



Massachusetts Pain Initiative Spring 2017 Conference

Managing Pain From the Inside and Out

Thursday, October 26, 2017

Holiday Inn Hotel & Suites, 265 Lakeside Avenue, Marlborough, MA

Registration and Breakfast: 7:30 a.m. - 8:00 a.m.

Meeting: 8:00 a.m. - 3:30 p.m.

Breakfast and lunch provided

Program Schedule

7:30 a.m. - 8:00 a.m.	Registration/continental breakfast
8:00 a.m. - 8:30 a.m.	Welcome and council report
8:30 a.m. - 9:30 a.m.	<i>Maurice Bernaiche, DO</i>
9:30 a.m. - 10:00 a.m.	Break and visit vendors
10:00 a.m. - 11:30 a.m.	<i>Jayne Pawasauskas, PharmD, BCPS</i>
11:30 a.m. - 12:15 p.m.	Lunch and visit vendors
12:15 p.m. - 1:15 p.m.	<i>John Otis, PhD</i>
1:15 p.m. - 1:30 p.m.	Break
1:30 p.m. - 3:00 p.m.	<i>Anne Lynch, APRN-BC, FNP</i>
3:00 p.m. - 3:30 p.m.	Q&A/closing



Speakers

John Otis, PhD, director of the Behavioral Medicine Program at the Center for Anxiety and Related Disorders (CARD) at Boston University. He is the author of *Managing Chronic Pain*, part of the Oxford University Press *Treatments that Work* Series, an “evidence based” treatment program that includes a therapist manual and patient workbook.

Maurice Bernaiche, DO, physical medicine and rehabilitation specialist, has more than 15 years of training and practice specializing in the non-surgical treatment of sports injuries, musculoskeletal disorders, repetitive-use disorders as well as neuromuscular diseases. He is highly skilled in minimally invasive spinal injections, which help manage back and neck disorders and pain.

Jayne Pawasauskas, PharmD, BCPS, currently focuses her clinical work on the development of pain management education strategies for interdisciplinary practice.

Anne Lynch, APRN-BC, FNP, is a nurse practitioner, board certified in pain management, in her seventh year at Newton-Wellesley Hospital Spine Center and Pain Management Services Department. She interned with Jon Kabat-Zinn in the University of Massachusetts Stress Reduction & Relaxation Program and more recently became a certified by Benson-Henry Institute for Mind Body Medicine as a facilitator to provide the Stress Management and Resiliency Training course at Newton-Wellesley Hospital.

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Presented by Maurice R. Bernaiche, D.O.

Experience


PHYSICAL MEDICINE & REHABILITATION SPECIALIST

Maurice R. Bernaiche, D.O.

Dr. Bernaiche, D.O. is a graduate of the University of New England College of Osteopathic Medicine. He completed residency training at Michigan State University in Physical Medicine and Rehabilitation. After his residency, Dr. Bernaiche completed a very competitive and challenging fellowship in Interventional Pain Management at Emory University.




Dr. Bernaiche has over 15 years of training and practice specializing in the non-surgical treatment of sports injuries, musculoskeletal disorders, repetitive-use disorders as well as neuromuscular diseases. He is highly skilled in minimally invasive spinal injections, which help manage back and neck disorders and pain.

Dr. Bernaiche is board certified by the American Board of Physical Medicine and Rehabilitation, the American Osteopathic Board of Physical Medicine and Rehabilitation, the American Board of Interventional Pain Physicians, the World Institute of Pain, as well as the American Board of Electrodiagnostic Medicine.



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I have no disclosures.


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"When injuries happen, we've got your back."

Our mission is to improve the lives of the patients we serve by reducing and treating pain utilizing leading edge technology and treatments. Our purpose is to promote healthier and more productive lives while offering outstanding customer service and bedside manner.


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Our Mission


The Massachusetts Pain Initiative (MassPI) is a statewide, nonprofit, volunteer organization dedicated to ending needless suffering from persistent and acute pain and to improving the quality of life for all people affected by pain.



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I am board certified by

- ⇒ American Board of Osteopathic PMR-AOBPMR
- ⇒ American Board of PMR- ABPMR
- ⇒ American Board of Electrodiagnostic Medicine - ABEM
- ⇒ American Board of Interventional Pain Physicians- ABIPP
- ⇒ Certificate World Institute of Pain-WIP, FIPP.




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- The management of musculoskeletal or other types of pain is complex and time-consuming. Pain care carries risks and rewards. Can you practice pain management without being a criminal? Can you protect and care for your neighbors following your Hippocratic oath? These are my thoughts and protocols.


Objectives:

1. Maximize non-opioids.
2. Minimize opioids.
3. Minimize overdose risk.
4. Follow up closely.




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- Do we have to debate pain is real? Acute or Chronic?
- Do we need to go over the various conditions that cause "pain"?
- How do we manage "pain" from any condition? Neuropathy, Cancer, Pancreatitis, CNCP?
- Managing pain is wicked hard.
- History of pain...
 - <https://www.practicalpainmanagement.com/treatments/history-pain-brief-overview-19th-20th-centuries>
 - <https://www.practicalpainmanagement.com/pain/history-pain-brief-overview-17th-18th-centuries>
- History of opium...
 - <https://faculty.unlv.edu/mccorkle/www/Opium,%20Cocaine%20and%20Marijuana%20in%20America%20History.pdf>




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- To begin with If you don't read about Pain everyday, you should. It is the number one complaint in Primary care offices.
- Here are some resources- unbiased, no financial relationships or otherwise. This is what I do every night.
 - <http://www.painmedicine.com/>
 - <https://www.medscape.com/painmanagement>
 - <http://www.painmed.org/library/research-in-the-news/>
 - <https://www.practicalpainmanagement.com/>
 - <http://www.painphysicianjournal.com/>
 - <http://online.library.wiley.com/journal/10.1111/ISSN1526-4637>
 - <http://www.wmplic.org/ojs-2.4.2/index.php/jom/>
- Tomes
 - Bonica's Management of Pain.
 - Wall and Meizack's Textbook of Pain.




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- The epidemic, crisis, phobia.
- Slides of the American deaths rates
- Slides of the opioid death rates
- Slides of the US-AG



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Cause of Death	Total Deaths	Percent of Total
Heart disease	614,348	23.6%
Cancer	591,699	22.9%
Chronic lower respiratory diseases	147,101	5.6%
Accidents (unintentional injuries)	136,092	5.2%
Stroke	133,023	5.1%
Alzheimer's disease	112,561	4.3%
Diabetes	76,466	2.9%
Flu, pneumonia	65,227	2.5%
Kidney disease	49,046	1.8%
Suicide	42,773	1.6%



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- The epidemic, crisis, phobia.
- https://www.cdc.gov/nchs/data/nvsr/nvsr05/nvsr05_04.pdf
- Heart disease: 633,842
- Cancer: 595,930
- Chronic lower respiratory diseases: 155,041
- Accidents (unintentional injuries): 146,571
- Stroke (cerebrovascular diseases): 140,323
- Alzheimer's disease: 110,561
- Diabetes: 79,535
- Influenza and Pneumonia: 57,062
- Nephritis, nephrotic syndrome and nephrosis: 49,959
- Intentional self-harm (suicide): 44,193



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Figure 4. Percent of Opioid Deaths with Specific Drugs Present MA: 2014-2016

1. This is most likely illicitly produced and sold, not prescription fentanyl
2. Prescription opioids include: hydrocodone, hydromorphone, oxycodone, oxycodone/acetaminophen, and tramadol

<http://www.mass.gov/eohhs/docs/dph/stop-addiction/current-statistics/data-brief-overdose-deaths-may-2017.pdf>

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- The epidemic, crisis, phobia.
- US-AG http://www.masslive.com/news/boston/index.ssf/2017/09/attorney_general_healey_sessions.html
-A longtime opponent of m..... legalization, Sessions held back on any talk of the newly-legalized drug in Massachusetts. He instead turned his focus to the state's opioid epidemic.
- Sessions pointed equal blame at "dirty" doctors, pharmacists and drug dealers.
- "This nation is prescribing too many pain pills," Sessions said. "It's causing too much addiction, we're sending additional resources in the field to prosecute, prosecute dirty doctors, drug dealers, pharmacists, anyone else in the supply chain."
- He added that law enforcement officials stand by "all of those who are suffering addiction" and seeking treatment.
- Massachusetts Attorney General Maura Healey, a frequent Sessions critic, said the Trump administration needs to offer "more than lip service" on the opioid crisis.....

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- The epidemic, crisis, phobia.
- There is no doubt that we have a massive problem.
- The facts are undeniable.
- We as medical providers have an obligation to protect and to serve the public.
- How can we do that?
- We have to be better than we are today. We have to medicalize our protocols and not politicize our protocols.

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- Warning- Opioids**
- The use of opioids can lead to dependence, tolerance, neonatal abstinence syndrome, addiction, overdose, respiratory depression, brain damage, coma and death.
- Concomitant use with benzodiazepines, alcohol, and other prescribed and non-prescribed central nervous system depressants may result in sudden profound sedation, respiratory depression, coma, and death.
- Use opioids exactly as prescribed without alteration of the medication dose, route, frequency as any change not authorized by your provider can lead to rapid release, excess build-up and absorption and lead to a rapid fatal overdose-death.

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- Basic Rules, "Universal Precautions", Universal processes
- Know the laws of the state and the federal government.
- FSMB-
- DEA-
- Mass.gov-
- CDC.gov-
- Never write a prescription for yourself or a direct family member. NEVER. JUST DON'T DO IT.
- Never write a prescription in the parking lot. Never do a patient interview in the parking lot.
- Never write a prescription for a "quick consult", a favor for a friend or colleague.
- Lock up your rx pad. Every day, every night.
- Use E-rx if you can. Token.

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 - http://www.fsmb.org/Media/Default/PDF/FSMB/Advocacy/advocacy_main_policy_10/2013.pdf
 - https://www.fsmb.org/Media/Default/PDF/Advocacy/Opportunities/ines/2016/2016Apr11/20Apr11_FINA4.pdf
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- ⌘ Basic Rules
- ⌘ Know the laws of the state and the federal government.
- ⌘ FSMB-
- ⌘ DEA -
- ⌘ DEA - 2006 This manual has been prepared by the Drug Enforcement Administration, Office of Diversion Control, to assist practitioners (physicians, dentists, veterinarians, and other registrants authorized to prescribe, dispense, and administer controlled substances) in their understanding of the Federal Controlled Substances Act and its implementing regulations as they pertain to the practitioner's profession.
<https://www.deadiversion.usdoj.gov/pubs/manuals/pract/index.html>
- ⌘ Mass.gov....
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 - ⌘ <http://www.mass.gov/chapter55/>
 - ⌘ <https://www.mass.gov/news/governor-baker-signs-landmark-opioid-legislation-into-law>
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- ⌘ What makes you a legitimate Medical provider.
 - ⌘ 1- You are performing a service in the scope of medical practice
 - ⌘ 2- You perform a history and physical exam.
 - ⌘ 3- You order tests, x-rays, Ct scan, MRI, EMG/NCS, U/S, SSEP/MEP, biopsies.....
 - ⌘ 4- You arrive at a diagnosis or a differential diagnosis
 - ⌘ 5- You form a care plan for the condition/conditions....
 - ⌘ 6- You follow up, re-assess, re-evaluate, re-organize.....
 - ⌘ 7- You get help, ask for consultations on the conditions, or symptoms.....
 - ⌘ 8- You keep notes in the records, document rationale, document progress to the goals of the condition.....
- ⌘ Any comments on this...? Any disagreements...?




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 - ⌘ 6- You follow up, re-assess, re-evaluate, re-organize.....
 - ⌘ 7- You get help, ask for consultations on the conditions, or symptoms.....
 - ⌘ 8- You keep notes in the records, document rationale, document progress to the goals of the condition.....
 - ⌘ 9- To prescribe medications that are opioid or non-opioid now you have to risk stratify each patient.
 - ⌘ New stuff.....



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- ⌘ Risk Stratification Tools
 - ⌘ COMM
 - ⌘ DAST
 - ⌘ ORT
 - ⌘ SOAPP-r
 - ⌘ PHQ-9
 - ⌘ Audit-c
 - ⌘ CAGE
 - ⌘ PCS



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- 📁 Acute pain Protocols
 - 📁 Inpatient
 - 📁 Outpatient


- 📁 Chronic pain Protocols



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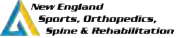
- 📁 Acute pain Protocols
 - 📁 Inpatient
 - 📁 Pain CODE
 - 📁 Pain control
 - 📁 Discharge function/P.T., O.T.
 - 📁 Pain meds at discharge
 - 📁 Outpatient

- 📁 Chronic pain Protocols




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- 📁 Acute pain Protocols
 - 📁 Inpatient-done
 - 📁 Outpatient




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- 📁 Acute Pain Protocol outpatient
 - 📁 Focal, specific history, physical exam
 - 📁 Diagnosis or list a differential diagnosis
 - 📁 Prognosis
 - 📁 Set Expectations, Set goals to the end point of the condition
 - 📁 Use Physical modalities, Non-opioids,
 - 📁 New Stuff!!
 - 📁 Check PMP
 - 📁 Perform a risk assessment
 - 📁 ORT
 - 📁 DAST
 - 📁 CAGE
 - 📁 SOAPP-5
 - 📁 Assign Risk Level day 1.




