BASIC APPROACH TO PAIN MANAGEMENT

THE R.A.T APPROACH

- Recognize
- Assess
- Treat

RECOGNIZE PAIN

- Does the patient have pain?
  - ✓ Ask
  - ✓ Look (frowning, moving easily, sweating)
- Do other people know the patient has pain?
  - ✓ Other health workers
  - ✓ Patient's family, caregivers

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PAIN the 5th Vital Sign

ASSESS PAIN HISTORY

P : Place or site of pain

- Where does it hurt?

(a body chart might help describe their pain)

A: Aggravating factors

- “What makes the pain worse?”

I: Intensity (Severity)

- “How bad is the pain?”

N : “ Nature & neutralising factors

- “What does it feel like”
- “What makes the pain better?”

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CLASSIFICATION OF PAIN

Acute	Pain of recent/ sudden onset (e.g.pain after surgery)
Chronic	Last more than 3 months Pain persist even after wound is healed
Cancer	Progressive, many different causes May be a mixture of acute and chronic
Non cancer	Acute or chronic pain (e.g. surgery, injury, degenerative) The cause may or may not be obvious
Nociceptive "Physiological Pain"	Obvious tissue injury or illness Somatic : bones and tissues, well localized Visceral : abdomen, thoracic cavity Sharp, throbbing, aching
Neuropathic "Pathological pain"	Nervous system damaged or abnormality May not see tissue injury, not well localized Burning, tingling, pins and needles, shooting

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Type of Pain	Somatic	Visceral	Neuropathic
Patho-physiology	Damage to skin and connective tissues by cancer or other injury causing inflammatory process	Distension or stretching of internal organs from cancer infiltration or obstruction	Damage to sensory nerves due to injury or infiltration from cancer leading to abnormal signalling
Clinical Description	• Sharp, stabbing, aching, throbbing • Well Localised • Worse on movement	• Dull aching, colicky, gnawing, cramping • Poorly localised • May be referred to other somatic site	• Numb, burning, electric shock, pins and needles, shooting, pricking • Dermatomal distribution
Examples	• Musculoskeletal pain • Inflammatory diseases • Trauma / fractures • Surgical wounds • Malignant ulcers	• Ureteric colic • Dysmennorhoea • Bowel obstruction • Liver metastasis	• Trigeminal neuralgia • Painful DM neuropathy • Brachial plexopathy • Sciatica
Treatment approach	• NSAID / COX 2 if mild to moderate • Opioid if severe	Good response to opioids	Partial response to opioid Need adjuvant analgesics

PAIN ASSESSMENT TOOLS

Combined Visual Analog Scale & Numerical Rating Scale
- Adults & Children > 7 years

MOH PAIN SCALE

SELF REPORT TOOL

GOLD STANDARD

On a scale of 0-10 (show the pain scale).
0 = no pain
10 = worst pain you can imagine.
What is your pain score?

PAIN ASSESSMENT TOOLS

Category	Scoring		
	0	1	2
Face	No particular expression or smile	Occasional grimace or frown, withdrawn, disinterested	Frequent to constant quivering chin, clenched jaw
Legs	Normal position or relaxed	Uneasy, restless, 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 sleep)	Moans or whimpers; occasional complaint	Crying steadily, screams or sobs, frequent complaints
Consolability	Content, relaxed	Reassured by occasional touching, hugging or being talked to, distractable	Difficult to console

OBSERVATIONAL AND BEHAVIOURAL TOOL

FLACC Scale

Children 1 month - 4 years
and
Adult with impaired cognitive function

Observe for 2-5 minutes
Total score of 10

FLACC (Bahasa Melayu)

KATEGORI	PEMARKAHAN		
	0	1	2
WAJAH	Tiada ekspresi tertentu di wajah atau dalam keadaan tersenyum	Kadang terlihat muka berkerut, murung, tidak bermaya atau tidak bersemangat	Rahang terkancing, dagu bergetar (pada kadar kerap hingga berterusan)
KAKI	Kedudukan biasa atau selesa	Keadaan tidak selesa, resah atau tegang	Menendang-nendang atau membengkokkan kaki
AKTIVITI	Berbaring tenang, berkedudukan biasa, bergerak dengan selesa	Berguling, berganjak depan dan belakang, tegang	Meringkuk, kaku atau mengelupur
TANGIS	Tidak menangis (tidur atau terjaga)	Merengek dan kadang-kadang mengeluh	Menangis berterusan, berteriak dan teresak-esak, sering mengeluh
KEBOLEHPUJUKAN	Tenang	Masih dapat dipujuk dengan sesekali sentuhan, pelukan atau kata-kata, masih boleh dialih perhatian	Sukar dipujuk

PAINAD - Geriatric with Dementia

ITEMS	0	1	2	SCORE
Breathing (independent of vocalization)	Normal	Occasional labored breathing. Short period of hyperventilation.	Noisy labored breathing. Long period of hyperventilation. Cheyne-stokes respirations.	
Negative vocalization	None	Occasional moan or groan. Low level of speech with a negative disapproving quality.	Repeated troubled calling out. Loud moaning or groaning. Crying.	
Facial expression	Smiling or inexpressive	Sad, rightened, frown.	Facial grimacing.	
Body language	Relaxed	Tense. Distressed pacing. Fidgeting.	Rigid. Fist 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.	
TOTAL				

CRITICAL-CARE PAIN OBSERVATION TOOL (CPOT)

Facial expression	Relaxed	Tense	Grimacing
	0	1	2
Body movement	Absence of movement or normal position	Protection	Agitation
	0	1	2
Muscle tension	Relaxed	Tense, rigid	Very tense/ rigid
	0	1	2
Compliance with ventilator (intubated)	Tolerating ventilator or movement	Coughing but tolerating	Fighting ventilator
	0	1	2
Vocalization (extubated)	Normal or silent	Sighing or moaning	Crying out or sobbing
	0	1	2

