BCPRA EOL Champion Training

Pain Assessment and Management

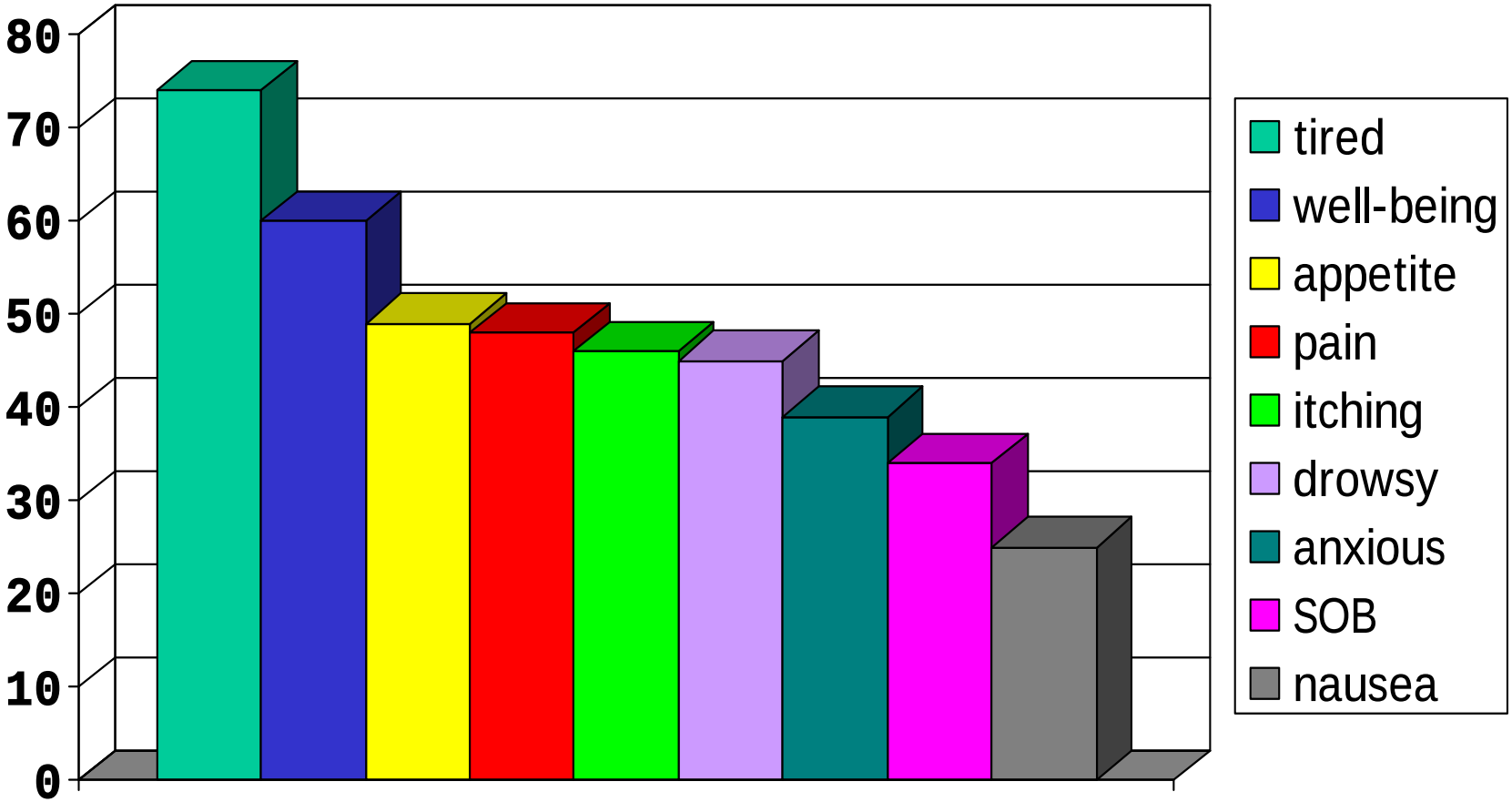
BC Renal Agency
An agency of the Provincial Health Services Authority

Objectives

- Understand the prevalence and severity of symptoms in patients with advanced CKD
- Describe the assessment tools used to evaluate symptoms in patients with advanced CKD
- Understand approaches to pain management
  - Use of appropriate analgesics
  - Utilization of pain algorithms
- Describe the role of the multidisciplinary team to effectively manage symptoms
- Understand when to consult palliative care and chronic pain experts
- Describe how to integrate symptom assessment & pain management strategies into the everyday work of the renal team

Symptom Burden in Dialysis Patients

n = 507



Davison, et al KI 2006;69:1621

Severity of Pain: Brief Pain Inventory Scores

Severity (n=103)	Mild (0-3)	Moderate (4-5)	Severe (6-10)	Mean BPI Score
Worst	17.5%	82.5%		7.03
Least	74.8%	16.5%	8.7%	3.07
Average	41.7%	58.3%		5.61
Now	44.7%	28.2%	27.2%	4.99

Cause of pain is NOT predictive for severity of pain

Davison, AJKD 2003

The Impact of Pain and Overall Symptom Burden for ESRD Patients

	No – Mild pain	Mod – Severe pain	Odds Ratio	P
Depression	18%	34%	2.31	0.01
Insomnia	53%	75%	2.32	0.02

Davison JPSM 2005

Symptom burden accounted for 29% of the impairment in physical HRQL and 39% of the impairment in mental HRQL

Davison KI 2006

Change in symptom burden accounted for 34% of the change in physical HRQL and 46% of the change in mental HRQL.

Davison NDT 2006

Point Prevalence of Analgesic Use: DOPPS

Analgesic	Number of Patients	
	1997 N = 2988	2000 N = 2476
Any analgesic	30.2%	24.3%
Any narcotic	18.0%	14.9%
Any NSAID	6.4%	2.3%
Any acetaminophen	11.1%	6.3%

¾ of patients reporting moderate to severe pain were not prescribed analgesics

Initial Symptom Screening - ESAS

BC Renal Agency

Please circle the number that best describes:

No pain	0	1	2	3	4	5	6	7	8	9	10	Worst possible pain
Not tired	0	1	2	3	4	5	6	7	8	9	10	Worst possible tiredness
Not nauseated	0	1	2	3	4	5	6	7	8	9	10	Worst possible nausea
Not depressed	0	1	2	3	4	5	6	7	8	9	10	Worst possible depression
Not anxious	0	1	2	3	4	5	6	7	8	9	10	Worst possible anxiety
Not drowsy	0	1	2	3	4	5	6	7	8	9	10	Worst possible drowsiness
Best appetite	0	1	2	3	4	5	6	7	8	9	10	Worst possible appetite
Best feeling of wellbeing	0	1	2	3	4	5	6	7	8	9	10	Worst possible feeling of wellbeing
No itching	0	1	2	3	4	5	6	7	8	9	10	Worst possible itching
No shortness of breath	0	1	2	3	4	5	6	7	8	9	10	Worst possible shortness of breath
No problem sleeping	0	1	2	3	4	5	6	7	8	9	10	Worst possible problem sleeping

Patient's Name _____

Date _____ Time _____

Complete by *(check one)*

- ☐ Patient
- ☐ Caregiver
- ☐ Caregiver assisted

BODY DIAGRAM ON REVERSE SIDE

Essentials of Pain Management

1. Believe the patient's report of pain

2. Assess response to treatment regularly until pain is stabilized

3. Educate patients &/or caregivers on home pain assessment and charting

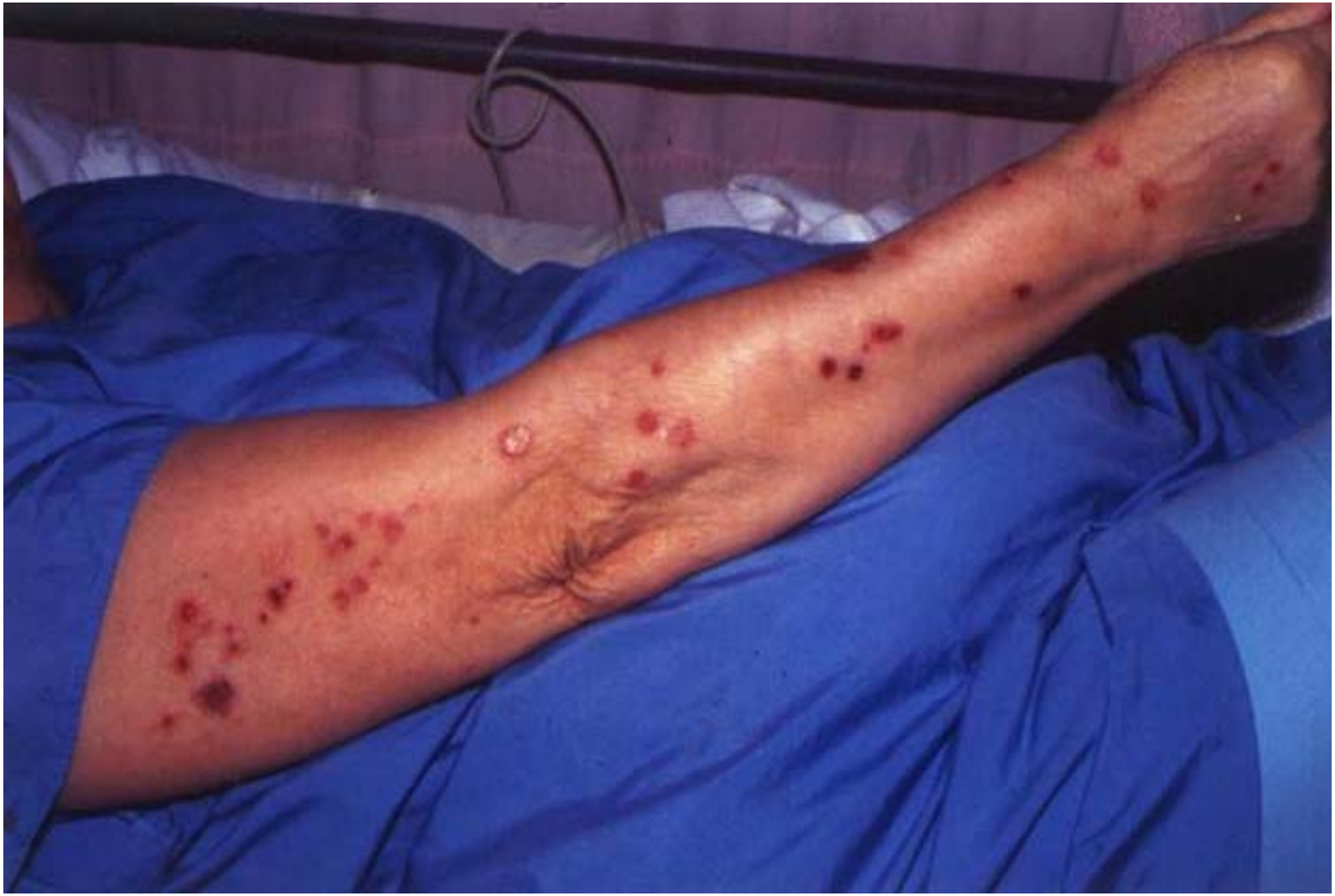
Essentials of Pain Assessment (Pain History)