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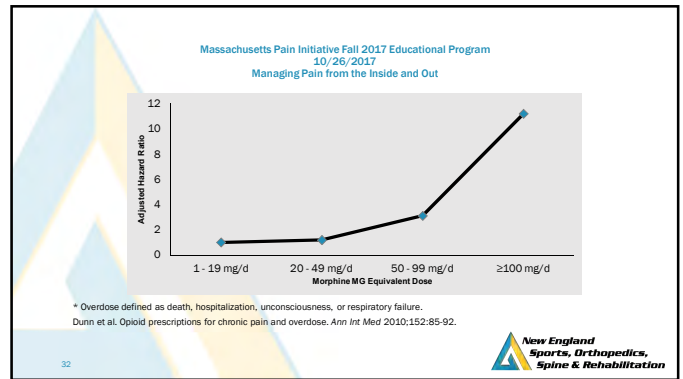
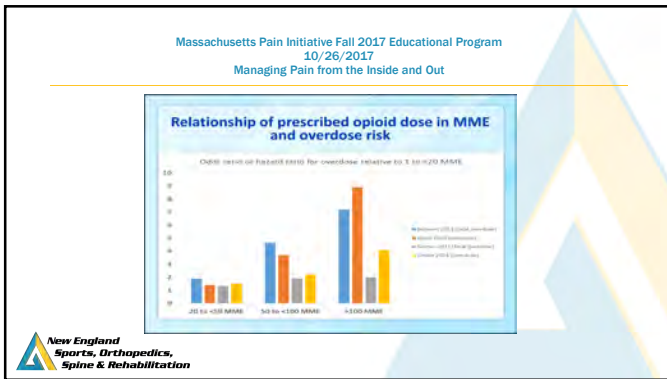
- 📁 Acute pain Protocol
 - 📁 Options for pain care
 - 📁 PRICE, Heat, TENS
 - 📁 Brace, crutches, slings, splints, boots...
 - 📁 Relative rest 3 days, ...
 - 📁 P.T., OMT/OMM, Chiro, Accu, Massage, Education
 - 📁 NSAIDS: Naproxen, ibuprofen, etodolac, diclofenac, piroxicam, meloxicam, celebrex, diclofenac gel, lidocaine gel/oint/patch, toradol
 - 📁 Tylenol (MAPAP)
 - 📁 Muscle relaxers: cyclobenzaprine, skelaxin, roxibax, tizanidine, baclofen, (SOMA)(Diazepam)
 - 📁 MSA: Gabapentin, topiramate, pregabalin, levitraoetam (DRESS), Carbamazepine (SJS)
 - 📁 TCA: amitriptyline/nortriptyline, doxepin, desipramine,
 - 📁 Injection: Ketorolac, cortisone
 - 📁 PID: 3-7 days reevaluate, educate, set goals, expectations, adjust opioid dose/freq
 - 📁 PID: 8-21 days reevaluate, educate, set goals, expectations, reduce opioid dose/freq



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- 📁 Acute pain Protocol
 - 📁 What do you do when all of the prior options have failed? VAS >7/10?
 - 📁 Options for pain care
 - 📁 Opioid options, risk assessment?, education, med agreement, black box warning
 - 📁 1 po TID, max. (why?)
 - 📁 Tramadol
 - 📁 Tapentadol
 - 📁 Hydrocodone
 - 📁 Morphine
 - 📁 oxycodone
 - 📁 levorphanol
 - 📁 hydromorphone





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- Acute pain Protocol**
- Options for pain care
- ▲ Opioid options, risk assessment?, education, med agreement, black box warning
 - ▲ 1 po TID, max.
 - Ⓜ Tramadol - 50 mg 1 po TID, #15-21
 - Ⓜ Tapentadol - 100 mg 1 po TID, #15-21
 - Ⓜ Hydrocodone - 5/325 mg 1 po TID, #15-21
 - Ⓜ Morphine - 15 mg 1 po TID, #15-21
 - Ⓜ Oxycodone - 5/325 1 po TID,....
 - Ⓜ Levorphanol - 2 mg 1 po TID,....
 - Ⓜ Hydromorphone - 2 mg 1 po TID,....
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- Options for pain care
- ▲ Opioid options, risk assessment?, education, med agreement
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 - Ⓜ Oxycodone - 5/325 1 po TID,....
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 - Ⓜ Hydromorphone - 2 mg 1 po TID,....
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- Acute pain Protocols**
- Ⓜ PID: One month reassess, reevaluate, reorganize...
 - Ⓜ Get Consultation advice, guidance, recommendations
 - Ⓜ Start reducing dose and freq of opioids
 - Ⓜ Eliminate all barriers to health, smoking, drinking, in-activity
 - Ⓜ Expand the conservative treatments
 - Ⓜ Pool therapy
 - Ⓜ Qui gong, tai chi, meditation
 - Ⓜ PID: 3 months- now have chronic pain syndrome
 - Ⓜ Referral to PM for advise, guidance, recommendations, management
- Chronic pain Protocols**
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- Acute pain Protocols**
- Ⓜ Inpatient-done
 - Ⓜ Outpatient-done
- Chronic pain Protocols**
- Ⓜ Risk Stratify
 - Ⓜ COMM, DAST, SOAPP, ORT, CAGE, AUDIT, PHQ-9, ABC
 - Ⓜ Controlled substance use agreement- better verbiage than Med Contract.
 - Ⓜ Follow up,....
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⚙️ Chronic pain Protocols 1


- ⚙️ Tips (review the case ahead of patient interview, review the PMP, look at social media...)
- ⚙️ Interview must me thorough and comprehensive.
 - ⚙️ H&P usually takes an hour or more.....
 - ⚙️ Review prior treatments
 - ⚙️ Establish Diagnosis and medical necessity.
 - ⚙️ Controlled substance agreement
 - ⚙️ Education regarding the use of opioids (tell them they will become tolerant, dependent, potentially addicted, possibly overdose and die)
 - ⚙️ Specimen collection agreement
 - ⚙️ Lockbox agreement
 - ⚙️ Naloxone agreement
 - ⚙️ MED/BMI/VAS




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Increased Risk of Overdose

Treatment of overdoses with naloxone (Narcan)

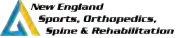




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⚙️ Chronic Pain Protocol, 2


- ⚙️ COMM
- ⚙️ DAST
- ⚙️ ORT
- ⚙️ SOAPP-r
- ⚙️ PHQ-9
- ⚙️ Audit-c
- ⚙️ CAGE
- ⚙️ PCS
- ⚙️ ODI
- ⚙️ NDI
- ⚙️ MHAQ



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⚙️ Chronic Pain Protocol, 3


- ⚙️ Urine tox- review the preliminary POC results.
- ⚙️ Oral tox- delay oral medication induction. (3-7day)
- ⚙️ PGT- for high dose high risk patients
- ⚙️ Assign Risk, establish their protocol for care including tox testing, random testing, pill counting.
 - ⚙️ Low Risk- every third visit.
 - ⚙️ Medium Risk- every other visit
 - ⚙️ High Risk- each visit
- ⚙️ Establish Goals:



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⚙️ Chronic Pain Protocol, 4


- ⚙️ Establish Goals:
- ⚙️ Goals: Mutually agreed upon goals of functional restoration outlined in this paragraph will be the fundamental primary data point for continued opioid utilization for chronic non-malignant pain.
- ⚙️ 6a- All aspects of the Medication use agreement are maintained.
- ⚙️ 6b- VAS scores reach less than 5/10, with a MED ≤100 mg. (Agreed)
- ⚙️ 6c- ADL's, IADL's are Independent at the end of the trail. (Agreed)
- ⚙️ 6d- ODI improves by 50%. (Agreed)
- ⚙️ 6e- BMI decreases by 20%. (Agreed)
- ⚙️ 6f- Two minute walk test is improved by 50%. (Agreed)
- ⚙️ 6g- Cognition (MMI) is intact and equal to pre-opioid state. (Agreed)
- ⚙️ 6h- No self escalations, or early refill request occur during the trial phase.(Agreed)
- ⚙️ 6i- PHQ9/Depression improves 50%. (Agreed)



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⚙️ Chronic Pain Protocol, 5

- ⚙️ Plan or discuss treatment options
 - ⚙️ Confirm or perform testing. xray, MRI, U/S, CT scan, EMG, Injections= Confirm diagnosis
 - ⚙️ P.T. , O.T., CHIRO, OSTEO, ACCU, CBT, Tai chi, Qui Gong, Yoga, Bracing, TENS, Injections, Surgery.
- ⚙️ Give patient 3 months (12 weeks) to reach goals.
 - ⚙️ If Goals are not met than d/c, taper opioids
 - ⚙️ If Goals are met than follow up every month, PMP every prescription, UDT on protocol, Random pill counts, random UDT ?




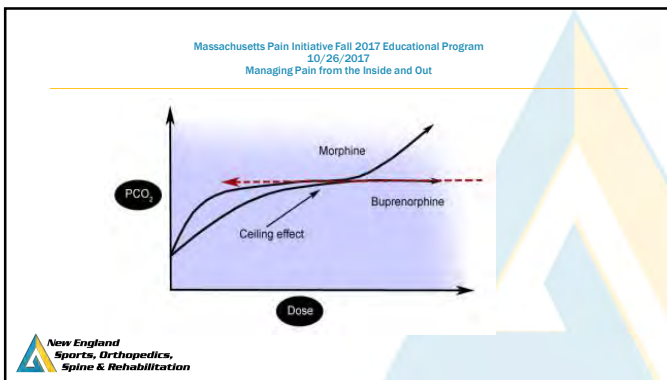
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- ⌚ Chronic Pain Protocol, 6
- ⌚ Review the past treatments and maximize non-opioids. Change opioids to ER-ad forms..
- ⌚ P.T./OMT/Chiro, Acuo, Massage, Education
- ⌚ Braces, Crutches, slings, splints, scooter, wheelchair, TENS
- ⌚ NSAIDS: ASA, Ibuprofen, etodolac, diclofenac, piroxicam, meloxicam, celebrex, diclofenac gel, lidocaine gel/ont/patch, toradol
- ⌚ Tylenol (MAPAP)
- ⌚ Muscle relaxers: cyclobenzaprine, skelaxin, robaxin, tizanidine, baclofen
- ⌚ MGA: Gabapentin, topiramate, pregabalin, Kepra (DRESS), Carbamazepine (SJS)
- ⌚ TCA: amitriptyline/nortriptyline, doxepin, desipramine,
- ⌚ Tramadol-
- ⌚ Tapentadol-
- ⌚ Buprenorphine
- ⌚ Hydrocodone-
- ⌚ Morphine-
- ⌚ Oxycodone-
- ⌚ Levorphanol-
- ⌚ Hydromorphone-



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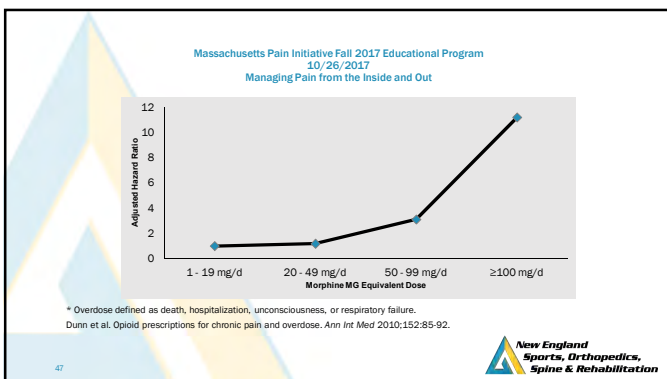
- ⌚ Chronic Pain Protocol, 7
- ⌚ REDUCE THE RISKS.....AMAP
- ⌚ Review the past treatments and maximize non-opioids. Change opioids to ER forms..
- ⌚ Tapentadol ER: Nucynta
- ⌚ Buprenorphine: Butrans, Belbuca, Bunavall, Subutex, Suboxone.
- ⌚ Naloxone NS.

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Increased Risk of Overdose

Treatment of overdoses with naloxone (Narcan)

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- ⌚ Objectives
 - ⌚ Maximize Non-opioids
 - ⌚ Use as many or all the groups of non-opioids at the same time (rational poly-pharmacy).
 - ⌚ Watch for side effects
 - ⌚ Minimize opioids
 - ⌚ Don't prescribe more than 90 MED without consulting Pain Management
 - ⌚ Minimize overdose risk
 - ⌚ Educate patient and family regarding overdose signs, symptoms
 - ⌚ Prescribe (Narcan Nasal spray 4mg/ml, 1 spray to nostril, as directed for suspected opioid overdose PRN, #1 box (2pack- One refill))
 - ⌚ Follow up closely. (follow up monthly).
 - ⌚ 7-A's




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Objectives

- Follow up monthly.
- 7-Assessments of each chronic pain medication renewal.
 1. Analgesia
 2. Activity
 3. Adverse effects
 4. Aberrant behaviors
 5. Acknowledge medication are opioids
 6. Acknowledge the risks, accept the risks
 7. Accept responsibility obligations


CASE #1




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CASE #1


- 69-year-old male, chief complaint upper limb major joint pain and axial skeletal pain.
- Referred by PCP 2013, for chronic pain management.
- Onset initial injury 1998, slip and fall, as a roofing siding specialist. VAS 7.10/10.
- Prior treatments include his therapy, NSAIDs, muscle relaxers, injections, spinal fusion and opioids (MED 420 mg, (oxycotin 80 mg bid, oxycodone 30 mg qid)
- Imaging studies of the axial skeleton C-TL shoulders, elbows, wrists, hips, knees, ankles confirmed severe degenerative joint disease, spondylosis, degenerative disc disease.
- Laboratory studies reveal significant uric acid levels, elevated CRP levels.
- Physical exam reveals gross bony overgrowth, elbows, acromioclavicular joint, hands, knee and ankles
- Diagnosis: Multilevel axial skeletal spondylosis, degenerative disc disease, facet arthropathy syndrome, cervical herniated nucleus pulposus, gully arthritis, repetitive overuse syndrome.
- Prognosis: Poor
- COMB=0, DAST=0, ORT=0, SODAPP=2, CAGE=0, RISK Assessment= Low risk.
- PHQ=1, CD=50%, NDI=48%, PCS=18, MHAQ=1.5
- Medical necessity supported by H&P/Imaging/Testing: Yes.
- Controlled substance use agreement signed, lockbox agreement signed, specimen collection agreement signed, Naloxone education.



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CASE #1

- Controlled substance use agreement signed, lockbox agreement signed, specimen collection agreement signed, Naloxone education.

MED/IMV/VAS	PMP=	LDT=
10/12/2017: 150/34/6	10/12/2017: Concordant	10/12/2017: Concordant
09/14/2017: 150/33/6	09/14/2017: Concordant	09/14/2017: Concordant
08/17/2017: 195/33/6	08/17/2017: Concordant	08/17/2017: Concordant
07/20/2017: 159/33/6	07/20/2017: Concordant	07/20/2017: Concordant
06/22/2017: 155/33/7	06/22/2017: Concordant	06/22/2017: Concordant
05/25/2017: 225/33/6	05/25/2017: Concordant	05/25/2017: Concordant
04/27/2017: 225/33/6	04/27/2017: Concordant	04/27/2017: Concordant
03/20/2017: 225/33/6	03/20/2017: Concordant	03/20/2017: Concordant
02/02/2017: 225/32/5	02/02/2017: Concordant	02/02/2017: Concordant
01/05/2017: 225/33/6	01/05/2017: Concordant	01/05/2017: Concordant
12/08/2016: 300/31/5	12/08/2016: Concordant	12/08/2016: Concordant




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CASE #1

Treatment plan:


1. Naloxone HCL injection solution, 1 spray per nostril prn, (1 box-2 units) use in case of suspected opioid overdose.
2. Morphine sulfate extended release 30 mg 1 by mouth twice a day, #56, no refills, M47.817
3. Oxycodone 20 mg 1 by mouth 3 times a day, #64, when necessary, no refills, M47.817
4. GABAPENTIN 300 mg 1 by mouth 3 times a day, 2 by mouth daily at bedtime, #140.
5. Allopurinol 100 mg 1 by mouth daily.
6. Colchicine 0.6 mg 1 by mouth daily.
7. Lidocaine ointment 5%, one topical application 3 times a day, #30 gram Tube, il per month.
8. Meloxicam 7.5 mg 1 by mouth twice a day.
9. Cervical epidural corticosteroid injection, lumbar epidural corticosteroid injection, bilateral knee Toradol injection, lumbar facet joint nerve ablation, cervical facet joint nerve ablation, TPI a toradol/lex
10. Pool therapy
11. Aspirin 81 mg 1 by mouth daily.
12. TENS unit- Knees, lbp





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CASE #2

- 1. 59 year old male, chief complaint low back pain, right hip pain, right leg pain.
- 2. Referred by PCP 2016, for chronic pain management.
- 3. Onset initial injury 22 years of age, gradual onset right leg pain, left hip pain, right hip pain.
- 4. Prior treatments include Physical therapy, NSAIDs, muscle relaxers, injections, L THA and opioids (MED 1580 mg), (methadone 10 mg 30 pills per day, fentanyl 100 mcg II Q4H, oxycodone 20 mg 6/d).
- 5. Imaging studies of the axial skeleton T & spine, hips, knees confirmed severe degenerative joint disease, right hip avn, L THA, L spondylosis, degenerative disc disease.
- 6. Laboratory studies reveal high CRP
- 7. Physical exam reveals gross bony limits on decreased R-hip PROM, SLR+ (R). Scleroderma, deep morphea.
- 8. Diagnosis: right hip degenerative joint disease, avascular necrosis right hip femoral head, lumbar degenerative spondylosis, chronic lumbar radiculopathy, scleroderma, deep morphea.
- 9. Prognosis: Grave
- 10. COMM=0, DAST=0, CRT=0, SDAPP=2, CAGE=0, RISK Assessment: Low risk.
- 11. PHQ9=1, ODI=76%, NDI=24%, PCS=10, MAHQ=1.5
- 12. Medical necessity supported by H&P/Imaging/testing: Yes.
- 13. Controlled substance use agreement signed, lockbox agreement signed, specimen collection agreement signed, Naloxone education.