Gelinas et al., AJCC 2006; 15(4): 420-7

BEHAVIOURAL PAIN SCALE (BPS)

ITEM	DESCRIPTION	SCORE
Facial expression	Relaxed	1
	Partially tightened (e.g. brow lowering)	2
	Fully tightened (e.g. eyelid closing)	3
	Grimacing	4
Upper limb movements	No movement	1
	Partially bend	2
	Fully bend with finger flexion	3
	Permanently retracted	4
Compliance with mechanical ventilation	Tolerating movement	1
	Coughing but tolerating ventilation for the most of the time	2
	Fighting ventilator	3
	Unable to control ventilation	4

Payen et al., CCM 2001;29(12):2258-2263

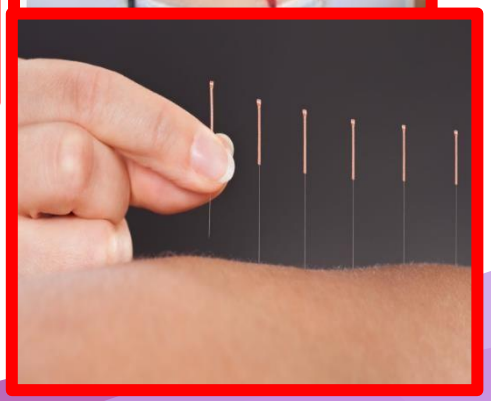
BEHAVIOURAL PAIN SCALE (BPS)

- Total score varies from 3 to 12
- Scores ≤3 no pain.
- Scores 4-5 mild pain.
- Scores 6-11 an unacceptable amount of pain.*
- Scores ≥12 maximum pain.*
- Target score < 5.
- Validated in English, French and Mandarin.

TREAT PAIN

Multimodal treatment

- Pharmacological
- Non Pharmacological



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NON PHARMACOLOGICAL TREATMENT

Physical

- PRICE (Protection, Rest, Ice, Compression, Elevation)
- Nursing care
- Physiotherapy, Occupational therapy
- Surgery, Acupuncture, Massage, TENS

Psychological / Social

- Reassurance
- Explanation
- Counselling
- Social worker input

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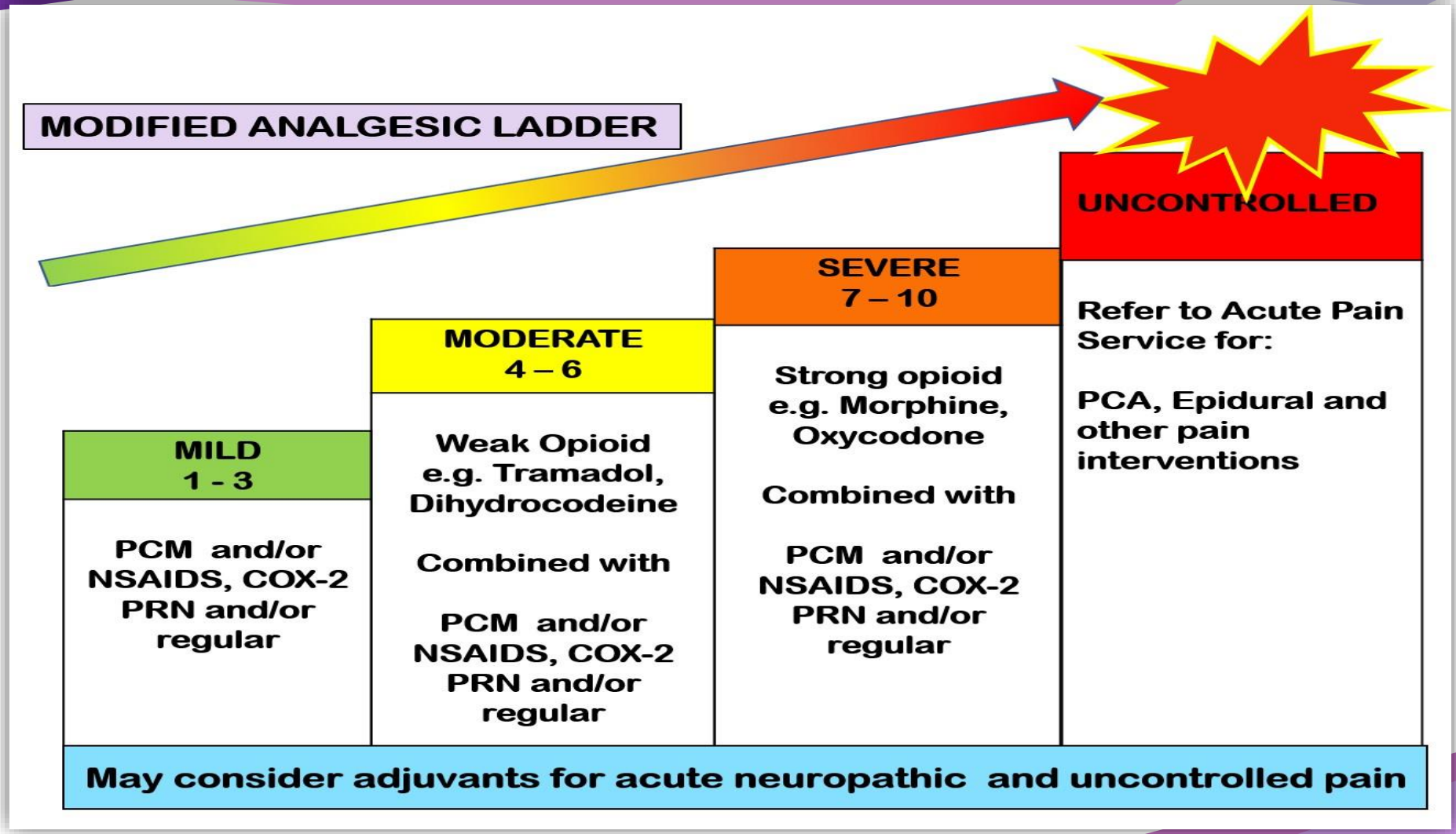
PAIN the 5th Vital Sign