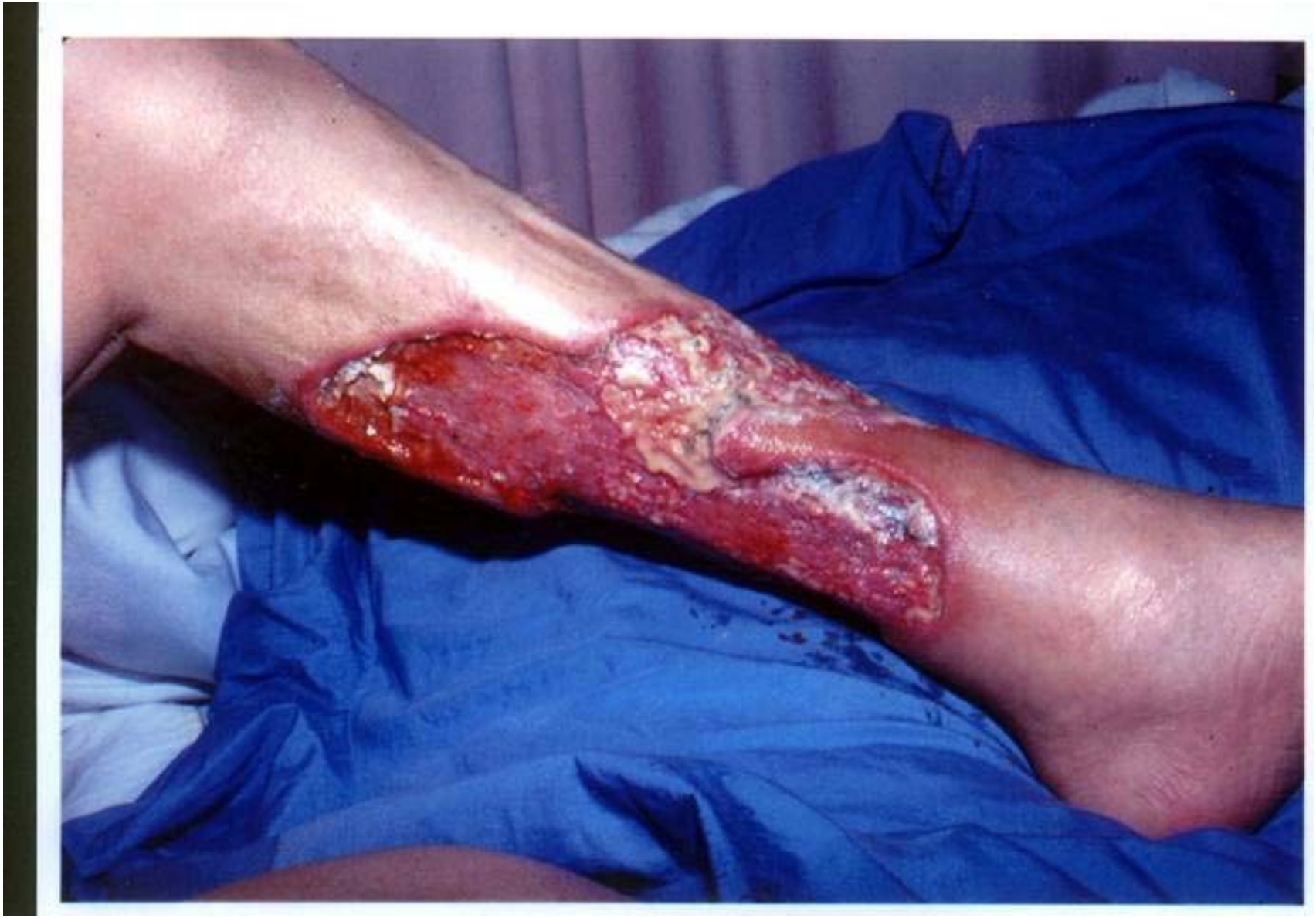
- **Cause of pain**
  - Appropriate investigations and diagnosis
  - Patients may have more than 1 kind of pain; each pain syndrome must be independently diagnosed and treated
- **Type of Pain**
  - Nociceptive, neuropathic, or both
  - Directs analgesic strategy

Etiology of Pain	Percentage (%)
Musculoskeletal	**63.1**
Osteoarthritis	19.4
Musculoskeletal: Not yet diagnosed	18.4
Osteoporosis (resulting in spinal fractures)	9.7
Inflammatory Arthritis	6.8
Renal Osteodystrophy	4.9
Discitis/Osteomyelitis	1.9
Related to Dialysis Procedure	**13.6**
Peripheral Polyneuropathy	**12.6**
Peripheral Vascular Disease	**9.7**
Other (including trauma, PCKD, malignancy, calciphylaxis)	**20.3**

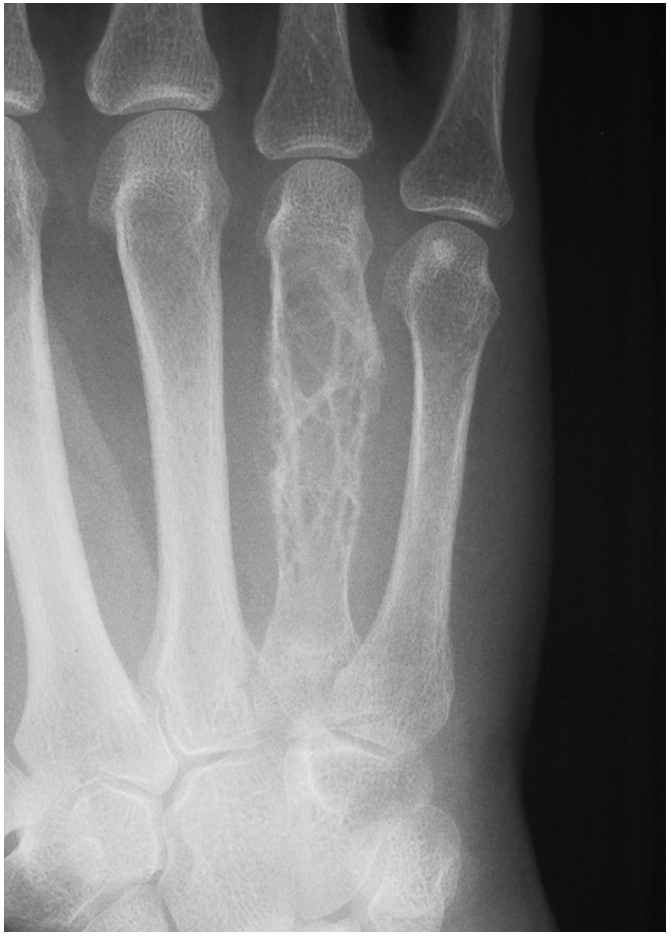
Davison, AJKD 2003

Calciphylaxis (calcific uremic arteriolopathy)





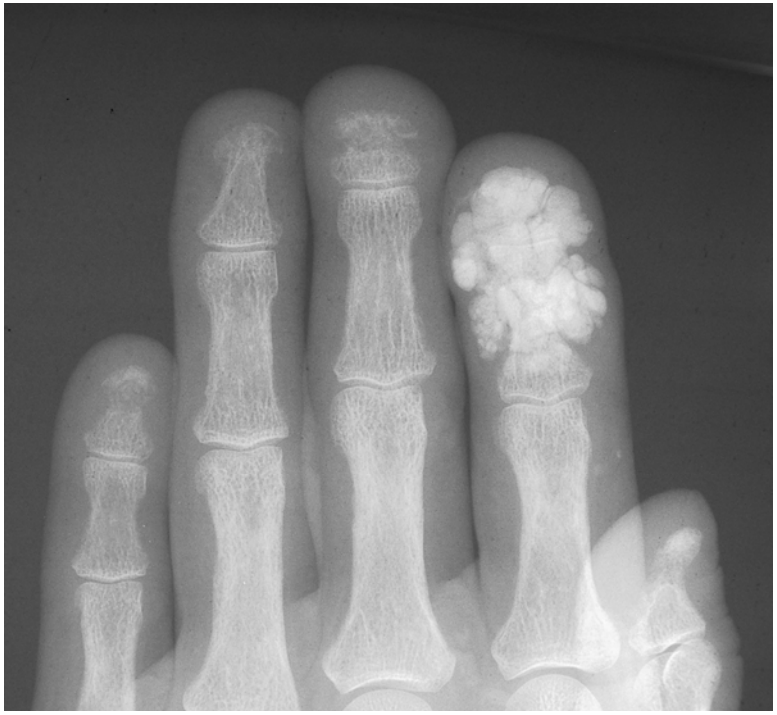
Osteitis Fibrosa



Adynamic Bone Disease

Bone & joint pain (at rest & with exertion)

- fractures
- skeletal deformities



Bone & joint pain: on exertion

Associated with calcium phosphate deposition in arteries, joints, soft tissues, and the viscera

- proximal myopathy
- ruptured tendons
- pseudogout
- calciphylaxis

Questionnaire DN4

Please complete this questionnaire by ticking one answer for each item in the 4 questions below:

INTERVIEW OF THE PATIENT

Question 1: Does the pain have one or more of the following characteristics?

	YES	NO
1 - Burning	❒	❒
2 - Painful cold	❒	❒
3 - Electric Shocks	❒	❒

Question 2: Is the pain associated with one or more of the following symptoms in the same area?

	YES	NO
4 - Tingling	❒	❒
5 - Pins and Needles	❒	❒
6 - Numbness	❒	❒
7 - Itching	❒	❒

EXAMINATION OF THE PATIENT

Question 3: Is the pain located in an area where the physical examination may reveal one or more of the following characteristics?