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CASE #2

- 1. Controlled substance use agreement signed, lockbox agreement signed, specimen collection agreement signed, Naloxone education

MED/8MI/VAS	PMP	UTD
09/19/2017: 180/25/8	09/19/2017: Concordant	09/19/2017: non-concordant
08/22/2017: 180/25/8	08/22/2017: Concordant	08/22/2017: non-concordant
07/25/2017: 180/26/7	07/25/2017: Concordant	07/25/2017: non-concordant
06/27/2017: 180/26/7	06/27/2017: Concordant	06/27/2017: Concordant
05/30/2017: 180/26/7	06/30/2017: Concordant	05/30/2017: Concordant
05/03/2017: 180/26/9	05/03/2017: Concordant	05/03/2017: Concordant
12/08/2016: 380/27/9	12/08/2016: Concordant	12/08/2016: Concordant
11/10/2016: 380/29/10	11/10/2016: Concordant	11/10/2016: Concordant
10/08/2016: 495/29/10	10/08/2016: Concordant	10/08/2016: Concordant
03/15/2016: 520/25/10	03/15/2017: Concordant	10/08/2016: Concordant
03/10/2016: 1280/25/10	03/10/2016: Concordant	03/10/2016: concordant




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CASE #2


Treatment plan:

1. Naloxone HCL injection solution, 1 spray per nostril prn, (1 box- 2 units) use in case of suspected opioid overdose.
2. Methadone 10 mg 2 by mouth 3 times a day #168, no refills, for pain, -M47.817.
3. GABAPENTIN 600 mg 1 by mouth 4 times a day, #112, refills
4. Cymbalta 20 mg 1 by mouth twice a day
5. Tizanidine 4 mg 2 by mouth daily at bedtime.
6. Droxopin 10 mg 1 po QHS.
7. Memantine 20 mg 1 po BID.
8. Meloxicam 7.5 mg 1 by mouth twice a day.
9. 4 wheel rolling walker, Power chair, TENS, Pool therapy
10. Methotrexate 10 mg 1 po Qweek.




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Buprenorphine **Tapentadol**




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- 1. Discuss MED, MME, MEDD?
- 2. MED MYTHS
- 3. MED= 45 mg
- 4. MED= 60 mg
- 5. MED= 90 mg
- 6. MED= 120 mg
- 7. MED= 300 mg
- 8. WHAT ABOUT BENZO'S?
- 9. WHAT ABOUT GABAPENTIN?




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- ⌘ Discuss MED, MME, MEDD?
- ⌘ MED MYTHS?
- ⌘ MED= 45 mg
- ⌘ MED= 60 mg
- ⌘ MED= 90 mg
- ⌘ MED= 120 mg
- ⌘ MED= 300 mg
- ⌘ WHAT ABOUT BENZO'S?
- ⌘ WHAT ABOUT GABAPENTIN?



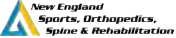
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- ⌘ MED= 45 mg
 - ⌘ Hydrocodone/apap: 5/325, 10/325 (9-4/day)
 - ⌘ Oxycodone/apap: 5/325, 10/325 (6-3/day)
 - ⌘ MSIR: 15 mg, 30 mg (3-1/day)
- ⌘ MED= 60 mg
 - ⌘ Hydrocodone/apap: 5/325, 10/325 (12- 6/day), ?APAP
 - ⌘ Oxycodone/apap : 10/325 (4/day), ? APAP
 - ⌘ MSIR 15mg : (4/day)
 - ⌘ MSER 15 mg , 30 mg (4/day, 2/day)



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- ⌘ MED= 90 mg
 - ⌘ Oxycodone 20 mg I PO TID= 90 MED
 - ⌘ Oxycotin 30 mg I PO BID= 90 MED
- ⌘ MED= 120 mg
 - ⌘ Oxycodone 20 mg I PO BID= 60 MED
 - ⌘ Oxycotin 20 mg I PO BID= 60 MED
- ⌘ MED= 200 mg
 - ⌘ Nucynta IR 100 mg I PO TID= 80 MED
 - ⌘ Nucynta ER 150 mg I PO BID= 120 MED



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⌘ Buprenorphine ⌘ Tapentadol


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⌘ References:

- 1- <https://www.heart.org/heart-disease/death-rates-continue-to-drop/>
- 2- <http://www.mass.gov/health/press/04/13/13-additional-current-statistics/data-brief-overdose-deaths-may-2017.pdf>



PAIN MANAGEMENT: CLINICAL PEARLS & HOSPITAL-SPECIFIC PROTOCOLS

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LEARNING OBJECTIVES

- Examine literature addressing the use of a multimodal analgesic strategy for acute inpatient pain management
- Apply clinical pearls surrounding selection of specific non-opioids to be used as part of a multimodal strategy (i.e. adverse reactions, cautions, or contraindications)
- Discuss strategies to promote safe use of opioids in hospitalized patients and avoidance of opioid-related adverse drug effects
- Explore options for managing pain in patients using methadone or Suboxone

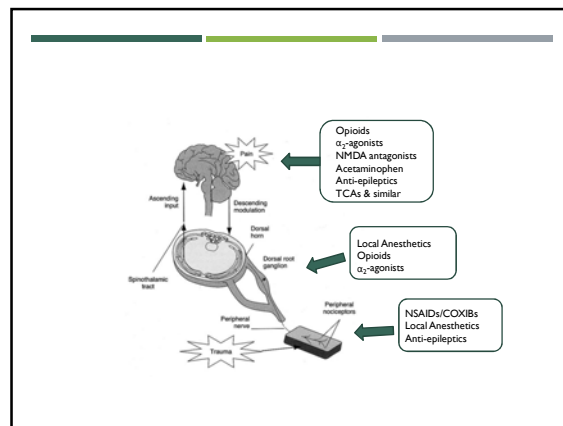
DEFINITION/RATIONALE

Multimodal Analgesia involves the concurrent administration of two or more analgesic agents with different mechanisms of action.

The combination therapy often produces a synergistic effect, and allow for better analgesia using lower doses of a given medication if it were to be used alone.

Many studies have demonstrated an opioid-sparing effect from concurrent use of NSAIDs. More recently, adjuvant medications such as anticonvulsants have demonstrated similar results.

Ketlet H and Dahl JB. Anesth Analg 1993;77:1048-56



NON-OPIOIDS TO CONSIDER:

<p>BASE MMA REGIMEN ON:</p> <ul style="list-style-type: none"> ■ Efficacy ■ Consider neuropathic component ■ Patient-specific factors <ul style="list-style-type: none"> ■ Age ■ Organ function <ul style="list-style-type: none"> ■ Renal/GI ■ Tolerability & Ease of Use ■ Cost 	<p>CONSIDER THE USE OF:</p> <ul style="list-style-type: none"> ■ Acetaminophen ■ NSAIDs <ul style="list-style-type: none"> ■ Ketorolac, ibuprofen, celecoxib, etodolac ■ NMDA receptor antagonists <ul style="list-style-type: none"> ■ Ketamine ■ Alpha2 agonists <ul style="list-style-type: none"> ■ Clonidine, dexmedetomidine ■ Gabapentinoids <ul style="list-style-type: none"> ■ Gabapentin, pregabalin ■ Local anesthetics <ul style="list-style-type: none"> ■ Bupivacaine, lidocaine, liposomal bupivacaine
--	---

EXAMPLES OF MMA IN SURGICAL PATIENTS

Pre-Operative	Acetaminophen Gabapentin or Pregabalin NSAID Opioid
Intra-Operative	Regional analgesia with local anesthetic or opioid Epidural or intrathecal opioid
Post-Operative	Opioid (i.e. PCA or other) Acetaminophen NSAID Gabapentin or Pregabalin

ASA Practice Guidelines for Acute Pain Management in the Perioperative Setting. Anesthesiology 2012;116(2):248-273.

RECOMMENDATIONS FROM PROFESSIONAL SOCIETIES & ACCREDITING AGENCIES

- The multimodal concept is supported by numerous professional and regulatory organizations
 - AAEM (American Academy of Emergency Medicine)¹
 - AAOS (American Academy of Orthopaedic Surgeons)²
 - ACS (American College of Surgeons)³
 - AGS (The American Geriatrics Society)⁴
 - AHA (American Heart Association)⁵
 - AHRQ (Agency for Healthcare Research and Quality)⁶
 - ASA (American Society of Anesthesiologists)⁷
 - ASPAN (American Society for PeriAnesthesia Nurses)⁸
 - ERAS Society (Enhanced Recovery After Surgery Society)⁹
 - SCCM (Society of Critical Care Medicine)¹⁰
 - TJC (The Joint Commission)¹¹

References: 1. Cheng J et al. *Journal of Intensive Care Medicine* 2016;31(10):1000-1005. 2. American Academy of Orthopaedic Surgeons. *Quality Improvement Guidelines for Acute Care*. 2014. 3. American College of Surgeons. *ACS National Surgical and Quality Improvement Program*. 2014. 4. American Geriatrics Society. *Beers Criteria for Potentially Inappropriate Medication Use in Older Adults*. 2012. 5. American Heart Association. *2015 Update to the American Heart Association Guidelines for the Management of Patients with Atrial Fibrillation*. 2015. 6. Agency for Healthcare Research and Quality. *Best Practices for Multimodal Pain Management*. 2015. 7. American Society of Anesthesiologists. *Practice Guidelines for Sedation and Anesthesia in the Perioperative Setting*. 2015. 8. American Society for PeriAnesthesia Nurses. *Practice Guidelines for Sedation and Anesthesia in the Perioperative Setting*. 2015. 9. ERAS Society. *Enhanced Recovery After Surgery Society*. 2015. 10. Society of Critical Care Medicine. *Practice Guidelines for the Management of Pain in the Intensive Care Unit*. 2015. 11. The Joint Commission. *Accreditation Manual for Hospitals*. 2015.

BENEFITS OF MULTIMODAL ANALGESIA

EFFICACY

- Improved functional outcomes
- Reduced adverse events (including drug-related, and post-op related – ie, fever, PONV,...)
- Decreased need for use of naloxone

SAFETY

- Reduced doses of analgesics in the treatment plan, especially opioids
 - Federal focus on limiting opioid use
- Superior pain relief, secondary to synergistic or additive effects of the various agents in the treatment plan
- Reduce LOS
- Improved patient satisfaction¹

1. American Society of Anesthesiologists. *Practice Guidelines for Sedation and Anesthesia in the Perioperative Setting*. 2015. 2. American Society of Anesthesiologists. *Practice Guidelines for Sedation and Anesthesia in the Perioperative Setting*. 2015. 3. American Society of Anesthesiologists. *Practice Guidelines for Sedation and Anesthesia in the Perioperative Setting*. 2015. 4. American Society of Anesthesiologists. *Practice Guidelines for Sedation and Anesthesia in the Perioperative Setting*. 2015. 5. American Society of Anesthesiologists. *Practice Guidelines for Sedation and Anesthesia in the Perioperative Setting*. 2015. 6. American Society of Anesthesiologists. *Practice Guidelines for Sedation and Anesthesia in the Perioperative Setting*. 2015. 7. American Society of Anesthesiologists. *Practice Guidelines for Sedation and Anesthesia in the Perioperative Setting*. 2015. 8. American Society of Anesthesiologists. *Practice Guidelines for Sedation and Anesthesia in the Perioperative Setting*. 2015. 9. American Society of Anesthesiologists. *Practice Guidelines for Sedation and Anesthesia in the Perioperative Setting*. 2015. 10. American Society of Anesthesiologists. *Practice Guidelines for Sedation and Anesthesia in the Perioperative Setting*. 2015. 11. American Society of Anesthesiologists. *Practice Guidelines for Sedation and Anesthesia in the Perioperative Setting*. 2015. 12. American Society of Anesthesiologists. *Practice Guidelines for Sedation and Anesthesia in the Perioperative Setting*. 2015. 13. American Society of Anesthesiologists. *Practice Guidelines for Sedation and Anesthesia in the Perioperative Setting*. 2015. 14. American Society of Anesthesiologists. *Practice Guidelines for Sedation and Anesthesia in the Perioperative Setting*. 2015. 15. American Society of Anesthesiologists. *Practice Guidelines for Sedation and Anesthesia in the Perioperative Setting*. 2015.

INCORPORATE MULTIMODAL ANALGESIA INTO TREATMENT

- Utilize a stepwise approach
- Recommend continuation of non-opioids for an opioid-sparing effect

Step 1

• Non-opioid
• +/- Adjuvant

➔

Step 2

• Weak Opioid
• +/- Non-opioid
• +/- Adjuvant

➔

Step 3

• Strong Opioid
• +/- Non-opioid
• +/- Adjuvant

Pain persisting Pain persisting

Adapted from a World Health Organization (WHO) Pain Relief Ladder.

