

PAIN MANAGEMENT

Region Orientation

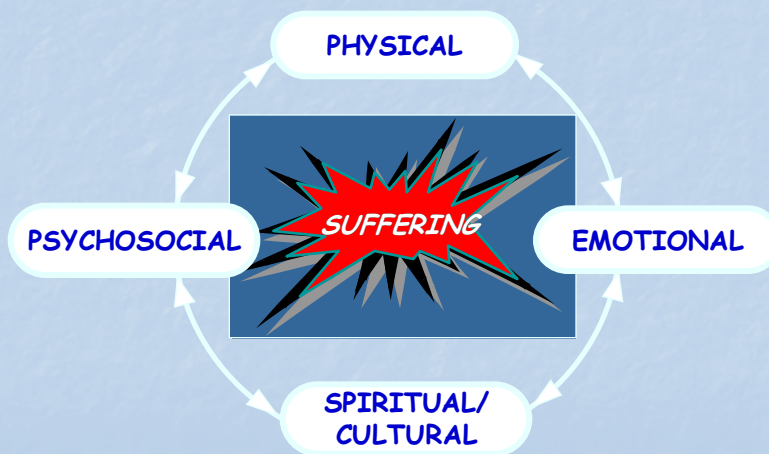
October 2010



DEFINITION OF PAIN

"Pain is whatever the experiencing person says it is, existing when and where it is and not what others think it ought to be".

Total Pain



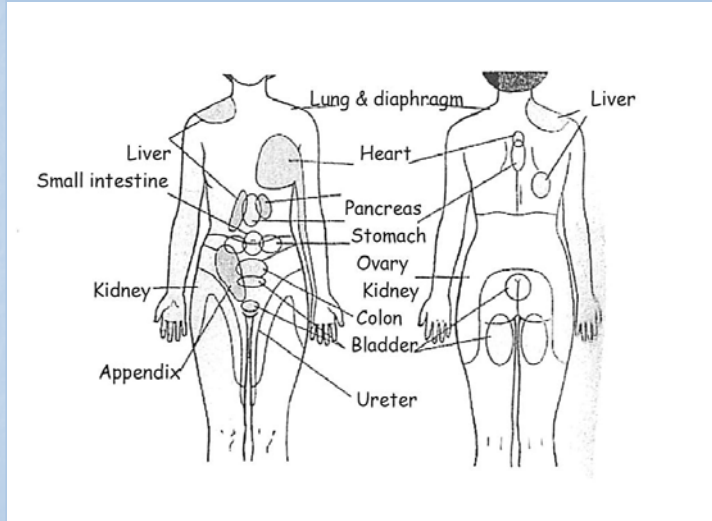
Types of Physical Pain



- **Nociceptive Pain = Tissue Pain**
 - Somatic - pain in bone, joint, muscle, skin, or connective tissue
 - Dull, aching pain that is easily localized
 - Visceral - pain from any organ
 - Referred to different distant sites from the source

- **Neuropathic Pain = Nerve Pain**
 - Usually sharp, burning, or shooting sensation traveling down a nerve with other symptoms such as numbness or tingling in the affected area

Sites of Referred Pain



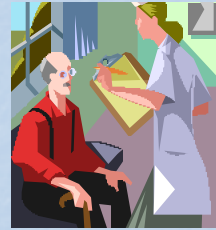
PAIN



THE 5TH VITAL SIGN

PATIENT ASSESSMENT & TEACHING

- Pain history
- Importance of reporting pain:
 - Unrelieved pain
 - Changes in their pain
 - New sources or types of pain
 - Side effects from analgesics
- Pain relief options



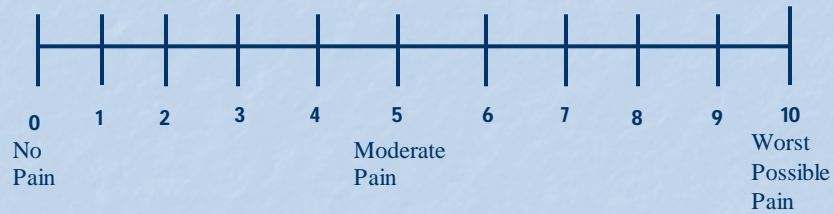
How do we assess
pain?