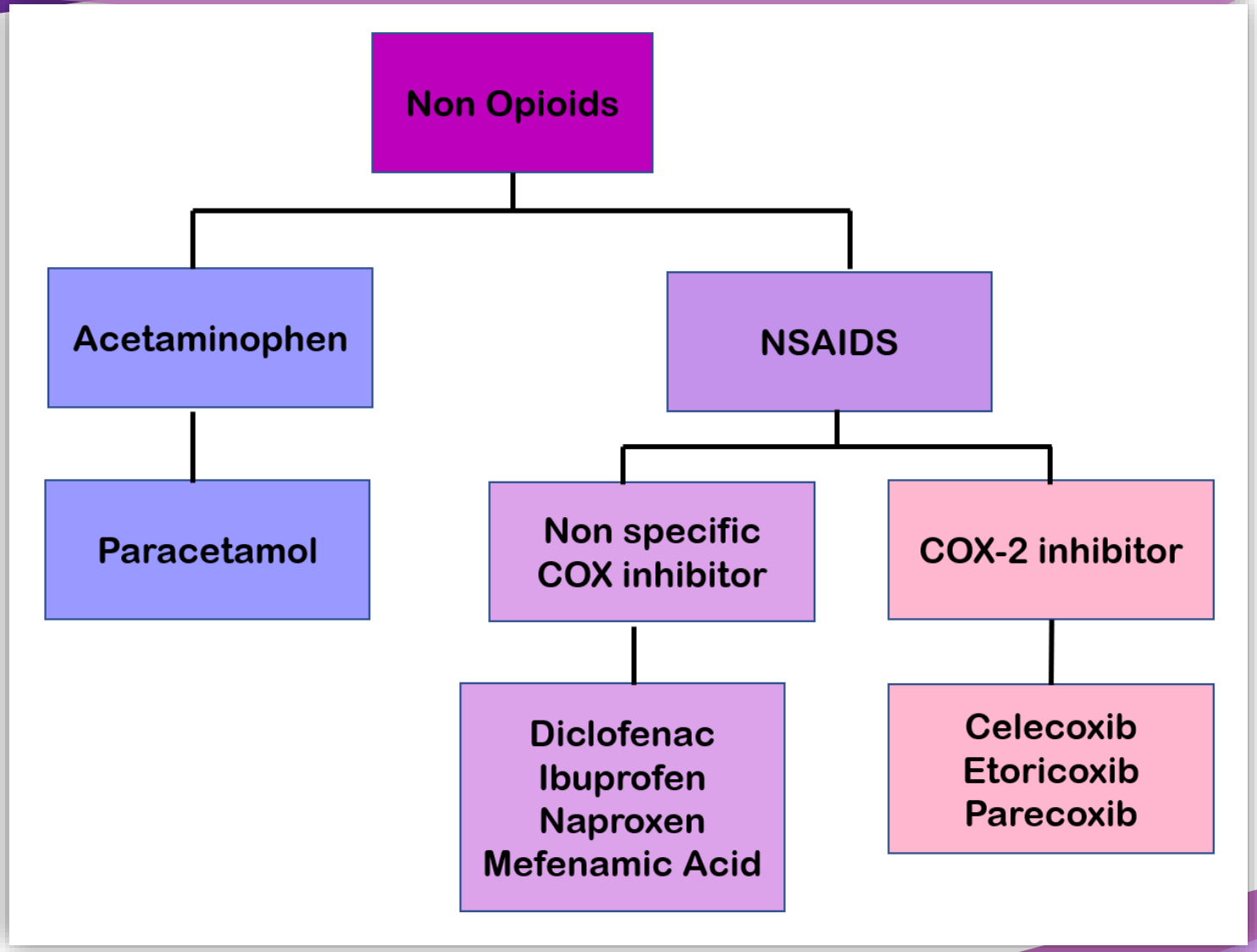
PHARMACOLOGICAL TREATMENT



PAIN FREE PROGRAMME

PAIN the 5th Vital Sign

DRUG TREATMENT



ACETAMINOPHEN

DRUG	DOSAGE	SE	CAUTION/CI	COMMENTS
Paracetamol (oral)	500mg –1g 6 –8hrly Max 4g/day	Rare	Hepatic Impairment	Preferred in elderly.
IV Paracetamol 10mg/ml	>50kg, 1g 6hrly Max 4g/day <50kg, 15mg/kg/dose Max 60mg/kg/dose Infusion over 15min		Hepatic impairment	Must include total dose of PCM used –supp, oral