SUMMARY OF GENERAL APPROACHES

- Use an individualized, *multimodal* treatment plan to manage pain, which includes:
 - Nonpharmacologic approaches
 - Non-opioid medications
- The best approach may be to start with a *non-narcotic*
- Take extra precautions with *opioid-naïve* patients
 - Short-term trial with sufficient time to assess response before increasing the dosage
- Recognize that opioid-tolerant patients often have more complex needs

EXAMPLE OF MMA IMPLEMENTATION

KENT HOSPITAL

IMPLEMENTATION OF MMA PROTOCOLS AT KENT HOSPITAL: DRIVERS FOR CHANGE

- Joint Commission
 - Sentinel Event Alert
 - Prevention of errors
 - Prevention of duplicate orders
- Encourage use of Multimodal Approach (MMA)
- Limit occurrence of opioid-related ADEs (ORADEs)
- Our hospital specifics/background
 - Sometimes poor opioid conversions during TOC
 - Provide consistent analgesia
 - Wish list: improve patient satisfaction (HCAHPS scores)

BACKGROUND INFORMATION ON THE PROTOCOLS

- Created from analysis of inpatient opioid usage/requirements in non-surgical patients
- Total amount of opioid used by patients [morphine equivalent doses (MED)], in a variety of medical states on first day of admission, then followed for 10 days or until discharge.
- Sample patients did not require naloxone at any point during hospitalization

⇒ Sample deemed to have safe and effective use of opioids

SURVEILLANCE DATA

Overall Opioid Usage for	Low Dose (<50 MED/d or Opioid Naive)	Medium Dose (50-100 MED/d)	High Dose (>100 MED/d)
Average initial opioid prescribed	63.8 mg	59.7 mg	160.0 mg
Average opioid prescribed at follow-up	77.5 mg	53.8 mg	178.5 mg
Change in dose (%)	+21.5%	-9.3%	+11.5%

THE 6 ACUTE PAIN PROTOCOLS

- Breakpoints were set to distinguish 3 groups of patients:
 - Low dose (0-50 MED per day or opioid naive)
 - Medium dose (51 – 100 MED per day)
 - High dose (>100 MED per day)
- Patient continues on home med of long-acting analgesic and uses this protocol to manage breakthrough pain
- Patient continues on home med of long-acting analgesic and uses this protocol to manage breakthrough pain

For each of these dose ranges, there is a regular/normal PowerPlan, and one for NPO patients

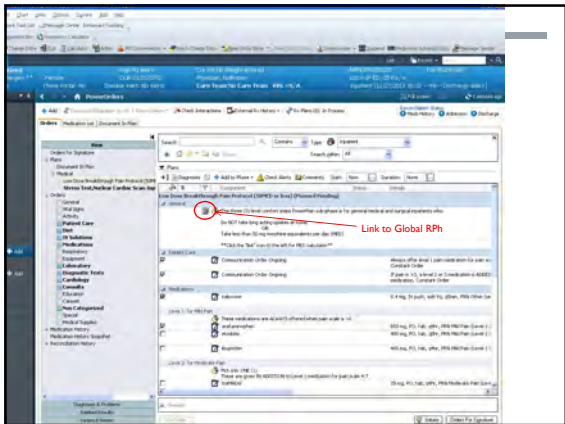
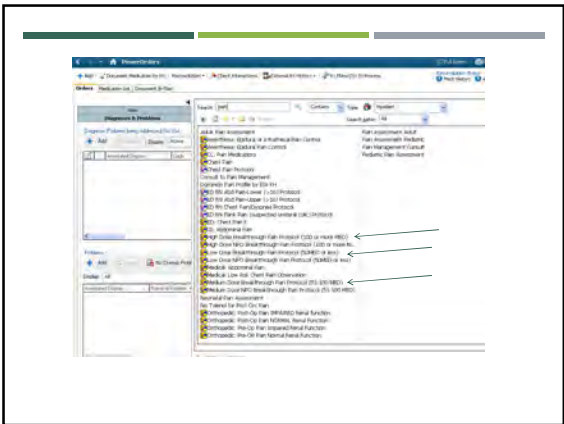
- Each protocol contains 3 steps of analgesia (and medications):
 - mild (1-3 or 'any pain >0' for purpose of medication administration)
 - moderate (pain 4-7)
 - severe (pain 8-10)

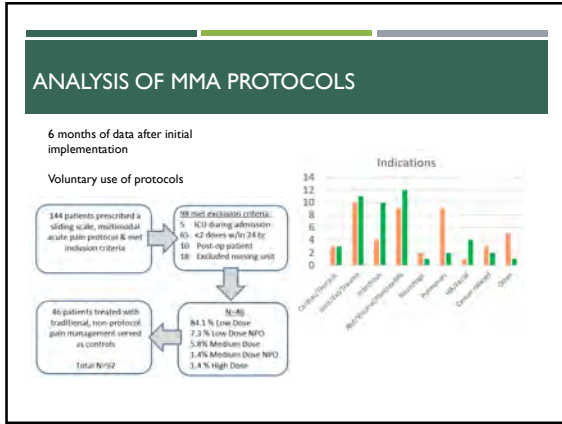
EXAMPLE OF MMA ORDER SETS: KENT HOSPITAL

- Development of 6 "Sliding Scale" Acute Pain Protocols
- Intended for use in medical patients
- For opioid-tolerant patients: Medium (50-100 MED/d) and High level (>100 MED/d) protocols

	Low Dose (<50MED/d or Opioid Naive)	Low Dose NPO (<50MED/d or Opioid Naive)
Level 1: Mild Pain (1-3)	Acetaminophen 650 mg PO q6h Celecoxib 100 mg PO BID Etidolac 400 mg PO BID Ibuprofen 400 mg PO q6h	Acetaminophen 650 mg PR q6h Acetaminophen 1000 mg IV q6h Ketorolac 15 mg IV q6h
Level 2: Moderate Pain (4-7) Give with Level 1 drug	Tramadol 25 mg PO q6h Morphine 7.5 mg PO q4h Oxycodone 5 mg PO q4h	Morphine 4 mg IV q4h Hydromorphone 0.5 mg IV q4h
Level 3: Severe Pain (8-10) Give with Level 1 drug	Oxycodone 10 mg PO q4h Morphine 4 mg IV q4h Hydromorphone 0.5 mg IV q4h	Morphine 6 mg IV q4h Hydromorphone 0.5 mg IV q4h

*Prescriber may select acetaminophen + NSAID for Mild Pain. May select only one option for Moderate and Severe Pain





RESULTS

Variable	Traditional Patients	MMA	p-value
Age (yr) (SD)	53.6(13.86)	56.9(16.1)	0.22
BMI (kg/m ²)	30.5(6.15)	31.8(6.14)	0.391
Gender (% male)	37	37	1.00
opioid tolerance (%)	23.7	47.8	0.015
Baseline Pain Score (0-10)	7.2(1.96)	7.4(1.9)	0.686
Length of Stay (days) (SD)	3.7(1.4)	3.2(1.4)	0.012
Total PCA opioid doses (SD)	12.7(5.72)	14.02(5.18)	0.002
opioid MEV (SD)	55.82(15.03)	65.71(11.8)	0.019
Total opioid (MEV) (SD)	121.96(18.48)	105.11(10.75)	0.028
Time to Analgesia (days) (SD)	267.52 (145.1)	194.37 (110.1)	0.045
Molletin (days)	5.70	5.0	0.162
Chlorhexidine (days)	3	2	0.162
Time of analgesics (days)	3.24	3.20	0.878

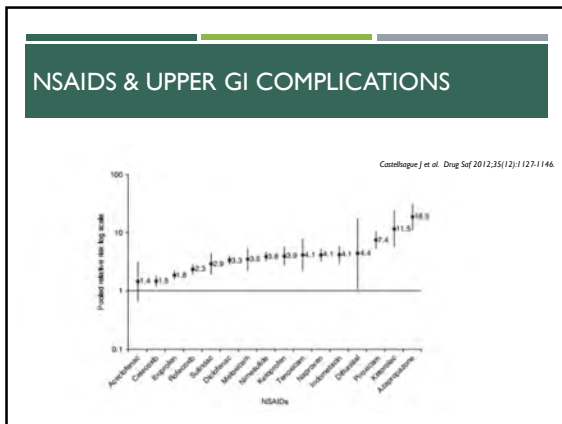
CLINICAL PEARLS

Blank space for clinical pearls.

EXAMPLE OF RECOMMENDATIONS IN PUBLISHED GUIDELINES

- “Unless contraindicated, patients should receive an around-the-clock regimen of COXIBs, NSAIDs, or acetaminophen. Central regional blockade with local anesthetics should be considered.”
- American Society of Anesthesiologists: Practice Guidelines for Acute Pain Management in the Perioperative Setting¹*
- “The panel suggests that clinicians routinely incorporate around the clock nonopioid analgesics and nonpharmacologic therapies into multimodal analgesia regimens.”
- American Pain Society: Guidelines on the Management of Postoperative Pain²*

1. Anesthesiology 2012;116:246-73
2. J Pain 2014;13:131-157



NSAIDS & CARDIOVASCULAR EVENTS

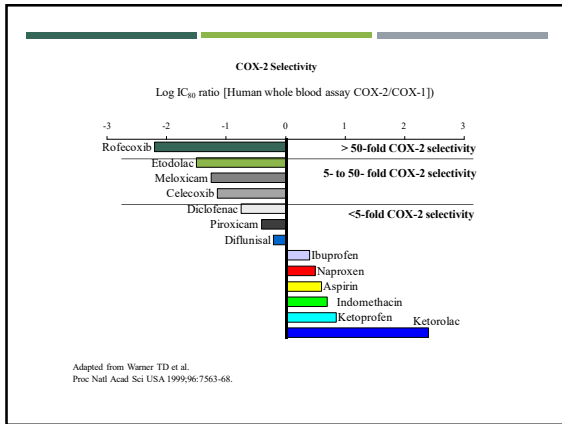
McGeer P et al. PLoS Med 2011;8(9):e1001098

Cardiovascular Risks with Individual NSAIDs

Table 1. Summary of the numbers of studies and overall results.

Drug	Case-Control Studies	Cohort Studies	Total Number of Studies	Number of Patients Years of Exposure	Relative RR (95% CI)	Confidence Interval	p-value	I ²	
Aspirin	28	1,859(1,868)	11	77,624	91	1.0(1.01, 1.00)	93.2	0.000	93.0%
Ibuprofen	22	1,708(1,710)	33	216,632	36	1.0(1.02, 1.00)	236.2	0.000	97.9%
Celecoxib	32	1,919(1,915)	13	178,473	85	1.0(1.03, 1.00)	246.7	0.000	94.4%
Valdecoxib	19	1,833(1,837)	10	128,229	38	1.0(1.03, 1.00)	221.0	0.000	94.2%
Indomethacin	16	1,816(1,824)	15	124,126	78	1.0(1.02, 1.00)	134.4	0.000	86.4%
Etoricoxib	13	1,815(1,816)	3	6,119	15	1.0(1.03, 1.00)	20.8	0.1	53.9%
Flurbiprofen	2	1,815(1,816)	1	33	8	1.0(1.03, 1.00)	0.3	0.3	18.0%
Meloxicam	8	1,815(1,816)	1	67	3	1.0(1.03, 1.00)	1.0	0.2	7.9%
Ticlopidine	8	1,815(1,816)	1	67	3	1.0(1.03, 1.00)	0.9	0.01	12.7%
Ursodeoxycholic	4	1,815(1,816)	1	67	3	1.0(1.03, 1.00)	0.7	0.02	26.1%
Other NSAIDs	7	1,815(1,816)	1	67	3	1.0(1.03, 1.00)	0.8	0.004	12.0%

^aStudy reporting adjusted risk estimates did not all report precise point estimates. See Table 2 for details.



The Joint Commission Sentinel Event Alert
A complimentary publication of The Joint Commission
Issue #9, August 6, 2013
Safe use of opioids in hospitals

- Focus on accidental opioid overdoses
- Database from 2004 – 2011 on opioid-related ADEs
 - 47% wrong dose
 - 29% improper patient monitoring
 - 11% others (e.g.drug interactions, excessive doses)

CONSIDER RISKS FOR RESPIRATORY DEPRESSION

- Sleep apnea
- Morbid obesity (BMI >30) with high risk of sleep apnea
- No recent opioid use
- Post-op; thoracic or upper abdominal
- Functional status
- Older age
- Longer length of time given anesthesia during surgery
- Receiving other sedating drugs: benzo's, antihistamines, sedative, CNS depressants
- Pre-existing cardiac or pulmonary dz; major organ failure
- Smoker

PATIENT-SPECIFIC RISK FACTORS

- 48 y.o. ♂
- Problem list: diverticulitis with multiple abdominal surgeries, recent colectomy with complications; arthritis, anxiety, pain
- BMI = 32.7
- + tobacco: 1 ppd (addressed in ID consult)
- + EtOH, h/o pancreatitis
- No documented respiratory, cardiac, renal or hepatic disease
- Combination of CNS depressant drugs

PHARMACOKINETIC EXAMPLE

Drug	Tmax	T 1/2
Oxycodone CR	2.5hrs	5-8hrs
Oxycodone IR	1.5hrs	4hrs
Lorazepam IV	15-20 min	12-14hrs
Hydromorphone IV	15 min	2.3hrs

RECOMMENDATIONS

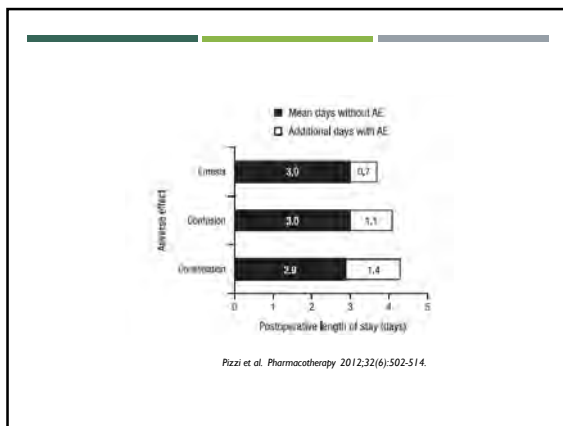
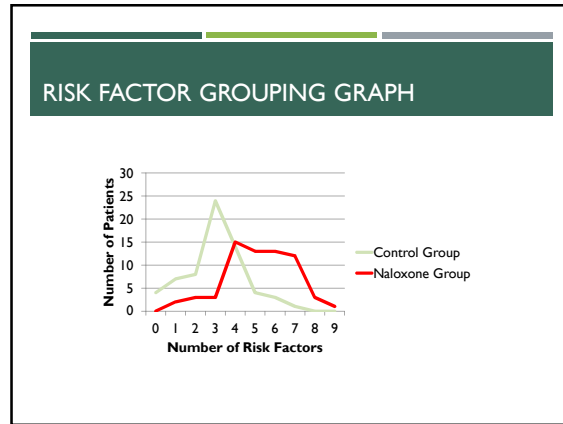
- Full body skin assessment
 - E.g. look for fentanyl or buprenorphine patch; incisions from implanted pumps
- Assess respirations
 - set frequency
 - Consider when dose changes or addition of more opioids
- High-risk opioids identified
 - Methadone
 - Fentanyl
 - IV hydromorphone
- Use technology to reduce system errors
 - SmartPumps
 - CPOE
 - PCA to reduce risk of oversedation

Predictors of naloxone use for respiratory depression and oversedation in hospitalized adults

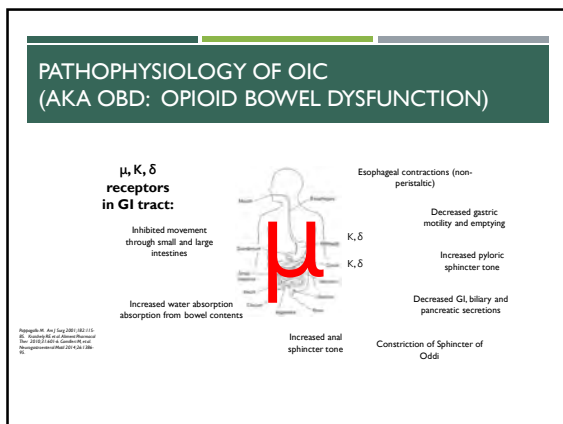
LIYING FAN, BERNARD STEVENS, BOGDAN TOCARIU, AND MICHELLE KELLEY
Am J Health Syst Pharm—Vol 71, May 1, 2014

Table 2.
Association Between Risk Factors and Treatment With Naloxone for Opioid-Associated Oversedation or Respiratory Depression*

Risk Factor	Odds Ratio (95% Confidence Interval)
Renal disease	6.034 (2.565–14.195)
Cardiac disease	3.829 (1.681–12.042)
Concurrent sedating medication	4.750 (1.949–11.578)
Smoking history	4.621 (2.114–9.245)
Respiratory disease	3.601 (1.742–7.441)
Hepatic disease	2.444 (0.798–7.656)
Age range, yr	
61–70	1.739 (0.791–3.821)
71–80	1.826 (0.688–5.119)
>80	1.227 (0.505–2.985)
BMI of ≥30 kg/m ²	1.132 (0.566–2.257)
Opioid naïve	0.317 (0.150–0.667)



- ### SCOPE OF OPIOID-INDUCED CONSTIPATION
- Estimated that almost half of patients who use strong opioids will report constipation
 - Risk factors include older patients, women, and longer durations of opioid use
 - Patients opt to decrease doses of opioids, skip doses, or stop using in order to avoid OIC.
 - QOL/patient satisfaction
 - Morphine commonly reported/transdermals & injectables less so
- Kuba E et al. Opioids in chronic noncancer pain: systematic review of efficacy and safety. *Pain*. 2004;112:172-81. Bell T et al. The prevalence, severity, and impact of opioid-induced bowel dysfunction: results of a US and European patient survey (PROSE). *J Pain Med*. 2009;10:10-14.



