

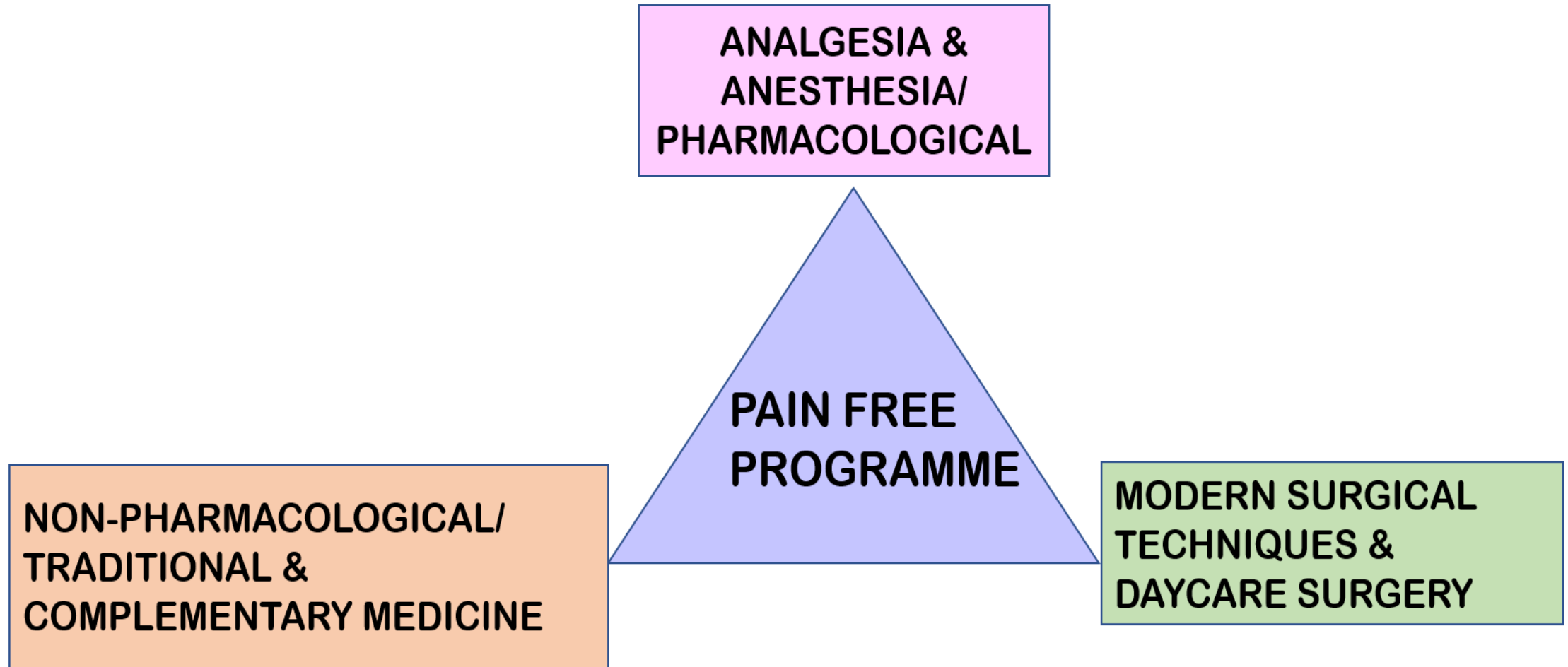


PAIN AS THE 5TH VITAL SIGNS TRAINING MODULE FOR DOCTORS



PAIN FREE PROGRAMME | KEMENTERIAN KESIHATAN MALAYSIA | UNIT AUDIT KLINIKAL

PAIN FREE CONCEPT



PAIN FREE CONCEPT

2008:
Implemented as a policy nationwide



PEKELILING KETUA PENGARAH KESIHATAN BILANGAN 9 TAHUN 2008;