Self Report

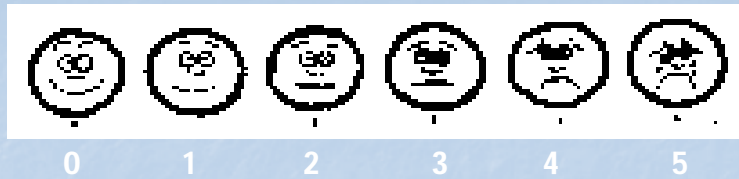
- Most effective measurement of pain
- Ask open ended questions
- Utilize pain scales

Pain Rating Scales

0 - 10 Numeric Pain Intensity Scale



Wong/Baker Faces Rating Scale



- 0 - "very happy because he doesn't hurt at all".
- 1 - "hurts just a little bit".
- 2 - "hurts a little more".
- 3 - "hurts a little more".
- 4 - "hurts a whole lot".
- 5 - "hurts as much as you can imagine, although you don't have to be crying to feel this bad".

FLACC



FACE	0 No particular expression or smile	1 Occasional grimace/frown withdrawn, disinterest	2 Frequent to constant frown, Clenched jaw, Quivering chin
LEGS	0 Normal position OR relaxed	1 Uneasy, Restless, Tense	2 Kicking OR Legs drawn up
ACTIVITY	0 Lying quietly. Normal position Moves easily	1 Squirming, shifting back/forth, tense	2 Arched, Rigid, OR jerking
CRY	0 No cry, (awake Or asleep)	1 Moans or whimpers occasional complaint	2 Crying steadily, screams or sobs, Frequent complaints
CONSOLABILITY	0 Content Relaxed	1 Reassured by occasional touching, hugging, or talking to distractible	2 Difficult to console or comfort

Pain Assessment in Advanced Dementia PAINAD Behaviour Scale

Items	0	1	2	Score
Breathing independent of vocalization	Normal	Occasional laboured breathing. Short period of hyperventilation	Noisy laboured breathing. Long period of hyperventilation. Cheyne-Stokes respirations.	
Negative Vocalization	None	Occasional moan or groan. Low-level speech with a negative or disapproving quality	Repeated troubled calling out. Loud moaning or groaning. Crying.	
Facial Expression	Smiling or inexpressive	Sad, Frightened. Frown.	Facial grimacing.	
Body Language	Relaxed	Tense. Distressed pacing. Fidgeting.	Rigid. Fists clenched. Knees pulled up. Pulling or pushing away. Striking out.	
Consolability	No need to console.	Distracted or reassured by voice or touch.	Unable to console, distract or reassure.	

PAINAD Scale cont..

Directions:

1. Observe for 5 minutes.
2. Score each item out of 2.
3. Add total score:
 - along with physiological assessment
 - higher score indicating more severe pain
 - document, and treat appropriately
4. Observe for subtle behaviours not picked up by PAINAD; document and treat appropriately.

Why do patients under-report pain?

- Fear of needles
- Stoic attitude
- Reluctance to disturb the nurse
- Fear of addiction
- Fear it may delay discharge
- Concern about side effects
- Altered cognitive function

Perception of pain may be affected by:

- Previous pain experiences
- Anxiety/Emotional state
- Perception of illness or painful event
- Length of painful experience
- Cultural norms
- Effectiveness of pain management techniques
- Response of others (caregivers/family)
- Age/life experiences

Behavioral Responses

- Must be interpreted cautiously
- Responses may include:
 - moaning, crying
 - facial grimacing
 - splinting
 - insomnia
 - distorted posture
 - depressions/withdrawal
 - irritable, agitated

Behavioral Responses : in dementia or cognitively-impaired patients

- Fidgeting
- Increased rest periods
- Verbally abusive
- Wandering, pacing, rocking
- Chanting
- Combativeness
 - Care activities



Physiological Response

Least reliable assessment of pain

Acute pain may cause

- Tachycardia
- Hypertension
- Diaphoresis
- Dilated pupils

Prolonged pain may cause a parasympathetic response

- Bradycardia
- Hypotension
- Constipation

Physiological Effects of Pain

Pain may cause Sympathetic stimulation (fight or flight) which may cause:

- increase in cardiac workload
- hypo motility of urethra & bladder = patient producing urine but may not be able to void
- decreased gastric motility = increased nausea & vomiting, abdominal distension
- decreased blood flow to tissues = decreased wound healing
- increased metabolism & O₂ consumption
decreased secretion of insulin

Therefore, give analgesics to decrease sympathetic stimulation

Elderly Population

The world's population aged 60 and over will more than triple in the next forty years.