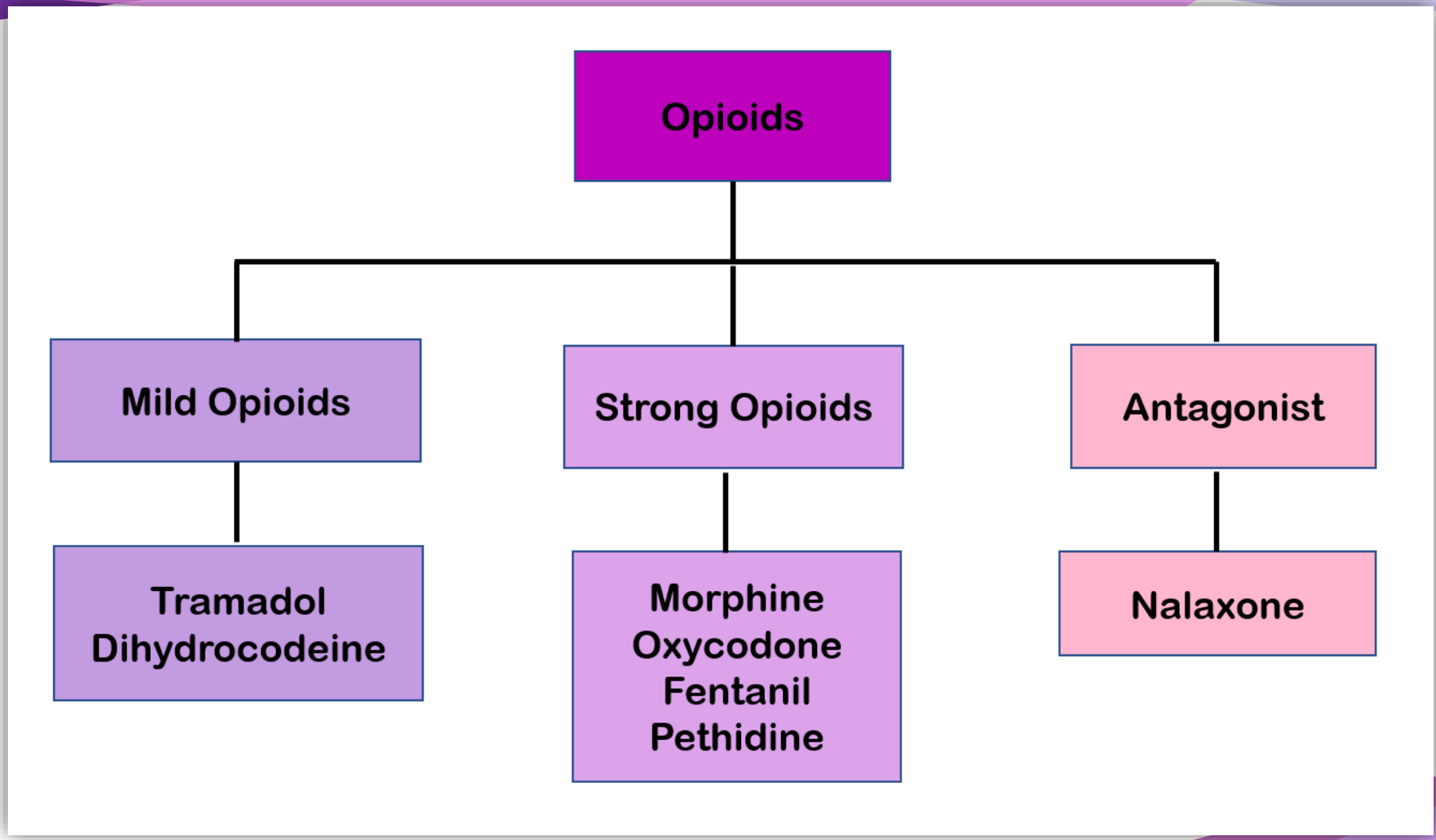
NON STEROIDAL ANTI INFLAMMATORY DRUGS (NSAIDS)

DRUG	DOSAGE	SE	CAUTION/CI	COMMENTS
Diclofenac Sodium	50 – 150 mg daily, 8 – 12hrly Max 200mg/ day	Peptic Ulcer, GI bleed Platelet dysfunction Renal failure Hypertension Allergic reaction Increase in CV events	Gastroduodenal ulcer Asthma Bleeding disorder Renal dysfunction IHD Cerebrovascular Disease Inflamatory bowel disease	Increased CVS risk may be an effect of the NSAIDs/ COXIB class Physician and patient should weigh the benefits and risks of NSAIDs/ Coxib therapy Concurrent use with aspirin inhibits aspirin antiplatelet effect
Mefenamic Acid	250mg – 500mg 8hrly			
Ibuprofen	200 – 400mg 8hrly Max: 2400mg/day Elderly: 200mg 8hrly			

SELECTIVE COX-2 INHIBITORS

DRUG	DOSAGE	SE	CAUTION/CI	COMMENTS
Celecoxib	400mg BD in acute pain (48hrs) 200-400mg daily (for longer term use) <18yrs: not recommended Elderly: 100mg daily	Renal impairment Allergic reaction Hypertension Increase in CSV events	IHD Cerebrovascular Disease Hypersensitivity to sulphonamides Higher doses a/w higher incidence of GIT, CVS side effect Patient with indication of cardioprotection require aspirin as supplement Uncontrolled HPT	A/w lower risk of serious upper gastrointestinal SE compared to traditional NSAIDs Use the lowest effective dose for the shortest duration necessary
Etoricoxib	120mg daily (APS) x 48hrs 60 – 90mg daily (for longer term use) Elderly: 30mg Daily			
Parecoxib (IV)	20 – 40mg 6 – 12hrly Max 80mg/day (72hrs) >65yrs & <50kg: ½ dose Max 40mg daily			