**PELAKSANAAN TAHAP KESAKITAN SEBAGAI TANDA VITAL
KELIMA (*PAIN AS FIFTH VITAL SIGN*)**

DI HOSPITAL-HOSPITAL KEMENTERIAN KESIHATAN



**PAIN FREE
HOSPITAL**

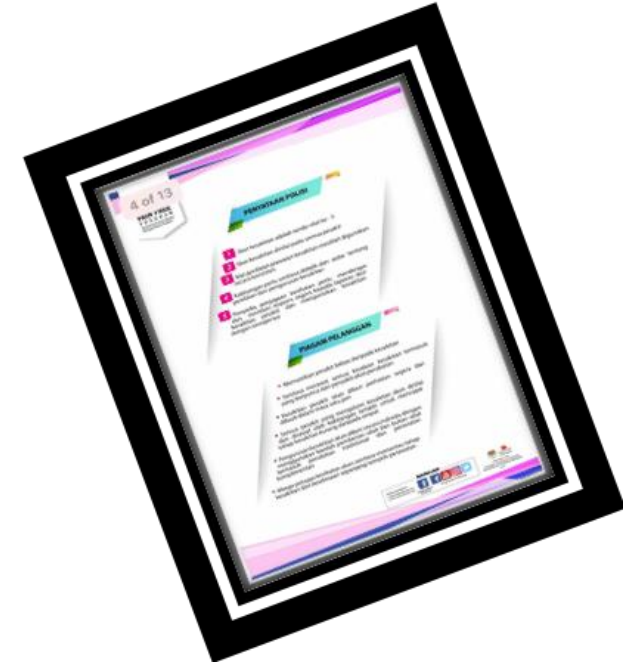
Transformasi Konsep Rawatan
Pelanggan Bebas Kesakitan

Currently:
One of the requirements for PAIN FREE HOSPITAL



POLICY STATEMENT ON PAIN FREE HOSPITAL / PROGRAM

1. PAIN IS ONE OF THE VITAL SIGNS.
2. PAIN IS ASSESSED IN ALL PATIENTS.
3. STANDARDIZED PAIN ASSESSMENT TOOLS MUST BE APPLIED CONSISTENTLY.
4. Healthcare providers should listen and respond promptly to patient's report of pain and manage pain appropriately.
5. Healthcare facility staff should be continually educated & aware about pain assessment & management.



CRITERIA FOR PAIN FREE

Does your hospital...

1. Have a written policy on pain assessment and management?
2. Implement Pain as the 5th Vital Sign? **2. Implement Pain as 5th Vital Sign?**
3. Have standardized treatment protocols for management of acute pain?
4. Train all healthcare staff on knowledge and skills in pain assessment and management?
5. Educate patients and get them actively involved in their own pain management?
6. Carry out regular audit of pain assessment and management practices and outcomes?
7. Have a policy and guidelines on Minimally invasive surgery?
8. Have a policy and guidelines on Day Care Surgery?
9. Use a multidisciplinary team approach in pain management?
10. Incorporate non-pharmacological including T/CM into pain management practices?
11. Involvement of State Health Department



OBJECTIVES FOR THIS TRAINING MODULE

1. Better awareness of pain
 2. Better pain management
 3. Train doctors, nurses and all health care personnel in
 - pain assessment
 - approach to pain management
- ➔ Implement pain as 5th vital signs
- ➔ Working towards pain free hospital



OBJECTIVES FOR THIS TRAINING MODULE

Prior to 2008

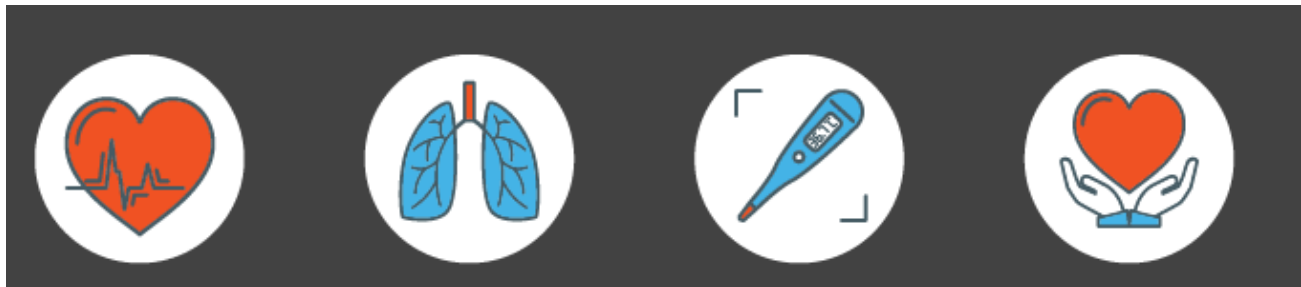
- Pain as the 5th Vital Sign was introduced in 2008
- Previously 4 vital signs were routinely monitored:

Pulse rate (PR)

Respiratory rate (RR)

Temperature (T)

Blood pressure (BP)



Are 4 vital signs adequate?

