Management Clinic Registration - Windows Internet Explorer provided by M. D. Anderson Cancer Center

http://www.tmb.state.tx.us/professionals/physicians/licensed/painManagementClinicRegistration.php

Texas Medical Board

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Archived Web Pages

Pain Management Clinic Registration

Effective September 1, 2010, a pain management clinic may not operate in Texas without obtaining a certificate from the Texas Medical Board (TMB).

Please visit Chapter 195 for the complete regulations.

Application

To apply for the pain management clinic certification, please download and fill out the form below.

Pain Management Clinic Registration form (PDF)

We cannot accept fax copies. Please mail the completed form to the following address:

Texas Medical Board
P.O. Box 2029 MC 240
Austin, TX 78768

Normal processing time is 10-15 business days from the date of receipt, by TMB, of the application form. Please check the spreadsheet below to confirm registration.

List of Pain Management Clinic Certificates

Pain management clinic registration information is updated regularly:

PM-Reg-Spreadsheet-For-Web-10-12-10.xls

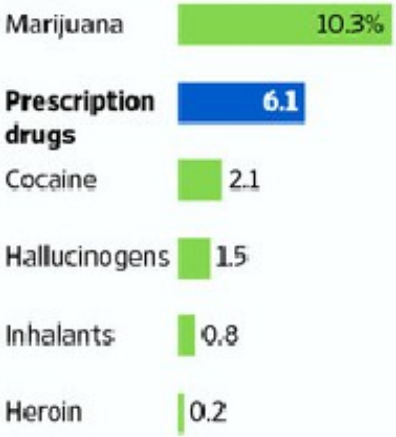
Frequently Asked Questions:

What is a "pain management clinic"?
A pain management clinic is defined in statute and rule as a publicly or privately owned facility for which a majority of patients are issued on a monthly basis, a prescription for opioids, benzodiazepines, barbiturates, or carisoprodol, but not including suboxone.

