

Identifying and Managing Pain in Older Adults

Romayne Gallagher MD, CCFP(PC), FCFP

Palliative Care Program & Complex Pain Program

Providence Health Care



Conflict of Interest Disclosure:

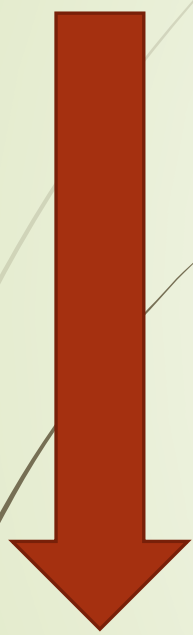
- Speaker Name: Dr. Romaine Gallagher
- Program Title: Identifying and Managing Pain in Older Adults

Financial Disclosure:

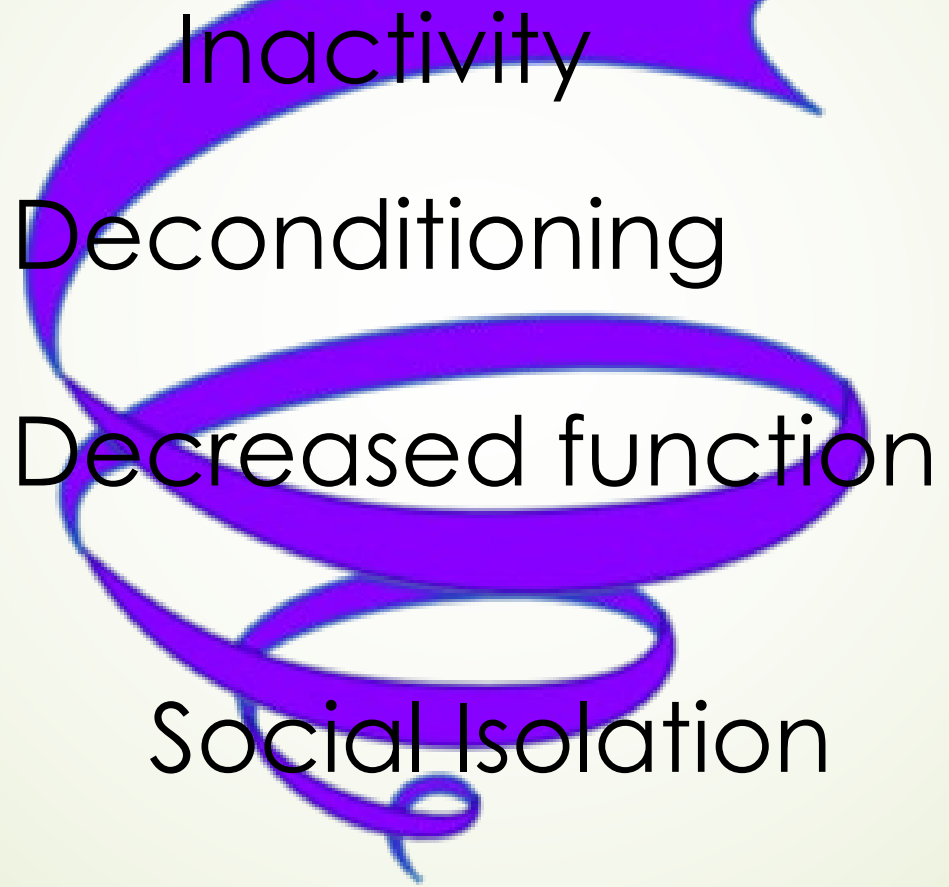
- Grants/Research Support: None
- Speakers Bureau/Honoraria: Purdue Pharma,
- Consulting Fees: None
- Other: Purdue Pharma, Teva

PAIN

Independent Living



Dependent Living



Quality of Life & Mood
Good



Poor



Painful vs Nonpainful Vertebral Fractures

- ▶ 581 patients with vertebral fractures observed for an average of five years
 - ▶ 367 had significant pain
 - ▶ Comparison of survival rates between those with pain and those without pain
- ▶ McDonald et al. 2011 American Journal of Neuroradiology

Painful vs Nonpainful Vertebral Fractures

- ▶ Non-painful survival rate:

- ▶ Expected = 79%

- ▶ Observed = 77%

- ▶ $p = .146$

- ▶ Painful survival rate:

- ▶ Expected = 79%

- ▶ Observed = 61%

- ▶ $p < .001$

▶ McDonald et al. 2011 American Journal of Neuroradiology



Pain Assessment

Brief Pain Inventory

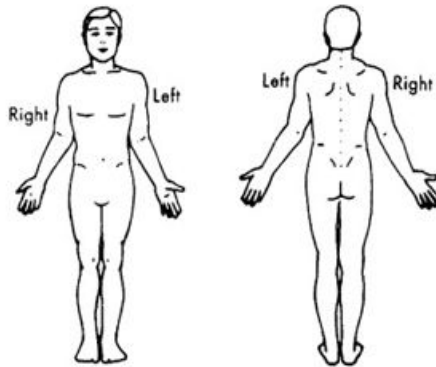
FORM 3.2 Brief Pain Inventory

Date ___ / ___ / ___ Time: _____

Name: _____
Last First Middle Initial

1) Throughout our lives, most of us have had pain from time to time (such as minor headaches, sprains, and toothaches). Have you had pain other than these everyday kinds of pain today?
 1. Yes 2. No

2) On the diagram shade in the areas where you feel pain. Put an X on the area that hurts the most.



3) Please rate your pain by circling the one number that best describes your pain at its **worst** in the past 24 hours.

0 1 2 3 4 5 6 7 8 9 10
 No pain as bad as you can imagine

4) Please rate your pain by circling the one number that best describes your pain at its **least** in the past 24 hours.

0 1 2 3 4 5 6 7 8 9 10
 No pain as bad as you can imagine

5) Please rate your pain by circling the one number that best describes your pain on the **average**

0 1 2 3 4 5 6 7 8 9 10
 No pain as bad as you can imagine

6) Please rate your pain by circling the one number that tells how much pain you have **right now**.