He is quiet and comfortable.
BP, PR, RR are normal
He has no fever



I expect them to
know that I am in
severe pain



4 VITAL SIGNS- ZERO COMMUNICATION

ISSUE WITH NOT ASSESSING PAIN

“Those who do not feel pain seldom think that it is felt”

**Dr. Samuel Johnson
(1709-1784)**

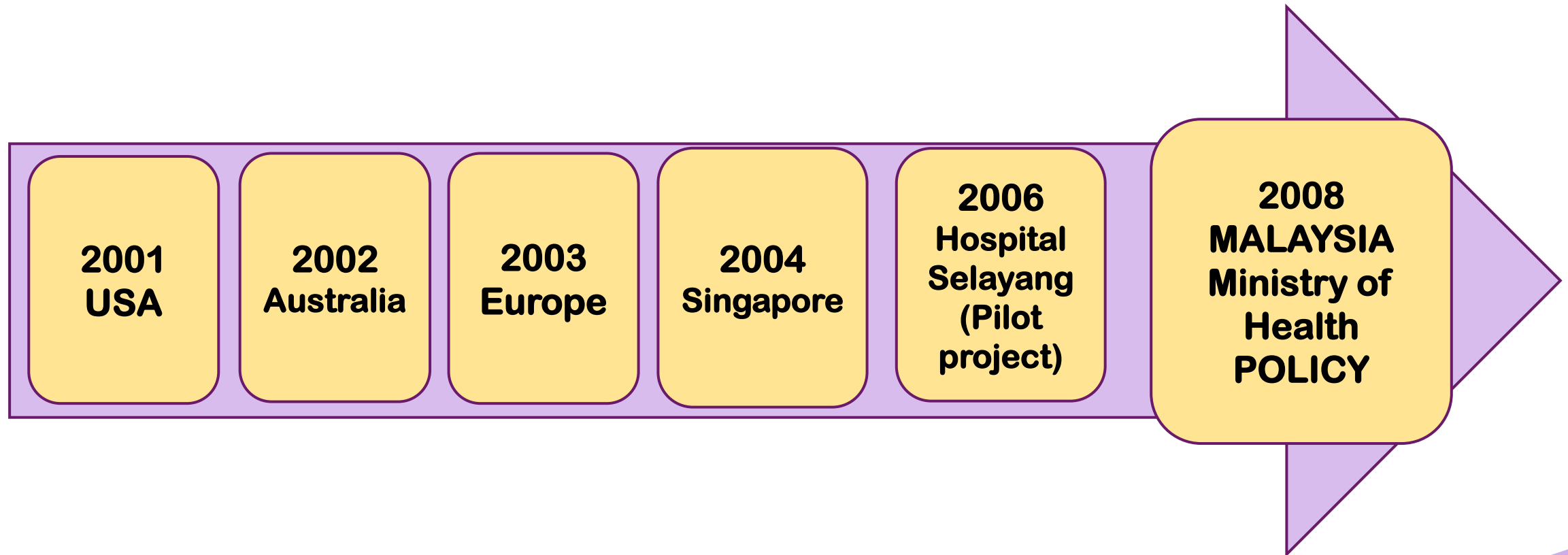
BARRIERS TO PAIN MANAGEMENT

- Inadequate pain assessment
 - Identified as the greatest barrier to pain management
- Lack of awareness
 - If you don't ask, you won't know
 - Therefore we need to ask the patients if they have pain

(Von Roenn JH, Cleeland CS, Gonin R, et al. Ann Intern Med, 1993)



JCAHO / JCI STANDARDS: PAIN AS THE 5TH VITAL SIGN



BENEFIT OF PAIN AS THE 5TH VITAL SIGN

- **Promote doctor- patient & nurse- patient interaction**
 - Better communication
 - Better patient satisfaction
- **Provide better patient care**
 - Priority to pain assessment
 - Individualized care
- **Better awareness of pain**
 - Better management of pain
 - Faster recovery
 - Reduced length of stay



INCORPORATING ESSENTIAL PAIN MANAGEMENT (EPM) IN THE TRAINING MODULE

- **EPM program**

- Developed by Dr. Roger Goucke and Dr. Wayne Morris
- Designed to improve pain management worldwide at "grassroots" level.
- Supported by Faculty of pain Medicine (FPM), Australia