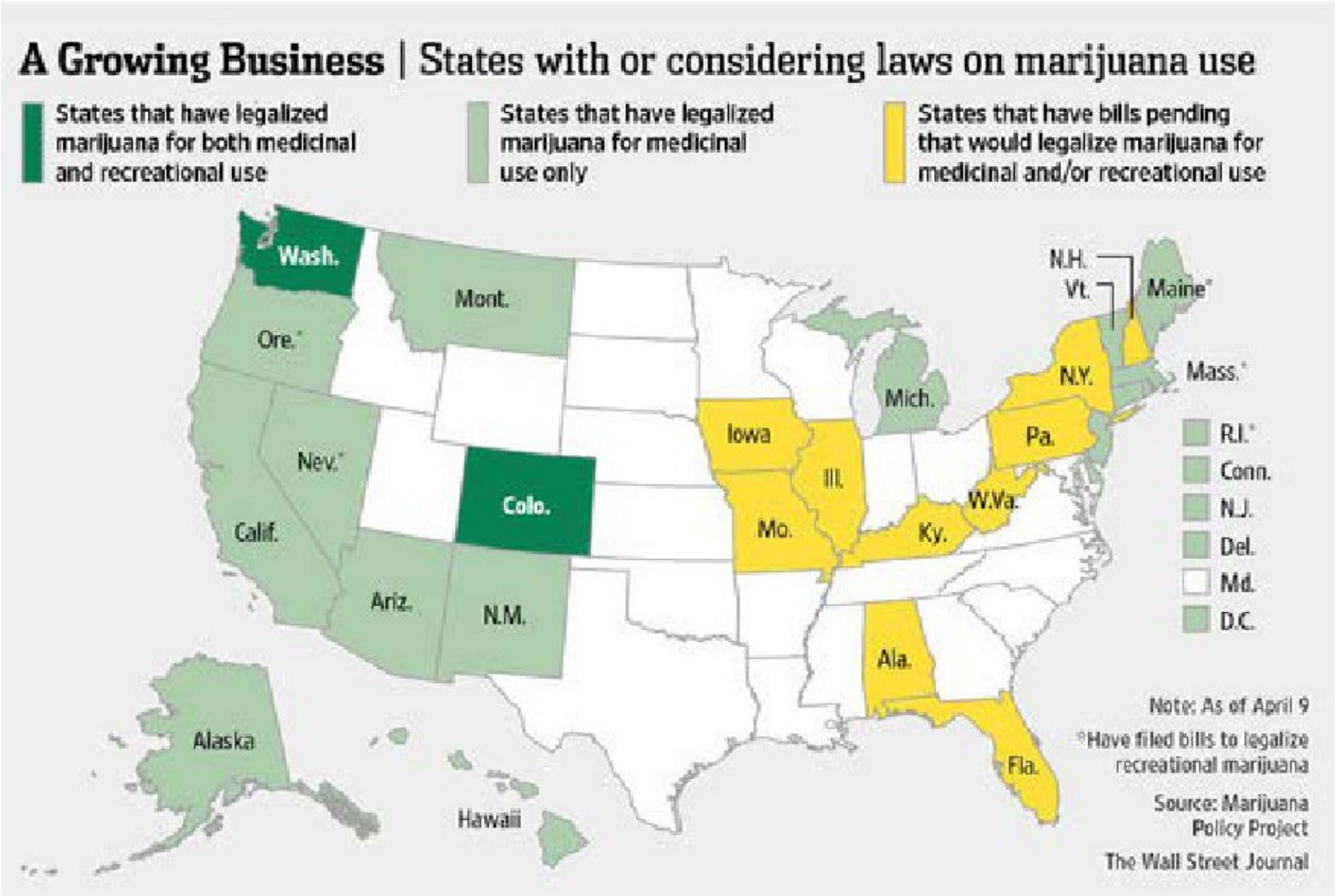
Who needs to register a pain management clinic?
The physician owner/operator of a pain management clinic must register with the TMB

Bad Medicine

Percentage of those 12 and older who admit illegal drug use within the previous year



Note: 2008 data (most recent available)
Source: National Survey on Drug Use and Health


A Growing Business | States with or considering laws on marijuana use
States that have legalized marijuana for both medicinal and recreational use
States that have legalized marijuana for medicinal use only
States that have bills pending that would legalize marijuana for medicinal and/or recreational use
Wash.
Mont.
Ore.*
Nev.*
Calif.
Colo.
Ariz.
N.M.
Alaska
Hawaii
Iowa
Ill.
Mo.
Mich.
Ky.
W.Va.
Pa.
N.Y.
N.H.
Vt.
Maine*
Mass.*
R.I.*
Conn.
N.J.
Del.
Md.
D.C.
Ala.
Fla.
Note: As of April 9
*Have filed bills to legalize recreational marijuana
Source: Marijuana Policy Project
The Wall Street Journal

WSJ, 4.20.2013

Future Analgesic Rx

Resiniferatoxin for pain treatment: An interventional approach to personalized pain medicine.
Iadarola MJ, Gonnella LG. *The Open Pain Journal*. 2013;6(Suppl 1: M10)95-107.

Deadly snake venom delivers pain relief.
Shen H. *Nature*. 2014. doi:10.1038/nature.2012.11526

…mambalgins bind and inhibit molecules in the family of acid-sensing ion channels, ASICs.

Medicinal chemistry: New lead for pain treatment.
Reisman SE. *Nature*. 2011;473: 458–459.