World Health Association, 2010



Causes of Pain in Elderly

Arthritis	Spinal Stenosis
Osteoporosis	Stroke
Post herpetic neuralgia	Wounds/Ulcers
Fractures	Vascular Disease
Contractures	Diabetes
Angina	Cancer
Degenerative Disc Disease	

Differences in assessment and treatment

- Polypharmacy
- Age-related physical changes
- Multiple co-morbidities
- Altered pharmacodynamics and pharmacokinetics
- Adverse drug reactions manifest differently

Rule of thumb: starting narcotics in elderly populations

“Start low and go slow”



Pain at the End-of-Life

- Unable to swallow oral opioids consider switch to
 - sub-q route (morphine or hydromorphone)
 - Usually scheduled around the clock (ATC) every 4 hours
 - Rectal route
 - Buccal/Sublingual admin



Breakthrough Pain (BTP)

- Pain occurring between regular scheduled ATC medication
 - Breakthrough usually ordered q1h prn
 - 3 or more BT doses /24 hrs consider adjusting the ATC dose
 - BT dose should increase when regular ATC dose is increased

RNAO BPG Assessment & Management of Pain (2007)

Steps to Convert from Oral to sub-q Opioid

1. Calculate Total Daily Dose (TDD) of oral opioid (this includes total mgs of scheduled and prn medications)
2. Divide TDD by one-half (for opioids sub-q dose is one-half oral dose)
3. Divide by 6 to get q4hr dose (intermittent sub-q dosing is usually q4 hrs ATC)
4. Calculate Breakthrough dose (PRN dose) (Breakthrough dose is 10% of total daily opioid dose)



Pain at the End-of-Life

- Sub-q butterfly can also deliver medications for dyspnea, increased secretions & restlessness at the end-of-life
 - Palliative Care Symptom Management Guidelines can be accessed on the Intranet under departments - Palliative Care
- Separate sub-q line is used for each medication
 - See nursing procedure S.5 Subcutaneous Needleless Medication Administration (BD Saf-T-Intima™) & link to video for insertion

Advocate for the Patient in Complex Pain Situations when:



- Pain unresponsive to standardized treatment
- Multiple sources of pain
- Mix of neuropathic & nociceptive pain
- History of substance abuse
- Cognitive Impairment

