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RHEUMATOLOGY ADVANCED PRACTICE PROVIDERS

Inaugural National Conference

December 3 – 5, 2020

VIRTUAL CONFERENCE

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Options for Pain Management

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Faculty Disclosure

Chris J. Kottenstette, PA-C, CP

- None.

Costs of Failure to Treat Pain

- Real
  - Nerve Plasticity
    - Failure to treat pain initially causes neuronal changes that can permanently change the nervous system
      - To react differently to pain
      - Lower the threshold for pain sensation
      - Change the nerve cells to fire abnormally or make abnormal connections in the nervous system
      - Decrease the inhibitory effect of interneurons and neural chemicals to inhibit pain sensation

Costs of Failure to Treat Pain

- Real
  - Pain can accelerate growth of tumors and increase mortality after tumor challenge[1]
  - Stress of a painful event can decrease NK cell cytotoxicity and significantly increase tumor growth[1]
  - Pain and stress can inhibit immune function
  - Poor pain control decreases subcutaneous oxygen partial pressures that is a major determinant of surgical wound infections and should be given the same consideration as maintaining adequate vascular volume or normothermia[2]

[1]Liebeskind, JC. Pain can kill Pain 1991 44: 3-4
2Ozan A, et. Al. Postoperative Pain and subcutaneous oxygen tension The Lancet 1999; 354: 41-42

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X-Rays and MRI's

Imaging

- MRI Scans[1]
  - 36 Patients
    - 18 never w/ back pain
    - 18 pain free at least 6 months
  - 81% had disk bulge
  - 33% had focal protrusion
  - 56% had an annular tear
    - Of these 96% also showed contrast enhancement
- Bulging discs and annular tears are common
- Further investigation is needed to prove this as a cause of a patient's pain

[1]Stadnik TW, et al. Annular tears and disk herniation: prevalence and contrast enhancement on MR images in the absence of low back pain or sciatica. Radiology 1998; 206: 49-55

Prevalence of MRI Abnormalities in **Asymptomatic** Individuals

	N	Herniated Nucleus Pulposus		Disc Bulge		Spinal Stenosis		Disc Degeneration	
All Ages	67	16	24%			3	4%		
Age 20-39	35	7	20%	19	54%	0		12	34%
Age 40-59	18	4	22%			0			
Age 60-80	14	5	36%	11	79%	3	21 %	13	96%

Boden SD, et. al. Abnormal magnetic-resonance scans of the lumbar spine in asymptomatic subjects. J Bone Joint Surg 1990; 72A: 403-408

Imaging

- Plain Films
  - Normal radiographs range from 21% in medical center settings to 43% in primary care
  - Spondylosis or degenerative joint disease accounts for between 26% - 48% of cases
  - Spondylosis, DJD, facet degeneration or osteoarthritis does not constitute a legitimate diagnosis of back pain
    - These conditions occur too frequently in asymptomatic individuals to permit them to be diagnostic of the cause of back pain

Imaging

- Hazards
  - Radiation dose from a lumbar spine series delivers 40 times the radiation dose received from a chest X-ray[1,2]
  - A single lumbar spine film delivers to the gonads a radiation dose equivalent to that from having a daily chest x-ray for 6 years[3,4,5]
  - The absorbed radiation from lumbar spine films is 2 mSv (**millisievert**); the risk of fatal cancer is one in 80,000 per mSv or therefore 1:40,000[6]
  - One million lumbar spine radiographs can result in 20 excess deaths from leukemia, and 400 excess deaths of genetic diseases[1,4,6]