PHARMACOLOGICAL **TREATMENT**



WEAK OPIODS / COMBINATION

DRUG	DOSAGE	SE	CAUTION/CI	COMMENTS
Tramadol	50 – 100mg 6-8hrly Max 400mg/day	Dizziness Nausea Vomiting Constipation Drowsiness	Risk of seizures (high dose) Elderly: start low 50mg, Max 300mg/day	Interaction with TCA, SSRI. SNRI
Dihydrocodeine Tartrate	30 – 60mg 6-8hrly Max 240mg/day Renal dysfunction/ dialysis Liver dysfunction; don't use	Nausea Vomiting Constipation Drowsiness	Respiratory depression Acute alcoholism Paralytic ileus Raised ICP	Reduce dose or increase interval in patient with renal impairment In liver dysfunction; codeine may not be converted to active metabolites; dihydromorphine
Paracetamol 500mg + Codeine 8mg	1 -2 tabs 6 – 8hrly Max 8 tabs/ day	Constipation	Hepatic impairment	Decrease in side effects profile of tramadol/ paracetamol while maintaining efficacy
Paracetamol 375mg + Tramadol 32.5mg	1 -2 tabs 6 – 8hrly Max 8 tabs/ day	Nausea Vomiting Drowsiness	Hepatic impairment Epilepsy	

STRONG OPIODS

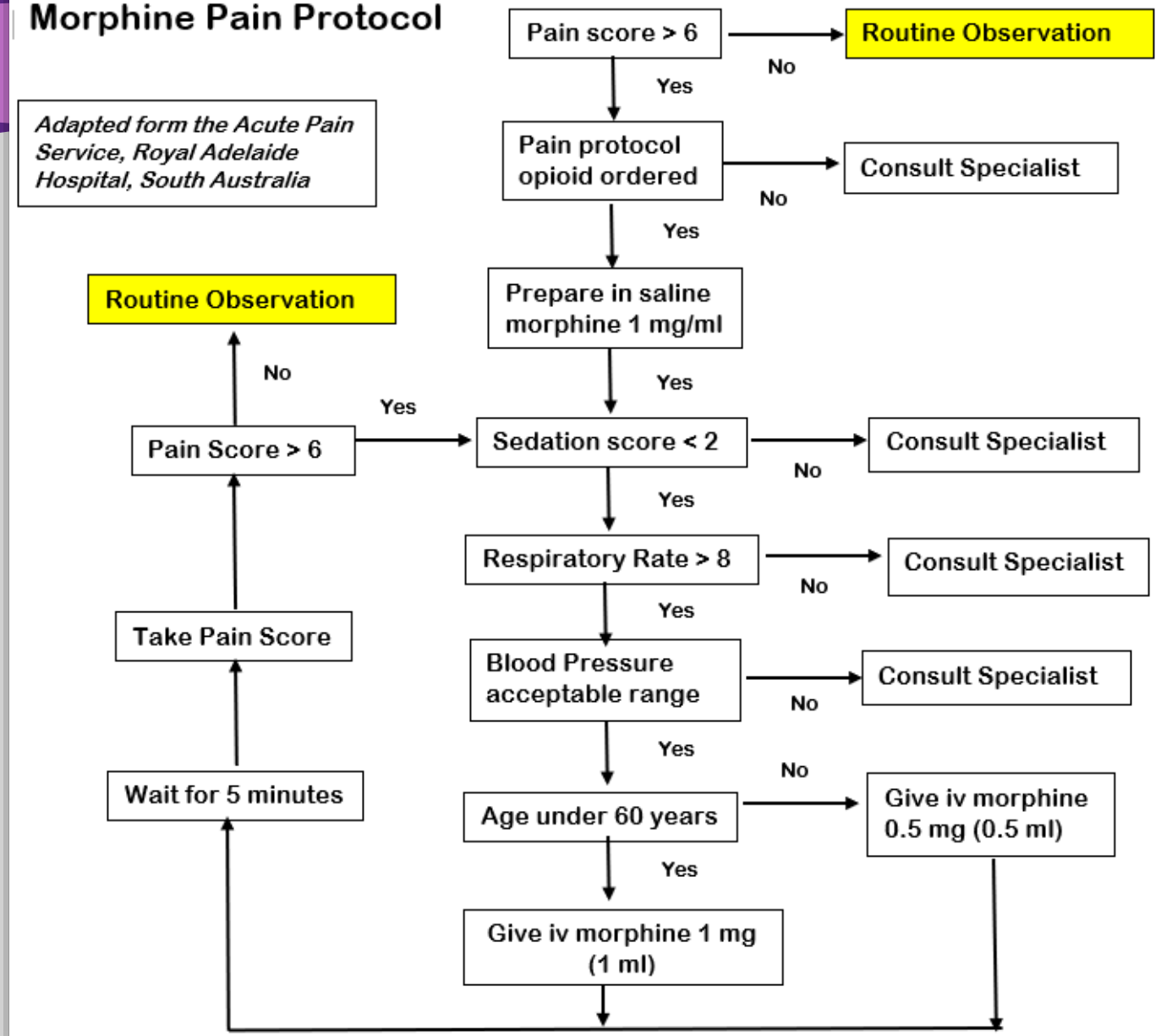
DRUG	DOSAGE	SE	CAUTION/CI	COMMENTS
Morphine	SC (Adults): <65 yrs: 5 -10 mg 4hrly >65 yrs: 2.5 - 5mg 4hrly IV: Follow Morphine pain Protocol Oral: Starting dose 5- 10mg 4hrly of IR Elderly: 2.5 - 5mg 4 - 6hrly of IR	Nausea Vomiting Pruritus Sedation Constipation Respiratory depression Myoclonus	Acute bronchial asthma Respiratory depression Head injuries Renal and *hepatic dysfunction:* *needs dose adjustment* Decrease initial dose by 1/2 to 1/3 of the usual amount	Metabolites can accumulate causing increased therapeutic and adverse effects Both parent drug and metabolites can be removed with dialysis, watch for "rebound" pain effect
Oxycodone IR (OXYNORM)	Starting dose (oral): 5 -10 mg 4 - 6hrly			