0 1 2 3 4 5 6 7 8 9 10
 No pain as bad as you can imagine

7) What treatments or medications are you receiving for your pain?

8) In the Past 24 hours, how much **relief** have pain treatments or medications provided? Please circle the one percentage that most shows how much relief you have received

0% 10 20 30 40 50 60 70 80 90 100%
 No Complete relief
 relief

9) Circle the one number that describes how, during the past 24 hours, pain has **interfered** with your:

A. General activity
 0 1 2 3 4 5 6 7 8 9 10
 Does not interfere Completely interferes

B. Mood
 0 1 2 3 4 5 6 7 8 9 10
 Does not interfere Completely interferes

C. Walking ability
 0 1 2 3 4 5 6 7 8 9 10
 Does not interfere Completely interferes

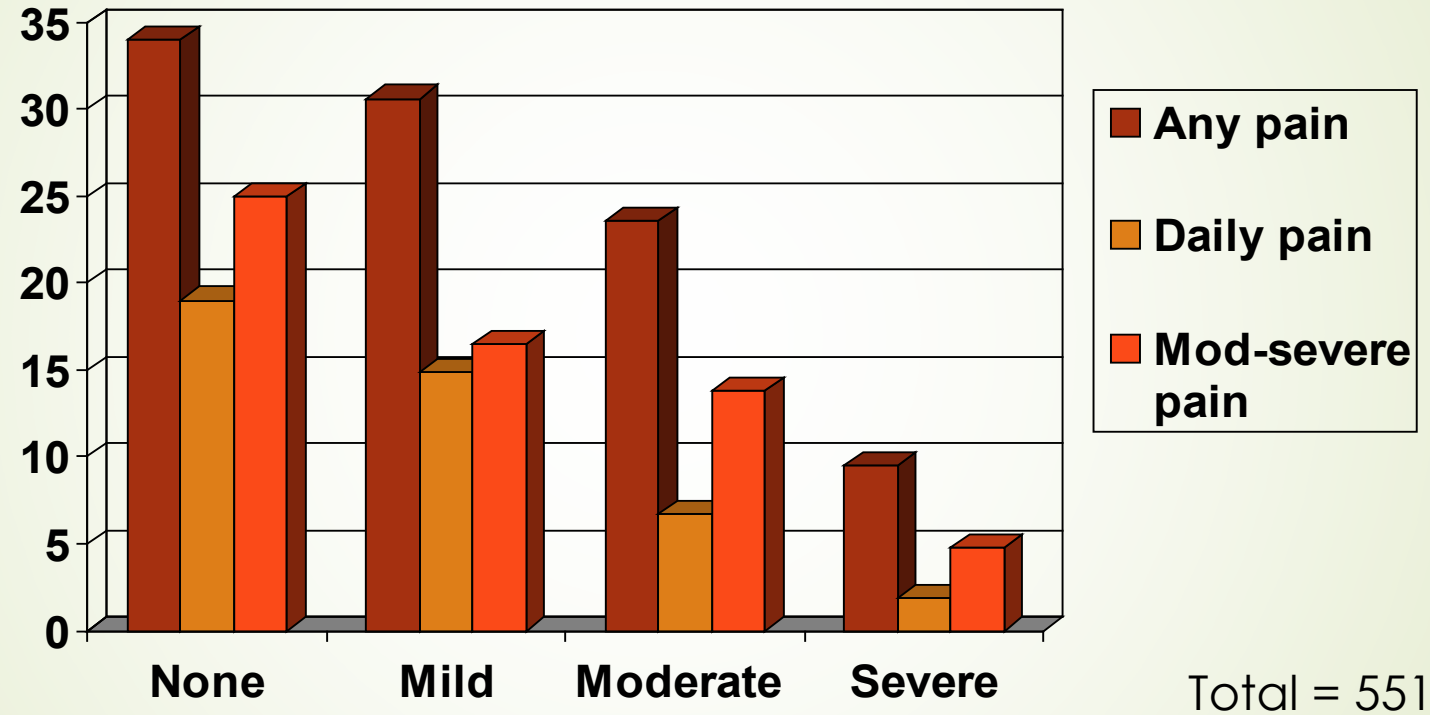
D. Normal work (includes both work outside the home and housework)
 0 1 2 3 4 5 6 7 8 9 10
 Does not interfere Completely interferes