[1] Frazier LM, et. al. Selective criteria may increase lumbosacral spine roentgenogram use in acute low-back pain. Arch Int Med 1989; 149: 47-50
[2] Whalen JP et. al. Radiation risks associated with diagnostic radiology Dis Mon 1982; 28: 73
[3] Reinus WR Et. al. Use of lumbosacral spine radiographs ina level II emergency department. AJR 1998; 170: 443-447
[4] Hall FM Back pain and the radiologist. Radiology 1980; 137: 861-863
[5] Ardran GM et. al. Gonad radiation dose from diagnostic procedures. Br. J. Radiol 1957 295-297
[6] Halpin SFS et. al. Radiographic examination of the lumbar spine in a community hospital: an audit of current practice. Br Med J 1991; 303: 813-815

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Medications

Medications to treat pain

- Non-Steroidal Anti-inflammatory Medications
  - Aleve, Ibuprofen, Aspirin
- Neuroleptics – Put more bricks in the wall
  - Lyrica, Neuronton, Topamax
- Anti-depressants – Effect Transmission
  - Cymbalta, Effexor, Pristiq, Savella, Elavil, amitriptyline
- Opioids
  - Take when your pain Low vs. pain High

Opioid Phobia

- Does narcotic use make people worse?
  - 243 patients reporting to a tertiary pain service
  - Measured opioid use, length of disability, medical visitation, psychological battery
  - Compared on entry “users” to “non-Users”

Ciccone, DS, et. Al. Psychological Correlates of Opioid Use in Patients with Chronic Nonmalignant Pain: A preliminary Test of the Downhill Spiral Hypothesis. Journal of Pain and Symptom Management, 2000;20:3. 180-192.

Opioid Phobia

- Results
  - Opioid users are in fact more disabled, more depressed, and report more pain than non-users
  - No increased risk to “downward spiral” with narcotics
    - **The only significant factor was shown to be Benzodiazepine use!**

Ciccone, DS, et. Al. Psychological Correlates of Opioid Use in Patients with Chronic Nonmalignant Pain: A preliminary Test of the Downhill Spiral Hypothesis. Journal of Pain and Symptom Management, 2000;20:3. 180-192.

Opioid Phobia

- Results – Cont.
  - Benzodiazepine use was significantly associated with:
    - Decreased activity level
    - Increased medical visitation
    - Increased domestic disability
    - Increased symptom reporting
    - Increased depression scores
    - To a lesser degree disability days

Opioid Phobia

- Results – Cont.
  - Opioid use does not account for increases in disability and/or depression
  - There is no evidence of a dose response effect involving opioid consumption and any measure of outcome
  - In chronic pain patients, the median effective daily dose in this study was 90 mg Morphine!

Ciccone D, et. al. Prospective assessment of opioid therapy for chronic malignant pain (abstract). Conference on Pain Management and Clinical Dependancy: Evolving Perspectives 1996:6.
Ciccone, DS, et. Al. Psychological Correlates of Opioid Use in Patients with Chronic Nonmalignant Pain: A preliminary Test of the Downhill Spiral Hypothesis. Journal of Pain and Symptom Management, 2000;20:3. 180-192.