MORPHINE PAIN PROTOCOL

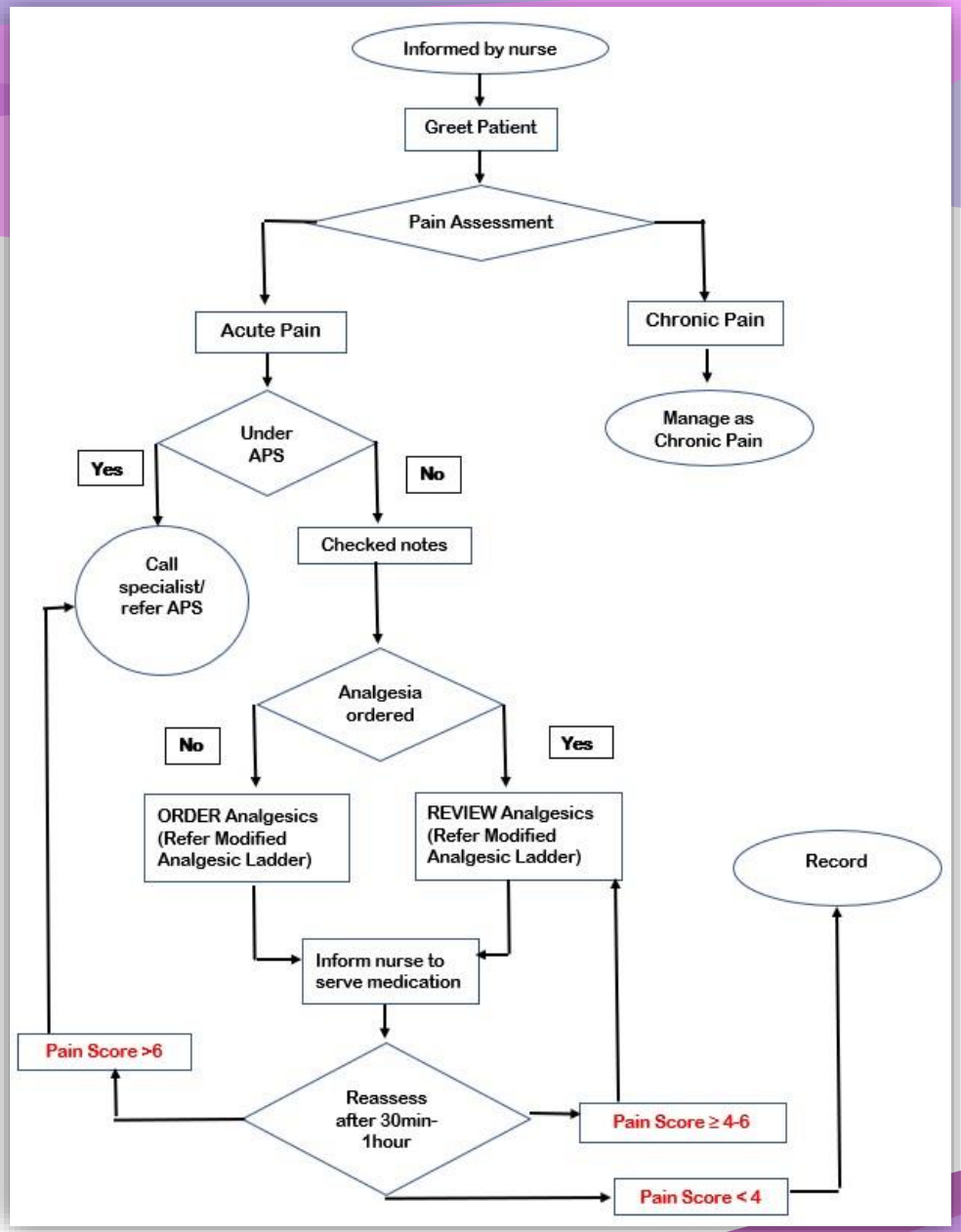
- Use for **rapid control of severe acute pain**
- Route: **IV**
- Morphine dilution: **10 mg/10 ml NS (1mg/ml)**
- Monitoring (every **5 minutes**)
  - Pain score
  - Sedation score
  - Respiratory rate
  - Blood pressure
  - Pulse rate