- ### CONSTIPATION DEFINITIONS
- | | |
|--|---|
| <p>Constipation</p> <ul style="list-style-type: none"> At least 2 of the following symptoms over 3 months: <ul style="list-style-type: none"> <3 BMs per week Straining Lumpy or hard stools Sensation of anorectal obstruction Sensation of incomplete defecation Present for at least 6 months | <p>Opioid-Induced Constipation</p> <ul style="list-style-type: none"> Opioid-treatment for at least one week <3 BMs per week Straining Sense of incomplete evacuation Harder stool |
|--|---|
- Carroll R, et al. Emerging treatment in emergency medicine: a multicenter working group consensus statement on opioid-induced constipation. *Neurogastroenterol Motil* 2014;26(3):336-45. Wilson LR. Opioid-induced constipation. *Pain Medicine* 2011;14:116-21.

MEASURES OF OIC

Bowel Function Diary

- Validated in a multicenter observational study of patients with chronic, non-cancer pain.
- 4 items that patients complete after each BM
- 5 items that patients complete each evening to capture symptoms within previous 24 hr
- Portion where patient indicates any tx's for constipation within previous 24 hr

Bowel Function Index (BFI)

- 3-item, clinician-administered assessment
- Data from 3 multi-center studies in patient with cancer and non-cancer pain
- Patients rate 3 areas:
 - their perception of ease of defecation
 - feeling of incomplete bowel emptying
 - personal judgment of constipation

Cassini et al. Am J Gastroenterol 2011;106:487-506. Ranz AM, et al. J Med Econ 2009;12:371-83.

Bowel Function Index (BFI)

Please complete all items in this assessment

1. Ease of defecation (BMS) during the last 7 days according to patient assessment

0 = daily / no difficulty
100 = severe difficulty

Ask the subject: "During the last 7 days, how would you rate your ease of defecation on a scale from 0 to 100, where 0 is easy or no difficulty and 100 is severe difficulty?"

If the subject requires clarification, ask: "During the last 7 days, how easy or difficult was it to have a bowel movement on a scale from 0 to 100, where 0 is easy or no difficulty and 100 is severe difficulty?"

2. Feeling of incomplete bowel evacuation (IBS) during the last 7 days according to patient assessment

0 = not at all
100 = very strong

Ask the subject: "During the last 7 days, how would you rate your feeling of incomplete bowel evacuation on a scale from 0 to 100, where 0 is no feeling of incomplete evacuation and 100 is a very strong feeling of incomplete evacuation?"

If the subject requires clarification, ask: "During the last 7 days, how strongly did you feel that you did not empty your bowels completely? Please include how strong your feeling was on a scale from 0 to 100, where 0 is not at all and 100 is very strong"








3. Personal judgement of bowel (BMS) regarding constipation during the last 7 days

0 = not at all
100 = very strong

Ask the subject: "During the last 7 days, how would you rate your constipation on a scale from 0 to 100, where 0 is not at all and 100 is very strong"

If the subject requires clarification, ask: "During the last 7 days, how would you rate how constipated you felt on a scale from 0 to 100, where 0 is not at all and 100 is very strong"

Ranz AM et al. J Med Econ 2009;12:371-83. Argiff et al. Pain Med 2015;16:2334-2337

Type.1		Separate hard lumps, like nuts (hard to pass)
Type.2		Sausage-shaped but lumpy
Type.3		Like a sausage with cracks on its surface
Type.4		Like a sausage, smooth and soft
Type.5		Soft blobs, clear cut edges (passed easily)
Type.6		Fluffy pieces, ragged edges, mushy stool
Type.7		Watery, no solid pieces. Entirely liquid

■ May be useful for advanced illness, cognitive impairment or other communication barriers.

Lewi S et al. Scand J Gastroenterol 1997 Sep;20(9):920-4

'OLDER' THERAPIES FOR OIC: LAXATIVES

Mechanism of Action	Drug	Typical Dose	Onset of Action
Stool Softener	Docusate sodium	100 mg PO daily	12 hr to 3 days
Osmotic agents	polyethylene glycol (Miralax)	17g pwdr: in 4-8 oz of beverage MgOH 400-800mg PO daily; Mg Citrate 195-300mL PO daily	1-4 days
	Magnesium salts	10-20g PO daily 1 supp PR daily PRN	0.5 – 6 hr
	Lactulose Glycerin suppository		1-2 days 15-30 min.
Stimulants	Bisacodyl	10-20mg PO daily; also PR	6-12 hr (PO); 20 min to 3 hr (PR)
Enema	Senna	17.2mg PO daily	6-12 hr
	Mineral oil Sodium phosphate	5-45 mL as single dose 4.5 oz as single dose	2-15 min 2-5 min

TARGETED DRUG THERAPIES

PAMORAS

"Peripherally-acting mu-opioid receptor antagonists"

Block opioid receptors in the GI tract → restore function of the enteric nervous system

PAMORAs currently available for Opioid-Induced Constipation:


- Methylnaltrexone (Relistor®)
- Naloxegol (Movantik™)
- Alvimopan (Entereg®) – only for in-hospital use

Other:

- Lubiprostone (Amitiza®)

METHYLNALTREXONE (RELISTOR®)

- Peripherally acting only (poorly crosses BBB)
- Dosing:
 - OIC with CNCP is 12 mg SC daily
 - OIC with advanced illness is weight-based, QOD PRN
 - 50% reduction for Clcr <30 ml/min.
- Ability to induce SBM ~50-60% in clinical trials of this drug
- Contraindicated if GI obstruction
- ↓ dose for patients on methadone
 - Experience increased sensitivity to ADRs of PAMORAs (abdominal pain, flatulence, nausea)




REVIEW OF METHYLNALTREXONE

- Siemens W. et al. 2016. *Ther Clin Risk Manag* 2016;12:401-12.
 - Meta-analysis of 7 studies (n=1860); Clinical trials with MNTX and placebo, one systematic review
 - MNTX showed more rescue-free BM within 4 hr after first dose vs placebo
 - Patient Reported Outcomes: generally more MNTX patients reported 'improvement' or satisfaction with treatment
 - Global Burden Measures: improvement in constipation-related QOL with MNTX
 - Higher incidence of abdominal pain with MNTX; nausea & diarrhea not significantly greater although trends seen

Siemens W. et al. 2016. *Ther Clin Risk Manag* 2016;12:401-12.

NALOXEGOL (MOVANTIK™)

- Derivative of naloxone
- Pegylated structure inhibits crossing of BBB
- Recommended dose is 25 mg PO daily; reduce to 12.5 mg if patient cannot tolerate ADRs (abdominal pain, diarrhea, nausea)
 - Start at 12.5 mg if Clcr <60 and increase if needed
- Cmax and AUC ↑ with high fat meals → recommend dosing on empty stomach
- 3A4 metabolism
 - Contraindicated with strong 3A4 inhibitors, grapefruit juice
 - Start at 12.5 mg dose if moderate 3A4 inhibitors




STUDIES OF NALOXEGOL

- Chey et al. 2014:** 2 Phase 3 controlled studies (12.5 mg, 25 mg, or placebo); 12 wk duration (KODIAK studies)
 - Evaluated mean change from baseline of SBMs
 - Significant ↑ of SBMs in naloxegol groups
 - 25 mg dose had better responses and faster time to first SBM
 - Patients also had significant improvements in sx such as straining
- Lawson et al. 2016:** Follow-up to KODIAK studies; 3 12-week studies of health state utility measures
 - Treatment with naloxegol improves patients' health state utility
 - Results driven mainly by relief of their constipation
- Webster et al. 2014:** Open label study of 25 mg vs. laxatives over 52 weeks evaluated safety and tolerability.
 - Frequency of ADRs in naloxegol 82% vs. 72% in laxative group, with abdominal pain, diarrhea, nausea, headache, flatulence more common in naloxegol group

Chey WD et al. *N Engl J Med* 2014;370:2387-2396. Lawson R et al. *Adv Ther* 2016 epub ahead of print. Webster L et al. *Aliment Pharmacol Ther* 2014;40:771-9.

LUBIPROSTONE (AMITIZA®)

- Activator or interstitial epithelial ClC-2 chloride channels → increase transport of fluid into intestine
- Dosing for OIC is 24 mcg PO BID; take with food
- Time to first BM after initial dose of lubiprostone averages ~2.7-~6.
- Studies in trials up to 9 months.
- Diphenylheptane opioids (i.e. methadone) decrease effectiveness of lubiprostone



LUBIPROSTONE, CON'T

- Decrease dose to 16mcg 1D in patients with moderate hepatic dysfunction (Child-Pugh class B), and 8 mcg BID in patients with severe dysfunction(Child-Pugh class C)
- Contraindicated if GI obstruction
- Dyspnea has been noted soon after dose; often resolves in a few hours
- Most common ADRs reported include nausea, diarrhea, and abdominal distention.

STUDIES OF LUBIPROSTONE

- Cryer et al. 2014:**
 - Randomized, double-blind, placebo-controlled
 - n=418, CNCP with OIC
 - Lubiprostone 24mcg PO BID vs placebo for 12 wks
 - Lubiprostone significantly better at improving SBMs (3.3 vs. 2.4 per week, p=0.005)
 - More pts had first SBM within 24 hrs in lubiprostone group (p=0.018)
 - Lubiprostone group reported more improvement in symptoms of straining, discomfort, stool consistency, and constipation severity
- Jamal et al. 2015:**
 - Randomized, double-blind placebo-controlled
 - N=432; CNCP with OIC
 - Lubiprostone 24 mcg PO BID vs placebo for 12 weeks
 - Lubiprostone significantly better at improving SBMs (3.2 vs 2.4, p=0.001)
 - Time to first SBM significantly shorter with lubiprostone (23.5 hr vs. 37.7 hr, p=0.004)
 - Improvements in straining, stool consistency, constipation severity
 - No change in QOL or use of rescue meds

Cryer et al. Pain Med 2014;15:1825-1834 Jamal MM et al. Am J Gastroenterol 2015;110(5):725-732

CLINICAL PEARLS

- Patients using PAMORAs often still need to use laxatives
 - Generally, stop pre-existing laxatives, resume if OIC persists 3 days after PAMORA tried
- Targeted therapies are considered second-line agents after laxatives, lifestyle changes (incr. fluid intake, dietary fiber, exercise), or opioid rotation

GUIDELINES FOR OIC MANAGEMENT

- Pain Guidelines....
- Camilleri M et al.** Emerging treatments in neurogastroenterology: a multidisciplinary working group consensus statement on opioid-induced constipation. Neurogastroenterol Motil 2014;26:1386-1395.
 - Definition & diagnosis of OIC
 - Assessment tools
 - Treatment approaches including laxatives & targeted drug therapy
- Argoff et al.** Consensus Recommendations on Initiating Prescription Therapies for Opioid-Induced Constipation. Pain Med 2015; 16:2324-2337.
 - Best methods to assess OIC
 - Bowel Function Index
 - Create threshold for consideration of targeted therapy for OIC

CONSENSUS STATEMENT ON WHEN TO USE PRESCRIPTION OIC TREATMENTS

Argoff et al. Pain Med 2015;16:2334-2337.

CLINICAL PEARLS, ETC.

- Consider a prescription treatment if BFI score ≥ 30 .
- Long-term effects are still under investigation
- Consider drug interactions that require dosage adjustments or avoidance of use

WHAT ABOUT THOSE PATIENTS WHO ARE ON METHADONE OR SUBOXONE???

METHADONE

- Used for pain in late 1940's
- Mainly used in opioid addiction treatment in 1960's
 - Suppresses cravings, withdrawal symptoms, and euphoric effects for 24-36 hrs
- Increasing use as analgesic since late 1990's
 - Some advantages as an analgesic
 - Cause for concern?

METHADONE, CON'T

- R-methadone = μ opioid agonist
- S-methadone = NMDA receptor antagonist; blocks reuptake of 5-HT & NE
- Long elimination $t_{1/2}$
- Toxicity seen days after dose
- Potential for QTc prolongation
 - Greatest with higher doses (ex. >100-120 mg)
 - Caution with antipsychotics & TCAs
- Metabolized by P450 3A4, 2B6, 2D6

METHADONE DRUG INTERACTIONS

<p>↑ Methadone Levels</p> <ul style="list-style-type: none"> Quinolones Macrolides Azole antifungals SSRIs Ritonavir 	<p>↓ Methadone Levels</p> <ul style="list-style-type: none"> Rifampin CBZ Phenytoin Efavirenz, Nelfinavir, Amprenavir, Darunavir
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BUPRENORPHINE

- Indications: Substance Abuse
 - SL tablets
 - Transmucosal film (buccal & sublingual)
 - Subdermal implant
- Moderate or Severe Pain
 - Transdermal patch
 - Buccal film
 - Parenteral
- Phenanthrene derivative; Partial μ agonist; κ antagonist
- High affinity and binding capacity for opioid receptors
 - Buprenorphine slowly dissociates from receptors
- Ceiling effect; high protein binding

MU OPIOID RECEPTOR SATURATION

Buprenorphine strength (SL tablets)	Receptor saturation
2 mg	~ 40-50%
16 mg	~ 80% or more
32 mg	~ 84 % or more

Still have space for receptors

SURGICAL PATIENTS

IV NSAIDS Regional Nerve Blocks Gabapentinoids

SNRIs Adjuvant Medications Sedatives

IV Acetaminophen Ketamine Muscle Relaxants

SURGERY: BUPRENORPHINE

<p>Elective</p> <ul style="list-style-type: none"> ■ Mild (Minor Surgery) – Use Adjuvants ■ Moderate to Severe – taper 2-4 weeks prior to surgery* ■ If buprenorphine was for pain, can supplement with short-acting pure opioid agonists <ul style="list-style-type: none"> ■ Careful for toxicity from non-opioid components; illicit use ■ Use in-patient pain protocols ■ When post-op pain resolves, restart buprenorphine; titrate if high dose 	<p>Emergent (Tends to be moderate or severe)</p> <ol style="list-style-type: none"> 1. Maximize adjuvants 2. High doses of short-acting opioids (while continuing buprenorphine) <ul style="list-style-type: none"> ■ Consider lipophilicity ■ If buprenorphine is discontinued, extra cautionary steps are required
---	--

* High relapse potential

ACUTE PAIN + METHADONE OR SUBOXONE:

<p><u>Option 1:</u></p> <p>Hold Suboxone/ Methadone;</p> <p>Use other opioids to manage acute pain</p>	<p><u>Option 2:</u></p> <p>Continue same dose Suboxone/ Methadone;</p> <p>Use other opioids to manage acute pain</p>	<p><u>Option 3:</u></p> <p>Continue Suboxone/ Methadone;</p> <p>Use higher dosing: change once daily dosing to q 6-8 hours</p>
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WHAT YOU MAY SEE FOR PATIENTS WITH SUBSTANCE ABUSE HISTORY...

- Long-acting meds used frequently
- If short-acting used, specific times may be given
 - Ex: "1 tab at ____ PM" rather than "TID PRN"
- Different methods of dosing... refer to suboxone and methadone info
- Use of WHO Analgesic Ladder
 - Considering adjuvants and non-opioids carefully
- Multimodal drug therapy


QUESTIONS??

THANK YOU!