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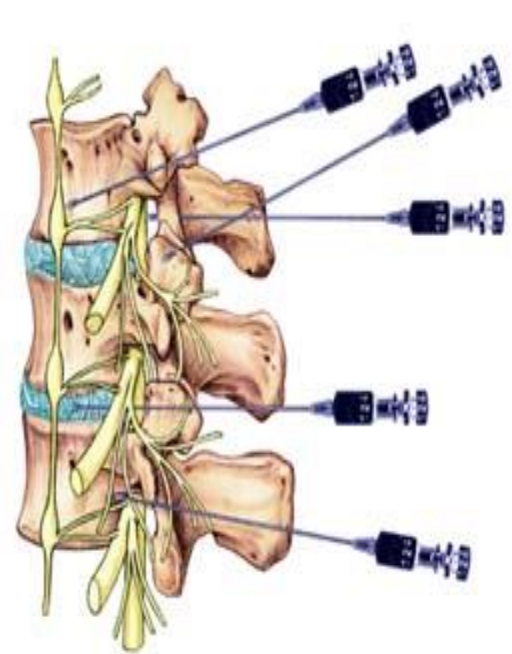
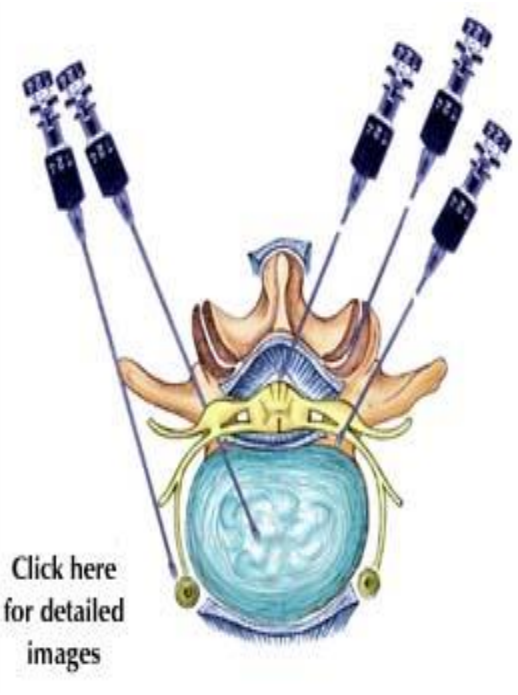
Interventions for Pain

Injections





Click here for detailed images

The Premise:

- If I numb up the edges of your cut, I can stitch it up; but if I am a ¼-inch off, I can't! If your pain changes, then the pain is coming from somewhere that medicine went.

- But I must:
  - Inject the patient while they are having pain
  - Be asking the right question (what's the pre-test probability?)
  - Precisely hit the target so that surrounding structure anesthesia is eliminated, AND
  - Educate the patient enough to get the right information feedback so I know what the true results are
    - Activities that reproduce pain must be done during anesthetic phase

Interventions for Pain

- Injections
  - Anesthetics provide us a “Pain X-Ray”
  - Steroids help fight the fire of inflammation
- Ablation procedures
  - Stop sensory signaling to the brain
- Neurostimulators
  - Override signaling with a non-painful signal
- Pain Pump’s

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Smoking and Pain

Role of Smoking

Role of Smoking

- 4490 Patients in the Norwegian Health Study showed:
  - Smokers experienced more intense pain[1]
- Of 195 patients who were initially fused radiographically:
  - 25% showed a reduction in maintenance of fusion over time[2]

[1]Eriksen, et. al. Does Smoking Aggravate Musculoskeletal Pain? Scan J. Rheumatol 1997;26(1):49-54
[2]Mooney, V, et. al. Effects of smoking and maturation on long-term maintenance of lumbar spinal fusion success. J Spinal Disord 1999 Oct; 12(5):380-5

Role of Smoking

- 25% more likely than nonsmokers to develop chronic low pain
- 84% more likely to develop degenerative disk disease in the lumbar spine.
- Liver Enzyme CYP 1A2 accounts for 10% of the CYP content of the liver
  - Is induced by cigarette smoking[1]
  - Involves drugs such as
    - Acetaminophen, Caffeine, Phenothiazine, Elavil and tertiary TCA's, fluvoxamine (Luvox)

[1]Kauppila L. Ingrowth of blood vessels in disc degeneration. J Bone Joint Surg 1995; 77A: 26-31

[1]Norton, A Smokers at Greater Risk for Back Pain. Reuters; 3/2/2001

Role of Smoking

- Can adversely affect menstrual cycle
  - Female smokers had more days of pain before and during their periods than did nonsmokers
    - Those who smoked the most also had the most pain.
- Smokers were four times more likely than nonsmokers to have menstrual cycles shorter than 25 days
- Twice as likely to have irregular periods.