Morphine Pain Protocol

Adapted form the Acute Pain Service, Royal Adelaide Hospital, South Australia



PAIN AS 5TH VITAL SIGN: FLOW CHART FOR DOCTORS



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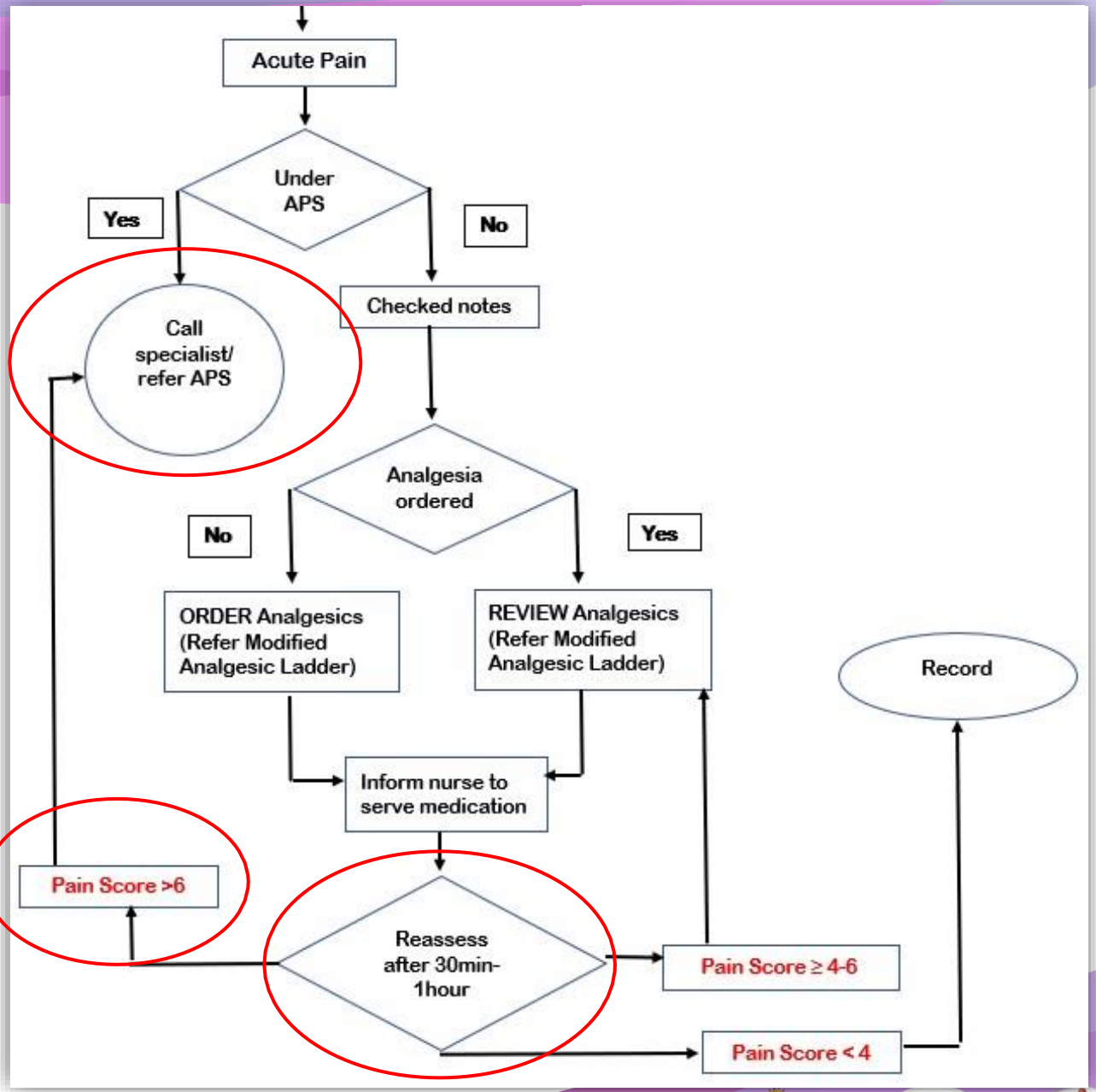
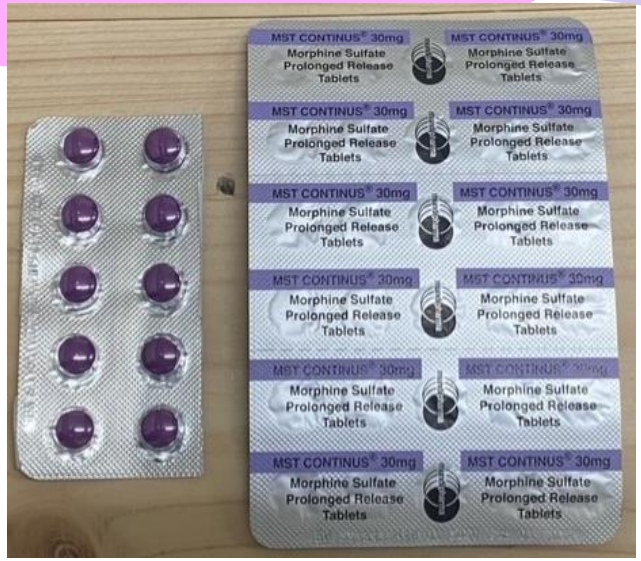


Immediate Release Oral Morphine

- Syrup Morphine 2mg/ml
- Onset : 30 minutes - 1 hour
- Duration of action : 4-6 hours (QID to 4hourly dosing)
- Administration :
  - For opiod naïve patients
  - For PRN dose (breakthrough pain)
  - Prior dressing or procedure

Sustained Release Oral Morphine

MST Continus Morphine 10mg



MST Continus Morphine 30mg

Onset : 1 -1.5 hour
Duration of action : 12 hours (BD dosing)
Precaution : CANNOT be cut. Swallow whole
Administration :

- NOT to start for opioid naïve patient except post-op pain
- Regular dose
- Not for Breakthrough Pain

Pethidine

Dose: 1-2mg/kg
(usually 50 – 100 mg 4H-6Hly)

- Route: iv /im /sc
- Peak analgesic effect :
  - IM : 20-30 minutes
  - IV : 5 -10 minute
- Elimination half life is 2.4-7 hours
- Side Effects are the same as for all opioids
  - Nausea/vomiting
  - Sedation
  - Respiratory depression
  - Constipation / Ileus

- Metabolised in liver to Norpethidine which has a hallucinogenic and convulsant effect
- Contraindicated in CKD : neurotoxicity
- Norpethidine has a long half life (12 hours) and hallucinogenic effects outlast the analgesic effects of pethidine

NOT recommended for use in chronic or cancer pain management

Fentanyl

Highly selective mu agonist

- More potent than morphine (10 mg morphine = 100 mcg fentanyl)
- Cardiovascularly stable but may cause bradycardia
- For acute pain, the IV form is used (not transdermal)
- Indicated when rapid pain relief is required for short periods of time.
- Concentration PCA :

  10mcg/ml, 20mcg/ml

- An alternative for renal problem patient (inactive & nontoxic metabolites)