ACUTE PAIN MANAGEMENT



PHARMACOLOGICAL MANAGEMENT

EFFECTIVE ANALGESIC ADMINISTRATION

- By the ladder



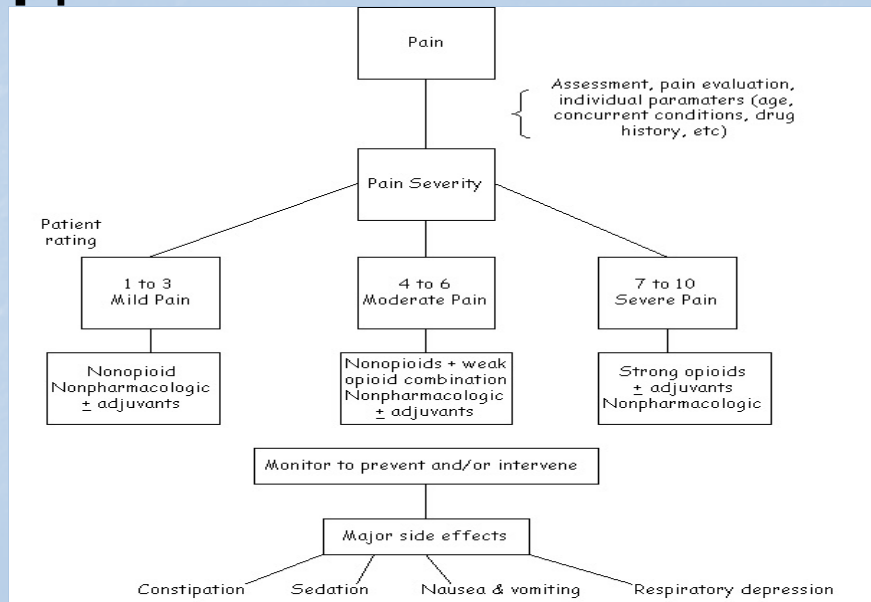
- By the clock



- By the appropriate route



Step-wise Approach:



STEP 1 - MILD PAIN (1-3)

- Acetaminophen
- NSAIDS



Medications: **Acetaminophen**

- Underused in the post-op settings
- Does not have the side effects seen with NSAIDS
- Excellent for mild pain and as an adjunct with opioids
- Has a ceiling effect of 1000mg/dose
- Maximum daily dose 4 grams/day

Medications: **NSAIDS**

- Works well as an adjunct
- Decreases inflammatory response
 - Ibuprofen, Indomethacin, Naproxen,
 - Ketorolac (Toradol) use is restricted

STEP 2 - MODERATE PAIN (4-6)

- Codeine PO
- Combination drugs
 - Tylenol #3



Medications: Codeine

- Works well for bone pain
- 10% of population does not metabolize codeine but side effects may still be present
- High risk of constipation
- Morphine is 10x stronger than Codeine

STEP 3 - SEVERE PAIN (7-10)

- Morphine - gold standard
- Hydromorphone
- Fentanyl
- Oxycodone



Medications: Opioids

- Effective for moderate to severe pain
- Improve patient satisfaction in regards to pain relief
- Reduce spontaneous pain (rest pain) but do not control dynamic pain (pain with movement)
- Opioids should be used in combination with adjuncts

CAUTION: Some forms of opioids are available in:

- immediate release (IR)
- sustained/controlled/extended release (SR or CR or XR) which are not interchangeable
- DO NOT crush or chew long acting preparations

Medications: Morphine

- Gold standard
 - Well researched
 - No ceiling effect
 - Multi-route delivery
 - Universally recommended as a first line drug for post-op pain management



MORPHINE

<u>Route</u>	<u>Maximum Analgesia</u>	<u>Max Resp Depression</u>
Oral	60 min	
Rectal	20 - 60 min	
SC injection	30 - 60 min	90 min
IM injection	30-60 min	30 min
IV Syringe pump	16 - 20 min	15 -30 min

Medications:
Hydromorphone

**DO NOT CONFUSE WITH
MORPHINE**

- Derivative of morphine
- Approximately 5 times stronger than morphine
- Fewer side effects than morphine when given long-term

Medications:
Fentanyl

- **IV form** is short acting
 - Used for procedural sedation
 - Used as anaesthetic in ICU
- **Transdermal Patch** for chronic pain
 - ARE LONG ACTING!!!
 - Fentanyl 25mcg patch \approx 100mg of oral morphine/day
 - Patient should be given other opioids (IV or PO) before patch is considered
 - Discard in sharps container with witness and co-sign on narcotic sheet

Medications: Oxycodone

**DO NOT CONFUSE
WITH CODEINE!**

- Approximately 2 times stronger than morphine



Anticipate & Prevent Common Side Effects of Opioids

- Nausea
- Vomiting
- Drowsiness
- Constipation
- Affects sleep patterns



Side Effects of Opioids



Sedation

- Pain is an antidote to sedation & respiratory depression
- Level of consciousness scores to be done - see RQHR pain management flow sheet
- Over sedation corrected by decrease in dose
- Usually see sedation prior to resp. depression

Side Effects of Opioids

Respiratory Depression

- Breathing can slow or stop in patients using opioids:
 - if they are not in pain
 - in doses larger than necessary
 - with renal impairment
 - with rapid dose escalation
- Occurs with IM or IV but timing is different
- Usually preceded by sedation
- Children < 12 months should have SaO₂ monitoring continuously