Role of Smoking

- Is clearly linked to DDD is associated with vascular damage
  - Atherosclerosis and spinal artery stenosis obliterates the anastomotic arteries surrounding the disc
  - Causing increased vascularity of the annulus fibrosis[1]
  - It counteracts the antioxidant properties of vitamins C and E, predisposing smokers to increased hip fracture risk

[1]Kauppila L. Ingrowth of blood vessels in disc degeneration. J Bone Joint Surg 1995; 77A: 26-31

Role of Smoking

- 50% of smokers suffer from low back pain, compared with only 20% of nonsmokers[1]
- Smokers suffer more from disabling leg cramps and generalized back pain
- Nicotine slows fracture healing, and lowers estrogen's effectiveness

1Maltin, Lisa J. Smoking: A Bad Break for your Bones: Add Osteoporosis, Back Pain and Fracture to Nicotine's Health Threats. WebMD, 2001; 10-17

Role of Smoking

- 53-year study of risk factors for lower back disease
  - Odds of getting back pain or lumbar disk disease in someone who smoked were 1.87 times greater than the odds of getting back pain in someone who did not smoke
    - Odds for hypertension were 1.25 times greater
    - Odds for elevated blood fats were 1.18 greater

[1]Charbonneau, N Smoking Linked to lower Back Pain. Health Scout; 2001:03-06

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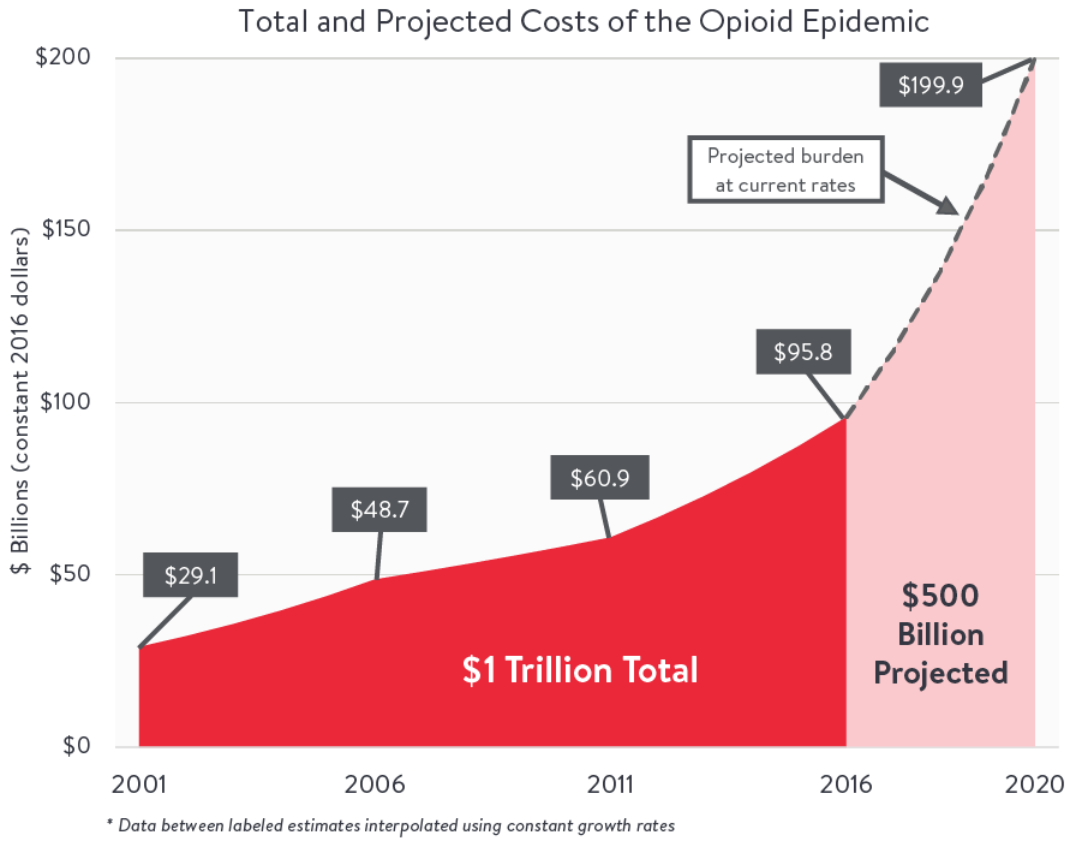
Common Problems and Solutions in Prescribing Opioids