	YES	NO
8 - Touch Hypoesthesia	❒	❒
9 - Pricking Hypoesthesia	❒	❒

Question 4: In the painful area, can the pain be caused or increased by:

	YES	NO
10 - Brushing	❒	❒

Patient score: /10

Bouhassira D et al. Pain 2005

Pain Assessment

- **Pain history**, appropriate investigations and diagnosis
- **Type of pain** (nociceptive, neuropathic, or both)
- **Psychological symptoms**
- **Goals & expectations of treatment**
- **Pharmacologic** and **non-pharmacologic** interventions
- **Regular reassessment and recording** of pain severity, effects on functioning and HRQL, and adverse effects of current management
  - This can be largely protocol driven
  - Possible role for advanced nurse practitioner or an RN

Initial Pain Assessment

- Self-complete
- Nurse-facilitated

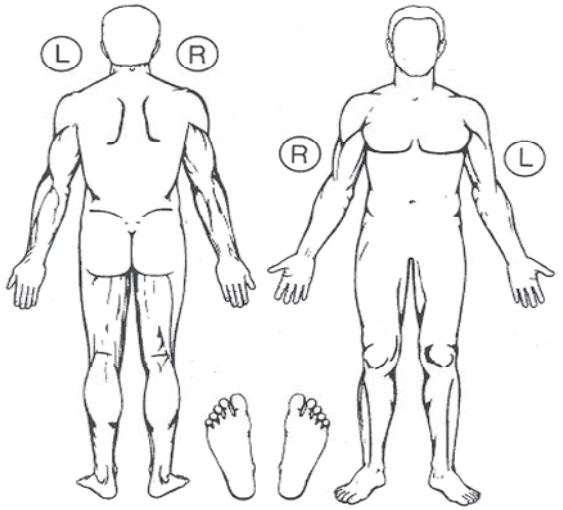
Pain Assessment Tool

Date: _____ Form completed by:_____

Information Source: ☐ Patient ☐ Spouse ☐ Child ☐ Interpreter ☐ Other

1. On the diagram below, circle up to 3 areas where you feel pain the most and label them A, B, C.

2. Please circle all the words that describe your pain(s).



Description
Pins & Needles
Burning
Painful cold
Numbness
Tingling
Electric shock
Itching
Dull ache
Cramping
Throbbing
Other (describe)
_____

3. How much pain are you having? Circle the number that describes overall how much pain you are having - from 0 (no pain) to 10 (worst pain imaginable)

4. Using the 0-10 pain scale above, rate each of your pain(s) **in the last week**:

Scale 0-10	Pain A	Pain B	Pain C
Pain at present			
Pain at its worst			
Pain at its least			
Pain on average			

What makes your pain worse? (e.g. moving, eating)			
What makes your pain better? (e.g. heat, cold, lying still)			
How long does your pain last? (e.g. minutes, hours, constant)			

5. Using the scale below describe how your pain in **the last week has interfered with**:

0 1 2 3 4 5 6 7 8 9 10
|----------|
Does not interfere Completely interferes

Activity	Number (0-10)
General activity	
Mood	
Walking ability	
Normal work (work outside the home and housework)	
Relations with other people	
Sleep	
Enjoyment of life	

6. Rate your 3 *MOST important* goals if you had less pain:
   a. Sleeping comfortably
   b. Comfort at rest
   c. Comfort with movement
   d. Stay alert
   e. Perform activity:
   f. Other (specify): _____

7. Circle where you think your pain level would need to be in order to reach these goals:

0 1 2 3 4 5 6 7 8 9 10
|----------|
No Pain Moderate Worst Pain

8. What medications are you currently receiving for pain?

_____

9. Besides medications, have you ever used any other therapies for your pain? (e.g. heat, cold, acupuncture, TENS, massage, splinting, relaxation, imagery, music, herbs, etc.)

_____

10. What other medications or treatments have you tried to **reduce pain but did not help**?

_____

11. Has the use of pain medications caused bothersome symptoms in the past? (e.g. constipation, drowsiness, nausea, unclear thinking, change in mood, disturbed sleep)

_____

12. How often do your bowels move? _____ Soft or Hard? _____
Current laxatives: _____

13. Please check yes or no for each question below:

Your Family history (parents and siblings)	Yes	No
Alcohol abuse		
Illegal drug use		
Prescription drug abuse		
Personal history		
Alcohol abuse		
Illegal drug use		
Prescription drug abuse		
Your own mental health		
Diagnosis of attention deficit disorder, obsessive compulsive disorder, bipolar, schizophrenia		
Diagnosis of depression		
Other		
History of pre-adolescent abuse (physical, mental, sexual)		

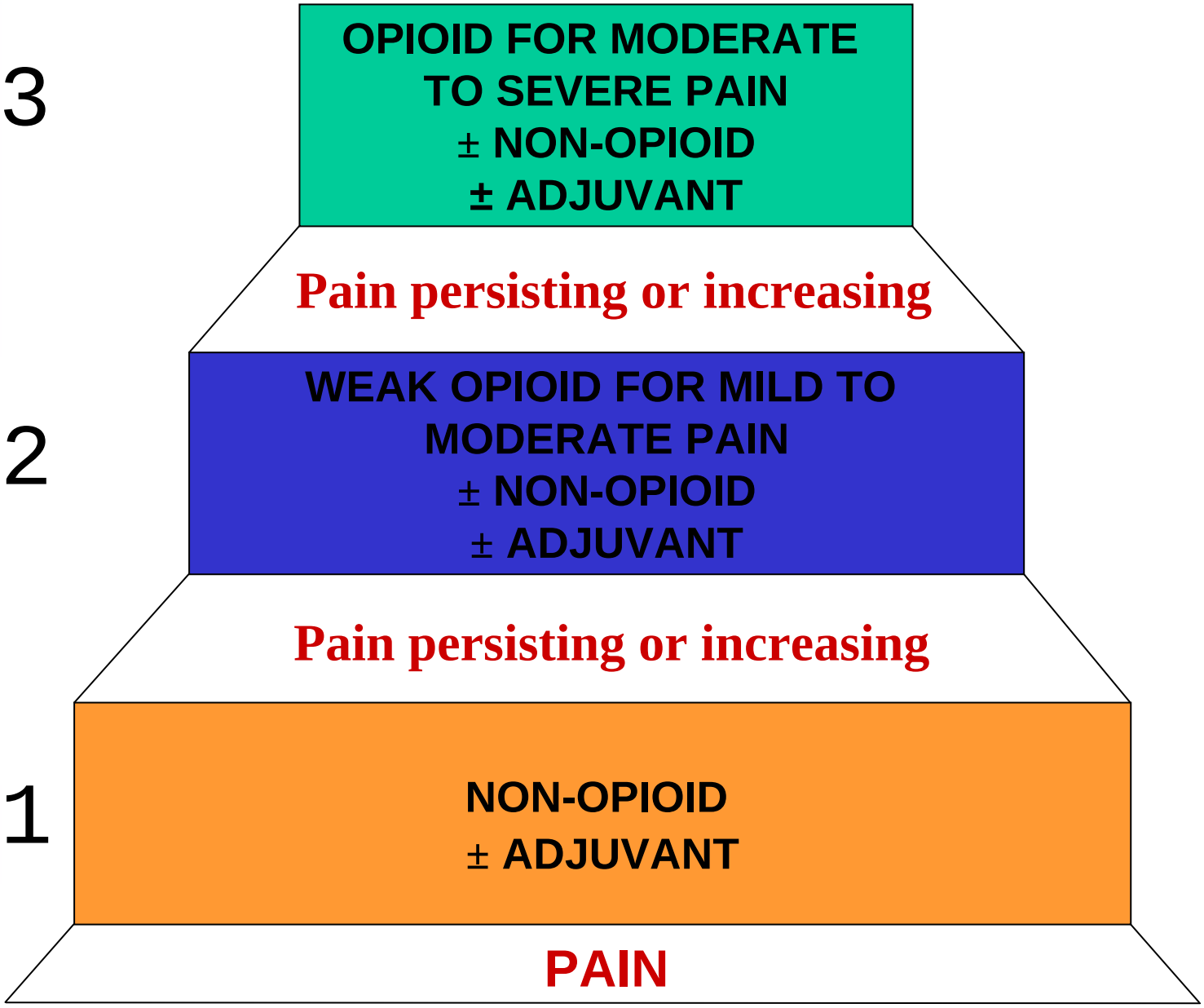
14. Health Professional comments

Principles of Pain Management

- ‘by mouth’
- ‘by the clock’
- ‘by the ladder’
- ‘for the individual’
- ‘attention to detail’

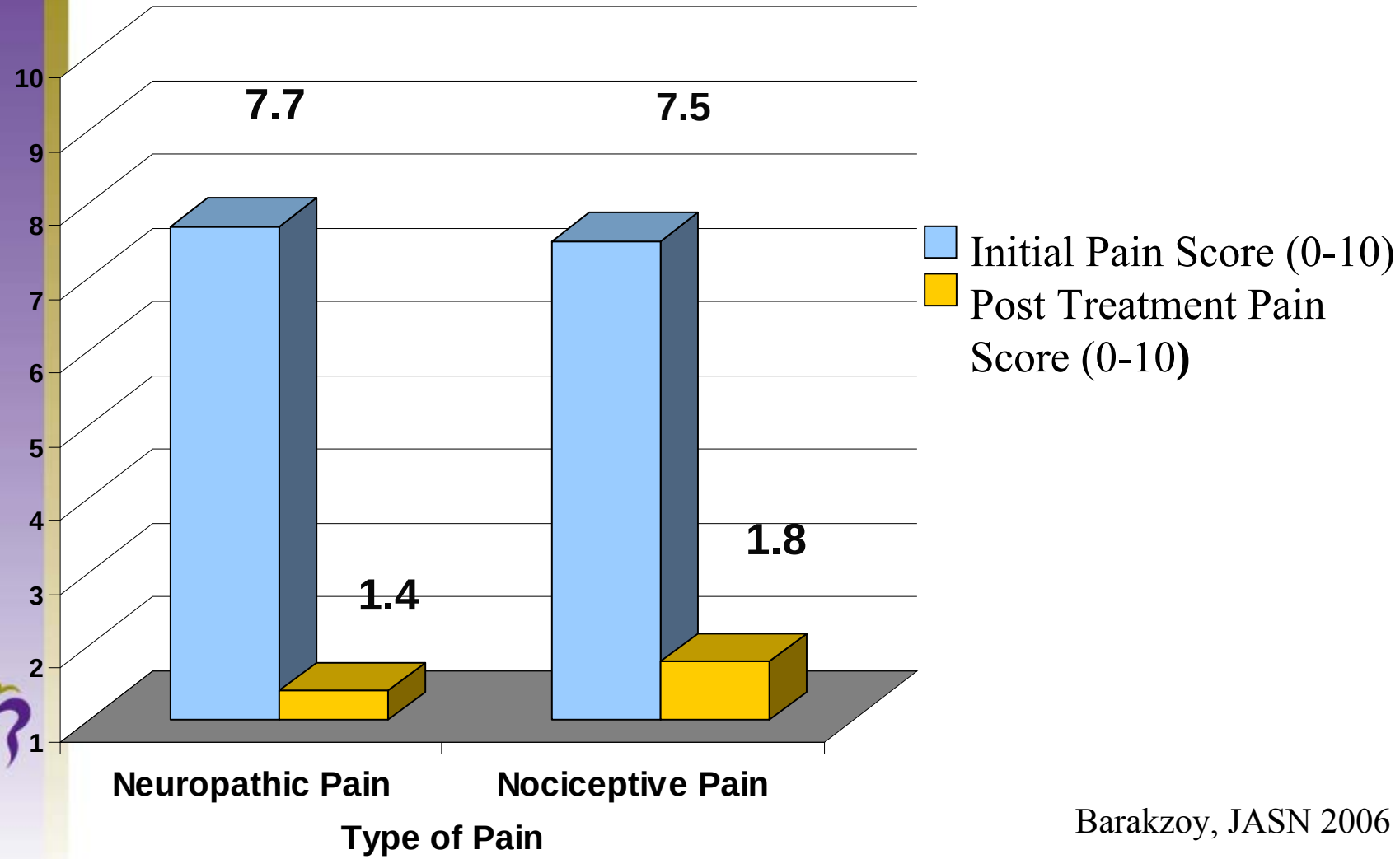
WHO Analgesic Ladder

BC Renal Agency



Efficacy of the WHO Analgesic Ladder to Treat Pain in ESRD

N = 45 HD patients



Barakzoy, JASN 2006

WHO Analgesic Ladder: Step 1

Acetaminophen

- Does not require dose adjustment in ESRD

Non-narcotic of choice for mild-moderate pain in CKD/ESRD

WHO Analgesic Ladder: Step 1

NSAIDS

- Can be used in conjunction with acetaminophen
- Increased risk of bleeding with CKD/ESRD
- Potential cardiovascular risks associated with COX- 2 inhibitors
- Renal side effects: loss of RRF, hyperkalemia, hypertension, hyponatremia
- Topical agents can be used effectively

