



## Risks of Opioid Use

- ▶ Falls and Death in Older Adults
  - ▶ Canadian Medical Association Journal linked falls and death in older adults is linked to opioid use
    - ▶ Opioid use 2 weeks before an injury in 65 years and older
    - ▶ Increased risk of falling by 2.4 times
    - ▶ Falls linked to opioid use were also more likely to die in the hospital

[https://eemhalert.org/pub\\_releases/2018-04/cmaj-out041718.php](https://eemhalert.org/pub_releases/2018-04/cmaj-out041718.php)

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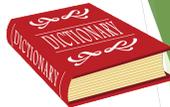
## QUIZ

1) According to the National Center for Health Statistics, in 2006, what percent of Americans suffered from pain lasting longer than 24 hours?

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## Definition

- ▶ According to Merriam-Webster



Pain -

- ▶ usually localized physical suffering associated with bodily disorder (such as a disease or an injury)
- ▶ A basic bodily sensation induced by a noxious stimulus, received by naked nerve endings, characterized by physical discomfort (such as pricking, throbbing, or aching), and typically leading to evasive action

<https://www.merriam-webster.com/dictionary/pain>, Accessed 10/2/17

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## What is pain?

- ▶ Unpleasant
- ▶ Subjective
- ▶ Pain is what the resident says that it is
  - ▶ But in facilities, residents are notorious for not verbalizing their pain
  - ▶ Actions speak louder than words

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## Fears of Pain Treatments

- ▶ Side effects of pain medications
  - ▶ Cognitive impairment
- ▶ Addiction
- ▶ Abuse
- ▶ Pain
  - ▶ Something more serious is wrong
  - ▶ Death is imminent



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## Fears of Dependence and Addiction

- ▶ Physical dependence is a physiological phenomenon defined by the development of an abstinence syndrome following:
  - ▶ Abrupt discontinuation of therapy
  - ▶ Substantial dosage reduction
  - ▶ Agonist administration
- ▶ Addiction is compulsive use resulting in physical, psychological or social harm to the user and continued use despite that harm

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### Fears and Other Misconceptions

Tolerance has not been proven to be a prevalent limitation to long-term opioid use. Respiratory depression is less important than treating pain adequately.

Factors that cause greater risk of respiratory depression:

- Opioid naïve
- Advanced Age
- Rapid infusion rates
- Respiratory disease
- Using of accumulating agents

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### Diversion Concerns

- ▶ Less likely with long-acting medications
- ▶ Regulations
  - ▶ Shift-shift count sheets
  - ▶ Policies and Procedures

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### Verbal Communication of Pain

- ▶ Sighing
- ▶ Moaning
- ▶ Groaning
- ▶ Crying
- ▶ Blowing
- ▶ Screaming
- ▶ Requests for help
- ▶ Requests for meds
- ▶ And the list goes on . . .



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### Non-Verbal Communication of Pain

- ▶ Frowning,
- ▶ Grimacing,
- ▶ Fearful look
- ▶ Grinding of teeth
- ▶ Bracing,
- ▶ Guarding,
- ▶ Rubbing
- ▶ Fidgeting
- ▶ Agitation
- ▶ Restlessness
- ▶ Poor appetite
- ▶ Poor sleep
- ▶ Sighing
- ▶ Groaning
- ▶ Crying
- ▶ Heavy breathing
- ▶ Decreased activity
- ▶ Resisting Care
- ▶ Changes in gait
- ▶ Changes in behavior
- ▶ And the list goes on



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### When pain goes untreated

- Quality of Life declines
  - General health
  - Functional capability
  - Cognitive abilities
- Health care utilization increases
- There is an impact on all care givers
- Regulatory and legal liability
  - Can also be a barrier to treatment
  - Laws
  - 3<sup>rd</sup> party rules
- Effects on the health care center
  - Reputation
  - Referrals

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### Impacts of pain

- ▶ Physical
- ▶ Spiritual
- ▶ Social
- ▶ Psychological

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### Physical Impact

- ▶ Decrease in functional capabilities
  - ▶ ROM limitations
- ▶ Strength and endurance declines
- ▶ Nausea
- ▶ Appetite declines
  - ▶ Weight loss
- ▶ Sleep
  - ▶ Sleep cycle
- ▶ Skin
  - ▶ Breakdown