Definition of Terms

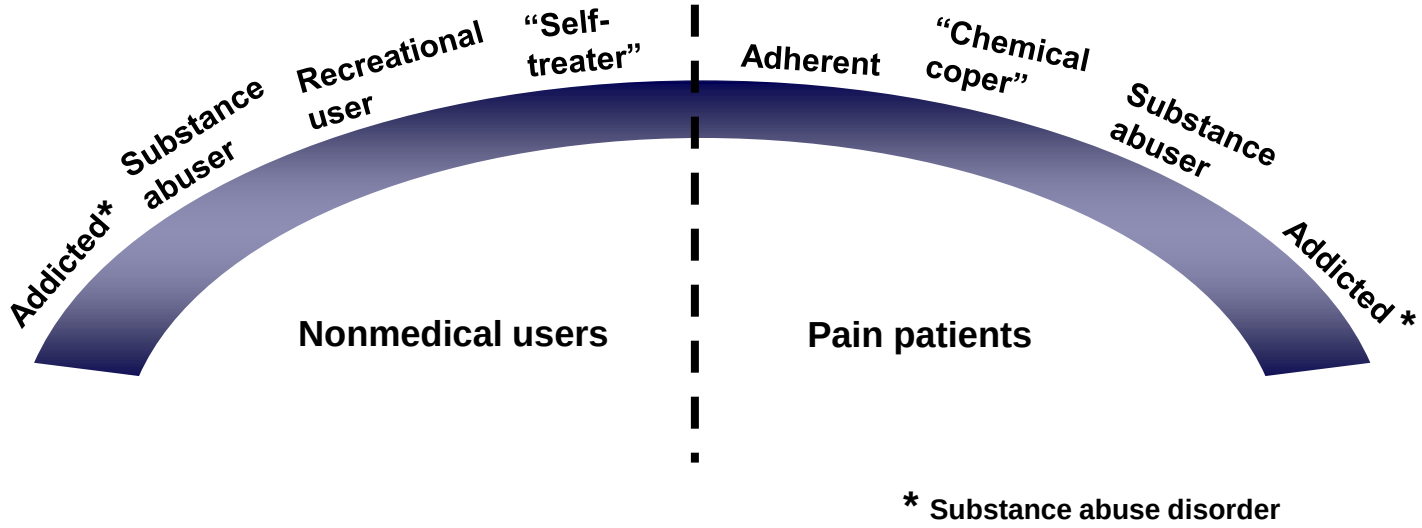
- ***Misuse***: use of legal medicines in a way not recommended by the doctor or the manufacturer; taking medicines in very large quantities that are dangerous to one's health
- ***Abuse***: maladaptive pattern of opioid use leading to clinically significant impairment or distress, occurring in any of the following areas within a 12-month period:
  - Failure to fulfill major obligations at work, school, or home
  - Recurrent opioid use in hazardous situations, such as driving or operating heavy machinery while impaired
  - Opioid-related legal problems
  - Social and interpersonal problems caused, or exacerbated, by opioid use
- ***Diversion***: "transfer of a controlled substance from a lawful to an unlawful channel of distribution or use"

Prescription Abuse Across the Lifespan

Total Cost of the Opioid Epidemic



A Spectrum of Opioid Abuse



Opioid R_x misuse and abuse is not limited to nonmedical users: patients who take opioids for legitimate pain may also be at risk

Reducing risk: practical strategies for prescribing analgesics. Presented by the Johns Hopkins University school of Medicine and the Institute of Applied Science and Medicine, April 5, 2008. Hays L, et al. JNCNN. 2003: 1:423-8.