- **Aims of EPM:**

- To improve understanding of pain
- To teach a simple framework for managing pain
- To reduce pain management barriers



APPROACH TO PAIN

R-A-T model (approach)

Recognise
Assess
Treat

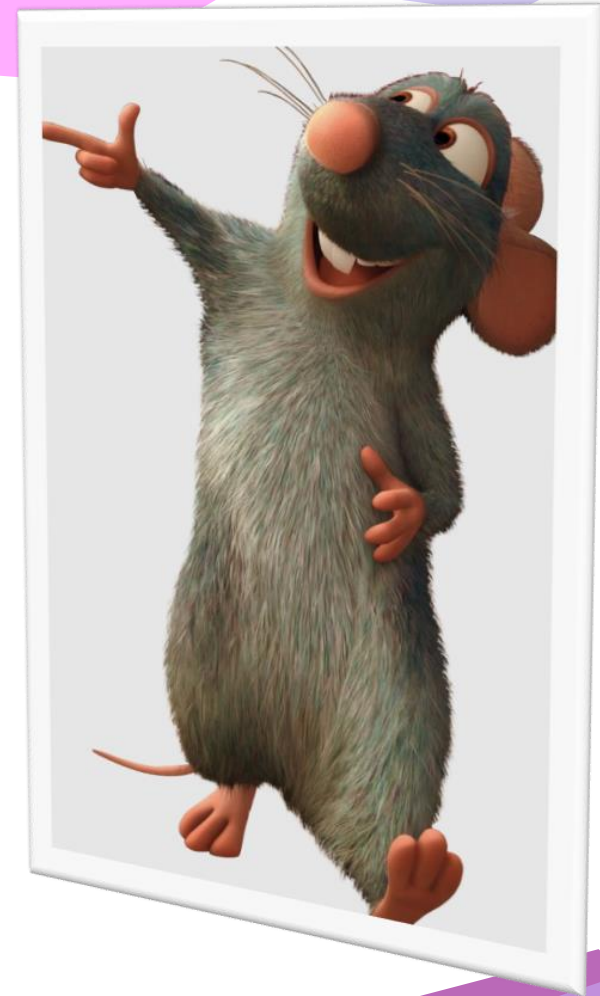


APPROACH TO PAIN

Recognise

Does the patient have pain?

**Do other people know
patient has pain?**



APPROACH TO PAIN

Assess:

How severe is the pain?
What type of pain is it?
Are there other factors?



APPROACH TO PAIN

Treat

What non drug treatment
can I use?

What drug treatment can I
use?



WHAT IS PAIN

Definition:

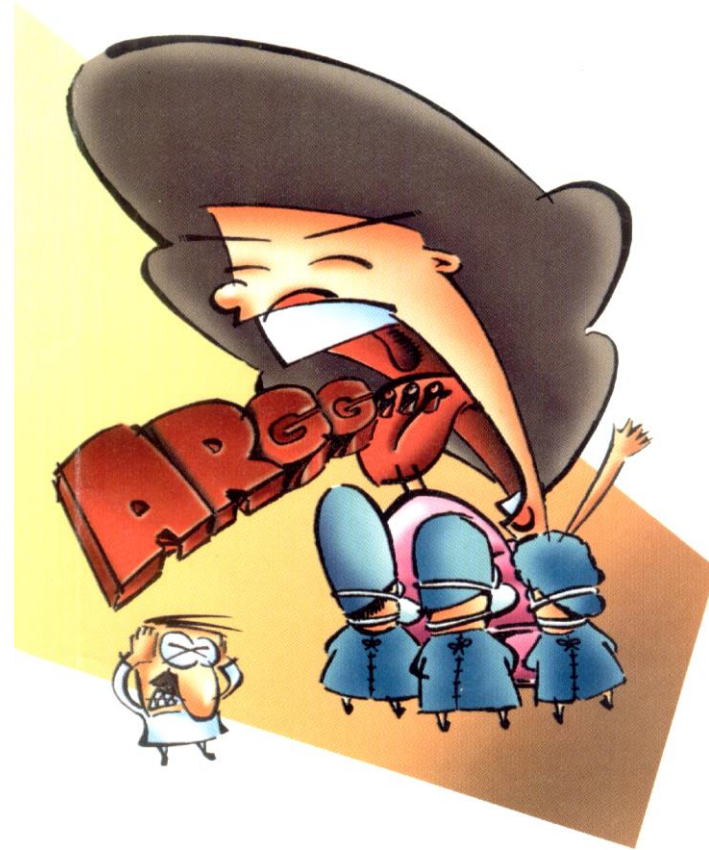
Unpleasant sensory and emotional experience associated with, or resembling that associated with, actual or potential tissue damage

(International Association for the Study of Pain (IASP) – 16th July 2020)

WHAT DOES THAT MEAN?