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### Spiritual

- ▶ Increased suffering
- ▶ Religious beliefs



### Social Impact

- ▶ Diminished social relationships
- ▶ Altered appearance
- ▶ Increased burden on caregivers



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### Psychological Impact

- ▶ Decreased ability to enjoy leisure
- ▶ Decreased ability to enjoy "normal" activities
- ▶ Increased anxiety
- ▶ Increased fear
- ▶ Depression
- ▶ Distress
- ▶ Poor concentration
- ▶ Feeling of being "out of control"
- ▶ Changes in mood



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### Impact of Pain

- ▶ Journal of the American Geriatrics Society looked at the impact of pain on outcomes
  - ▶ A review of LTC facilities in Missouri in retrospective analysis
  - ▶ MDS; Activities of Daily Living Scale, Cognitive Performance Scale
  - ▶ Pain was associated with
    - ▶ Physical disability
    - ▶ Pressure ulcers
    - ▶ Depression
    - ▶ Cognitive

Newland, P. K., Wigke-Tervis, D. D., Williams, D. A., Rantiz, M. J. and Petroski, G. F. (2005). Impact of Pain on Outcomes in Long-Term Care Residents with and without Multiple Sclerosis. Journal of the American Geriatrics Society, 53: 1490-1496. doi:10.1111/j.1532-5415.2005.53465.x

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### How Do We Miss Pain?

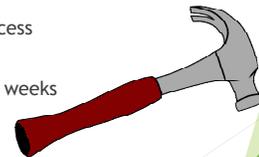
- ▶ "It's part of aging"
- ▶ Inadequate assessment
- ▶ Inadequate treatment
- ▶ "I don't want to bother anyone"



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### Types of Pain - Acute

- ▶ Acute Pain
  - ▶ Definition: "the normal, predicted physiological response to an adverse chemical, thermal or mechanical stimulus"<sup>1</sup>
  - ▶ "Useful" biologic process
  - ▶ Self-Limiting
  - ▶ Resolves over days to weeks



1. Carr DB, Goudas LC. Acute pain. Lancet. 1999; 353:2051-2058

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### Types of Pain - Chronic or Persistent

#### ▶ Chronic Pain

- ▶ May be considered a disease state
  - ▶ Or associated with a disease state
- ▶ Pain that lasts longer than the normal time of healing (usually >3 months)
- ▶ May arise from a psychological state
- ▶ Serves no purpose
- ▶ Has no recognizable endpoint

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### Types of Pain - Chronic or Persistent

#### ▶ Musculoskeletal problems

- ▶ Arthritis
- ▶ Wounds
- ▶ Dental problems

#### ▶ Bone

- ▶ Pain increases with movement
- ▶ Osteoporosis
- ▶ Fractures
- ▶ Cancer

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### Types of Pain - Chronic or Persistent

#### ▶ Nerve

- ▶ Neuropathy
  - ▶ Herpes zoster
- #### ▶ Spasms

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### Severity of Pain

#### ▶ Mild - Treat with 1<sup>st</sup> line therapies

- ▶ Acetaminophen
- ▶ NSAIDs
- ▶ Hydrocodone combinations

#### ▶ Moderate

- ▶ Long-acting opioids with/without adjuvants

#### ▶ Severe

- ▶ Long-acting opioids with/without adjuvants

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### Severity of Pain

#### ▶ Mild Pain

- ▶ Nagging/annoying
- ▶ Doesn't interfere with most ADL
- ▶ Able to adapt to pain with psychological methods (think of something else, go to happy place) and pain medication

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### Severity of Pain

#### ▶ Moderate Pain

- ▶ Interferes significantly with ADL
- ▶ Lifestyle changes are required, but still able to function independently
- ▶ Unable to adapt/cope with pain without intervention (medication, other treatment modalities)

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### Severity of Pain

- ▶ Severe Pain
  - ▶ Unable to perform ADL
  - ▶ Unable to engage in normal activities
  - ▶ Disabled/unable to function independently

### What's the big deal?

- ▶ Quality of life
- ▶ More awareness about pain
- ▶ Liability for inadequate treatment of pain
- ▶ Fifth Vital Sign

### Assessing and Following Up

- ▶ There are wide variations in the amount of pain that is experienced in response to a particular insult.
- ▶ There are also wide varieties in response to therapy
- ▶ Assessment and follow-up are essential to successfully managing pain.