Some simple rules to live by

- Humans simply want pain relief and know there are medications available to help them.
  - Think of yourself or your loved ones in this situation!
- In surgical disciplines YOU created at least part of their pain, and so are obligated to treat it (or refer them for treatment)
- Being aggressive and yet safe in prescribing
  - Improves their rehab and return to function
  - Improves patient satisfaction and referrals
  - Keeps them from becoming a chronic pain patient

Some simple rules to live by

- There is no learning without consequence or sorrow
  - The symptoms of withdrawal are a natural consequence
- Consistency is the key
  - Clear and enforced boundaries make it easy for patients AND your practice and partners
  - Patients will figure out who the pushover is in your practice
- When to break the rules?
  - Is it your problem (be honest now) or the patients problem?

Is it your problem?

- Not enough staff to adequately answer phone messages
  - The average phone message is 3-5 min long
  - It takes an average of 5-10 min to mitigate that call
    - So, at 15 min per call and an 8-hour workday that's 32 voice mail messages per day!
      - The reasons may surprise you – mostly its failure to educate them!
- You got the patient's message but didn't call them back!
- Writing a Rx for 1-2 PO Q 4-6 and a quantity of #60
  - Patients will do what you tell them!
  - Did you say this must last a month? Write it on the Rx?
- Authorizing an increase then not writing a Rx for more?
- Inability to get an appointment in a timely fashion?
- Truly inadequate dose to begin with? Inadequate BTM?
- Writing a 4hr med for tid use – **YOU HAVE TO KNOW THE PK PARAMETERS OF THE MEDS YOU WRITE!**
- Your actions create Pseudo-addictive behavior's and then you will call the patient on the carpet for "doctor Shopping," Call them "addicted," and then dismiss them!
- If so – then you might consider addressing the patient's concern and helping them

Is it the patient's problem?

- Failure to follow adequate instructions
- Self escalation
- Sharing meds w/ other’s
- Borrowing from tomorrow for today’s needs
- Patient having control issues?
- Then you need to hold them responsible and not be afraid to impose consequences

So, what kind of consequences?

- If they understood your directions and failed to follow instructions:
  - No early refill's
    - But, I'll go into withdrawal!
      - That sucks … for you! I hate it when I run out of my Protonix!
  - Restricted fill
    - No Rx till an office visit
    - Short Rx to get them to an office visit
    - Rx with smaller quantity or more frequent office visits
- Removing a natural consequence removes the opportunity for LEARNING!

Not all patients are drug seeking – **In fact, there are very few!**

- David A. Fishbain, MD, FAPA
- **PAIN MEDICINE,** Volume 9 • Number 4 • 2008
  - **What Percentage of Chronic Nonmalignant Pain Patients Exposed to Chronic Opioid Analgesic Therapy Develop Abuse/Addiction and/or Aberrant Drug-Related Behaviors? A Structured Evidence-Based Review**
    - A structured evidence-based review of all available studies on the development of abuse/addiction and aberrant drug-related behaviors (ADRBs) in chronic pain patients (CPPs) with nonmalignant pain on exposure to chronic opioid analgesic therapy (COAT).
      - 79 references that addressed this area of study.
      - 12 of the studies were excluded from detailed review based on exclusion criteria important to this area.
      - 67 studies were reviewed in detail

Not all Patients are drug seeking

- For the abuse/addiction grouping
  - 24 studies / 2,507 CPPs exposed
    - **abuse/addiction rate of 3.27%.**
  - for those studies that had preselected CPPs with no previous or current history of abuse/addiction
    - **The percentage of abuse/addiction was calculated at 0.19%.**
- For the Adverse Drug Related Behaviors grouping
  - 17 studies / 2,466 CPPs exposed
  - ADRB rate of 11.5%
  - For preselected CPPs (as above)
    - **The percentage of ADRBs was calculated at 0.59%**