Not appropriate for chronic pain management in ESRD
More appropriate for specific acute indications e.g. gout

WHO Analgesic Ladder: Step 2

Tramadol

- Non-opioids with similar side effects to opioids
- Should not be given to patients on SSRIs
- Prolongation of ½ life in renal failure (metabolized in liver with renal excretion of active metabolites).
- May be epileptogenic in conditions with lowered seizure threshold such as ESRD

Use with caution in ESRD: maximum dose is 50mg BID

Opioids

Active metabolites are renally excreted

Side Effects

- Constipation
- Nausea and vomiting
- Decreased appetite
- Pruritus
- Hypotension
- CNS and respiratory depression

WHO Analgesic Ladder: Step 2

Codeine

- Weak opioid

- Elimination ½ life is significantly increased in dialysis patients
  - Reports of neurotoxicity
  - Toxicity is unpredictable

Should not be used in ESRD

WHO Analgesic Ladder: Step 2

Dextropropoxyphene

- Weak opioid
- Usually prescribed in combination with acetaminophen
- major active metabolite is norpropoxyphene:
  - accumulates in CKD
  - associated with toxicity

Dextropropoxyphene is contraindicated in patients with advanced CKD

- It has been withdrawn from use in the UK.

WHO Analgesic Ladder: Step 2

Oxycodone

- Elimination significantly decreased in ESRD
  - Fibrillary GN
  - Growing popularity as a drug of abuse and is now considered one of the most desirable of prescription drugs
  - Extremely limited PK/PD data in ESRD

Should be used with caution in ESRD

WHO Analgesic Ladder: Step 3

Morphine

- Active metabolite M6G is renally excreted and accumulates in ESRD
  - Increased side effects and toxicity in ESRD
- No data regarding dose adjustments for sustained-release preparations of morphine

Should not be used for chronic pain management

WHO Analgesic Ladder: Step 3

Hydromorphone

- 5-7 times more potent than morphine (when administered orally), shorter duration of action
- Case reports of adverse effects
- Published and clinical experience indicates that it may be administered safely in ESRD

Lee MA, Palliat Med 2001

May be particularly useful in ESRD patients who have intolerable side effects from other narcotics

- **May cause less pruritus, sedation, & nausea**

Non-Compartmental Pharmacokinetics for Hydromorphone and H3G (n=12)

Phase	t1/2 (h)	AUC(Tau) (ng.h/mL)	R
Hydromorphone			
Dialysis	3.2 ± 2.4	41.6 ± 20.3	1.8 ± 0.8
Multi-Dose	5.9 ± 4.4	33.9 ± 27.3	2.7 ± 1.6
Hydromorphone-3-Glucuronide			
Dialysis	3.3 ± 2.1	3243.9 ± 2768.0	1.8 ± 0.7
Multi-Dose	33.3 ± 41.8	4229.9 ± 2975.4	12.5 ±15.1

Davison, JOM 2008

Non-Compartmental Pharmacodynamics

(n=12)

Phase	Maximum Analgesia (% ± SD	Time to Max Analgesia (hours ± SD)	% time with analgesia (% ± SD)
Dialysis	**-68.8 ± 37.5**	**1.8 (0.5 - 4.0)**	**-66.3 ± 40.1**
Multi-dose	**-65.5 ± 43.3**	**3.0 (0.5 - 4.0)**	**-40.2 ± 21.8**

Davison, JOM 2008

WHO Analgesic Ladder: Step 3

Methadone

- Opioid commonly used for treatment of severe pain or withdrawal in opioid addicts
- High oral bioavailability and a long ½ life
- Essentially no PK data in ESRD; single report suggesting normal levels in ESRD
  - Excreted mainly in the feces, with metabolism into pharmacologically inactive metabolites primarily in the liver, although ~20% is excreted unchanged in the urine

Anecdotal experience suggests a relatively good safety profile in ESRD if monitored carefully.

WHO Analgesic Ladder: Step 3

Fentanyl (transdermal formulation)

- When patients are on a stable narcotic dose

- Essentially no PK data of transdermal formulation or effect of dialysis on levels (one report stated poor removal)

Toxicity has been reported but anecdotal experience suggests a reasonable safety profile in ESRD if monitored carefully

WHO Analgesic Ladder: Step 3

Buprenorphine

- Semisynthetic opioid with a long duration of action
- 30 - 60 x as potent as oral morphine when given SL
- Metabolized by the liver, little unchanged drug in the urine
- 2 major metabolites: excreted in the urine
  - Buprenorphine-3-glucuronide (B3G): inactive
  - Norbuprenorphine: is a less potent analgesic
- Administered sublingually or via a transdermal patch.

Given the minimal changes in kinetics in ESRD, it may be a potentially useful analgesic for use in CKD

- Might be difficult to antagonize with opioid antagonists
- Care should be taken when used with benzodiazepines

WHO Analgesic Ladder: Step 3

Pethidine (Meperidine)

- Active metabolite norpethidine accumulates in patients with renal impairment
- Neuroexcitatory effects and risk of convulsions

DO NOT use in ESRD

Adjuvants: Neuropathic Pain

Antidepressants (Tricyclic antidepressants)

- Synergistic with opioids
- Anticholinergic effects: dry mouth; sedation, weight gain; caution in patients with cardiac conduction abnormalities
  - minor adverse events occur in about one-third of patients
  - Despiramine may have less side effects than amitriptyline
  - Selective serotonin re-uptake inhibitors (SSRIs) appear to be less effective as adjuvant analgesics but have fewer adverse reactions

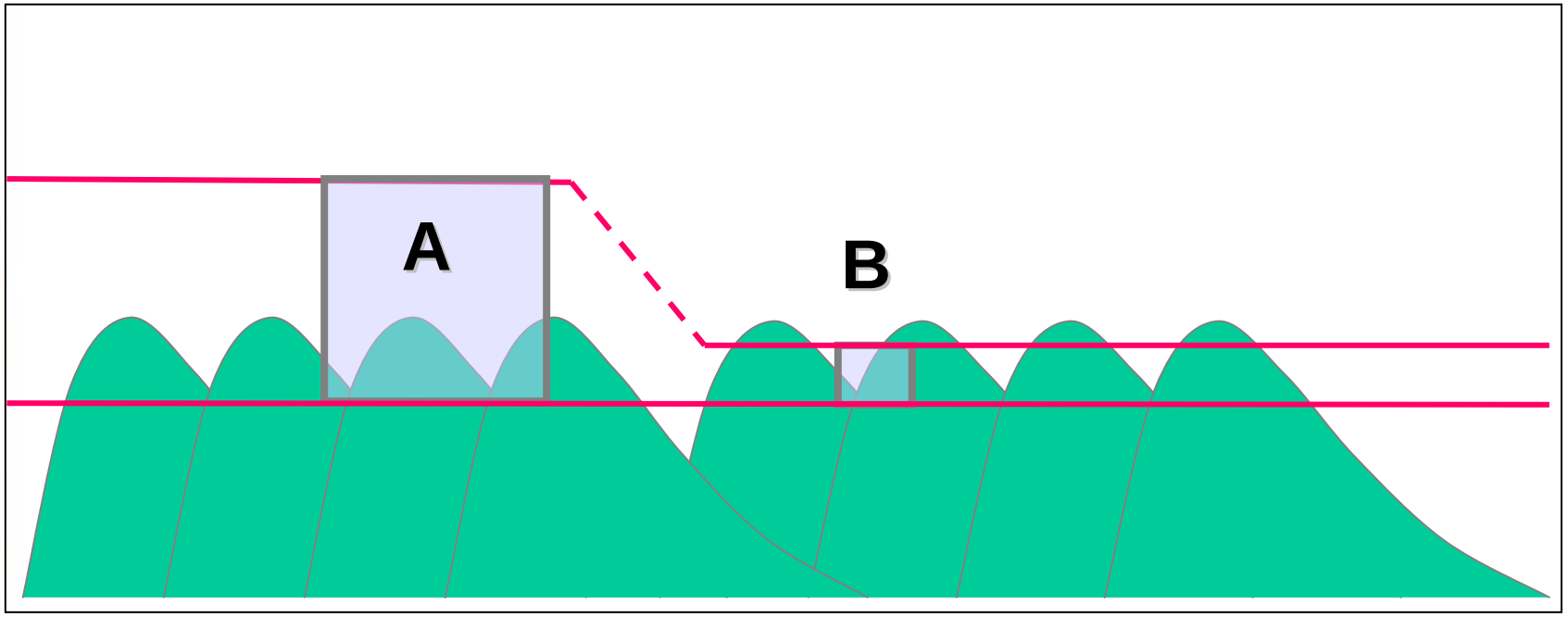
Often poorly tolerated in ESRD: use as 2nd line therapy for neuropathic pain

Adjuvants

Anticonvulsants: 1st line tx for neuropathic pain

- **Gabapentin:** effective for neuropathic pain and restless legs
  - Suppresses depolarization of afferent pain neurons by inhibiting calcium influx
  - Accumulation with toxicity in ESRD
  - Max dose 300mg/day
- **Pregabalin:** identical mechanism of action as gabapentin for the treatment of neuropathic pain
  - Max dose 75-100mg/day

Chemically Sensitive Patients



A. Normal ‘window of comfort’

B. Small ‘window of comfort’ in sensitive pts

Facts About Opioid Addiction

- Incidence of addiction in patients receiving opioid therapy for pain relief is ~ 1-5%
- Patients will often develop tolerance over time.
- Patients will become physically dependent when treated with opioids for a time
  - Will have effects of withdrawal if opioids are stopped suddenly
  - Easily managed by a slow taper when pain has resolved
  - Is NOT synonymous with addiction
- Addiction is a psychological problem rather than a physical one and is characterized by patients engaging in manipulative behaviours to secure the drug

Clinical Algorithm & Preferred Medications to Treat Pain in Dialysis Patients

MARC

Developed by the Mid-Atlantic Renal Coalition and the Kidney End-of-Life Coalition

September 2009

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www.kidneyeol.org/painbrochure9.09.pdf.