Managing Chronic Pain: A Cognitive Behavioral Therapy Approach

John D. Otis, Ph.D.
Associate Professor


Center for Anxiety and Related Disorders at
Boston University



Today's Agenda

- ◆ An Historical Look at Pain Management
- ◆ The Problem of Chronic Pain
- ◆ CBT for Pain
- ◆ Case Review
- ◆ Research: Pain and PTSD

An Historical Look at Pain Management



Early humans related pain to evil, magic, and demons. Relief of pain was the responsibility of sorcerers, shamans, priests, and priestesses, who used herbs, rites, and ceremonies as their treatments.

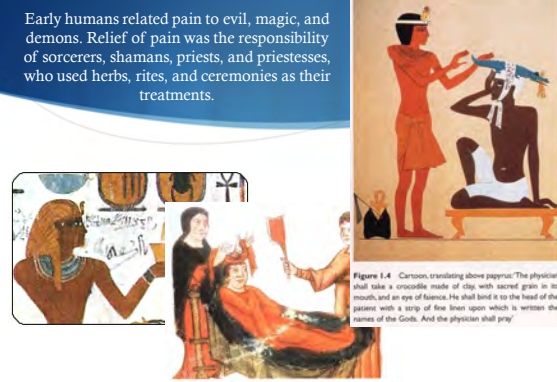



Figure 1.4 Cartoon, translating above papyrus: "The physician shall take a crocodile made of clay, with sacred grain in its mouth, and in eye of banana. He shall bind it on the head of the patient with a strip of fine linen upon which is written the names of the Gods. And the physician shall pray."


Figure 1.18 Ancient relief with a snake (c. 1800 BC). The snake of the house has regains (the head) means a symbol of power of living with snakes (the snake head) from the head are equal evidence in person's mouth, and another is looking the mouth's face.

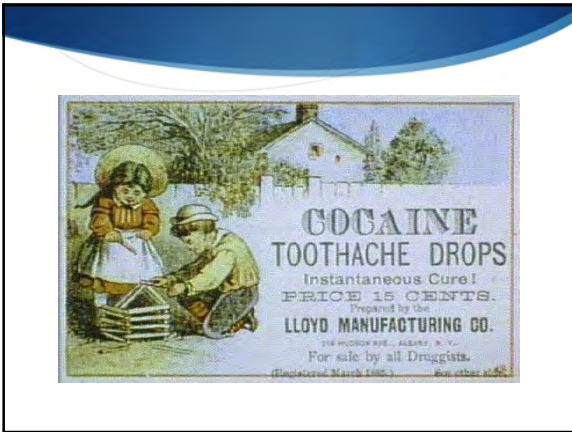
Early 19th Century Pain Relief

- ◆ Most pain relievers were made from plants and could be deadly when taken in overdose. One of the most commonly used substances was opium derived from the poppy flower. Other substances used included alcohol or wine, mandrake, belladonna, and marijuana.



Potions that included these substances were commonly available around the turn of the century and promised to cure a variety of afflictions.

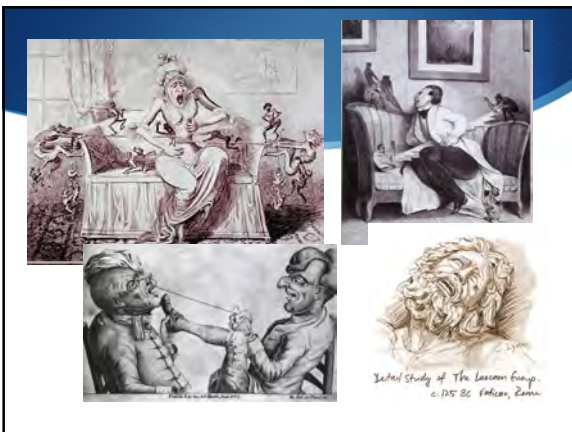




- Touted as a cure for Rheumatism, Sprains, Bruises, Lame Back, Frost Bites, Diarrhea, Burns and Scalds.
- Contents = 50%-70% alcohol, camphor, ammonia, chloroform, saffrafras, cloves, and turpentine.
- Wizard Oil could also be used on horses and cattle.

Coca-Cola was originally sold as a medicine. It contained stimulating extracts from coca leaves and kola nuts. It was available in carbonated form at the pharmacy and as a concentrated syrup. From 1886 until 1903 the formula for Coca-Cola included approximately 9 milligrams of cocaine per serving.

Mrs. Winslow's Soothing Syrup was an indispensable aid to mothers and child-care workers. Containing 65 mg of morphine per fluid ounce, it effectively quieted restless infants and small children.



What is the true impact of PAIN?



What is Chronic Pain?

How do patients experience it?

What is Chronic Pain?

- ◆ Pain is defined as an unpleasant sensory and emotional experience associated with actual or potential tissue damage, or described in terms of such damage (IASP, 1994).
- ◆ Chronic pain = Pain with a duration of 3 months or greater that is often associated with functional, psychological and social problems that can negatively impact a persons life.



Costs of Pain

- ◆ The annual costs of pain have been estimated to be between \$560-\$635 billion
- ◆ Pain effects more Americans that diabetes, heart disease and cancer combined (100 million Americans)
- ◆ When asked about four common types of pain, respondents of a NIH survey indicated that low back pain was the most common (27%), followed by severe headache or migraine pain (15%), neck pain (15%) and facial pain (4%).
- ◆ Back pain is the leading cause of disability in Americans under 45 years old. More than 26 million Americans between the ages of 20-64 experience frequent back pain.

Darrell J. Gaskin, Patrick Richard. The Economic Costs of Pain in the United States. The Journal of Pain, 2012; 13 (8): 715 DOI: [10.1016/j.jpain.2012.03.009](https://doi.org/10.1016/j.jpain.2012.03.009)

Prevalence of Chronic Pain in Veterans

- ◆ Pain is one of the most common complaints made by patients to primary care providers in the VA healthcare system (approximately 50% of patients).

Kerns, R. D., Otis, J. D., Rosenberg, R., & Reid C. (2003). Veterans' concerns about pain and their associations with ratings of health, health risk behaviors, affective distress, and use of the healthcare system. *Journal of Rehabilitation, Research and Development*, 40(5), 371-380. (PMID: 15080222)

The Problem of Pain

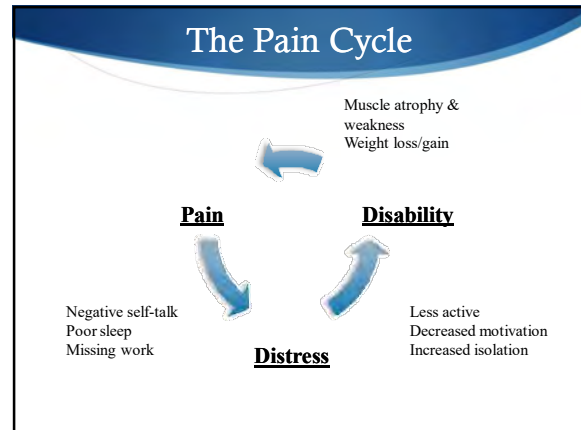
- ◆ Pain is typically an adaptive reaction to an injury and gradually decreases over time with conservative treatment.
- ◆ However, for some people pain persists past the point where it is considered adaptive and contributes to ...
 - ◆ Negative Mood (depression)
 - ◆ Disability
 - ◆ Increased use of healthcare system resources.

The Role of Thoughts and Emotions

Henry Knowles Beecher: WWII Soldiers & Pain

- Observed that soldiers with serious wounds complained of less pain than did his postoperative patients at Massachusetts General Hospital.

Hypothesis: => The soldier's pain was alleviated by his survival of combat and the knowledge that he could now spend weeks or months in safety and relative comfort while he recovered. The hospital patient, however, had been removed from his home environment and now faced an extended period of illness and the fear of possible complications.



The Challenge of Pain

- Over time, negative thoughts and beliefs about pain, and behaviors related to pain can become very resistant to change.

Thoughts	Behaviors
<ul style="list-style-type: none"> My body has failed me This is never going to end I'm worthless I'm disabled My military career is ruined I'm a bad parent, spouse, and provider 	<ul style="list-style-type: none"> Staying in bed all day Sleeping all day Staying away from friends Decreasing activities that have the potential to increase pain Taking more medication than prescribed

Evidence-based CBT for Chronic Pain

- CBT has been found to be effective for a number of chronic pain conditions, including headache, rheumatic diseases, chronic pain syndrome, chronic low-back pain, and irritable bowel syndrome.
- Significant evidence base supporting the use of CBT for chronic pain management
 - Hoffman, Papas, Chatkoff, & Kerns, (2007)
 - Otis, Sanderson, Hardway, Pincus, Tun, & Soumekh (2013)
 - Buhrman, Syk, Burvall, Hartig, Gordh, & Anderson (2014)

CBT for Chronic Pain

- Basic components of CBT for pain include:
 - Encourage increasing activity by setting goals.
 - Identify and challenge inaccurate beliefs about pain
 - Teach cognitive and behavioral coping skills (e.g., relaxation, restructuring negative thoughts, activity pacing)
 - Practice and consolidation of coping skills and reinforcement of their appropriate use

Managing Chronic Pain

Session 1	Education & Treatment Rationale
Session 2	Theories of Pain, Breathing
Session 3	Relaxation Training
Session 4	Cognitive Errors
Session 5	Cognitive Restructuring
Session 6	Stress Management
Session 7	Time-Based Activity Pacing
Session 8	Pleasant Activity Scheduling
Session 9	Anger Management
Session 10	Sleep Hygiene
Session 11	Relapse Prevention

Otis, J. D., (2007). *Managing Chronic Pain: A Cognitive-Behavioral Therapy Approach*, Therapist Guide. Treatments that Work Series, Oxford University Press, NY.

Children and Pain

- ◆ Children's pain is more plastic than that of adults, such that psychosocial factors may exert an even more powerful influence (McGrath & Hillier, 2002).
- ◆ Parents' response to children's expression of pain can either further exacerbate or reduce the child's perception or expression of pain.
- ◆ The ultimate goal of cognitive-behavioral strategies is to help children have concrete tools to cope with their experience of pain so that developmentally appropriate activities can resume.

Children and Pain

Techniques:

- ◆ Distraction techniques (such as counting) during painful medical procedures, or thinking about a favorite holiday.
- ◆ Relaxation techniques are helpful for coping with painful procedures.
- ◆ Cognitive coping - Children have found it helpful to "throw away" negative thoughts and instead use positive coping thoughts such as "I can cope with anything that comes my way; I am very strong and brave."

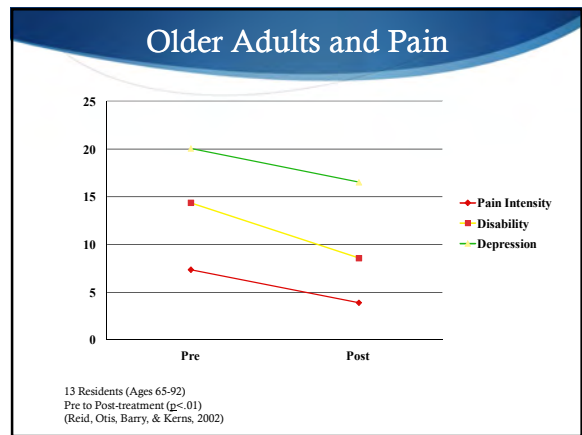
Older Adults and Pain

Beliefs and expectations about pain

- ◆ Pain is an expected part of growing older (e.g., losing a tooth or hair)

Previous experience with pain

- ◆ A history of successfully coping with a pain problem (e.g., older adults and knee surgery)



Overview of CBT for Chronic Pain

Overcoming Obstacles to Engagement

- "My pain is in my back, not in my head"
- "You all think I'm crazy"
- "No one thinks my pain is real"
- "I tried this before"
- "This is not going to work for me"
- "I haven't got time for this"
- "If my provider would give me the medications I want I would be fine"

Critical Element of Treatment

Present Convincing Treatment Rationale

Treatment only works if patients are engaged. Your patients will drop out if they don't think you have something to offer them.

- ◆ Address their concerns and use MI to help the patient arrive at their own decision to try CBT
- ◆ Read key articles and chapters related to pain management but deliver content in your own words

Critical Element of Treatment

Relaxation Training: Breathing

Learning to breathe correctly is one of the easiest methods of learning how to relax and help reduce pain.

- ◆ Why begin with breathing?
 - ◆ It is a concrete skill
 - ◆ Easy to learn
 - ◆ Lasting benefits
 - ◆ Early success with this skill sets the patient up for success on future goals.
- ◆ Other Techniques? PMR, Imagery, Yoga, Meditation, Tai Chi

Critical Element of Treatment

Challenge Negative Thinking

Goals:

- ◆ Recognize cognitive errors and maladaptive thoughts, challenge those thoughts, and substitute more adaptive ones.
- ◆ Create a more balanced way of thinking in order to reduce negative emotions that contribute to the experience of pain.

Tips:

- ◆ Not all thoughts are accurate
- ◆ You can control the way you think

Identify Cognitive Errors

- ◆ Start by stating that we all do these to some extent, but its important to be aware if there are some that we do more than others.
- ◆ Review these one at a time with the patient.
- ◆ You can take turns reading them or ask the patient to read them aloud.
- ◆ Check off ones that apply

1. *After-making thinking:* When you see things in all-or-nothing categories. For example, if your performance falls short of perfect, you see yourself as a total failure.
2. *Overgeneralization:* When you see a single negative event as a never-ending pattern. For example, if you do not do well at one thing, you think you are not good at anything.
3. *Mental filter:* When you pick out a single negative detail and dwell on it exclusively, so that your vision of all reality becomes darkened. A good metaphor is a drop of ink that discolors the entire glass of water.
4. *Discounting the positive:* When you reject positive experiences by insisting they "don't count" for some reason or another. In this way, you can maintain a negative belief that is contradicted by your everyday experiences.
5. *Jumping to conclusions:* When you make a negative interpretation of an event even though there are no definite facts that convincingly support your conclusion.
 - a. *Mind reading:* When you arbitrarily conclude that people are reacting negatively to you, and you do not bother to consider other possible explanations for their behavior (e.g., they are tired, they had a tough day).
 - b. *The fortune-teller error:* When you anticipate that things will turn out badly, and you feel convinced that your prediction is an already established fact. This predictive error can then affect your behavior, making it a self-fulfilling prophecy.
6. *Remembering the worse:* When you distort information in a way that no longer allows you to view the situation realistically.
 - a. *Magnification:* When you exaggerate the importance of things (such as your good-up, or someone else's achievement).
 - b. *Minimization:* When you inappropriately diminish things (such as your own positive qualities or someone else's imperfections) until they appear tiny.
7. *Conspicorithing:* When you predict extreme and horrible consequences to the outcomes of events. For example, a harddown for

Restructure Thoughts

Common negative/maladaptive thoughts

- ◆ I can't deal with my pain
- ◆ My pain is going to kill me
- ◆ I'm worthless to my family
- ◆ I cant do anything because of my pain
- ◆ People think I'm lazy
- ◆ I have nothing to offer anyone
- ◆ I'm a bad father/mother

Situation	Emotion	Automatic Thought	Evidence for	Evidence against	Positive Coping Thought	Emotion
Describe the event that led to the unpleasant emotion.	Specify sad, angry, etc., and rate the emotion from 0% to 100%.	Write the automatic thought that preceded the emotion.	What is the evidence that this thought is true?	What is the evidence that this thought is false?	What else can I say to myself instead of the automatic thought?	Re-rate the emotion from 0% to 100%.
A pain flare-up on a busy day	Depressed 60% Frustrated 50%	I can't cope with my pain, my life is miserable.	There is too much going on today. I feel overwhelmed and I'm not getting my work done.	I have had busy days before when I've been in pain and I was able to handle my pain and all my responsibilities well. I'm usually very productive. My life isn't all bad (I have a great family).	Not every day is this hectic and some days are good. I have made it through very hectic days before and I can do it again.	Depressed 25% Frustrated 50%

Note that while one of the thoughts is pain-specific, the patient has also brought in an automatic thought about life in general being miserable. With this cognitive error, he discounts the positive aspects of his life.