Pharmacokinetics :

- Metabolized rapidly in liver to norfentanyl
- Elimination half life is 1.5-6 hours
- Peak analgesic effect :
  - IV : 3 minutes

Short duration of action :

- IV : 30-60 minutes

Available in transdermal patches but these are NOT suitable for management of acute pain

Immediate Release Oxycodone

Capsule Oxycodone 5mg (OxyNorm)

- Onset : 10 mins – 30 min
- Peak : ~1 hour
- Duration of action : 3-6 hours (QID to 4hourly dosing)
- Administration :
  - For opiod naïve patients
  - For PRN dose (breakthrough pain)
  - Prior dressing or procedure
  - Alternative to morphine (1 oral oxycodone : 1.5 oral morphine)

Controlled Release Oxycodone

Tablet OxyContin 10mg

Tablet OxyContin 20mg

- Onset : 1 hour
- Peak : 3 hours
- Duration of action : 12 hours (BD dosing)
- Precaution : CANNOT be cut. Swallow whole
- Administration :
  - NOT to start for opiod naïve patient except post-op pain
  - Regular dose
  - Alternative to morphine
  - Not for breaktrough pain

Opioid : Adverse effects

- **Side effects the same as for all opioids:**
  - **Nausea and vomiting**
  - Respiratory depression
  - Sedation
  - Constipation / Reduced GIT motility
  - Dizziness
  - Pruritus

Morphine and other opioids: Tolerance and Addiction?

- **Tolerance** is a physiological phenomenon where increasing doses of a drug are required to produce the same pharmacological effect, or where the same dose produces less effect.
- **Addiction** is associated with a psychological dependence on the drug, craving for the drug when it is not available, and drug-seeking behavior including cheating, lying and stealing to obtain the drug.

Morphine and other opioids: Tolerance and Addiction?

- Addiction does NOT occur if morphine is used for the relief of pain (acute pain or cancer pain)
  - Patient on PCA will reduce the usage morphine once the wound heals and pain decreases
  - In patients with cancer pain who are on morphine, requirement for higher doses is usually due to disease progression
- Tolerance is usually not a problem when used in the short term for the management of acute pain

Morphine and other opioids: Withdrawal

- However, patients who are on long term opioids, even when taken for pain, will experience withdrawal symptoms (e.g. increased pain, abdominal cramps, sweating, diarrhoea, agitation)

OPIOID ANTAGONIST - NALOXONE

- Pure opioid antagonist
- Used in diagnosis and treatment of opioid overdose
- Give IV (diluted) or IM
- Half-life 45 – 60 minutes
- IV Reversal of central depression from opioid use during surgery : 100-200 mcg at 2-3 min intervals, titrate dose according to response while maintaining analgesia.
- Opioid overdosage : 0.4-2 mg, repeat if needed at 2-3 min intervals. Consider overdosage with other drugs if there is no response after a total of 10 mg has been given.

MANAGEMENT OF SIDE EFFECTS

NAUSEA & VOMITING

- A common side effect
- Treat nausea and vomiting, continue giving opioids

Drug	Route	Dose	Interval
Metoclopramide	IV	10-20 mg	Stat & 6-8 hourly if necessary
Ondansetron	IV	4-8 mg	Stat & 8 hourly if necessary
Granisetron	IV	1 mg	Stat & 8 hourly if necessary

RESPIRATORY DEPRESSION

- Risk is very minimal if titrated to effect and in patient with chronic opioid use. i.e. cancer patient already on morphine.
- Always preceded bysedation.
- Only use opioids to treat pain, not to help patient to sleep or to calm down agitated patient.

MANAGEMENT OF RESPIRATORY DEPRESSION

Confirm diagnosis

- Sedation score of 2 AND RR <10 bpm
- Sedation score of 3 irrespective of RR
- Pin point pupils

Sedation Score

0 = none (patient is alert)
1 = mild (patient is sometimes drowsy)
2 = moderate (patient is often drowsy but easily arousable)
3 = unarousable
S = patient is sleeping, easily arousable

Management

- STOP the drugs and call for HELP
- Stimulate patient to breath
- Administer OXYGEN via face mask OR nasal prong
- Dilute NALOXONE 0.4 mg in 4 ml, give 0.1 ml every 1-2 minutes until patient awake or respiratory rate >10
- Monitor RR, sedation score hourly for 4 hours
- Give another dose of Naloxone if respiratory depression recurs
- Refer to ICU/HDU for close monitoring (patient may require Naloxone infusion.

PARALYTIC ILEUS

- Binding of opioid agonists to μ-receptors located in the enteric nervous system, **leading to delayed GI transit** and hard, infrequent stools
- **Need to rule out other causes:**
  - **Pain**,
  - Mesenteric ischemia
  - electrolyte abnormalities (e.g., hypokalemia, hypomagnesemia);
  - Extensive bowel manipulation
  - Intraabdominal inflammation (e.g.,pancreatitis);
  - Extra abdominal pathology (pneumonia).
- **Fentanyl** associated with low incidence of ileus
- Use of multimodal analgesia ie NSAID/PCM to reduce the dose of opioid

PARALYTIC ILEUS

Table 1. Possible Mechanisms of Postoperative Ileus

Mechanisms	Factors Involved
Autonomic nervous system	Sympathetic inhibitory pathways
Enteric nervous system	Substance P, nitric oxide
Hormones and neuropeptides	Vasoactive intestinal peptide; corticotropin-releasing factor ligands; calcitonin gene–related peptide ligands
Inflammation	Macrophage and neutrophil infiltration; cytokines, other inflammatory mediators
Anesthesia	General anesthetics
Narcotics	Opiates

REVERSE PAIN LADDER