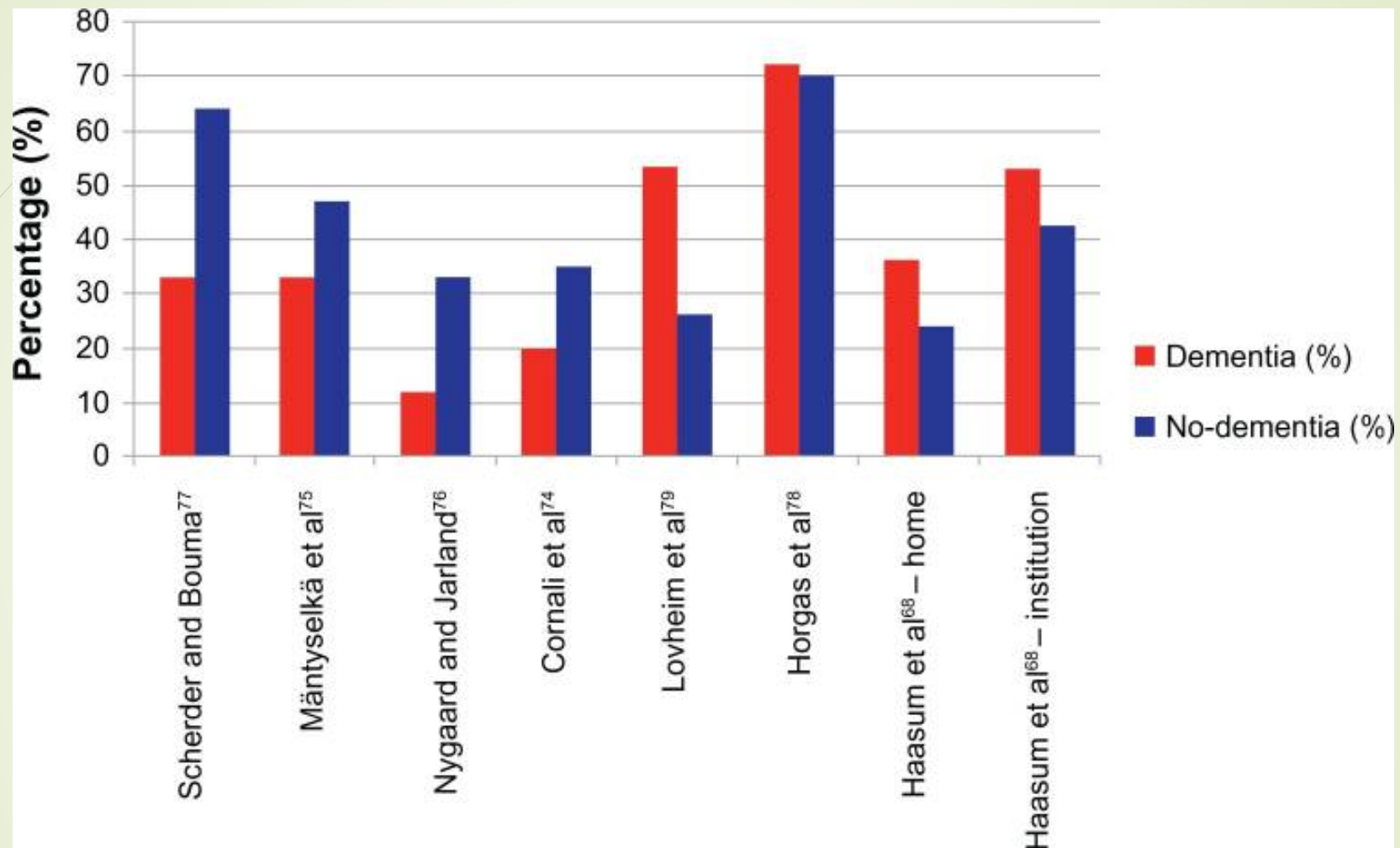
E. Relations with other people
 0 1 2 3 4 5 6 7 8 9 10
 Does not interfere Completely interferes

F. Sleep
 0 1 2 3 4 5 6 7 8 9 10
 Does not interfere Completely interferes

G. Enjoyment of life
 0 1 2 3 4 5 6 7 8 9 10
 Does not interfere Completely interferes

Pain reports and cognitive impairment





Studies on the prevalence of analgesic use in patients with dementia vs no dementia. Achterberg et al Clin Intervent Aging 2013



When should pain be assessed?

- ▶ Upon patient's admission to a facility
- ▶ Whenever a patient has an acute illness or injury; experiences a decline in function; or a change in mood, cognition or behaviour
- ▶ Whenever a patient exhibits unexpected social withdrawal or signs of depression
- ▶ Whenever vital signs are obtained (the “5th vital sign”)
- ▶ At least daily, for patients with a known painful condition
- ▶ Before and after administration of as-needed (PRN) analgesic medication

▶ American Medical Directors Association.
Pain management in the long term care setting. Columbia MD: 2012



Pain Assessment in Verbally Responsive Dementia Patients

- ▶ Focus on present pain “do you hurt right now?”
- ▶ Use verbal reports by staff and family
 - ▶ What was their pre-dementia behavior when in pain?
- ▶ What behavior do staff and family identify as distress?
- ▶ Observations during care, mobilizing or other pain-inducing activities

Medical Problems - Previous and Current

- Other morbidities: CHF, COPD, CRF, CVA, Cancer
- Past painful conditions
 - previous traumatic injuries, medication history
- Past medical history
 - 35% of post stroke patients will have a central post-stroke neuropathic pain
 - Siniscalchia et al. Pharmacol Research 2012
 - Vascular dementia patients likely have similar central neuropathic pain
 - Scherder et al. Drugs Aging 2012
 - 20-24% of diabetics experience painful DPN
 - 25-50% of patients >50 years with herpes zoster develop PHN
 - Schmader Clin J Pain. 2002



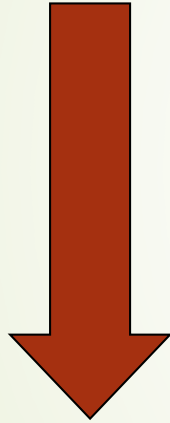
Evidence on imaging/Prior Pain History

- Degenerative joint disease
- Degenerative disc disease
- Spinal stenosis
- Osteoporosis/Compression fractures
- Old traumatic fractures