What's Wrong with These Messages?

Time-based Pacing

- ◆ Activity breaks are based on time intervals, not on how much of the job is completed
- ◆ Ideal for the patient who tends to over-do it
 - ◆ The weekend warrior
 - ◆ "This is the way I was trained"
- ◆ The Professional Athlete example.
 - ◆ How do they perform at their best?

CVT Pain Management

Case Vignette

Case Example

Consult: Mr. Smith

- ◆ 34 year old MWM, height 5'8; weight 270 lbs
- ◆ 50% service connected for chronic low back pain
- ◆ Pain score 7/10, BDI = 27, re-injured back 10 months ago on construction site
- ◆ Tends to over do it
- ◆ Spouse is highly involved in his care – does many things for him (always makes him lunch, neck rubs)
- ◆ Has not responded to efforts by the PCP to encourage increased activity

Primary complaints:

- ◆ Pt. reports feeling depressed, can't cope with pain, tends to ruminate about his pain, watches TV and plays "Call of Duty – Black Ops" all day

Assessment Questions to Consider...

- ◆ What questions would you want to ask this patient?

Questions

- ◆ Describe Pain
- ◆ Surgery pending?
- ◆ Current medications & where prescribed
- ◆ Is he taking her medications appropriately?
- ◆ Litigation pending?
- ◆ What are his goals?
- ◆ How is his mood? Psychological history?
- ◆ Trauma Exposure
- ◆ Substance abuse - now or in past?
- ◆ What kinds of coping skills does he have?
- ◆ How does his spouse react when he is in pain?
- ◆ What are his beliefs about his pain?
- ◆ Did he like her job?
- ◆ What are his hobbies?
- ◆ Observe pain behaviors

Treatment Interventions...

- ◆ What areas would you target for treatment?



CBT for Mr. Smith



- ◆ Cognitive restructuring to address depression and catastrophic thinking
 - ◆ I'm a carpenter – I cant work – what good am I?
 - ◆ Challenge beliefs that he is disabled
- ◆ Weekly behavioral goals to get him moving
- ◆ Weight Management
- ◆ Time-based Pacing
- ◆ Work with spouse to identify ways she can encourage activity but not reinforce pain behaviors
 - ◆ Let him fix lunch and do jobs around the house

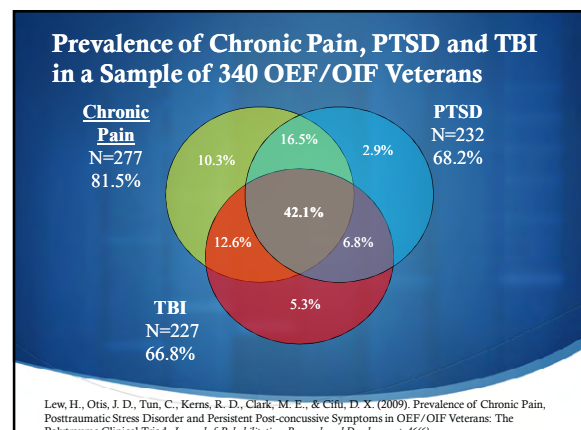
Research

Department of Veterans Affairs
Jamaica Plain Campus

Chronic Pain, PTSD, and TBI in OEF/OIF Veterans

- ◆ Medical record review of 340 OEF/OIF Veterans referred to the VA Polytrauma Network Site (PNS) at VA Boston following a positive TBI screen.
- ◆ Data were based on the second level TBI clinical evaluation by the Psychiatrist of the PNS.



Co-Morbidity: Pain and Trauma

- ◆ Pain can result from a number of sources including occupational injuries, motor vehicle accidents, or injury related to military combat.
- ◆ This has led to a growing interest in the interaction between pain and PTSD, as research and clinical practice indicate that they frequently co-occur and can interact in such a way to negatively impact the course of treatment for either disorder.

Pain and PTSD Co-morbidity

- ◆ PTSD Samples:
 - ◆ The prevalence of a chronic pain condition in individuals diagnosed with PTSD is 66% and 80% (Beckham et al., 1997; Jakupcak, Osborne, Michael, Cook, Albrizio, & McFall, 2006; Shipherd et al., 2007).
- ◆ Pain Samples:
 - ◆ The prevalence of PTSD in civilians with chronic pain is 34% to 50% (Geisser et al., 1996; Asmundson, et al., 1998)

Clinical Presentation

- ◆ “When ever I’m laying in bed at night and my shoulder starts hurting, I start having thoughts of when I was shot.”
- ◆ “When I think about the day our Humvee was hit I can feel the pain in my back flare up right where I was hurt.”
- ◆ “Pain is like a barnacle on my hull – it keeps reminding me of what I went through.”
- ◆ “I tried my PT exercises but the pain started increasing and I started thinking about what I saw and heard in Iraq so I just said the heck with it and called it quits for the day.”

Clinical Presentation

- ◆ For one veteran, pain was the “price” or a “penance” he paid for surviving while some friends did not.
- ◆ Another veteran reported he was experiencing pain for a reason, so that he would never “forget.”
- ◆ Other veterans reported using pain and PTSD symptoms as a distraction. For example, one veteran reported that he would intentionally bring on pain by physically over-exerting himself to take his mind away from his trauma.
- ◆ Another veteran reported that he would intentionally expose himself to trauma-related cues that would elicit anger in order to feel “alive” and forget his pain.

Pilot Study: Intensive Treatment of Pain and PTSD for OEF/OIF Veterans

John D. Otis, Ph.D. and Terence M. Keane Ph.D.
funded by VA RR&D

- ◆ Purpose: Develop and Pilot an Intensive (3-week 6-session) integrated Pain and PTSD treatment program specifically for OEF/OIF Veterans
- ◆ Advantages of this approach:
 - ◆ More time efficient = more acceptable to veterans
 - ◆ Less costly to administer
 - ◆ Quicker re-establishment of adaptive functioning (military or civilian)

Intensive Treatment for Pain and PTSD

- ◆ Participants:
 - ◆ 8 veterans with comorbid chronic pain and PTSD were recruited for participation in this pilot study.
- ◆ Assessment:
 - ◆ Participants were assessed by an independent evaluator at pre and post treatment. (e.g., Pain, PTSD, Distress).

Treatment Development

- ◆ Session content and sequence
 - ◆ Therapist feedback
 - ◆ Patient feedback
- ◆ Deciding on the number of sessions
- ◆ The timing of sessions
 - ◆ Building momentum
 - ◆ Behavioral goals
- ◆ Pilot testing

Intensive Treatment Outline

- ◆ Session 1 Making The Connection Between Pain and PTSD
- ◆ Session 2 Cognitive Restructuring
- ◆ Session 3 Focused Cognitive Restructuring
 - Anger Management
 - Power/Control
 - Trust/Safety
- ◆ Session 4 Sleep and Relaxation Training
- ◆ Session 5 Activity Pacing and Pleasant Activities
- ◆ Session 6 Social Support and Integrating Skills into Everyday Life

Results

Paired Comparison t-tests on Mean Pre to Post-treatment Outcome Measure Scores

Outcome Measure	Pre-treatment	Post-treatment	Sig (2 tailed)
Pain Numerical Rating Scale	30.57	25.85	.09
Beck Depression Inventory	23.14	16.28	.04
Clinician Administered Assessment of PTSD (CAPS)	72.13	59.13	.03
Anxiety Sensitivity Index	35.50	24.80	.18
Pain Catastrophizing Scale	30.14	18.86	.05



Results: Qualitative data obtained from Perception of Treatment Questionnaire

- ◆ "This has been great, you have given me some tools that I can really use"
- ◆ "I'm doing things I haven't done in a long time, I needed this."
- ◆ "Dr. Otis and his staff have a great project going. It helped me to sort things out and manage my pain and PTSD."
- ◆ "It probably should be made required for ALL Vets returning from combat/overseas situations, as a 'down-time' adjusting period."

Additional Information

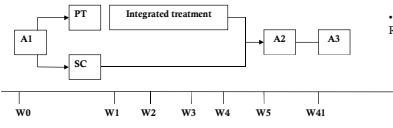
- ◆ Total Time to conduct pilot study = 3 months
- ◆ Treatment often took place after "normal" working hours
- ◆ There were no treatment dropouts
- ◆ If found to be effective, this treatment could be a "first step" to engaging OEF/OIF/OND veterans in programs to help them maintain the skills they have learned, or strengthen their skills to effectively cope with pain and PTSD.

Current Research

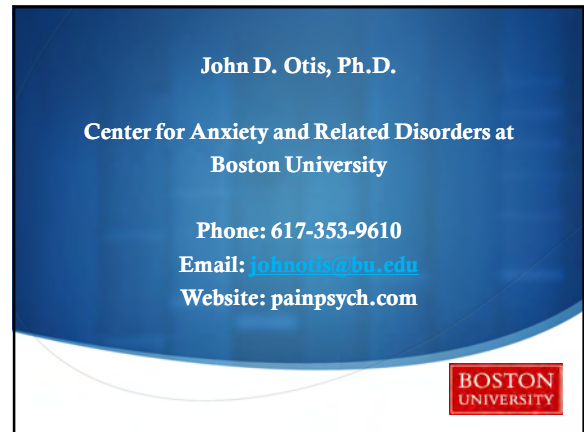
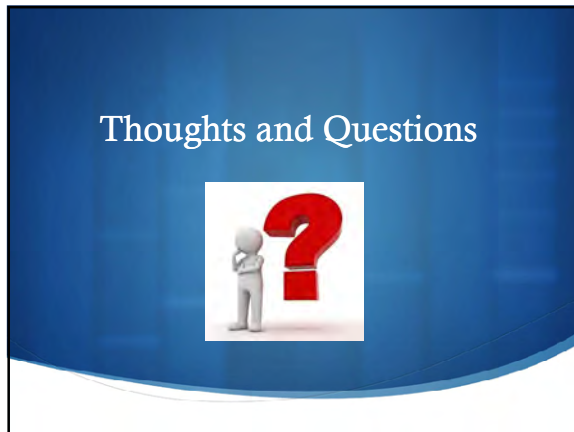



◆ A VA Merit Review Grant for the Intensive Treatment of Chronic Pain and PTSD for OEF/OIF Veterans was funded by VA Rehabilitation Research and Development.

- Study N = 102
- Multisite Recruitment



A1—pretreatment assessment; A2—post-treatment assessment; A3=6 month follow-up; W=study week; W1-W4=weekly assessments of mechanisms of action.



Managing Pain from the Inside Out

Anne E Lynch, APRN-BC, FNP
Certified Benson-Henry Institute Facilitator

Managing Pain from the Inside Out

- Disclosures: no financial, professional or personal relationships

Managing Pain from the Inside Out

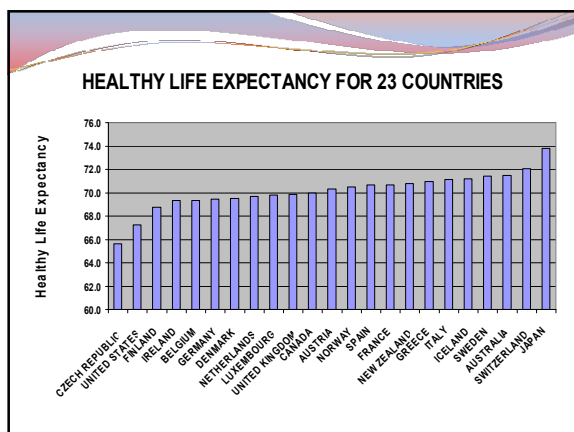
Objectives:

Participants will be able to:

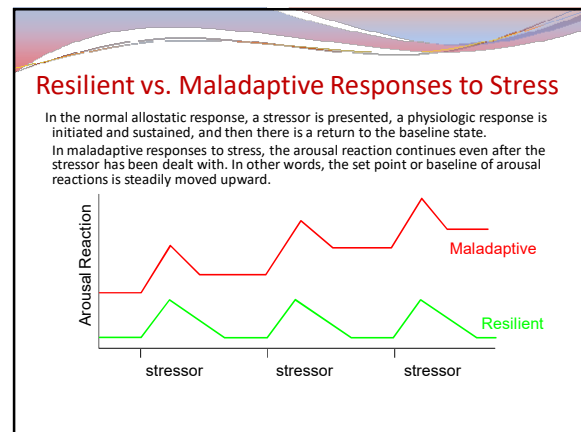
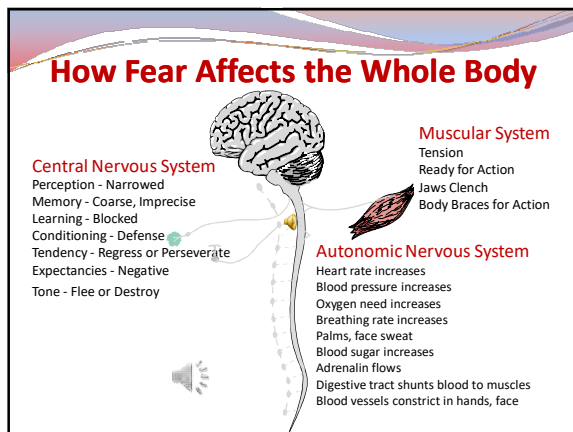
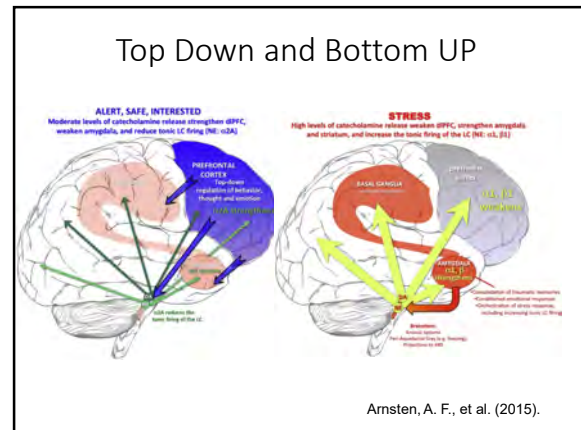
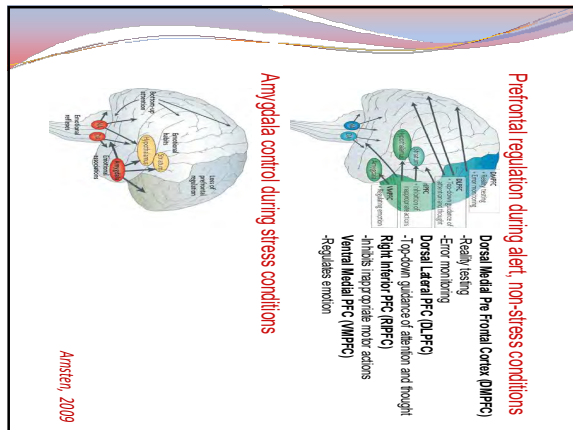
- Define allostasis
- Articulate the effect of chronic stress on the mind and body
- Demonstrate at least one strategy that can be used to reduce allostatic load

Health is like a Three-Legged Stool

Pharmaceuticals Surgery Self-care



I Might Be Stressed



Acute Stress Vs Chronic Stress

<p>Acute Stress</p> <ul style="list-style-type: none"> • produces the General Adaptation Response • saves our lives • is a survival mechanism 	<p>Chronic Stress</p> <ul style="list-style-type: none"> • produces pathological changes • produces or exacerbates life-style diseases • can lead to death
---	--

Allostasis and Resilience

- ▶ The process by which the body responds to stressors in order to regain homeostasis
- ▶ Stress promotes adaptation, e.g. "Maintaining stability ('homeostasis') through change"
- ▶ Capacity to adapt (constantly change) by modifying physiological parameters in order to adjust to ever-shifting environment
- ▶ Resilience is the ability to achieve a successful outcome in the face of adversity.