…conolidine, a scarce, naturally occurring compound, is a painkiller that seems to have an unusual mechanism of action

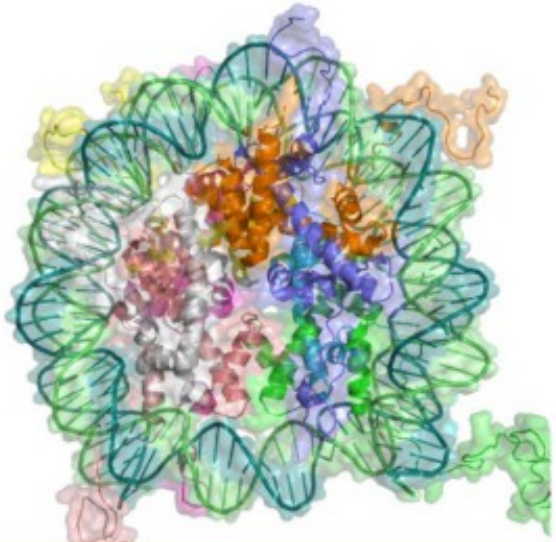
The Hazards of Growing Up Painlessly

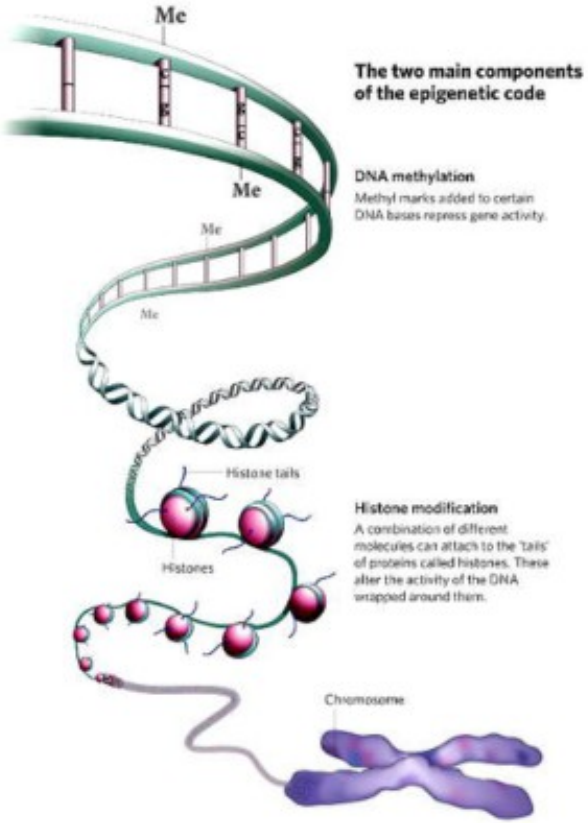
By JUSTIN HECKERT Published: November 15, 2012

SCN9A gene mutations

SCN9A gene encodes a voltage-gated sodium channel (NaV1.7)which plays a significant role in nociception signaling. Mutations in this gene have been associated with primary erythermalgia, channelopathy-associated insensitivity to pain, and paroxysmal extreme pain disorder.

Epigenetic Neuromodulation





Epigenetics is the study of inherited changes in phenotype or gene expression caused by mechanisms other than changes in the underlying DNA sequence. This image represents the structure of a nucleosome. Nucleosomes are thought to carry epigenetically inherited information in the form of covalent modifications of their core histones.