Hierarchy of Data Sources

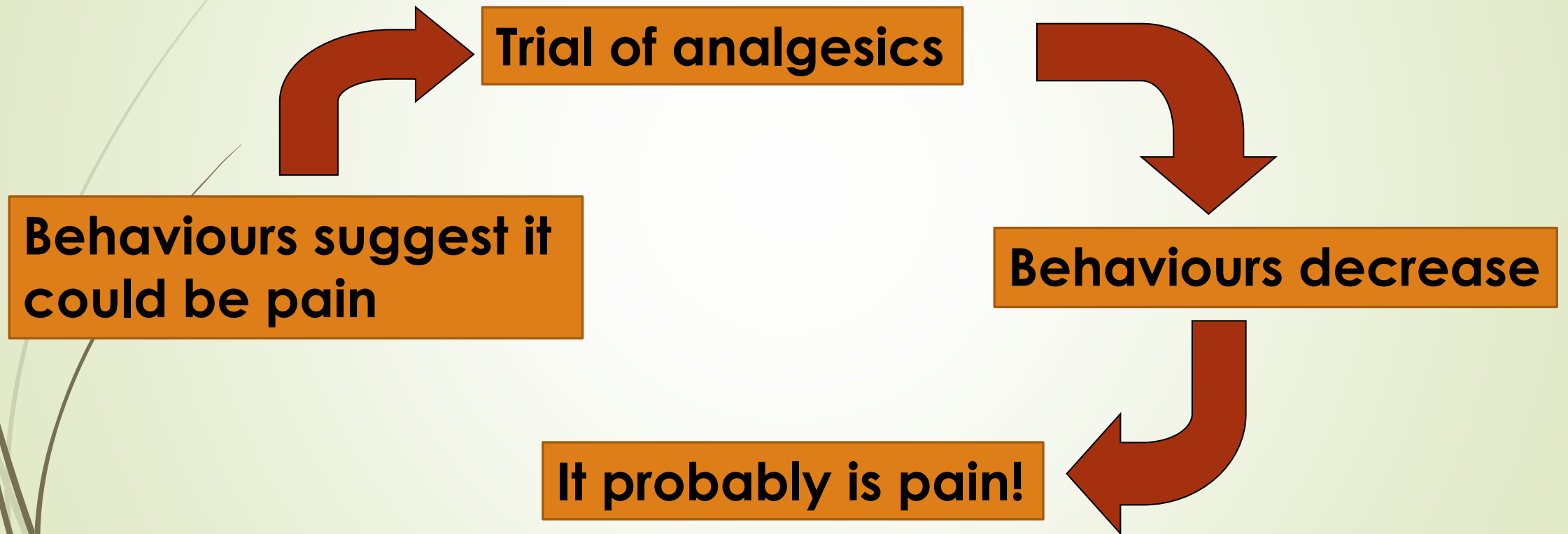
“Most reliable”



“Least reliable”

- Resident report (*if possible*)
- Family/caregiver report
- Prior pain history
- Painful comorbidities
- Behavioral indicators
- Observer assessment

Empirical trials of analgesics

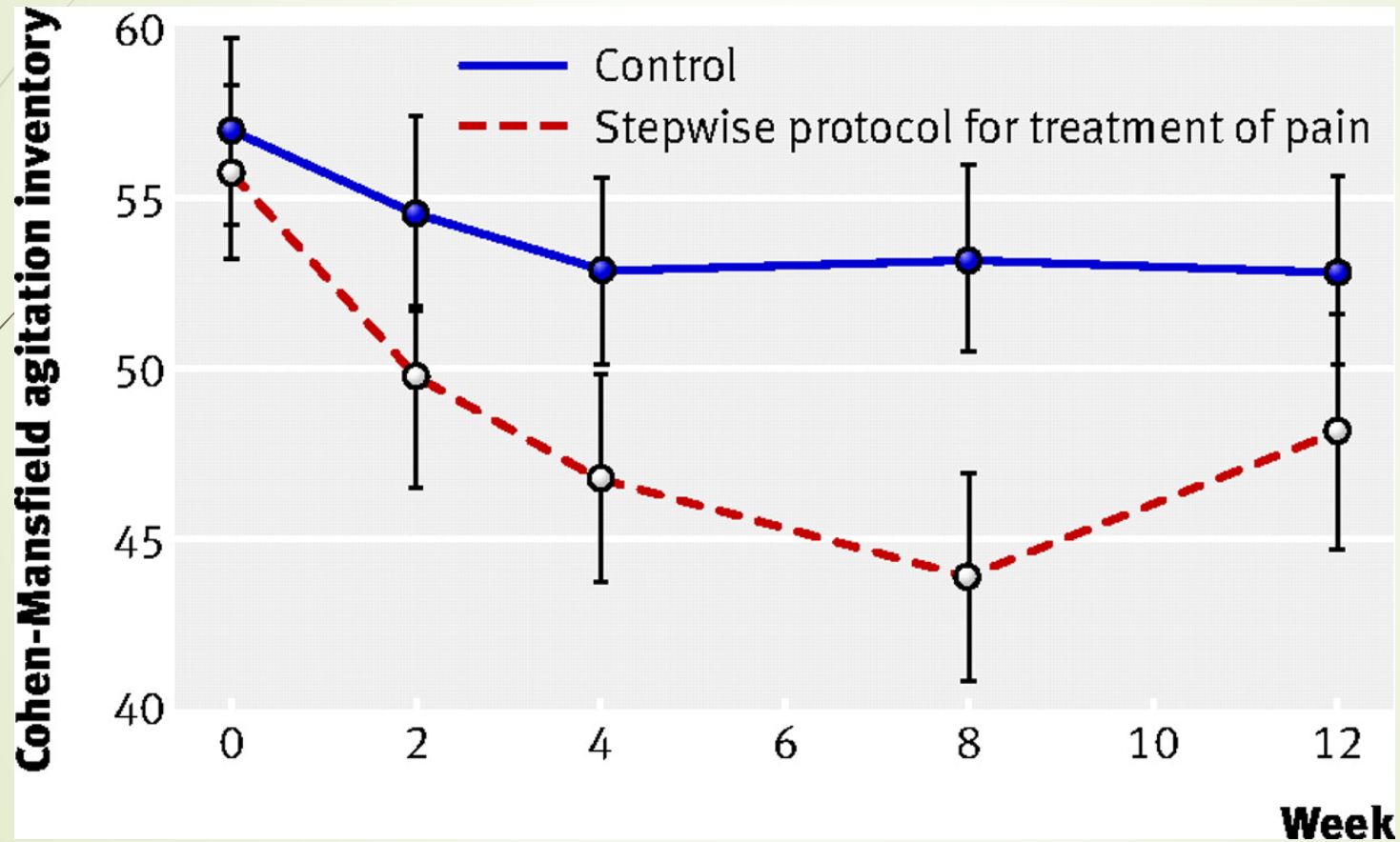




Evidence for empirical trials of analgesics

- ▶ 352 residents in facility care
- ▶ Moderate to severe dementia with agitation
- ▶ Randomized: step wise protocol vs regular care
- ▶ Intervention was daily pain care using step-wise protocol
- ▶ Protocol used acetaminophen – morphine or buprenorphine patch + pregabalin
 - ▶ Husebo et al BMJ 2011