Some common scenarios

- Lost or Stolen Meds
  - Must file a Police report
    - Documents loss if someone finds them and OD's
    - Is a HASSLE, and if they are filing a lot of these (say from other providers) it will get noticed
    - Protects the patient and you!
      - Prosecutors are seeking out those that did not secure their medicine properly "allowing" others to misuse
- Generates a Urine Drug Test
- Generates a Rx history inquiry
- Humans do loose things – Don't automatically assume they are drug seeking - ASK Questions AND Document !
- Escalate consequences – 3 Strike's and your out!

Running out early
– Escalating Consequences

- ASK Why!
  - You are trained to get a history - DO IT! Thoroughly!
  - This will be the gauge for your response
- Dose too low, not working?
  - Review the PK of the med and how patient is ACTUALLY using it.
  - Increase at least 25-50% of the current dose
    - Do be sure they are taking it, and document this
    - 2 – 50% increases and no improvement, change meds

Running out early
– Escalating Consequences

- 1st time they get counseling (why did this happen and what will happen if it happens again) and *consideration* for a change in dose, quantity, time to follow-up (your fault or the patient's fault?)

- 2nd time they get counseling, and definitely a change in dose, and/or a change in med to one they might better control (QD Med & No Breakthrough, Patch) and/or quantity, and/or time to follow-up, and/or wait for next refill date

- 3rd time they get their last warning, a change in med, and consideration of Non-opioid management.

- YOU MUST DOCUMENT DISCUSSIONS AND YOUR ESCALATING RESTRICTIONS AND DECISION MAKING!

The Long Acting vs. Short Acting Debate

- There is little evidence that short-acting opioids as rescue medication for breakthrough pain is an optimal long-term treatment strategy in chronic non-malignant pain
- 48 studies that met the study selection criteria.
  - The effect of opioid rescue medication on analgesic efficacy and the incidence of common opioid-related side-effects were analyzed using meta-regression.
- After adjusting for potentially confounding variables (study design and type of opioid**), the difference in analgesic efficacy between the 'rescue' and the 'no rescue' studies was not significant**
  - with regression coefficients close to 0 and 95% confidence intervals that excluded an effect of more than 18 points on a 0–100 scale in each case.
- There was also no significant difference between the 'rescue' and the 'no rescue' studies for the incidence of side effects
  - nausea, constipation, or somnolence in both the unadjusted and the adjusted analyses.

Devulder, J., et. al. "Impact of opioid rescue medication for breakthrough pain on the efficacy and tolerability of long-acting opioids in patients with chronic non-malignant pain." British Journal of Anaesthesia 103 (4): 576–85 (2009)

Towards a faster rate of administration,
The common denominator in any addiction

- Onsolis
- Fentora
- Actiq
- Dilaudid
- Oxycodone
- OxyContin
- Morphine
- Hydrocodone
- Embeda
- Kadian
- Opana ER
- Exalgo
- Duragesic

PK Parameters For Selected Opioids

Opioid	T-Max (first)	T-Max	% Bioavailability	Half-Life	Steady State
Onsolis	9.0 (± 4.8) min	1.00 (range 0.75 – 4.00)	71% (51% from the buccal mucosa)	2.6 hrs	
Fentora		35-45 min	65% (48% from the buccal mucosa)	12.3h (2.7-35.8) h	5 days
Actiq	13.2 (20-40) min	2.00 (range 0.50 – 4.00)	50% (25% buccal)	7 h (Terminal half life)	
Dilaudid		0.74 hours	24%	2.3h (IV) up to 40h in renal impairment	
Oxycodone	1 hour	1.6 hours	Up to 87%	0.4h	
MS Solution		0.9 hours	20-40%	~2h	
MSIR	50% in 30min		20-40%	2-4h (15h steady state)	~1 day