Epigenetic suppression of GAD65 expression mediates persistent pain

Zhi Zhang, You-Qing Cai, Fang Zou, Bihua Bie & Zhizhong Z Pan

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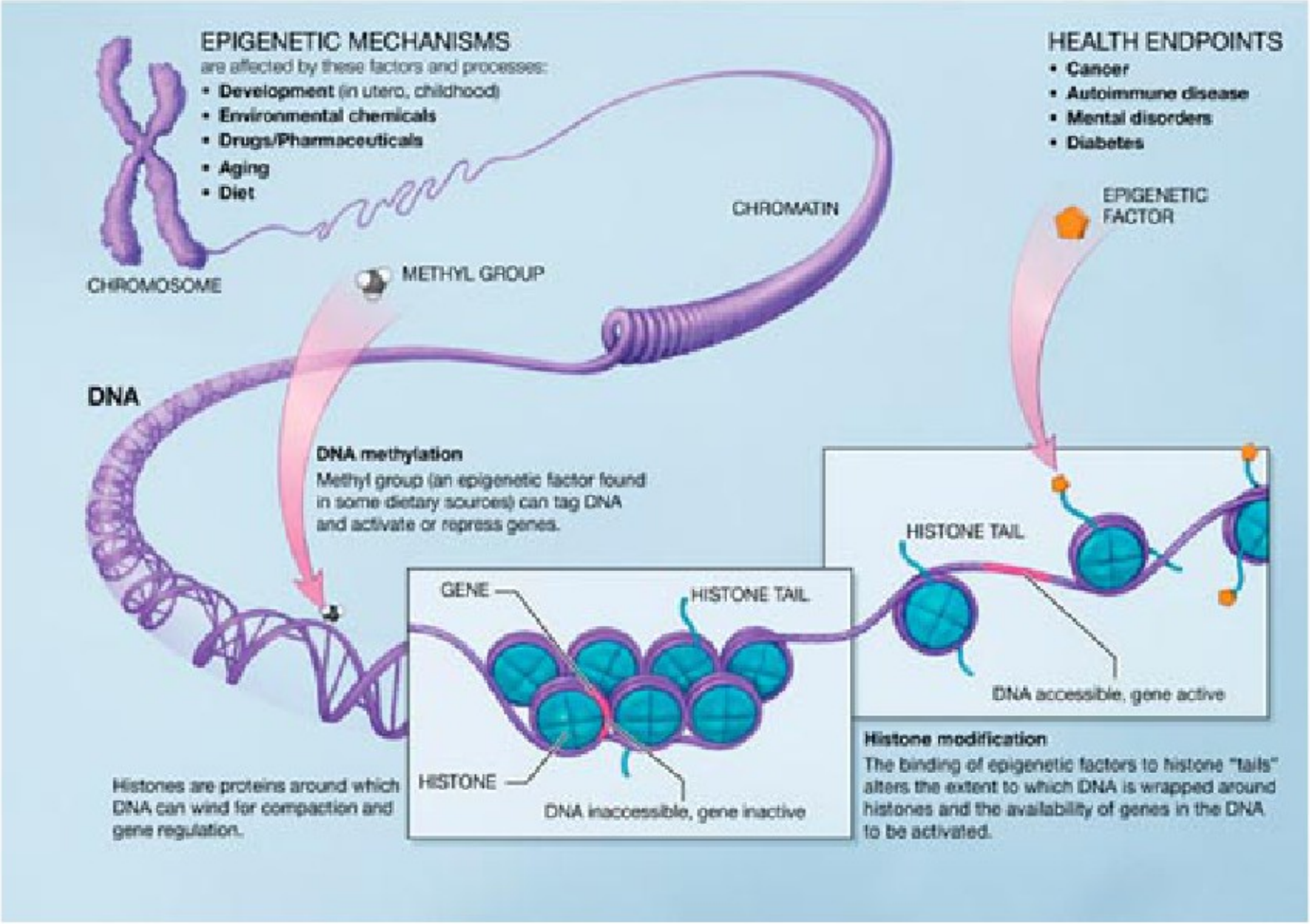
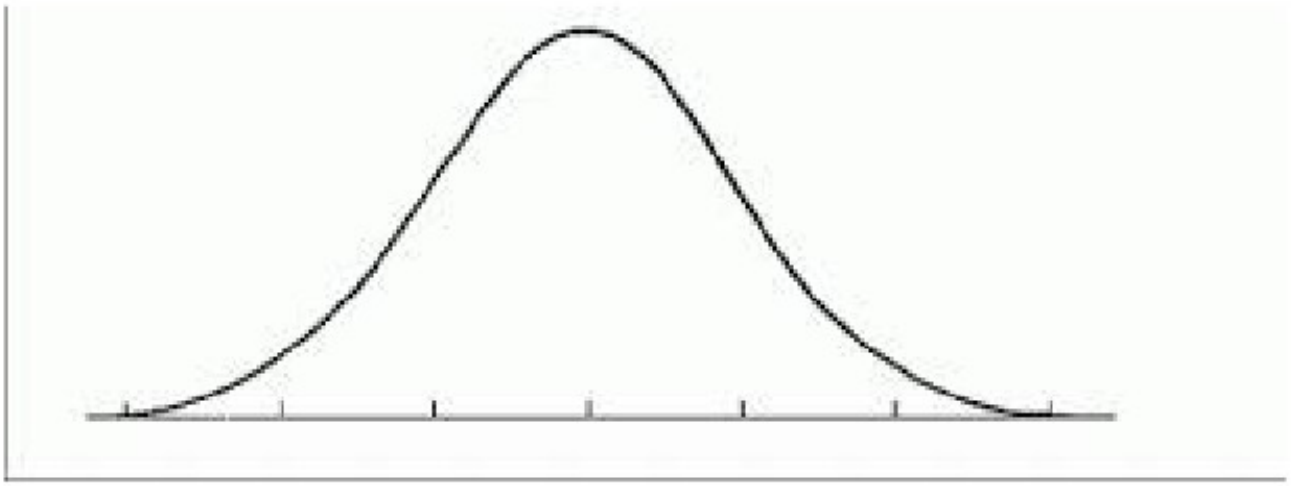