Overview of Essentials of Pain Management

- Assess pain intensity on a 0 -10 scale in which 0 = no pain at all and 10 = the worst pain imaginable. Determine if the pain is mild (1-4), moderate (5-6), or severe (7-10).
- Prescribe pain medications and dosages according to the World Health Organization 3-Step Analgesic Ladder adapted for patients with chronic kidney disease (see page 2).
- Assess the character of the patient's pain and determine whether it is nociceptive, neuropathic, or both. Patients may have more than one type of pain; each pain syndrome should be diagnosed and treated.
- Nociceptive pain involves intact pain receptors and is described by patients as aching, dull, throbbing, cramping, or pressure. Neuropathic pain involves injury to pain receptors and is described by patients as tingling, burning, stabbing, or numb (see pages 3 & 4). Treatment of severe neuropathic pain usually requires opioid medications in addition to gabapentin or pregabalin, or other medications specific for neuropathic pain.
- Assess pain regularly for site, relieving and aggravating factors, and temporal relationships, and assess treatment regularly for effect on functioning and quality of life.
- Believe the patient's report of pain.
- Refer for non-pharmacological interventions as appropriate.
- Use adjuvant medications to reduce pain and side effects.
- Anticipate and treat constipation.
- Always consider depression as a potential contributor.
- Screen for opioid abuse.

RECOMMENDED PRACTICES

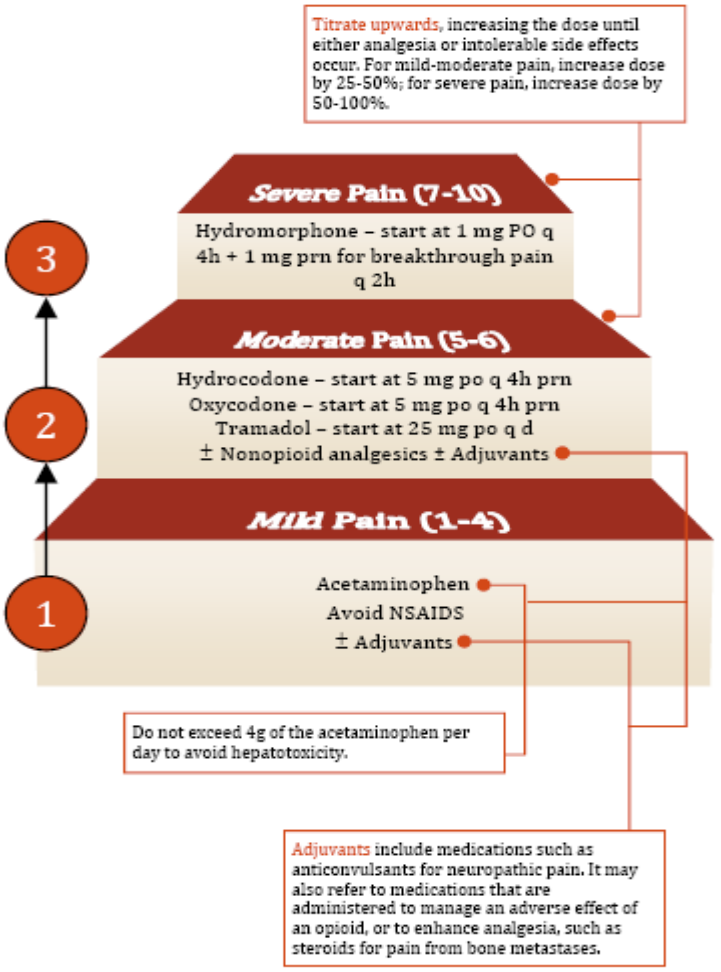
A Educate patient/caregivers on pain assessment and charting at home, goals of therapy, management plan, and potential complications.

B Aim to achieve control at a level acceptable to the patient; it may not be necessary or possible to make the patient completely pain-free. Provide prn doses for breakthrough pain.

C For chronic pain, schedule doses over 24 hours on a regular basis. Additional "breakthrough" medication should be available on an "as needed" basis.

Analgesic Ladder

WHO 3-STEP ANALGESIC LADDER



Algorithm to Treat Severe Chronic Pain in Dialysis Patients

Hydromorphone:

- Start at 0.5 -1 mg PO q 4 hours plus 1 mg PO q 2 hours prn pain. Titrate dosage every 2 –3 days.
- If pain is not controlled, is continuous, and 24-hour dose exceeds 12 mg, substitute transdermal fentanyl 25mcg/h for regular dose of hydromorphone.
- If further "as needed" hydromorphone exceeds 12 mg/24 hours, increase dose of fentanyl patch by further 25 mcg. Titrate upwards in similar manner if pain is not controlled.
- Caution: Toxic metabolite, H3G, accumulates if dialysis is stopped.

Fentanyl Transdermal Patches:

- Useful for patients with chronic, stable pain. Start after immediate-release opioid dose is established. Analgesia may not be obtained for 12-24 hours, so continue previous prn analgesics for 12 hours to ensure a smooth transition.
- Initial dose for opioid-naïve patients is 12 mcg/h (increase dose every 3 – 6 days as needed for pain). Useful choice if dialysis non-adherence or stopping dialysis are concerns.
- Fentanyl patches above 12 mcg/hr should not be used in opioid-naïve patients due to risk of respiratory depression.
- Prescribe medication for breakthrough pain.

Methadone:

- Only recommended to be used by knowledgeable physicians.
- Use if unable to control pain with hydromorphone or fentanyl (opioid-allergy, adverse effects, or refractory pain).
- Obtain baseline QTc (methadone may prolong QT interval) and repeat EKG if daily dose > 100 mg. QTc < 450 ms considered safe.
- Beware of multiple drug interactions and adjust dose .
- Consult www.hopweb.org for opioid conversions from hydromorphone or fentanyl to methadone.

Nociceptive Pain Treatment

Note: Monitor for opioid toxicity (sedation, hallucinations, myoclonus and/or asterixis) and opioid adverse effects (constipation, nausea, and vomiting).

- Confirm patient is able to swallow oral medications.
- Long-acting opioids should be started after the needed dosage to control pain is established with short-acting opioids.
- A rescue dose equivalent to 10% of the 24-hour dose of opioid should be available to be taken every 1-2 hours prn for breakthrough pain. Remember to recalculate the rescue dose when increasing the base dose (long-acting dose).
- If the patient is experiencing pain when he/she takes the long-acting opioid, he/she should take a rescue dose at the same time and not expect the long-acting opioid to relieve the breakthrough pain.

Neuropathic Pain Treatment

First

Gabapentin:

- Start 100 mg po q hs and increase weekly by 100 mg per night to a maximum of 300 mg q hs. Occasionally doses up to 600 mg a day can be safely used.
- If ineffective at maximum tolerated dose, discontinue and start Pregabalin.

Second

Pregabalin:

- 25 mg q hs and increase every few days to 100 mg a day.
- If pain control is inadequate at target dose for 2 to 4 weeks, or intolerable adverse effects, discontinue and start Desipramine.

Third

Desipramine:

- 10 mg po q hs. Titrate to adequate pain control or maximum dose of 150 mg q hs.
- If pain control still remains inadequate, institute WHO 3-Step Analgesic Ladder (see page 2).

Management of Opioid Adverse Effects

Acute:

Excessive sedation, compromised respiration with low O_2 saturation

- Dilute 0.4 mg of Naloxone in 10 ml NS and administer 1 ml IV q 1-2 minutes until patient arouses.
- Continue to monitor for return of sedation or slowed respirations (half-life of Naloxone is shorter than half-life of opioids).

Chronic:

Nausea and/or vomiting

- Prochlorperazine 2.5 to 10 mg PO, SC or PR QID prn.
- Haloperidol 0.5 to 1 mg PO, SL, SC, IV BID-TID prn (Haloperidol solution is flavorless).
- Metoclopramide 5 to 10 mg PO, SC, IV QID prn.
- Dimenhydrinate may be used 25 to 50 mg PO, SC, IV but is less effective, except if secondary to motion/dizziness. It also reduces opioid-induced pruritus.
- Ondansetron 4-8 mg PO or IV q8H prn.

Constipation

- Start docusate sodium and stimulant laxative (e.g. Senna, Bisacodyl) at same time as opioids as preventative therapy.
- Lactulose at 15-30 ml po daily to BID is more effective for opioid-induced constipation but patients may prefer medication in pill form.

Cognitive impairment

- Try decreasing the opioid dose to determine if function improves. If it does, consider using a lower dose or a different pain medication.

References for this document can be found on the Kidney End-of-Life Coalition website: www.kidneyeol.org.

Preferred Medications in CKD

Recommended
Fentanyl
Methadone
Hydromorphone
Acetaminophen
Gabapentin Doses up to 300 mg/d are generally considered safe in ESRD, but doses up to 600 mg should be used with caution; note that gabapentin use for neuropathic pain is off-label but effectiveness has been documented.
Pregabalin Doses up to 100 mg/d are generally considered safe in ESRD.
Use with Caution
Tramadol Limit dose to 50 mg BID. Higher doses have been used but caution needs to be taken since pharmacokinetics are not well established.
Hydrocodone/Oxycodone Insufficient pharmacokinetic evidence to establish safety in CKD, but literature reports use without major adverse effects.
Desipramine/Nortriptyline Alternative to treat neuropathic pain, but more adverse effects than gabapentin and pregabalin.
DO NOT USE
Morphine
Codeine
Meperidine
Propoxyphene
Morphine, codeine, meperidine, propoxyphene: Renally excreted metabolites accumulate in CKD causing neurotoxicity.

Pain Assessment

Instructions: Please have your patient describe his/her level of pain by circling the appropriate number or the face that best describes the intensity of pain. Determine if the pain is nociceptive or neuropathic by the descriptors the patient uses to describe the pain (see algorithm below). Repeat the pain assessment on subsequent patient visits.

1 "Are you having any pain?"

Verbal: "How much pain are you having, from 0 (no pain) to 10 (worst pain imaginable)?"

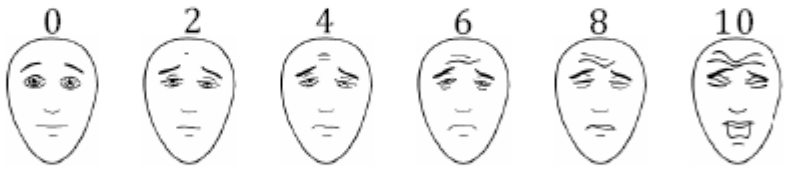
Written: "Circle the number that describes how much pain you are having."