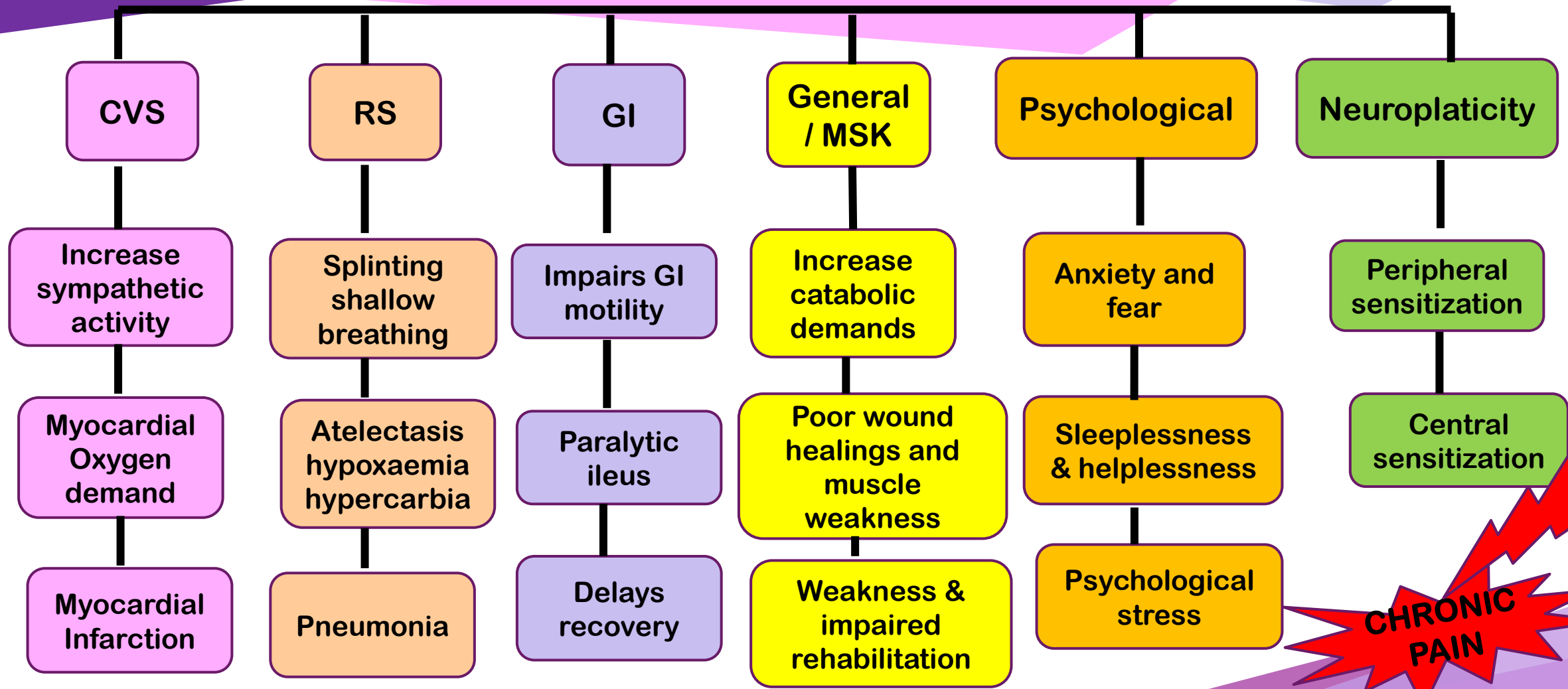
PAIN is what the patient says...

HURTS



WHAT ARE THE CONSEQUENCES OF NOT TREATING ACUTE PAIN?