### Assessing and Following Up

- Patient report
  - Where does it hurt?
  - Severity
  - Description of the pain
  - Aggravating/Relieving factors
  - Previous therapy experiences
  - Use "Yes" and "No" questions when possible
  - Include family members
- 

### Assessing and Following Up

- Pain is subjective (it is what the patient says it is)
- Pain is different from patient to patient (pain tolerance)
- Multiple Scales available to assess pain
  - ▶ 1 to 10 scale
  - ▶ Face Scale

### Pain Assessment

- ▶ How should pain be assessed?
  - ▶ Consistently (numeric rating system, verbal descriptor, non-verbal indicators)
- ▶ When should pain be assessed?
  - ▶ Upon Admission
  - ▶ With each quarterly/annual review
  - ▶ Significant decline or change
  - ▶ When administering PRN medications for pain

Pain Assessment - The Interview

The Pain Interview	
<b>ABCDE Mnemonic</b>	
A	Ask about pain regularly; Assess pain systematically
B	Believe the patient and family in their reports of pain
C	Choose pain control options appropriate for the patient, family, and setting
D	Deliver interventions in a timely, logical, and coordinated fashion
E	Empower patients and their families

<https://www.uspharmacist.com/article/pain-assessment-in-the-elderly>

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Pain Assessment - Mnemonic

PQRST Mnemonic	
P	Palliative/provocative factors What makes the pain better/worse?
Q	Quality Describe the pain
R	Radiation Where is the pain?
S	Severity Compare this pain to other pain
T	Temporal factors Does the intensity of the pain change with time?

← Results

<https://www.uspharmacist.com/article/pain-assessment-in-the-elderly>

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Pain Assessment - FLACC Scale

Categories	0	1	2
Face	No particular expression or smile	Occasional grimace or frown, withdrawn, disoriented	Frequent to constant frown, squinting eyes, clenched jaw
Legs	Normal position or relaxed	Clonus, restlessness, tense	Kicking or legs drawn up
Activity	Lying quietly, normal position, moves easily	Squirming, shifting back and forth, tense	Arched, rigid, or jerking
Cry	No cry (awake or asleep)	Moans or whimpers, occasional complaint	Crying steadily, screams or sobs, frequent complaints
Consolability	Content, relaxed	Reassured by occasional touching, hugging, or being talked to, distractible	Difficult to console or comfort

Source: Refresher 201

<https://www.uspharmacist.com/article/pain-assessment-in-the-elderly>

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Barriers to Effective Pain Management

- Anxiety or Depression
- Decreased mobility or impairment from normal functions
- Agitation or Aggression
- Patient concerns regarding controlled medications
- Patient knowledge, preferences and expectations
- Weight loss
- Sleep disturbances

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Treatment of Pain

- ▶ Keep it simple - stepwise
- ▶ Utilize adjuvants
- ▶ Keep in mind side effects
- ▶ Treat the cause of the pain and the type of pain
- ▶ Keep in mind the goal and set realistic goals
- ▶ Comorbidities

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Treatment Goals

- ▶ Acute Pain Treatment Goals
  - ▶ Treat cause of pain
  - ▶ Interrupt pain signals (pain relief)
- ▶ Chronic Pain Treatment Goals
  - ▶ Manage Pain
  - ▶ Use a multidisciplinary approach

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### Route Selection

- Oral - simple, cost effective, long-acting forms
- Rectal - easy alternative to oral, minimal options, patient preferences
- Transdermal - Poor titratability, slow onset
- Parental - Expensive, invasive, fast

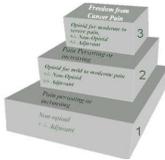
### WHO Pain Ladder

- ▶ Three step ladder
- ▶ Designed for treating cancer pain
- ▶ Step 1: non-opioids
- ▶ Step 2: mild opioids (codeine)
- ▶ Step 3: Strong opioids (morphine)



### WHO Pain Ladder

- ▶ Adjuvants used at each step to calm fears and anxiety
- ▶ Drugs should be given “by the clock”