Using step-wise pain management in agitated residents



ADLs and cognition unchanged



Pain Management

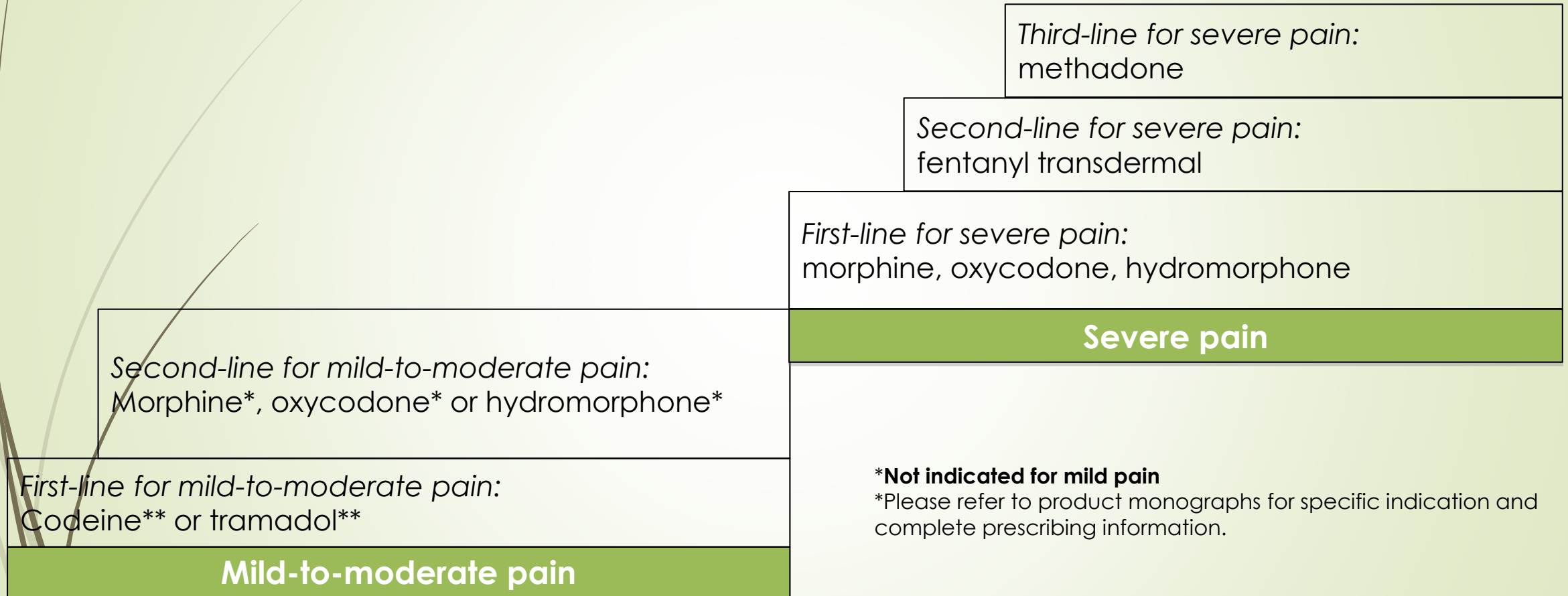
- Non-pharmacologic
 - Pharmacologic
 - Interventional
- 



Non-pharmacologic therapies

- ▶ Education about pain, goal setting, problem solving
- ▶ Cognitive behavioral therapy
- ▶ Relaxation, hypnosis,
- ▶ Exercise – PT/OT
 - ▶ Falls prevention clinics
 - ▶ Yoga
 - ▶ Swimming
- ▶ Devices to restore or assist function – PT/OT
- ▶ Manual therapies – caution in osteoporosis
- ▶ TENS unit – ongoing use with disabilities may be challenging
- ▶ **Most therapies need adequate cognition to be safe and effective**

Pharmacologic Treatment Options: Stepped Approach to Opioid Selection



***Not indicated for mild pain**

*Please refer to product monographs for specific indication and complete prescribing information.



Evidence for analgesics in older adults

- ▶ The efficacy studies for opioids have no patients over 73 years of age
 - ▶ Papaleontiou A et al JAGS 2010
- ▶ Guidelines for management of pain in older adults focus primarily on analgesic efficacy
- ▶ The efficacy of analgesics must be balanced with adverse drug events (ADE) since the risk of ADE are much higher in older adults
 - ▶ O'Neil C et al Am J Geriatr Pharmacother. 2012



Acetaminophen

- Recommended as first line for mild to moderate pain for all ages – up to 4g per day in divided doses
- Analgesic effect is secondary to prostaglandin synthesis
- dose-dependent hepatotoxin
- Pharmacokinetic profile of acetaminophen is highly variable with age
- Older adults with malnutrition, pre-existing liver disease, concomitant use of enzyme-inducing drugs and chronic alcohol use likely need lower doses of 2-3 g per day
 - O'Neil C et al Am J Geriatr Pharmacother. 2012



Acetaminophen

Systematic Review/Meta analysis of RCT

- 10 trials of 3521 patients for OA hip and knee
- 3 trials of 1825 patients for low back pain
- Acetaminophen is ineffective:
 - for reducing pain, disability or improving quality of life in low back pain
- Acetaminophen detectable but not clinically important:
 - for reducing pain and disability in knee and hip osteoarthritis
- Acetaminophen users have almost 4 times likelihood of abnormal liver function tests – effect uncertain
 - Machado et al. BMJ 2015;350:h1225 | doi: 10.1136/bmj.h1225