NUMERICAL RATING SCALE

No pain	0	1	2	3	4	5	6	7	8	9	10	Worst imaginable pain

CATEGORICAL SCALE/FACES R

None (0)
Mild (1-4)
Moderate (5-6)
Severe (7-10)



2 "Where is the pain located?"

Record, screen and address each site.

3 "How much pain are you having?"

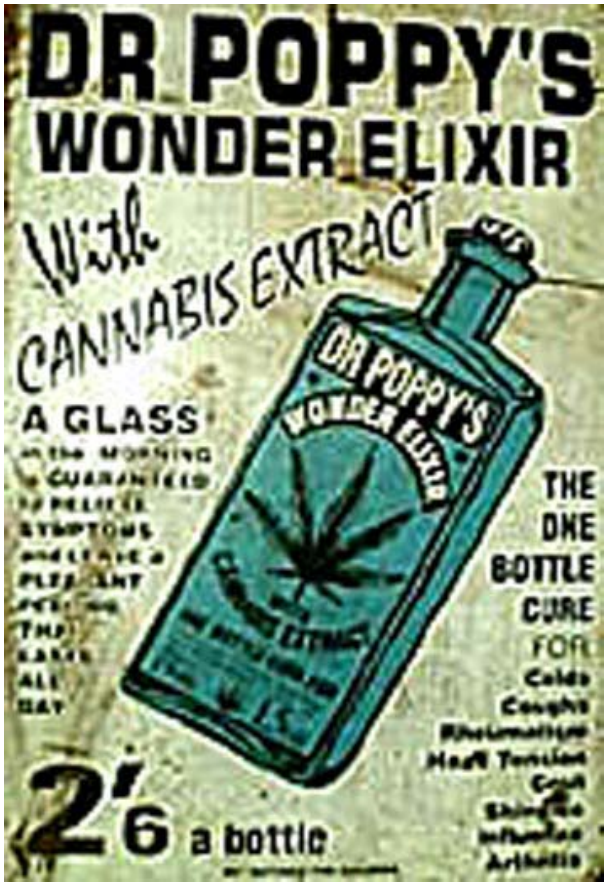
Use *Pain Screening Tool—Numerical Scare or Categorical Faces/R Scale (for cognitively impaired).*

4 "What is the character of the pain?"

Nociceptive—Patient descriptors: *aching, dull, throbbing, cramping, pressure*
Neuropathic—Patient descriptors: *tingling, numbness, burning, stabbing, increased pain to light touch*
Both Nociceptive and Neuropathic

5 "What relives the pain?", "What aggravates the pain?"

Historical Use of Marijuana (Cannabis)



- Oldest known Neolithic culture in China
- An 1848 commentary in the British Pharmacopoeia outlined psychotropic, antispasmodic and analgesic effects of Cannabis

Marijuana (Cannabis)

- Marijuana is a crude drug obtained from the *Cannabis sativa* plant

- Consists of approximately 460 active components

- > 60 of these have the 21-carbon structure of typical cannabinoids
  - Δ9-THC_1
  - Analgesic, muscle relaxant, antiemetic, appetite stimulant
  - **Psychoactive effects**

Cannabinoid Receptors

CB_1 receptor (central)

- Found in the brain, spinal cord and peripheral nervous system.
  - Also present in various peripheral tissues such as heart and vasculature

CB_2 receptor (peripheral)

- Found on immune cells in peripheral tissues
  - More recently, found in the CNS

(Davison JS et.al. Science 2006)

Endogenous Cannabinoids

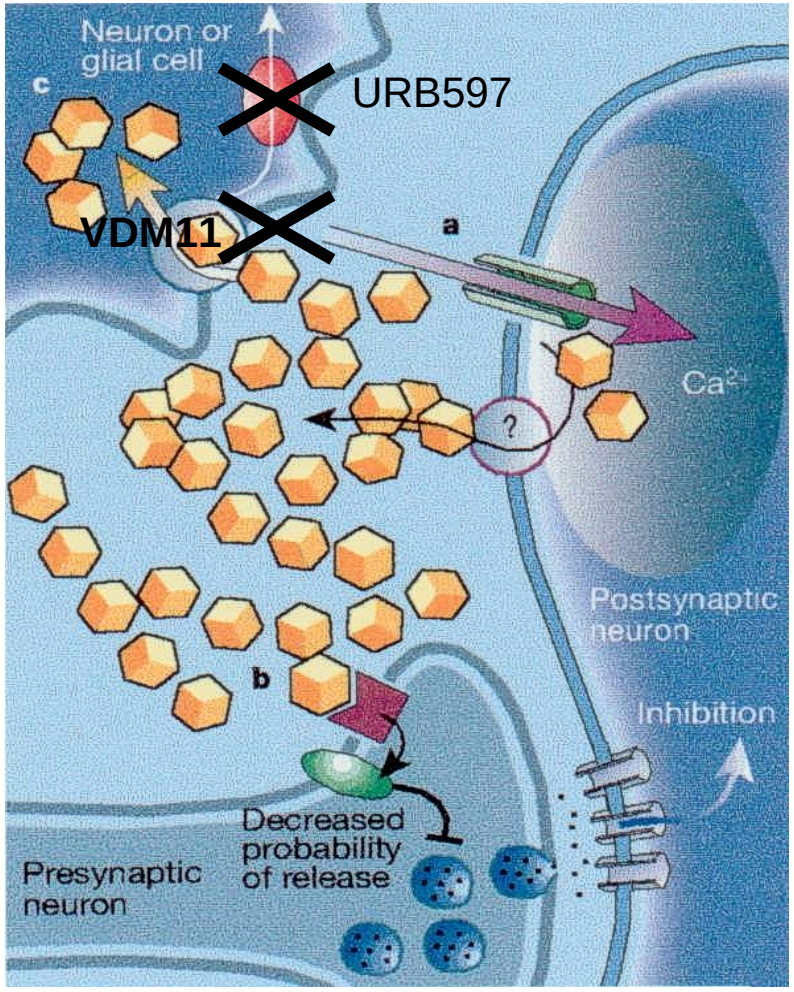
Anandamide (AEA) 1992 "*internal bliss*"

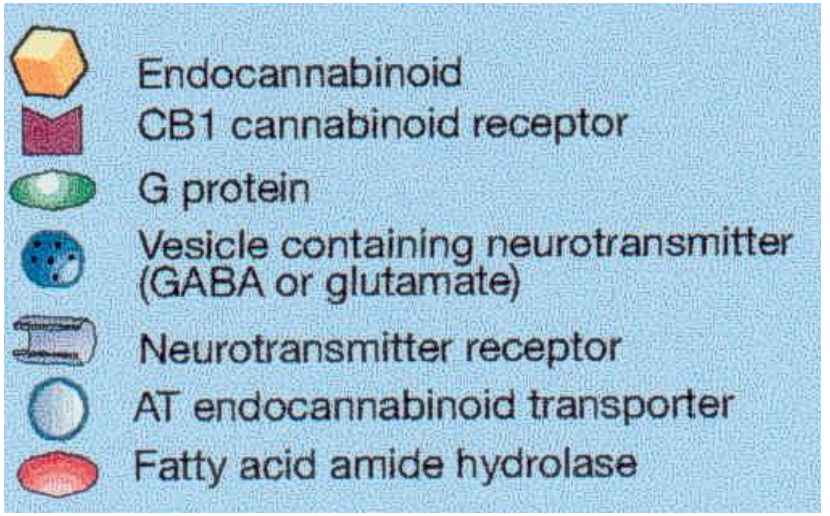
- endogenous ligand of the CB_1 receptor
- resembles THC structurally: similar actions
- levels in the brain ~ to neurotransmitters such as dopamine and serotonin .

2-arachidonyl glycerol (2-AG)

- Brain tissue concentrations ~ 200-fold > AEA
- ~ 20 x higher than GABA

Putative Mechanism of Action of Endocannabinoids





Christie and Vaughan, 2001

Cannabinoid Drugs Approved by FDA and Health Canada

Dronabinol synthetic THC (Marinol)

- Anorexia/wasting in patients with HIV
- Emesis due to cancer chemotherapy

Nabilone synthetic cannabinoid similar to THC (Cesamet)

THC:CBD *Cannabis* extract (Sativex)

- Adjunctive tx for neuropathic pain (MS)
- Adjunctive tx for cancer pain

Cannabidiol (CBD)

- Anti-inflammatory
- Antioxidant
- Anti-seizure
- Anxiolytic
- **Antipsychotic properties**
- Inflammatory and neuropathic pain

Cannabinoids v. Opioids

	Opioids	Cannabinoids
Nausea & Vomiting	Increases	Decreases
Appetite	Decreases	Increases
Agitation	Increases	Decreases
Sleep	Disturbs	Improves
Pruritus	Increases	Decreases
Hypotension	++	+
Constipation	++	+/-
Sense of well-being	+/-	Increases
Psychosis/abuse	+	++

Davison JPSM 2010

Interim Conclusions

- Chronic pain is common in ESRD and is typically severe
- Chronic pain has a substantial negative impact on HRQL
- Screening and assessment tools for pain in ESRD are available
- Pain algorithms for ESRD are available

Implementation

- Roles of the multidisciplinary team members:
  - Whose responsibility is it to screen, assess and treat?
  - MDs, nurses, social workers, spiritual care, pharmacists, dieticians
  - What training will be required?
- Communication and documentation of assessments
- Consulting palliative care and chronic pain experts
- Integration of screening, assessment & pain management into routine care
- Quality assurance program

The Multidisciplinary Team in Pain Management

- **Pain threshold**: increased or decreased by psychosocial symptoms
  - Good morale, mood, nutrition increase the pain threshold - means the patient has less pain
  - Anxiety, depression, and fears decrease the pain threshold - means the patient has more pain

- **"Total pain"**: any unmet needs of the patient that may aggravate pain
  - Financial, Spiritual.
  - Spiritual counselling in pain management may help the patient think beyond self and cope with pain better.