### Pain Treatment

- ▶ 100% Relief may not be possible
  - Or desirable
- ▶ Work with patient/prescriber to have specific goals of treatment
  - ▶ Be able to walk to go to the bathroom with minimal pain
  - ▶ Uninterrupted sleep pattern (sleep better)
  - ▶ Be able to have meaningful conversation without being too sedated

### Non-NSAID Analgesic - Acetaminophen

- ▶ Available in both Rx and OTC formulations and in OTC and Rx combination products
- ▶ Inhibits synthesis of prostaglandins
- ▶ Antipyretic activity via inhibition of hypothalamic heat regulation center
- ▶ Dosing: 325mg-650mg Q 6-8 hrs as needed

### Non-NSAID Analgesic - Acetaminophen

- ▶ Onset of action: typically < 1 hr
- ▶ BBW: High doses associated with acute liver failure, chronic use may also result in liver damage
- ▶ Package Insert limits dose to 4000 mg daily
  - ▶ FDA recommends max dose of 3000 mg daily

### Non-NSAID Analgesic - Acetaminophen

- ▶ Often found in combination products
  - ▶ Read the labels especially cough/cold combinations (acetaminophen, APAP)
- ▶ 2014 Changes
  - ▶ Vicodin 5/500 and Vicodin ES 7.5/750mg
  - ▶ FDA Limited the amount of APAP allowed in combination products to try and reduce the potential of accidental APAP toxicity

### Non-narcotic - Tramadol

- ▶ Available as a single agent
  - ▶ Available in combination with Acetaminophen
  - ▶ Concomitant use of BZDs and other CNS depressants - use caution
  - ▶ Reduces seizure threshold
- ▶ Serotonin Syndrome
  - ▶ Agitation
  - ▶ Ataxia
  - ▶ Sweating
  - ▶ Diarrhea
  - ▶ Fever
  - ▶ Hyperreflexia
  - ▶ Myoclonus
  - ▶ Shivering

### NSAIDS

- ▶ Available as Over the Counter vs Prescription
  - ▶ OTC (Ibuprofen, Naproxen)
  - ▶ Rx (Celebrex, Mobic, Voltaren, Toradol)

### NSAIDS

- ▶ Work by inhibiting cyclooxygenase which reduces the precursors for prostaglandins which creates analgesic, anti-inflammatory, antipyretic effects
- COX-1: involved in protecting stomach lining, kidney and platelet function
- COX-2: primarily found at sites of inflammation/injury
- OTC NSAIDS Inhibit both COX-1 and COX-2
  - ▶ Risk of stomach ulcers, decreased kidney function, increased bleeding time
  - ▶ Lower doses available OTC, higher doses available by Rx

### OTC NSAIDS

- ▶ Ibuprofen
  - ▶ OTC Dosing: 200-400mg Q 4-6 hours as needed (max of 1200mg daily for 10 days)
  - ▶ Rx Dosing: 400-800mg Q 6 hrs as needed (max of 3200mg daily)
- ▶ Naproxen
  - ▶ OTC Dosing: 200mg Q 8-12 hrs as needed, maximum of 400mg in 8-12hr period and 600mg/24hrs
  - ▶ Rx Dosing: 250mg Q 6-8hrs or 500mg Q 12 hrs, maximum of 1000mg/24hr

### Rx NSAIDS

- ▶ Some can selectively bind COX-2
  - ▶ Try to reduce the side-effects of non-selective COX inhibition
- ▶ Black Box Warnings
  - ▶ Increased risk of CS thrombotic events (MI, Stroke)
  - ▶ Increased risk of GI bleeding (can happen at any time in treatment)

### Rx NSAIDs - Continued

- ▶ Mobic (meloxicam) - non-selective
  - ▶ Dosing: 7.5-15mg daily
  - ▶ Use not recommended with CrCl < 20ml/min
  - ▶ Common Side Effects: GI upset, diarrhea, edema
- ▶ Celebrex (celecoxib) - Cox2 Inhibitor
  - ▶ Dosing: 100-200mg BID
  - ▶ Monitor renal function, edema
  - ▶ Common Side-Effects: GI upset, diarrhea, edema