Adverse effect of severe acute pain



CLASSIFICATION OF PAIN

- **AIM:**
 - To classify types of pain
 - To have a mechanistic approach to pain management
- **NOT ALL PAIN IS THE SAME**
- **3 main questions:**
 - How long has the patient had pain?
 - What is the cause?
 - What is the pain mechanism?

CLASSIFICATION OF PAIN

Basis	Types of pain
Duration	Acute
	Chronic
	Acute on chronic
Cause	Cancer
	Non cancer
Mechanism	Nociceptive (physiological)
	Neuropathic (pathological)

ACUTE VS CHRONIC PAIN

Acute pain:

- Pain of recent onset and probably of limited duration

Chronic pain:

- Pain persisting beyond healing of injury
- Often no identifiable cause
- Pain lasting for > 3 months

DIFFERENCES BETWEEN ACUTE AND CHRONIC PAIN

	ACUTE PAIN	CHRONIC PAIN
Onset & timing	Sudden, short duration Resolves /disappears when tissue heals	Insidious onset Pain persists despite tissue healing
Signal	Warning sign of actual or potential tissue damage	Not a warning signal of damage False alarm
Severity	Correlates with amount of damage	Severity not correlated with damage
CNS involvement	CNS intact- acute pain is a symptoms	CNS may be dysfunctional- chronic pain is a disease
Psychological effects	Less, but unrelieved pain → anxiety and sleeplessness (improves when pain is relieved)	Often associate with depression, anger, fear, social withdrawal etc.
Examples	Trauma/ Surgery/ Burns/ Arthritis/ Myocardial infarction/ Labour pain	Chronic headache Chronic low back pain Trigeminal neuralgia Post herpetic neuralgia

NEUROPATHIC PAIN

Definition:

Pain that is caused by a lesion or disease of the somatosensory system (PNS or CNS)(IASP 2011)

Peripheral nerves

- Traumatic brachial plexus injury
- Diabetes Mellitus
- Carpel tunnel syndrome
- Post herpetic neuralgia

Central nervous system

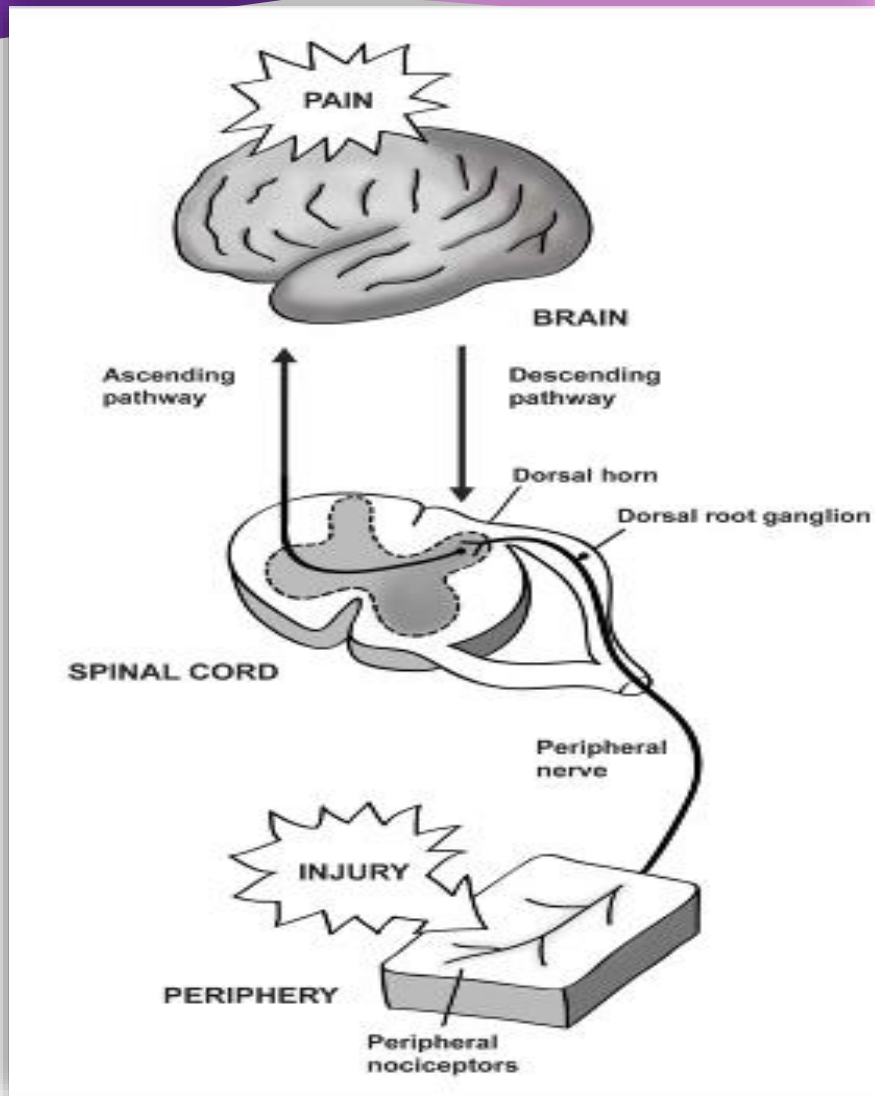
- Central post stroke pain
- Neuropathic associated with spinal cord injury