- **Psychological factors**
  - Typically have a stronger influence on outcome than biomedical factors
  - In response to acute pain are predictive of chronic incapacity
  - Distress at and confusion about previous treatment has a powerful influence on patients' reactions to pain and disability

Implementation

- Roles of the multidisciplinary team members:
  - Whose responsibility is it to screen, assess and treat?
  - MDs, nurses, social workers, spiritual care, pharmacists, dieticians
  - What training will be required?
- Communication and documentation of assessments
- Consulting palliative care and chronic pain experts
- Integration of screening, assessment & pain management into routine care
- Quality assurance program
  - Concerns re: opioid addiction

Quality Assurance

- Monitoring for completion
- Determine numbers of patients (work burden for staff)
  - with mod/severe symptoms
- Determine numbers of patients needing intervention
  - Opportunity to adjust criteria for assessing
- Who received an assessment
- Who received an intervention
- Effectiveness of intervention

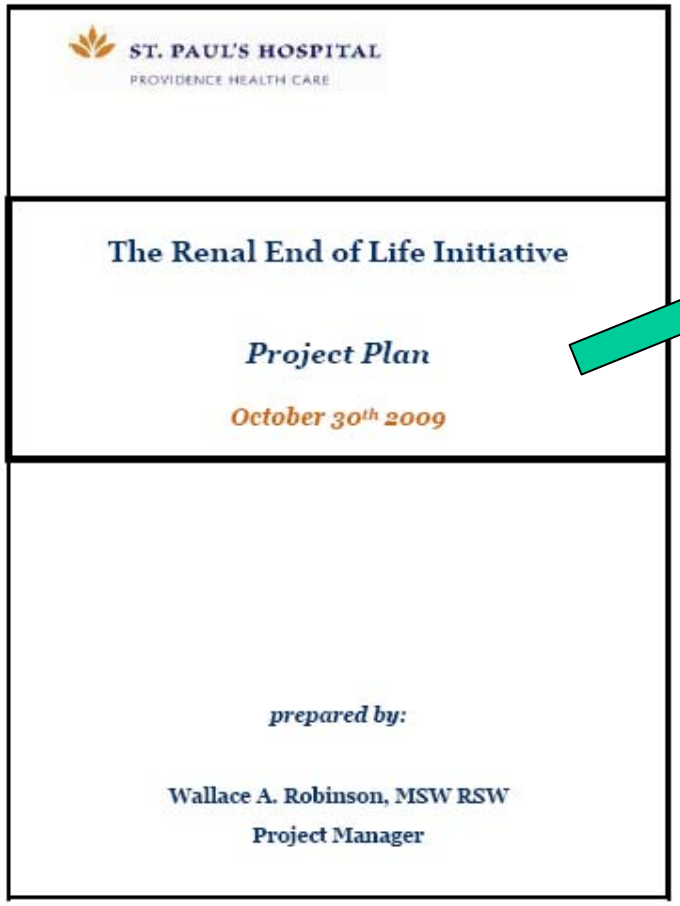
Questions?

Development of a Pain Program

Clifford Chan-Yan MD

Renal EOL Initiative at SPH

- Strategic focus
- Aligned with BCPRA
- Multidisciplinary team



1. Purpose & Background
2. Project Preparation
3. Aims & Goals
4. Scope
5. Project Duration
6. Task Force TOR
7. Pilot Projects

Approved by SLT

Official announcement

Distributed to other programs

Team Composition

1. Nephrologists
2. Nurses and NP
3. Pharm.D
4. Palliative Care Nurse Educator
5. Palliative Care MD
6. Ops Leader
7. Pastoral Care

Components of EOL Care

1. Advance care planning (ACP)

2. Pain and symptom management

3. Bereavement support

   – Working groups
   – Project manager

Pain Protocol & Algorithms

1. Patient Identification

    -HD Rounds; ESAS; Pain survey

2. Pain assessment

    -Assessment Tool

3. Treatment

    -Algorithms & analgesic charts

- Approved by P & T Committee & others

Providence HEALTH CARE

HEMODIALYSIS UNITS
PAIN ASSESSMENT (PART I)

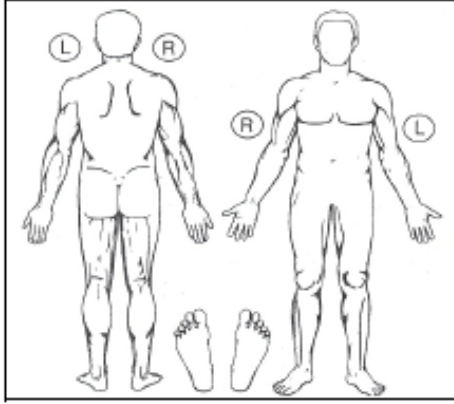
Date: _____

Pain assessment:

Source of Information: ☐ Patient ☐ Spouse ☐ Child ☐ Interpreter ☐ Other _____

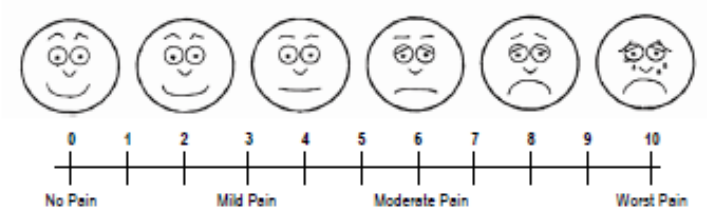
1. Where is your pain located?

Use the letters that best describe how your pain feels to mark the location of your pain on the diagram.
Or mark X and Y and then write your own description of your pain.



Letter	Description of Pain
S	Sharp or Stabbing
N	Numbness
P	Pins & Needles
A	Aching
B	Burning
X	_____
Y	_____

1. How much pain are you having? from 0 (no pain) to 10 (worst pain imaginable)



0 = No Pain, 1-4 = Mild Pain, 5-6 = Moderate Pain, 7-10 = Severe Pain

Write the location of your pain		Using the numbers from the Pain Scale diagram, rate your **pain level** for the last 2-3 days		
		Worst pain	Least pain	Average pain
Site 1				
Site 2				
Site 3				

Form No. PHC-RU___ (Feb 18 draft-10) Adapted from FHA Pain Assessment Tool Page 1 of 2

PART I

Location
Severity
Characteristics
- -neuropathic
- -nociceptive

Factors affecting
Analgesics
- -efficacy
- -side effects

Pain Assessment:

Providence HEALTH CARE

HEMODIALYSIS UNITS
PAIN ASSESSMENT (PART II)

Date: _____

10. How does your pain interfere with your quality of life?

Use this scale to complete the box below

0 1 2 3 4 5 6 7 8 9 10

Does not interfere — Moderately interferes — Completely interferes

In the last 2-3 days, how has your pain interfered with the following areas of your life:

Number out of 10	Quality of Life
	General activity
	Mood
	Walking ability
	Normal work (includes both work outside the home and housework)
	Relations with other people
	Sleep
	Enjoyment of life
Staff use: Quality of Life Score _____/70	

11. Rate your 3 *MOST important* goals if you had less pain:

_____ Sleeping comfortably
_____ Comfort at rest
_____ Comfort with movement
_____ Stay alert
_____ Perform activity: _____
_____ Other: _____

12. Circle where you think your pain level would need to be in order to reach your goals:

0 1 2 3 4 5 6 7 8 9 10

No pain — Moderate pain — Worst pain

13. Is there anything else you would like to tell us about your pain?

_____
_____
_____
_____

Staff to complete reverse side of this form.

Form No. PHC-RU___ (Mar 1 draft-10) Page 1 of 2

PART II

Impact on QOL
Goals if less pain
Acceptable pain level

Staff documentation
- -opioid use
- -acetominophen
- -route
- -consultations

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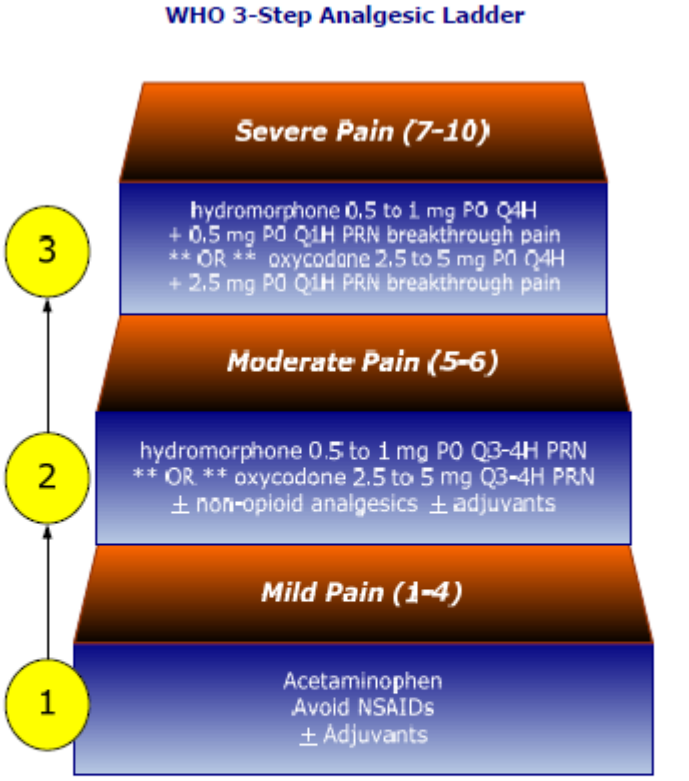
Pain Algorithms and Analgesics of Choice for Chronic Pain in Dialysis Patients

Developed by the PHC Renal Program
December 2009

1. General Guidelines
2. WHO 3-step analgesic ladder
3. Algorithm for Neuropathic & Nociceptive Pain
4. Preferred Meds for CKD
5. Opioid Conversion Tables
6. Management Adverse Effects
7. Analgesic Charts