### Rx NSAIDs - Continued

- ▶ Voltaren (diclofenac) - non-selective
  - Available oral and topical gel/patch
  - 100-200mg oral in 3-4 divided doses
  - Apply 1 patch twice daily to affected area
  - Gel: Max total body dose not to exceed 32g per day
    - ▶ Lower Extremity: 4g per dose 4 times/day, max of 16g per joint/day
    - ▶ Upper Extremity: 2g per dose 4 times/day, max of 8g per joint/day

### Opioids vs Non-opioids

- ▶ JAMA article comparing 12 months on pain related function, intensity and adverse effects
  - ▶ Moderate to severe chronic back pain or hip/knee osteoarthritis
  - ▶ 240 randomized patients
  - ▶ Treat to target (3 steps)

Group 1 started with

- MSIR
- OXYIR
- Hydrocodone/APAP

Group 2 started with

- Acetaminophen
- NSAID

Pain-related function and Pain intensity

Conclusion: Treatment with opioids was not superior for improving pain

Yankel EE, Gravelly A, Hagen S, et al. Effect of Opioid vs Nonopioid Analgesics on Pain-Related Function in Patients With Chronic Back Pain or Hip or Knee Osteoarthritis: The SPACE Randomized Clinical Trial. JAMA. 2016;316(19):2372-82. doi:10.1001/jama.2016.0899

### Opioids

- ▶ Bind to opiate receptors in CNS causing inhibition of the pain pathway
- ▶ Alters the perception and response to pain
- ▶ Causes generalized CNS depression

### Opioids - Continued

- ▶ BBW: Has the potential for abuse, addiction and misuse
  - ▶ Controlled Substances - special prescribing regulations
- ▶ BBW: Respiratory depression
- ▶ Class side-effects: sedation/drowsiness, constipation, nausea, pruritus

### Short-acting Opioids vs Long-acting Opioids

- ▶ Short-acting opioids are better for acute pain
- ▶ Short-acting opioids reinforce the cycle of discomfort and dysfunction due to their rapid onsets and their rapid loss of action
- ▶ Short-acting opioids have greater fluctuation in blood levels when compared to long-acting opioids

### Opioid Side Effects

- Constipation
- Nausea/vomiting
- Respiratory Depression
- Allergies

### Oxycodone

- ▶ All doses should be titrated to appropriate effect
- ▶ Available as immediate release and extended release formulations
  - ▶ Immediate release Dosing: 5-15mg Q 4 - 6 hrs PRN, use lowest dose possible to control pain
  - ▶ Extended Release Dosing: 10mg - 80mg Q 12 hrs routine
    - ▶ Doses > 40mg/dose or 80mg/day are only for opioid tolerant patients
    - ▶ Opioid Tolerant Pts: 60mg PO morphine daily, 30mg PO oxycodone daily, Fentanyl Patch 25mcg/24hr or another equivalent opioid dose for at least 1 week

### Oxycodone - Continued

- ▶ Tolerance can occur
  - ▶ Occurs over time, need a higher dose to provide the same relief that a lower dose previously provided

### Fentanyl Patch

- ▶ Active Drug: Fentanyl (available in multiple different preparations)
- ▶ Very Potent drug (mcg dosing vs mg dosing for other opioids)
- ▶ Dosing: 12mcg to 100mcg patches available
  - ▶ Titrate to effect
  - ▶ Apply patches every 72 hrs, REMOVE old patch before placing new patch

### Fentanyl Patch - Continued

- ▶ Medication is absorbed through the skin, so you do not need to place patch "where it hurts"
- ▶ Clip (do not shave) excess hair before application
- ▶ Apply to intact, non-irritated skin on chest or upper/outer arm
- ▶ Press patch on skin for 30 sec to ensure adhesion

### Fentanyl Patch - Continued

- ▶ Apply a new patch if the old one falls off
- ▶ Can cover with First Aid Tape or Tegaderm if patch has trouble staying on
- ▶ Do not cut patch
- ▶ Some patients may require patches to be changed Q 48 hrs
- ▶ Avoid external heat sources (heating pads, electric blankets, hot tubs, heat lamps)
  - ▶ Could cause increased absorption

### Opioid Induced Constipation

- ▶ Monitoring
- ▶ Prevention
  - ▶ Water
  - ▶ Fiber
  - ▶ Laxatives
  - ▶ Relistor (methylnaltrexone)
    - ▶ Indicated for Opioid induced constipation
    - ▶ Once daily oral or injectable