SCHEDULING MEDICATIONS

- Use a preventative approach
 - Established pain is more difficult to treat
- Assess the level of pain
 - Give analgesics on a scheduled basis for the first 24 - 48 hours post procedure, then prn
- Individualize treatment
 - Do what works for that patient and for that pain situation

Routes of Administration

- Oral
- Rectal
- Intramuscular (IM)
- Intermittent or Continuous IV
- Patient Controlled Analgesia (PCA)
- Subcutaneous
- Transdermal
- Epidural/Spinal
- Regional Anaesthesia



Avoid IM Injections

- Painful and may deter patients from reporting pain
- Varying and delayed absorption so not necessarily safer, timing of adverse effects unpredictable
- Patients have to be physically moved to give IM when they have the most pain
- Fear of Needles
- Blood/body fluid risk



What other medications have you seen used for pain management?

Medications: **Gabapentin**

- Can be used as an adjuvant for the treatment of neuropathic pain
- Anti-epileptic medication ... mechanism of action for pain management not understood

Medications: **Glucocorticoids**

- Reduces the inflammatory response
- Pre-op Decadron has been shown to have analgesic properties in addition to reducing post-op nausea and vomiting

Non-pharmacological Interventions for Pain

<u>Physical</u>	<u>Psychological</u>	<u>Spiritual</u>
Therapeutic Touch	Life review	Pastoral care
Cold/Ice	Relaxation	Counseling
Heat	Imagery	Prayer
Massage	Biofeedback	Reflection
Exercise	Distraction	Faith reaffirmation
Physical Therapy	Music	Meditation
TENS	Hypnosis	Life Review
Acupuncture	Education	Spiritual readings

Charting Descriptors of Pain "OPQRSTA"

- O**nset
- P**erception
- Q**uality
- R**adiating
- S**everity
- T**iming
- A**ggravates/Alleviates



Charting Pain in the RQHR

- Any time a prn medication is given, a written note is mandatory
- For IM, parenteral, PCA or epidural administration of narcotics, documentation on the Pain Management Flow Sheet is mandatory

Regina Qu'Appelle Health Region

Pain Management

Level of Arousal Scale

1	2	3	4	5	N
Alert Awake	Drowsy Awake	Arousable to verbal stimulation	Arousable to painful stimulation	No response	Normal sleep, easy to arouse

Baseline Vital Signs BP _____ P _____ R _____ SaO₂ _____

Pain Scale _____ Key: Y - Yes N - No

Motor Response (legs): 0 - No weakness 1 - Flex knees, but weak 2 - Flex ankles, cannot flex knees 3 - Cannot move ankles or knees

Sensory Level: P - Foot A - Ankle K - Knee T - Thigh U - Umbilicus X - Xiphoid N - Nipple Line

PCA Epidural Spinal

Morphine 1mg/ml Other _____ Loading Dose _____ at _____ hours

PCA Dose (mg) _____ Continuous Rate (mg/h) _____

Lookal Interval (min) _____ Maximum 4 Hour Limit (mg) _____

Pump Programmed - Initials _____

Epidural Spinal

Bupivacaine 0.1% with Fentanyl 2mg/ml in 250ml bag

Bupivacaine 0.08% with Fentanyl 1mg/ml - per dose in 250ml bag

Other _____

Time Infusion Started _____

Date (mm/dd/yyyy)	Time	Pain Scale	Good/Preventive	PCA	PCA/PCA	O ₂ Sat (on/off)	Temp	Level of Arousal	Motor Response	Sensory Level	PCA Dose (mg/h)	PCA Rate (mg/h)	PCA Interval (min)	PCA Total (mg)	PCA Pump	PCA Initials

Documentation

Parenteral

Instituted/breakthrough - Monitor RR, level of arousal and pain rating q15 min x 2

Intramuscular - Monitor RR, level of arousal and pain rating q30 min x 2

PCA - Continuous - Monitor RR, level of arousal and pain rating q1h for 8 hours initially and after any change, then q2h