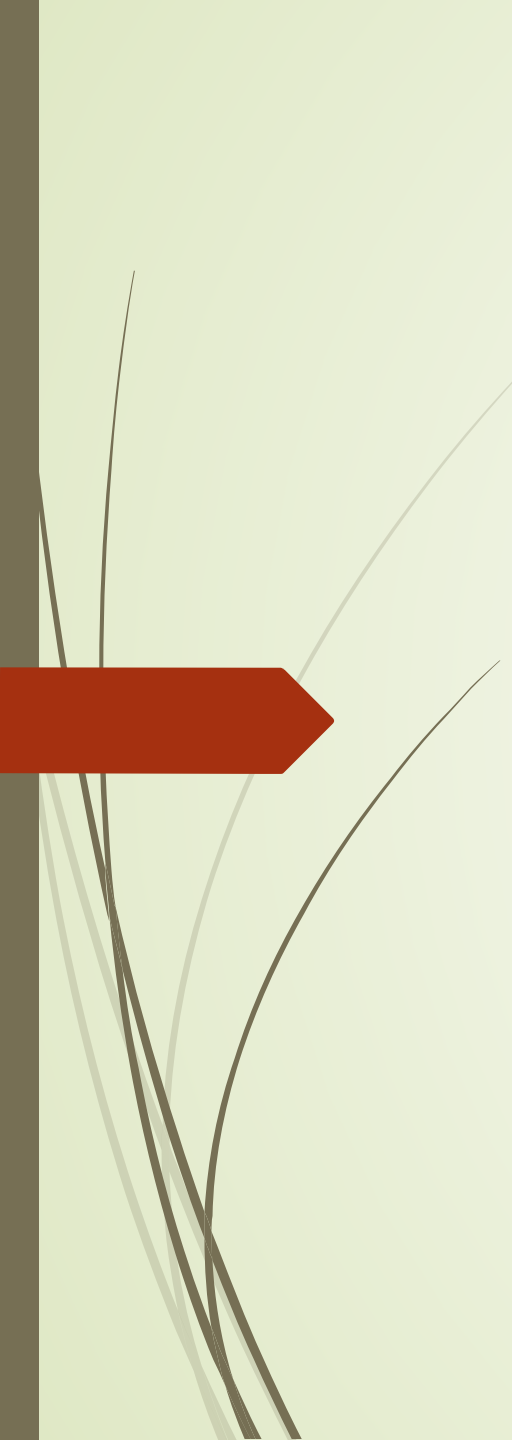


NSAIDS in older adults

- ▶ NSAIDS significantly higher all cause mortality (OR 1.76) than those not receiving NSAID
 - ▶ Kerr et al. Clin Pharmacol 2011
- ▶ Risk of acute renal failure significantly higher in all NSAIDS and significant progression of CKD
 - ▶ Schneider V et al. Am J Epid. 2006
- ▶ Composite cardiovascular outcome (MI, stroke, CHF, cardiac death) higher in all NSAIDS
 - ▶ Solomon et al Arch Int Med 2010

Efficacy of Opioids in Older Adults

- Systematic review and meta-analysis
- 43 studies, 8690 patients, age 60-73, mean age 64 years
- Mean duration of treatment: 4 weeks (12% of studies > 12 weeks)
- Osteoarthritis (70%), neuropathic pain(13%) and other conditions(17%)
- Significant pain reduction ($p < 0.001$), physical disability reduction ($p < 0.001$)
- Sleep improvement ($p = 0.31$)
- Adverse events: constipation (30%), nausea (28%), dizziness (22%)
- Adverse events caused 25% to stop opioid
 - Papaleontiou et al J Am Geriatr Soc 2010



Opioids are the safest class of analgesics for moderate to severe pain in older adults

Why don't we use them?

Opioid adverse events

Addiction and diversion concerns




Opioids and Adverse Event Studies

- Most of the studies do not control for:
 - cognitive impairment/depression
 - CNS active drugs: antidepressants, antipsychotics
 - Gait and mobility problems
- None of the studies consider whether pain is controlled on opioids – hence pain as a factor in adverse events is not eliminated
- Pain is associated with delirium, abnormal gait and increased mortality

Opioid overdose deaths

- ▶ Factors associated with US opioid overdose deaths by category 1999-2009
 - ▶ Host:
 - ▶ Male, middle age, white, lower socioeconomic status, mental health problems, conditions causing chronic pain
 - ▶ Agent:
 - ▶ Opioid analgesics, benzodiazepines, high prescribed dosage for opioid analgesics, multiple prescriptions, multiple prescribers
 - ▶ Environment:
 - ▶ rural residence, communities with higher levels of usage of prescription drugs prone to abuse
 - ▶ Paulozzi L, J Safety Research 2012
- ▶ **Opioid overdose deaths do not occur in older adults**
- ▶ **Ensure that older adult's opioids are never shared or accessed by others**



What do I need to know
to be a better prescriber
in older adults?



General factors affecting absorption, distribution & elimination - Age

- Absorption: clinically inconsequential.
- Distribution: Lean mass to fat ratio increases with age resulting in higher concentrations of fat-soluble drugs
- Serum albumin may decrease: more unbound drug and enhanced drug effects




General factors affecting absorption, distribution & elimination - Age

- Drugs with active metabolites can accumulate due to age-related decreases in renal clearance. Example: benzodiazepines, amitriptyline and some opioids
- The accumulation of active metabolites can cause toxicity in the elderly due to. Toxicity is likely to be severe in those with renal disease.