### Adjuvants

#### General Principles

- Use the right one
- Titrate one medication at a time
- Watch of additive side effects
- Increase slowly

### Adjuvants - continued

- |                   |                   |
|-------------------|-------------------|
| • Anticonvulsants | • Antihistamines  |
| • Gabapentin      | • Hydroxyzine     |
| • Pregabalin      | • Miscellaneous   |
| • Carbamazepine   | • Baclofen        |
| • Antidepressants | • Bisphosphonate  |
| • Duloxetine      | • Calcitonin      |
| • Amitriptyline   | • Corticosteroids |

### Specialized Pain Treatments

- ▶ Bone Pain
  - ▶ Dull, Aching, Localized
  - ▶ NSAID with/without opioid
  - ▶ Bisphosphonate
- ▶ Neuropathic Pain
  - ▶ Burning, aching, extremely painful, shock
  - ▶ Corticosteroid with/without opioid
  - ▶ With/without antidepressant or anticonvulsant
  - ▶ Adjuvants

### Specialized Pain Treatments

#### Muscle Spasms and Spasticity

- ▶ Diazepam
- ▶ Baclofen
- ▶ Local Anesthetics/Topicals
  - ▶ EMLA
  - ▶ Lidoderm
  - ▶ Sprays/Creams
  - ▶ Capsaicin - Counterirritant

### Agents to avoid

- Talwin - low activity, hallucinations, delirium, agitation
- Meperidine (Demerol) - short duration of action, seizures, erratic and variable absorption orally



### Non-Pharmacological Treatments

- ▶ Ice/Heat
- ▶ Massage
- ▶ PT
- ▶ Acupuncture
- ▶ Chiropractor
- ▶ Relaxation
- ▶ Music
- ▶ Aromatherapy
- ▶ TENS
- ▶ Repositioning
- ▶ Distraction

### Non-Pharmacological Treatments

- ▶ Pet Therapy
- ▶ Virtual reality
- ▶ Meditation
- ▶ Yoga
- ▶ Dry needling
- ▶ Spiritual Support and comfort
- ▶ Coping techniques
- ▶ Education
- ▶ Art

### Pharmacogenomics

- ▶ CYP 2D6
  - ▶ 25% of drugs use this pathway
    - ▶ Tramadol and Codeine
  - ▶ 29% of Ethiopians are ultra-rapid metabolizers



### Pharmacogenomics - continued

- ▶ CYP 2C9
  - ▶ NSAIDs
    - ▶ Caucasians highest percentage of poor metabolizers
      - ▶ Side effects
      - ▶ Decreased doses
      - ▶ Polymorphisms

### Pharmacogenomics - continued

- ▶ OPRM1
  - ▶ G allele - can indicate better pain tolerance
- ▶ OPRK1 & OPRD1
  - ▶ Show a relation with potential addiction and dependence

### Pharmacogenomics - continued

- ▶ COMT
  - ▶ Breaks down adrenaline and dopamine, these modulate pain.
  - ▶ This can cause increased perception or decreased perception of pain
- ▶ 5HTT
  - ▶ Serotonergic system modulates depression. Serotonin works with analgesic agents to reduce pain; chronic pain patients are more likely to develop depression which will respond to treatment
  - ▶ Knowing about a genetic predisposition to depression may affect the way we want to treat pain

### Effective Pain Management

- ▶ Identify
  - ▶ Baseline knowledge
    - ▶ Staff AND Families
  - ▶ Needs
  - ▶ Attitudes
  - ▶ Competency
- ▶ Educate
  - ▶ Dispel myths
  - ▶ Multi-disciplinary
- ▶ Measure and Assess

### Solutions for Everyone

- ▶ Display a caring attitude
- ▶ Talk to the resident (regardless of comprehension)
- ▶ Talk **TO** the resident
- ▶ Communicate about what works
- ▶ Take care of basic needs

### Conclusion and Other Caveats

- ▶ Use non-pharmacological treatments
- ▶ Be clear about the use of multiple PRNs
- ▶ Watch for Side Effects
- ▶ Assess & Document
- ▶ Who's responsible?

### Questions?