PCA - Demands - q8 - 12h

PCA - Total mg - q8 - 12h

Epidural/Spinal

Bolus (epimorph) - R.R. level of arousal q15 min x 1 h, then q1h x 24 h
Note: for spinal morphine there will be no catheter left in place - continue monitoring as per bolus (epimorph)

Bolus (fentanyl) - R.R. level of arousal q5 min x 20 min, then q1h x 4 h

Bolus (local anaesthetic) - B.P. level of block q5 min x 20 min

Continuous - Monitor RR, level of arousal q1h x 24 (epimorph) and q1h x 4h (fentanyl), then q2h

Continuous (local anaesthetic) - Monitor B.P. level of block q4h

Continuous monitoring as above and maintain a patent IV or saline lock for

- 2 hrs following D/C epimorph infusion, or
- 4 hrs following D/C of fentanyl / local anaesthetic

Alert:

- If RR < 40% of baseline (min. 8) or patient excessively drowsy:
 - discontinue infusion
 - rouse patient, encourage breathing
 - give O₂
 - call physician
- If patient unrousable or profound respiratory depression administer naloxone as ordered.
- Epidural - If unable to bend knees call Anaesthetist. If level of block above ripple line call Anaesthetist.

< 12 Months - SaO₂ Continuous

Based on Regina Qu'Appelle Health Region protocols for pain management and epidural/spinal analgesia.
RQHR QHR 03/10/07 Page 1 of 2

EPIDURAL and SPINAL ANALGESIA



Certifications

- Caring for patients with epidurals requires certification
 - Special Nursing Procedure for RN's
 - Advanced Practice for LPN's
- Refer to Epidural Analgesia E.2.2 in the nursing procedure manual
- Physicians Pre-Printed Orders
- Removal of Epidurals is a Transfer of Medical Function for RN's on designated units




PCA (Patient Controlled Analgesia)



What is PCA?

- A method of allowing the patient to administer their own analgesia (usually narcotic)
 - The patient pushes a button to deliver a dose
- Uses a special PCA infusion pump that is programmed with specific doses and times as ordered by a physician
- Used more specifically on surgical units
- Refer to Patient Controlled Analgesia - Guideline P.8.2 in the nursing procedure manual
- Monitoring schedule on Pain Management flow sheet

REMEMBER...the patient must be willing and able to use the PCA effectively



Pain Management

Level of Arousal Scale				
1	2	3	4	5
Alert Awake	Drowsy Awake	Arouses to verbal stimulation	Arouses to painful stimulation	No response Normal sleep, easy to arouse

Baseline Vital Signs BP _____ P _____ R _____ SaO₂ _____
 Pain Scale _____ Key: Y - Yes N - No

Motor Response (legs): 0 - No weakness 1 - Flex knees, but weak 2 - Flex ankles, cannot flex knees 3 - Cannot move ankles or knees

Sensory Level: P - Foot A - Ankle K - Knee T - Thigh U - Umbilicus X - Xiphoid N - Nipple Line

<input type="checkbox"/> Morphine 1mg/ml	<input type="checkbox"/> Other _____	<input type="checkbox"/> PCA	<input type="checkbox"/> Epidural	<input type="checkbox"/> Spinal
Loading Dose _____	at _____ hours		<input type="checkbox"/> Epidural ipimorph 1.00mg/ml in 250ml bag	<input type="checkbox"/> Spinal ipimorph 0.1% with fentanyl 2mg/ml in 250ml bag
PCA Dose (mg) _____	Continuous Rate (mg/h) _____		<input type="checkbox"/> Epidural Bupivacaine 0.08% with Fentanyl 1mcg/ml - ped dose in 250ml bag	<input type="checkbox"/> Spinal Other _____
Lookal Interval (min) _____	Maximum 4 Hour Limit (mg) _____		Time Infusion Started _____	
Pump Programmed - Initials _____				

Date	Time	Pain Scale	Good/Painless	Other	Temp	O ₂ Sat (on) / SpO ₂	Level of Arousal	Sensory Level	Motor Response	Respiratory Rate (RR)	Heart Rate (HR)	Blood Pressure (BP)	SpO ₂ (on)	Other Medications	PCA Dose (mg)	PCA Rate (mg/h)	PCA Total (mg)	PCA Initials