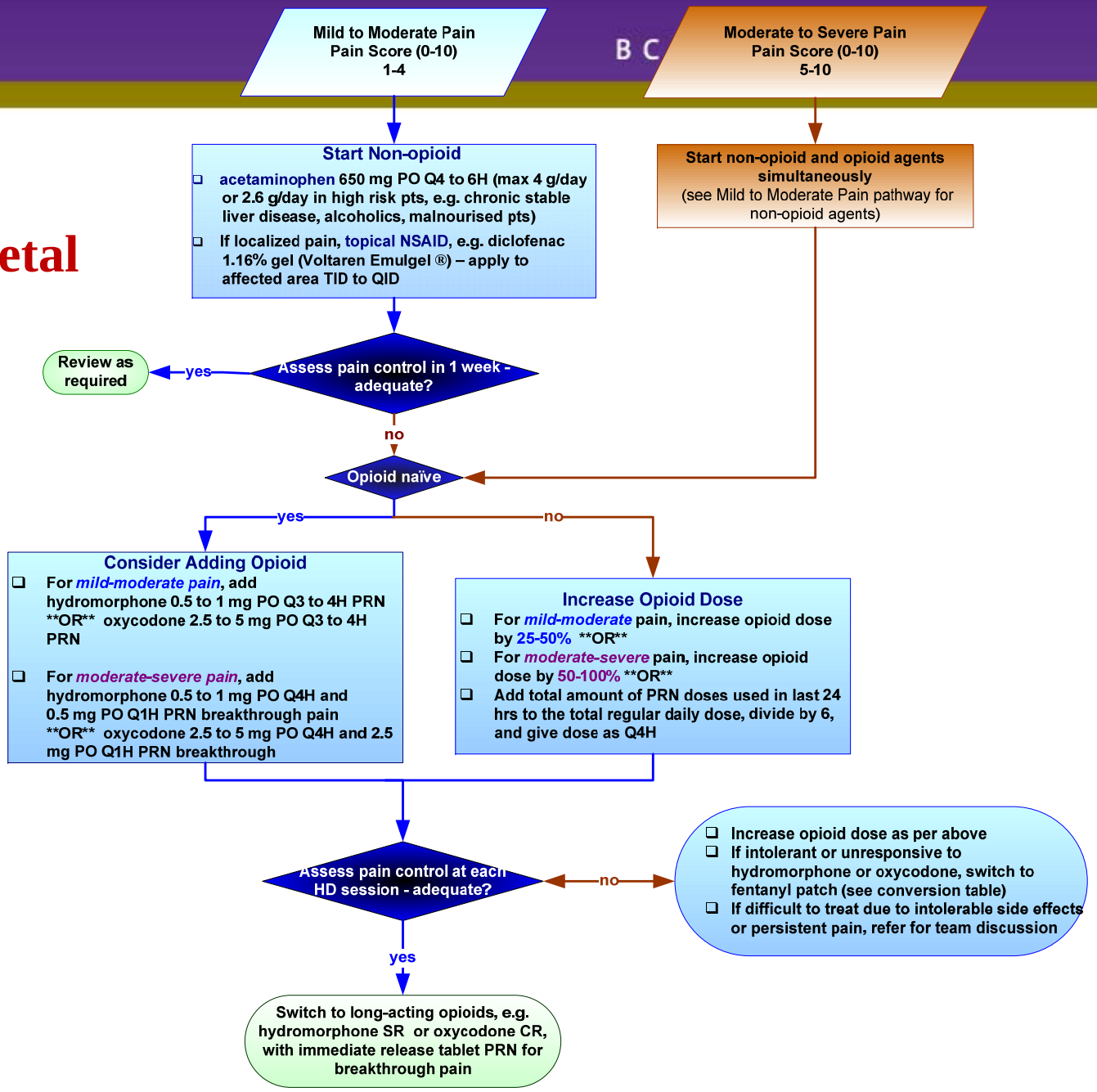
WHO ladder



- **Adjuvants** include medications for neuropathic pain, e.g. anticonvulsants or tricyclic antidepressants OR medications to manage side effects, e.g. laxatives.
- **PRN** for breakthrough pain is ~ 10% of the 24 hour dose of opioid given every 1 to 2 hours as needed.

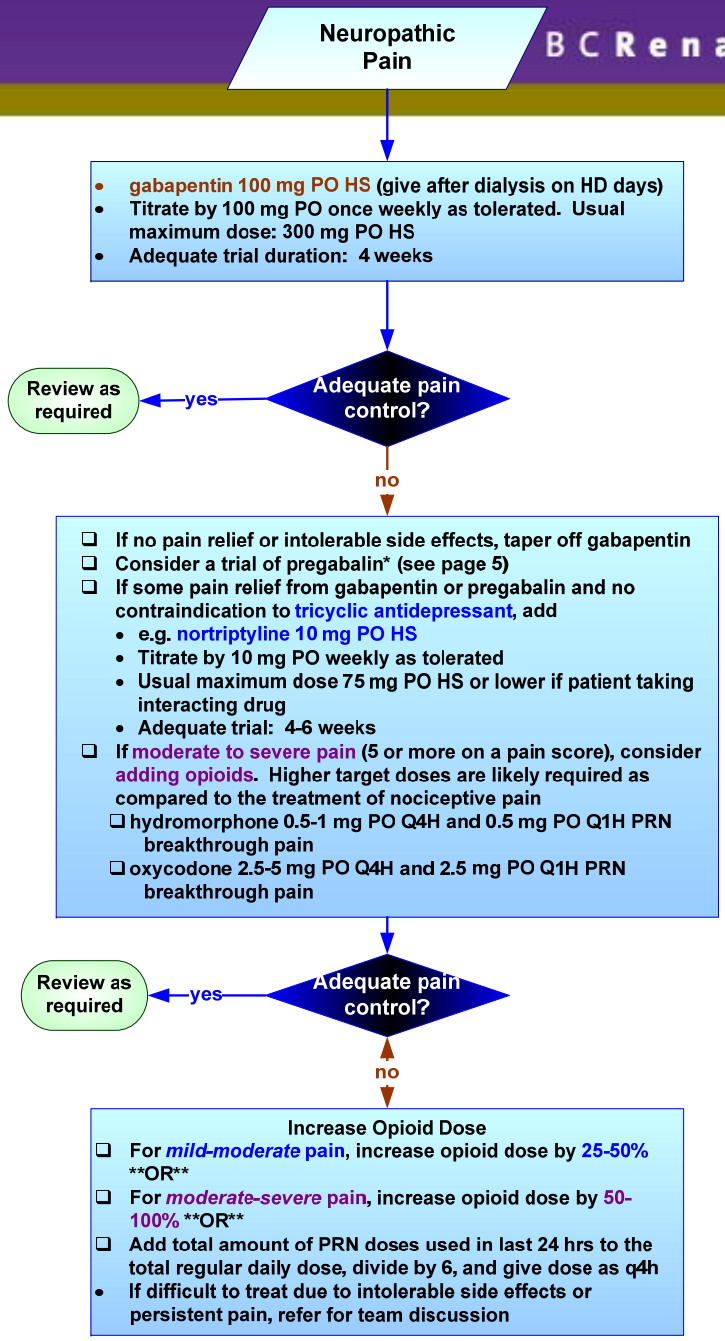
Adopted from the Mid-Atlantic Renal Coalition Clinical Algorithm & Preferred Medications to Treat Pain in Dialysis Patients

Musculoskeletal Pain



Refer to Analgesic Chart for detailed information on each agent

Neuropathic pain



Refer to Analgesics Chart for detailed information on each agent

Wiki.

Analgesic Chart

Drugs (Brand Name)	Indications	Mechanism of Action	Pharmacokinetics	Adverse Effects	Dosing Guidelines (Normal Renal Function)	Renal Dosing Guidelines GFR (mL/min)			Supplemental Dose after		Pharmacare Coverage	Cost (30 day supply)
						> 50	10 to 50	<10	IHD	PD		
OPIOIDS												
codeine or combination of acetaminophen/ codeine (Tylenol #2, 3®, Empracet-15, -30®) or combination of ASA/codeine (282, 292®)	For mild nociceptive or musculoskeletal pain; Acute or chronic pain	mu agonist	Normal half life 2-3 hrs; Oral bioavailability 50%; 10% of the dose is metabolized to morphine; 7-10% population cannot metabolize codeine; Active metabolites (norcodeine and morphine) are excreted in the urine in the free and conjugated forms	sedation, respiratory depression, nausea and vomiting, constipation, itchiness; **Not ideal for elderly or pts with renal impairment due to active metabolites**; Not well tolerated with doses > 200 mg/day; Caution with combination products - risk of hepatotoxicity with acetaminophen overdose or GI bleed with ASA	30 to 60 mg PO q4h (max of 360 mg/day); Sustained release codeine—30 mg PO bid *Available: PO - immediate release (IR); sustained release (SR) e.g. Codeine Contin®; oral liquid; Parenteral - IM*	100%	75%	50%	none	none	codeine IR -yes; codeine SR - full benefit for pts in Palliative Program or Special Authority required for pts unresponsive or intolerant of codeine IR	codeine IR 60 mg po Q4H - $33.40; Codeine Contin 50 mg po BID - $23.40; codeine 5 mg/mL liquid 30 mg po Q4H - $37.40
fentanyl (Duragesic Patch®)	For nociceptive or musculoskeletal pain; Acute or chronic pain; Neuropathic pain—in higher doses	mu agonist	Normal half life 7-12 hr; Extensive hepatic metabolism; <10% excreted unchanged in urine; No known active metabolites; Subcutaneous fat tissue & skeletal muscles absorb fentanyl. From these deposits, fentanyl is then released into systemic circulation	Similar adverse effects as codeine; Note study of Asian patients showed more dizziness & nausea due to less subcutaneous fat; Risk of accidental overdose when used in acute pain, non-tolerant individuals, or through careless disposal	**Not recommended in opioid-naïve pts**; Start low and titrate to effect, e.g. 12 mcg/h fentanyl patch q72h; Previous opioid should be tapered over first 12 hrs of fentanyl as absorption is delayed; Adequate breakthrough medication should be provided when switching to fentanyl as predicted doses are sometimes too conservative; Some pts may require q48h dosing. *Available: transdermal patch*	100%	75%	50%	no data	no data	Full benefits for pts in Palliative Program or Special Authority required for pts unresponsive or intolerant of codeine or oxycodone and morphine or hydromorphone	For 10 patches: 12 mcg- $37.40 50 mcg-$128.40 75 mcg-$181.40

Pain Management in Action

- Identify pain
  1. Self reporting on rounds
  2. ESAS administered quarterly
  3. “Baseline” Pain survey?

Pain Management in Action

- Occurrence of pain:
  1. Single or periodic complaint
  2. Persistent or recurrent
  3. Severe or complex

Pain Management in Action

1. Single episode or periodic pain
   - Post catheter insertion
   - A cramp, a headache
   - Musculoskeletal discomfort

   – Dealt with on rounds, as usual
   - Consult algorithm & analgesic chart

Pain Management in Action

2. Persistent or recurrent pain
   - **Level I** pain assessment
     - Primary nurse role
       - Report to NP, resident or fellow or pharmacist
   - Determine pain type
     - Use WHO ladder and algorithms
     - Analgesic tracking form

Pain Management in Action

3. Severe or complex
   - Limb ischemia; spinal pain; headaches; musculoskeletal; neuropathy; calciphylaxis
   - **Level II** pain assessment
     - NP; resident or fellow; pharmacist; nephrologist
     - Team review
     - Use WHO ladder and algorithm
     - Analgesic tracking form; opioid use.

Suggestions for Other Programs

- Secure Program Leadership Support
  - Present current information & opinion
  - Recommendations of leading organizations
    - ASN and RPA
    - BCPRA
      - » Ethical Obligation for effective pain management

Preparation

- Establish working group
  - Nephrologist (s)
  - Pharmacist
  - Nurse Practitioner/ CNL
  - Palliative or Pain representative

Preparation

- Education
  - Review key literature articles
  - Education courses- if convenient
  - Web Sites
    - Kidneyeol.org
    - BCPRA

Preparation

- Pain assessment & management tools
  - No need to reinvent
  - Use or modify available modules
    - Already reviewed and adapted for B.C
      - BCPRA
      - PHC/St. Paul's
      - Fraser Health
      - Other
- Availability at nursing stations

Workload Concern?

- Incidental pain – no change in practise
- Persistent; severe or complex pain
  - Protocols may decrease work
    - WHO ladder, algorithms, analgesic charts
      - The "dummies" guide
    - Rational and sequential use of analgesics
    - Earlier relief or resolution of pain
- Pain management = standard of care


PAIN