PK Parameters For Selected Opioids

Opioid	T-Max (first)	T-Max (Hours)	% Bioavailability	Half-Life	Steady State
OxyContin	2.1	3.2 (10h ss)	60-87%	0.6 / 6.9h	24-36h
MS Contin	50% 1.5h	2.5 (sd) 4.4 (ss)	20-40%	15h (steady State)	~1 day
Embeda	50% 8h	7.5 h	20-40%	29h	48h
Kadian	8.6h (sd)	10 .3h (ss)	20 to 40%	15 hrs	48h
Opana	1.0 (fed) 2.0 (fast)	9.3-11.5h (sd)	10%	7.5-9.3 hrs	3 days
Opana ER		1 hr fasted (2 hrs fed)	10%	9.4 (11.3 5mg dose) hours	
Exalgo	6-8h	12-16h		11 (8-15)-11h	3-4 days (plasma levels twice first dose)

Suggestive Behaviors

More suggestive of addiction[a]	Less suggestive of addiction
Concurrent abuse of alcohol or illicit drugs	Aggressive complaining about the need for more drugs
Evidence of a deterioration in the ability to function at work, in the family, or socially that appears to be related to drug use	Drug hoarding during periods of reduced symptoms
Injecting oral formulations	Openly acquiring similar drugs from other medical sources
Multiple dose escalations or other nonadherence with therapy despite warnings	Requesting specific drugs
Obtaining prescription drugs from nonmedical sources	Reporting psychic effects not intended by the physician
Prescription forgery	Resistance to a change in therapy associated with tolerable adverse effects accompanied by expressions of anxiety related to the return of severe symptoms
Repeated resistance to changes in therapy despite clear evidence of drug-related diverse physical or psychological effects	Unapproved use of the drug to treat another symptom
Repeatedly seeking prescriptions from other physicians or emergency departments without informing prescriber	Unsanctioned dose escalation or other nonadherence with therapy on 1 or 2 occasions
Selling prescription drugs	
Stealing or borrowing drugs from others	

[a] Documented in patient's medical chart.

Some Things to Ponder

- Hydrocodone (Vicodin, Lorcet, Lortab, Endocet, Maxidone, Norco, Reprexain, Zamicet, Zydone), are pro-drugs that are metabolized into hydromorphone (Dilaudid).
  - If a patient can tolerate hydrocodone, they very likely can tolerate Dilaudid.
  - If the patient has a specific drug they are insisting on, consider using a drug with a name they won't recognize like the Maxidone, Zamicet (liquid), or Zydone
    - If they can't tolerate that but can use other hydrocodone products there might be a problem.

Some Things to Ponder

- You might also consider a drug like Reprexain or Vicoprofen that is hydrocodone and ibuprofen
  - or a dihydrocodeine product such as Panlor DC, Panlor SS, Zerlor (dihydrocodeine/caffeine/APAP).

- These are Brand drugs, but it can in some cases weed out the drug seekers vs. those who will do almost anything to relieve their true pain.

Some Things to Ponder

- In the same way oxycodone metabolized to oxycodone and oxymorphone.
  - People who can tolerate oxycodone will generally find Opana (or Opana ER) to be well tolerated and possibly more effective
    - multiply oxycodone by 0.5 to get approximate equianalgesic dose of Opana – and reduce dose appropriately to adjust for cross tolerance issues

Some Things to Ponder

- If a patient seems to like short acting drugs, adding up their total 24hr equivalent doses and converting to a QD or BID dosing long-acting agent, or to a Duragesic patch may be an alternative to medications with a higher street value such as OxyContin.
  - Take into account the delayed Tmax of these medications and allow some short acting medication use until the new medication becomes effective
    - Always start the first Duragesic patch at night, so that the 13-16hr Tmax occurs during waking hours vs. when they patient may be asleep to minimize risk of unintentional OD while sleeping

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Questions?

Unique Situations?

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Thank You

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