Documentation

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 Infiltrant/Breakthrough - Monitor RR, level of arousal and pain rating q15 min x 2
 Intramuscular - Monitor RR, level of arousal and pain rating q30 min x 2
 PCA - Continuous - Monitor RR, level of arousal and pain rating q1h the 8 hours initially and after any change, then q2h
 PCA - Demands - q8 - 12h
 PCA - Total mg - q8 - 12h

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 Bolus (epimorph) - RR, level of arousal q15 min x 1 h, then q1h x 24 h
Note: For spinal morphine there will be no catheter left in place - continue monitoring as per bolus (epimorph)
 Bolus (fentanyl) - RR, level of arousal q5 min x 20 min, then q1h x 4 h
 Bolus (local anaesthetic) - B.P. level of block q5 min x 20 min
 Continuous - Monitor RR, level of arousal q1h x 24 (epimorph) and q1h x 4h (fentanyl), then q2h
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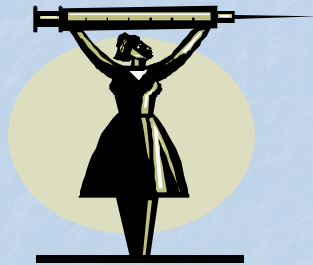
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 1) discontinue infusion
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Based on Regina Qu'Appelle Health Region protocols for pain management and epidural/spinal analgesia.
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< 12 Months - SaO₂ Continuous

Narcan Certification



- Only RN's may be certified.
- LPN's may leave if you like, but feel free to stay.

NALOXONE HCL (Narcan)

- Is an opioid antagonist
- Works within 30 sec - 2 minutes
- Should be given IV push in syringe $\geq 10\text{mLs}$
- Has a shorter duration than opioids
 - Therefore must watch for rebound effects of the opioid
- Consider the side effects
- May need to adjust analgesic orders

How to give Naloxone

- See Nursing procedure N.1
 - Stop opioid infusion (if running)
 - Administer 100% oxygen & encourage breathing
 - Notify physician
 - Begin resuscitation if necessary
 - Ensure patent IV line (flush with NS)
 - For naloxone 0.4 mg/mL - **using a \geq 10 mL syringe, dilute 1 mL naloxone with 3 mL normal saline (0.1mg/1mL). You will have a total of 4 mL in the syringe.**
 - Administer **0.1 mg (1 mL)** to the patient
 - Use the port closest to the patient
 - Clamp tubing above the port
 - Give medication
 - Flush or let IV run rapidly for 2-3 minutes
 - Observe patient
 - Repeat dose every 2-3 minutes prn
 - If patient not responding by total of 0.4 mg administered, consider an alternate source

Narcan Post-test

1. Naloxone HCL (Narcan) is classified as an:
Opioid antagonist
2. The onset of Narcan when given I.V. push is:
30 sec to 2 min
and the duration is
30 min to 2 hours
3. When administering an I.V. push medication, which I.V. port should be used?
The one closest to the patient
4. What must be done if the drug is incompatible with the I.V. solution?
Flush the line with Normal Saline
5. List two possible side effects of Narcan?
Nausea
Vomiting
Tachycardia
Increase B.P.

6. When a patient is excessively drowsy or their respiratory rate <40% of baseline (minimum 8), what three actions should be taken?:

Stop the infusion

Apply oxygen

Stimulate breathing

7. If you are unable to arouse the patient, a Narcan dose of 0.1mg (1 ml of 0.4mg/ml strength diluted with 3mls of normal saline) should be given.

Repeated doses may be given every:

2-3 mins

8. After the administration of Narcan, at what rate should the I.V. be run?:

Rapidly

9. If repeated doses of Narcan are ineffective, what must be considered?:

Respiratory depression is not the cause

10. Due to the short half life of Narcan compared to opioids, the patient may require increased monitoring following Narcan administration for the return of:

Respiratory depression

Sedation

11. Explain why caution should be taken when administering Narcan to a patient with opioid dependence or severe pain:

Return of severe pain

Withdrawal

Hands-on Certification