Opioid classes

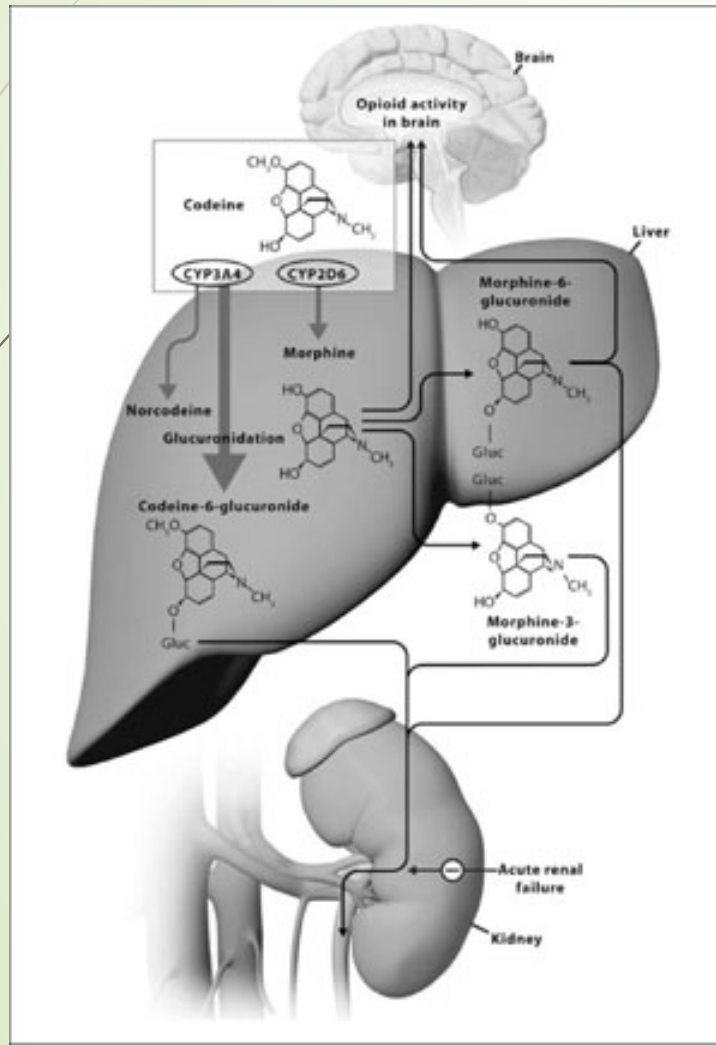
- ▶ Are all opioids the same?
 - ▶ Opioids bind to three opioid receptors with differing effects
 - ▶ There are at least two distinct classes of opioids based on structure
 - ▶ Methadone also targets NMDA receptors
 - ▶ There are two pathways of metabolism for opioids
 - ▶ Two opioids are lipophilic and the rest are more hydrophilic



Opioids of choice in frail elderly and renal failure

- Hydromorphone is better than morphine and codeine
- Oxycodone
- Fentanyl
- Methadone
- Buprenorphine

Codeine, morphine, hydromorphone metabolism



Glucuronidation
10% of codeine becomes
morphine

Morphine and
hydromorphone are both
glucuronated to active
metabolites.

The metabolites cause
neuroexcitation

Hydromorphone metabolites
are cleared more quickly
than morphine



Opioid Induced Neurotoxicity

➤ Definition

- Neuroexcitability manifested by agitation, confusion, myoclonus, hallucinations and rarely seizures

➤ Predisposing Factors:

- High opioid doses
- Recent rapid dose escalation
- Dehydration
- Renal failure
- Advanced age – lack of cognitive reserve, pharmacokinetics changes
- Other psychoactive drugs

*Daeninck PJ, Bruera E. Acta Anaesthesiol Scand. 1999

Tramadol

- ▶ Dual Action
 - ▶ Opioid agonist
 - ▶ Inhibits reuptake of Serotonin and Norepinephrine
- ▶ Metabolism: like codeine requires metabolism to become active
- ▶ View as a **weak opioid** – i.e. for moderate pain
- ▶ Available dosage strengths (CR tramadol, q24h)
 - ▶ 150mg q24h is the usual adult starting dose for opioid naïve patients
 - ▶ Not to exceed 400 mg total daily dose
- ▶ Recent report of increased risk of hypoglycemia and hyponatremia
 - ▶ Fournier et al. JAMA Internal Medicine 2015; Fournier et al Am J Med 2015
- ▶ Recent report of 29% nausea and vomiting in palliative patients
 - ▶ Husic et al. Mater Sociomed 2015



Fentanyl patch

- Fentanyl is highly lipophilic and poorly absorbed orally
- A 25mcg fentanyl patch = 100mg morphine/day = 20 Tylenol #3 per day
- Takes 12 hours for onset of analgesia
- Need adequate subcutaneous tissue for absorption
- Takes 24 hours to reach maximum effect
- Change patch every 72 hours
- Dosage change after six days on patch

Sufentanil for incident pain

- Well absorbed through buccal, sublingual and nasal mucosa
 - Onset is 5-10 minutes
 - Cleared in 30 minutes
 - 12.5mcg- 25mcg starting dose
 - Up to 100mcg per dose
 - For sublingual use must be able to follow directions
- If unable to follow directions may use intranasally





CR Oxycodone – resistant to crushing

- CR Oxycodone in a new formulation
- Turns to gel on contact with water
 - not injectable
 - can't delay swallowing
- Extremely crush resistant
- Pharmacare does not cover at this time



Oxycodone/Naloxone CR tablets

- Oxycodone with core of naloxone
- Lower incidence of constipation
- Naloxone not absorbed from the gut – no effect on analgesia
- Comes in 5, 10, 20, 40mg oxycodone size
- Not covered by Pharmacare but may have other coverage



Buprenorphine

- ▶ Partial agonist of mu receptor
- ▶ Requires metabolism to become analgesic
- ▶ Slow onset, highly bound to receptor
- ▶ Can be started in opioid naïve patients
- ▶ Ceiling effect – consider as a weak opioid
- ▶ Comes in patch that lasts 7 days
- ▶ Useful for moderate pain
- ▶ Buprenorphine patch currently not reimbursed by Pharmacare – may have other coverage



Methadone in older adults

- Well tolerated and effective
- Starting dose 1mg q12hr
- Well absorbed orally and buccally
- Titrate once weekly only
- Use other short acting opioid for breakthrough pain while titrating methadone
- Use methadone for breakthrough dose bid-tid once on stable dose

➤ Gallagher Pain Med. 2009



Titrating opioids

- Increase dose by 15-20% each time if symptom not controlled
- Starting with long acting opioids?
 - Officially NO but in reality.....
 - In residential care inadequate staff to do q4hr opioids
 - Oxycodone SR 5mg = 1.5 Tylenol #3
 - Methadone 1mg q12 hrs = 2 Tylenol #3
 - ½ 12mcg patch = 5 Tylenol #3
- Buprenorphine patch is safe in opioid naive