EPIGENETIC MECHANISMS
are affected by these factors and processes:
• Development (in utero, childhood)
• Environmental chemicals
• Drugs/Pharmaceuticals
• Aging
• Diet
HEALTH ENDPOINTS
• Cancer
• Autoimmune disease
• Mental disorders
• Diabetes
CHROMOSOME
CHROMATIN
METHYL GROUP
EPIGENETIC FACTOR
DNA
DNA methylation
Methyl group (an epigenetic factor found in some dietary sources) can tag DNA and activate or repress genes.
GENE
HISTONE TAIL
HISTONE
DNA inaccessible, gene inactive
HISTONE TAIL
DNA accessible, gene active
Histones are proteins around which DNA can wind for compaction and gene regulation.
Histone modification
The binding of epigenetic factors to histone "tails" alters the extent to which DNA is wrapped around histones and the availability of genes in the DNA to be activated.

?EBM vs EIM?

- *Not everything that can be counted counts, and not everything that counts can be counted.*

- Albert Einstein

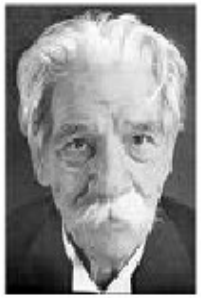


EBM Clinical Reality

- EBM recommendations based on need for basic information, simple and reliable, that may not fit many clinical situations
- Complex pain scenarios
- Improving knowledge about medication management, and new medications available
- Need for individual-based flexibility
- Evidence may provide only general indications, but…..
- Efficacy of any analgesic strategy depends on many factors
- Difficult situations may be resolved only with an individual approach based on experience with knowledge about the use of specific approaches

"Pain is a more terrible lord of mankind than even death itself."

Albert Schweitzer



Cure sometimes -

Comfort and Care always

同情

Questions and Answers

Kathy Perkins, RN
Assistant Commissioner
DSHS

Remote sites can send in questions by typing in the *GoToWebinar* chat box or email GrandRounds@dshs.state.tx.us.

For those in the auditorium, please come to the microphone to ask your question.

Our Next Grand Rounds

April 30

Allergies and Asthma: Epidemiology, Causes and Treatments

Presenters: Jackee Kayser, MD, Dell Children's Medical Center of Central Texas; Roberto Rodriguez, MD, MPH, Texas Dept. of State Health Services