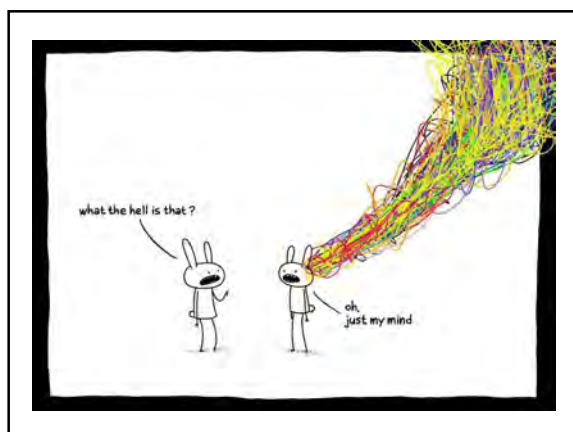
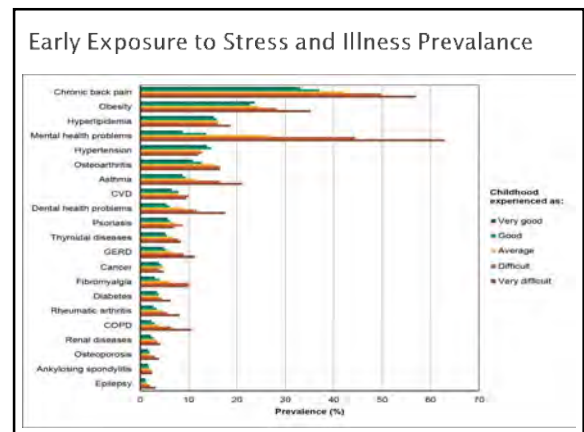
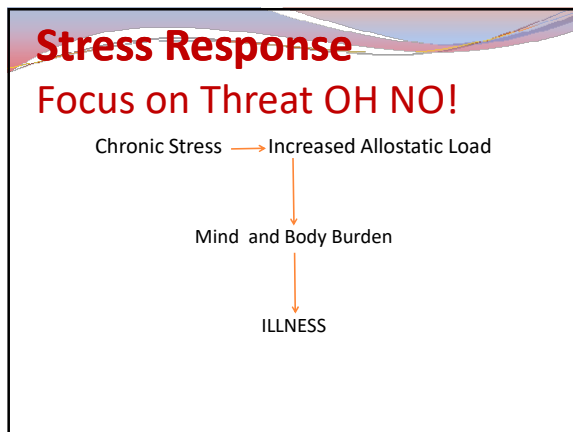
By National Scientific Council of the Developing Child

Stress and Allostasis

- Every challenge to the organism is a stressor
- Every stressor produces stress; some stress is eustress and some stress is distress
- Every stress triggers the process of allostasis
- Too little or too much stress works against resilience

Stress Response
Focus on Threat OH NO!

- Visual + auditory reaction approximately 1/15th of second
- Negative Conditioning
- Unconscious and Conscious
- Negative Beliefs and Emotions
- Mind – Body Interactions



BREATHE

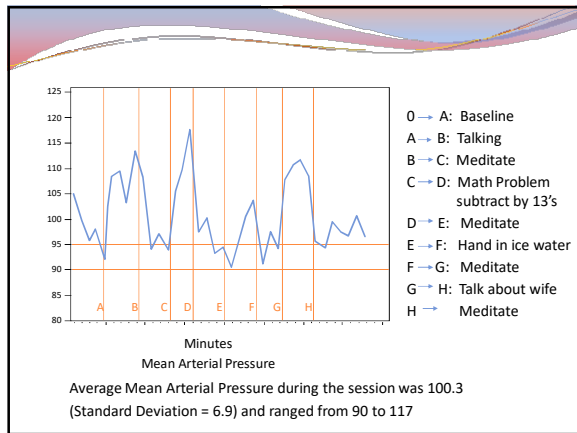
Relaxation Response

Focused, Receptive Awareness
OH WELL

Relaxation Response

Focused, Receptive Awareness
OH WELL

- Shift awareness
- Positive conditioning
- Unconscious and conscious
- Reward and motivation
- Move towards desire
- Allostasis: restores mind & body balance in support of resilience
- Feels good to be alive



The Relaxation Response

- Powerful enough to ↓HR, BP, RR, and O₂ Consumption/ Metabolic Rate
- Cell mitochondria takes a break/Oxidative stress ↓
- Up regulates genes of anti-oxidizing mechanisms
- Reduces limbic system arousal
- Synchronization of alpha and theta waves on EEG correlate with relaxed wakeful awareness
- Brain fMRI studies show involvement of neural structures involved with attention and arousal, and autonomic control

Neurogenesis and Dendritic Remodeling

All thoughts, behaviors, experiences, and emotions create a physical biological reality within the brain

- New cells born all the time in certain regions of brain
- Cells that fire together, wire together, and even die together
- Dendritic remodeling by GC, i.e., shorter length and less branching
- Early childhood nurturance ↑Cort receptors in hippocampus and as adults more resistive to stress

The Relaxation Response


- Heart rate slows
- Blood Pressure lowers
- Immune system improves
- Sense of well-being increases
- Less emotionally reactive
- Sleep improves
- Digestion improves

Relaxation Response

20 minutes a day !

Mindfulness Meditation and Telomerase

Telomerase activity is a predictor of long-term cellular viability



- 3-month meditation retreat
- Stress: Perceived Control (a/w decreased stress)
Neuroticism (a/w increased subjective distress)
- Mindfulness and Purpose in Life (concentration meditation and benevolent states of mind)
- N=30 meditated for approximately 6 h daily; N=30 wait list
- PMN (peripheral blood) for telomerase activity, post retreat
- Telomerase higher in meditators
- ↑ Perceived Control, ↑ Purpose in Life and ↓ Negative Affectivity contributed to an increase in telomerase activity

Jacobs, 2011

Mindfulness Conditioning vs. Awareness

If you don't know where your mind is, chances are it's up to no good.

The Power of Imagery

What you see is what you get

- Influences abilities and behaviors
- Sets expectations and mindsets
- Seeing = imagining to the brain
- Influence: intensity, direction, and duration

Happy & Unhappy People

Live in different subjective worlds

- Happy: motivated by reward (top down)
- Unhappy: motivated by punishment or fear (bottom up)

Characteristics of Happy People

- Appreciate themselves, others and the world at large
- Live in satisfaction and more often in the moment
- Don't compare themselves to others
- Reappraise negative situations from positive perspective
- Don't let negative circumstances define them
- Less reactive and less regretful
- Have same frequency of negative experiences as others
 - > Intensity & frequency of positive experience primarily from social relations
- Focus more on the quality and quantity of happy memories
- Positive expectations; they expect good things

Feelings Underlying Beliefs

Anger	Unfair
Anxiety	Not Safe/Not in control
Shame	You've done something wrong or you are wrong
Sadness	Loss
Guilt	Actions inconsistent from moral principles
Loneliness	Alone, and shouldn't be
Frustration	Unmet expectation
Inferiority	Compare yourself to others and fail to measure up
Jealousy	Wanting what another has

Without losing belief in an afflictive emotion, it cannot be abandoned.

Dharmakirti, Indian Buddhist Philosopher

- Nothing erases unpleasant thoughts more effectively than concentration on pleasant ones.

Hans Selye

Feelings Underlying Beliefs

Patience	Waiting for right timing
Tolerance	Allow others to learn from their own actions
Love	Wanting the best for self or another
Compassion	To deeply understand; leads to love
Detachment	Doing one's level best and accepting the outcome
Judgment	Honest and loving awareness to bring about growth
Wisdom	Change one's attitude and/or one's situation
Respect	Treat with great value
Forgiveness	Letting go of suffering

The Way of Happiness

Sovereignty	Kindness	Understand	Faith
Courage	Joy	Economy	Nurturance
Individuality	Discern	Loyalty	Will
Spontaneity	Kinship	Vigilance	Fearless
Creativity	Trust	Enthusiasm	Willingness
Inspiration	Discipline	Mastery	Fidelity
Constancy	Leadership	Vitality	Openness
Curiosity	Truth	Equanimity	Wisdom
Integrity	Dignity	Newness	Excellence
Stillness	Love	Vulnerability	Determination
Depth	Strength	Transformation	Justice
Intuition	Detachment	Surrender	Tolerance
Discernment			

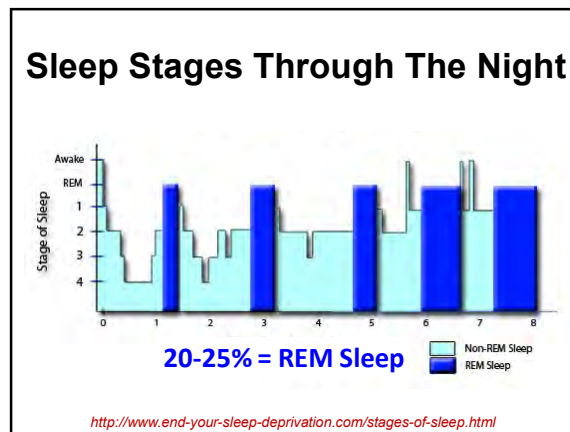
The Way of Happiness

Abundance	Process	Charity	Honor
Flexibility	Beauty	Growth	Serenity
Patience	Grace	Awe	Community
Acceptance	Purity	Choice	Hope
Fulfillment	Beingness	Harmony	Service
Peace	Gratitude	Restraint	Compassion
Appreciation	Purpose	Clarity	Hospitality
Forgiveness	Oneness	Honesty	Silence
Perfection	Greatness	Sacrifice	Cooperation
Aspiration	Respect	Commitment	Humility
Freedom	Awareness	Positivity	Generosity
Perseverance	Friendship	Responsibility	Power
Balance			Gentleness



Sleep is the best meditation.

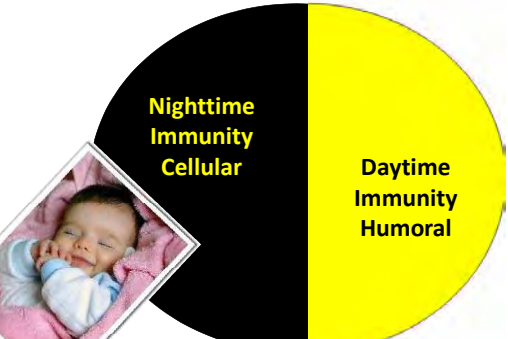
*His Holiness
The 14th Dalai Lama of Tibet*



Healthy Sleep

- 7 ½ to 9 hours; preset biologically
- Key is to awaken feeling refreshed and from pleasant dreams
- Consistent sleep/wake time
- Positive sleep thoughts
- Relaxation Response
- Daylight; 60 watts or 200 lux 2-3 hours pre sleep
- Exercise

Sleep and Immune Response



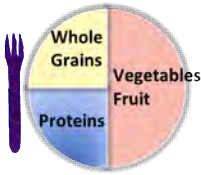
Sleep

- Modest sleep loss is associated with increased secretion of proinflammatory cytokines
- Short or refracted sleep is associated with decreases in circulating GH levels
- Short sleep duration is associated with reduced leptin, elevated ghrelin and increased appetite

There is no love sincerer than the love of food.

George Bernard Shaw

Healthy Diet



- Eat Mindfully
- Portions: balance your plate
- Limit sugar and other low fiber carbs
- Poly/Mono Unsaturated Fatty Acids
- ↑Fiber from typical 13 → >35 grams/day
- Timing and frequency
 - ✓ Eat within 1 hour of waking (unless exercising)
 - ✓ Eat every 3-4 hours thereafter
 - ✓ No late evening meals

Exercise is considered essential for health, however:

- 60% adults in US minimally active
- 22% no leisure activity at all, estimating 25% essentially sedentary
- Recommendation is 30 minutes/most days of moderate activity
- Only 30% western populations exercise on weekly basis
- Exercise program attrition is high: 50% return to non active state in 3-6 month
- Worse stats for those with psychiatric dx

Those who think they have not time for bodily exercise will sooner or later have to find time for illness.

*Edward Stanley (1779 - 1849)
Former (3x) Prime Minister of the United Kingdom*

INTERHEART STUDY (n ~ 30,000)

90% risk for MI is explained by 9 predictors consistently across 52 countries:

- Smoking
- HTN
- DM
- Central adiposity
- Psychosocial factors-such as type A
- Lack of daily consumption of fruits/vegetables
- Lack or excessive alcohol (rec: 1/d/women & 2 /day/men)
- Lack of regular physical activity
- Higher scores of stress nearly doubled MI risk

Yusef, et al, 2004

Exercise

- Associated with decreased mortality and morbidity
- Associated with a decrease in anxiety and depression
- Improves cognitive functioning
- Increases levels of circulating dopamine, beta-endorphin, and serotonin
- Both exercise and relaxation increase levels of CRH and improve mood
- Increases neurogenesis in the hippocampus
- Powerful antioxidant

Exercise and Immune Function

- Physical activity (PA) increases anti-oxidant defenses; decreases inflammation and stress

Moderate to vigorous exercise

- Transient increase in neutrophils, natural killer cells, immunoglobulins
- Stress hormones are not elevated
- Inflammatory chemicals are not elevated
- 25-50% reduction in sick days

Heavy doses of exercise (marathon)

- Suboptimal immune function and increase odds of sickness over 1-2 weeks

Exercise as an Antidepressant

- 9 cross-sectional and 9 prospective studies show higher levels of physical activity correspond with little or no anxiety and depression
Dunn, et al, 2001
- Exercise and medication (Zoloft) achieved higher remission rates compared with placebo after 16 weeks of treatment. N=156
45% of MDD patients undergoing supervised exercise
40% undergoing home-based exercise
47% receiving medication
31% receiving placebo
Blumenthal, et al, 2007
- Dose response is likely to be a critical factor
- BDNF decreased in depression and increases in response to exercise
- N=2078 post MI (ENRICH: Enhancing Recovery in Coronary Heart Disease); depressed or low social support, with 2 year f/u; those who exercise reported less than half events c/w those without regular exercise

Exercise

- 3-5 Aerobic
~ 30-60 minutes
≥5 min. warm↑ cool↓
- 2-3 Strength training
Resistance, weights, Pilates, toning
duration ~ 30 minutes
- Weight loss
 - 3 Aerobic/week x 60 min.
plus 3 ST/week x 60 min.
 - 4-5 Aerobic/week x 60 min.
plus 2 ST/week x 30+ min.



What you *think*, you *become*;
 What you *feel*, you *attract*;
 What you *imagine*, you *create*.

Buddha, Dhammapada