Treating constipation

- Docusate not useful
- Senna helpful but can cause cramps
- Lactulose works well but horrible taste
- PEG 3350 (Laxaday) works well and can be mixed with drink of choice. Takes a few days to establish a best dose



Neuropathic Pain Adjuvants

- NNT for gabapentin 4.1- 6.8
- NNT for opioids 1.9-3.4
 - Finnerup et al. Pain 2005
- Anticonvulsants not well tolerated in oldest adults – ie gabapentin, pregabalin, topiramate
 - 32% withdrawal from study of pregabalin in neuropathic pain
 - Dworkin et al Neurology 2003



Neuropathic Pain Adjuvants

- ▶ TCAs have intolerable side effects
 - ▶ In a trial of TCA vs opioids for neuropathic pain both were effective but patients preferred opioids (54%) to TCAs(30%) to placebo(10%) $p=0.02$
 - ▶ Raja et al Neurology 2003
- ▶ SNRIs are likely the best option for older adults with neuropathic pain
 - ▶ Study of >80 years old found it safe and efficacious for depression
 - ▶ Baca et al Int J Geriatr Psychiatry 2006

Strategy for managing pain in residential care

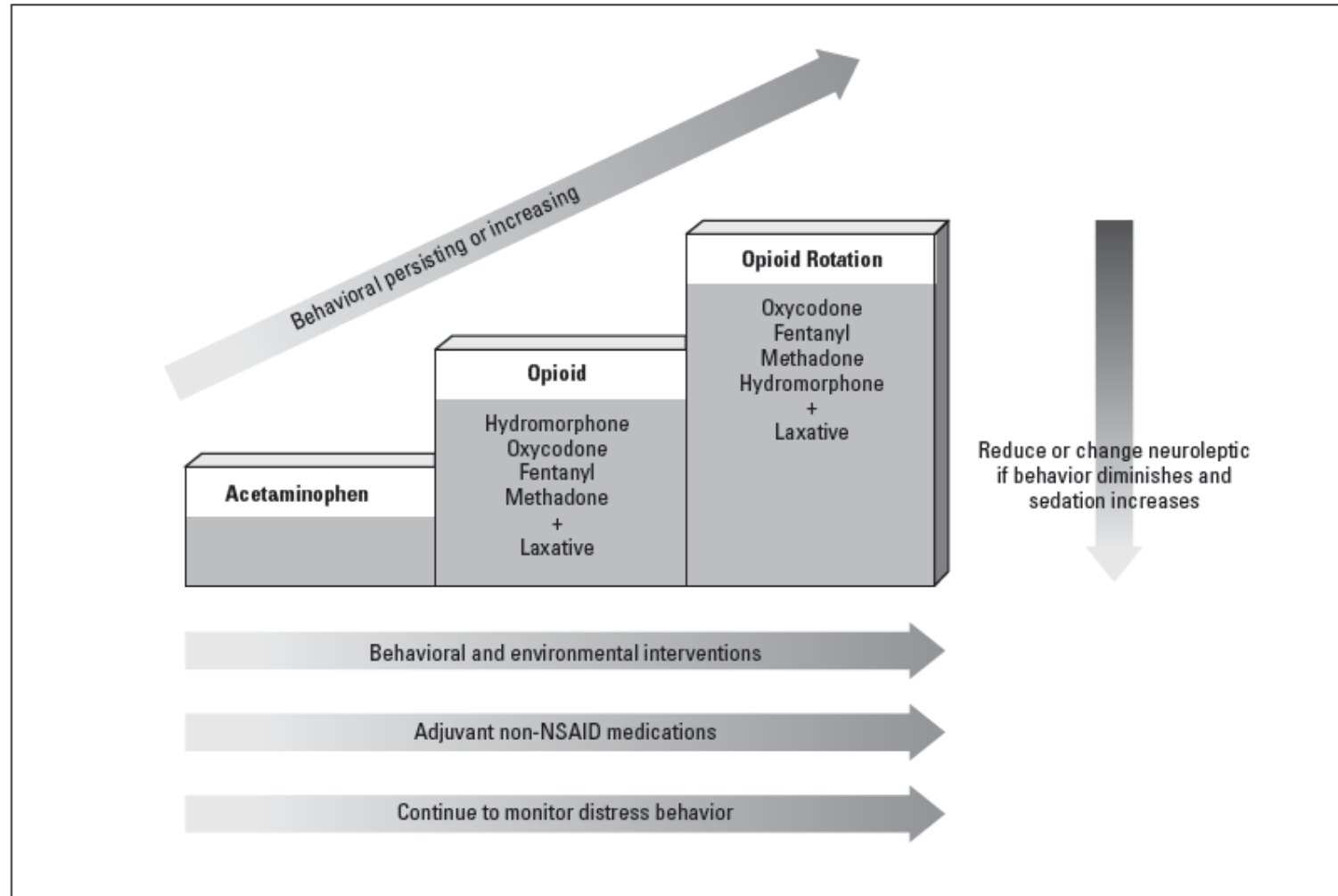


Figure. Trial of analgesics for older adults with advanced dementia exhibiting distress behavior.

Adapted from the World Health Organization's "Three-step analgesic ladder" for cancer pain relief¹⁷



Pain Interventions

- ▶ Vertebroplasty
 - ▶ CT scan more accurate than X-ray
 - ▶ May improve pain even past acute fracture period
 - ▶ Done as outpatient
- ▶ Epidural steroid injection
 - ▶ Spinal stenosis, nerve root entrapment: multiple sites
- ▶ Nerve root injection
 - ▶ Single site

iPal

- Essential information for palliative care
- Web-based app works on any smart phone
- <http://ipalapp.com>
- Developed by Providence Health Care Palliative Care Program

Assess	+
Manage	+
Plan	
Communicate	
Scale	
Contact	
<input type="text"/>	Search

WHAT IS IPAl ?