NOCICEPTIVE VS NEUROPATHIC PAIN

NOCICEPTIVE PAIN	NEUROPATHIC PAIN
Well localized	Not well localized
Sharp Worse with movement	Burning Shooting Numbness Pins and needles
Obvious tissue injury or illness	Tissue injury may not be obvious
Inflammation	Nerve injury Changes in wiring Abnormal firing Loss modulation
Physiological pain	* Pathological pain

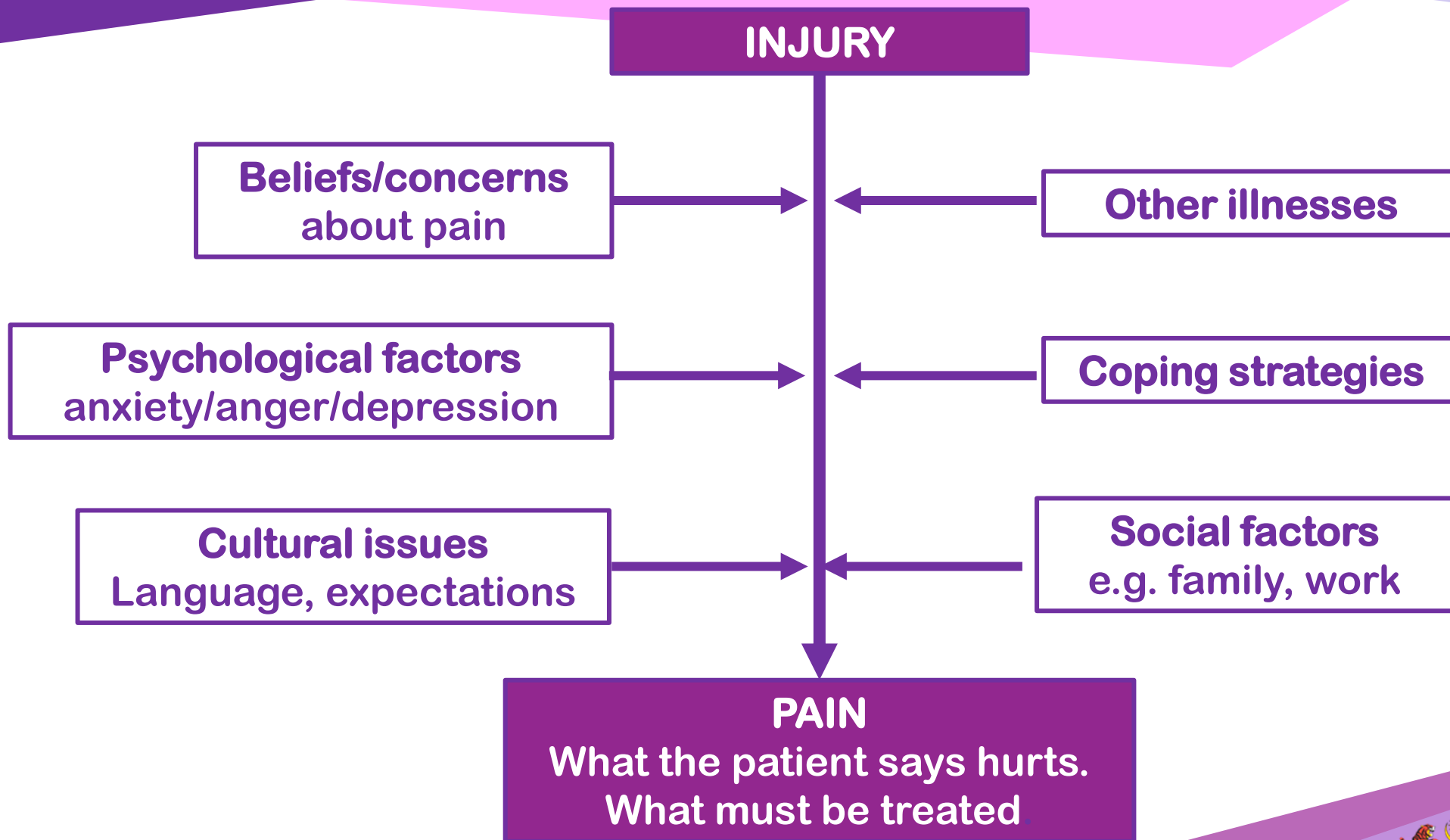
*needs to be treated differently

PAIN PATHWAY



- Many factors affect how we 'feel' pain
 - Psychological factors are very important
- Different treatments work on different parts of the pathway
 - More than one treatment may be needed

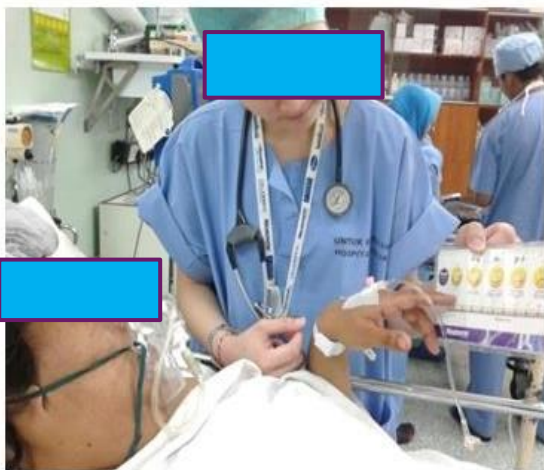
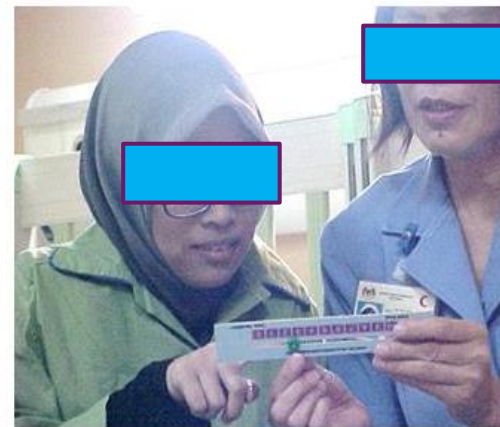
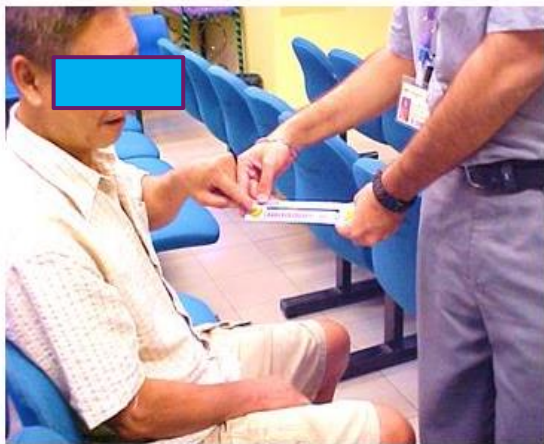
NOCICEPTION IS NOT THE SAME AS PAIN!



SUMMARY

- **Classifying the type of pain is important as the management can be different**
 - Acute vs chronic
 - Nociceptive vs neuropathic
- **Chronic pain has to be managed using a multidisciplinary, multimodal approach**
- **Different treatments work on different parts of the pain pathway and should take into account the psychological factor**

PAIN ASSESSMENT



WHY ASSESS / MEASURE PAIN?

- Produce a baseline to assess therapeutic interventions
e.g. administration of analgesic drugs
- Facilitate communications between staff looking after the patient
- For documentation



HOW TO ASSESS PAIN

- Important to
 - Listen and believe the patient
- Take a pain history
 - “Tell me about your pain.....”



HOW TO ASSESS PAIN

P: Place or site of pain

“where does it hurt?”

Record on a body chart

A: Aggravating factors

“what makes your pain worse?”

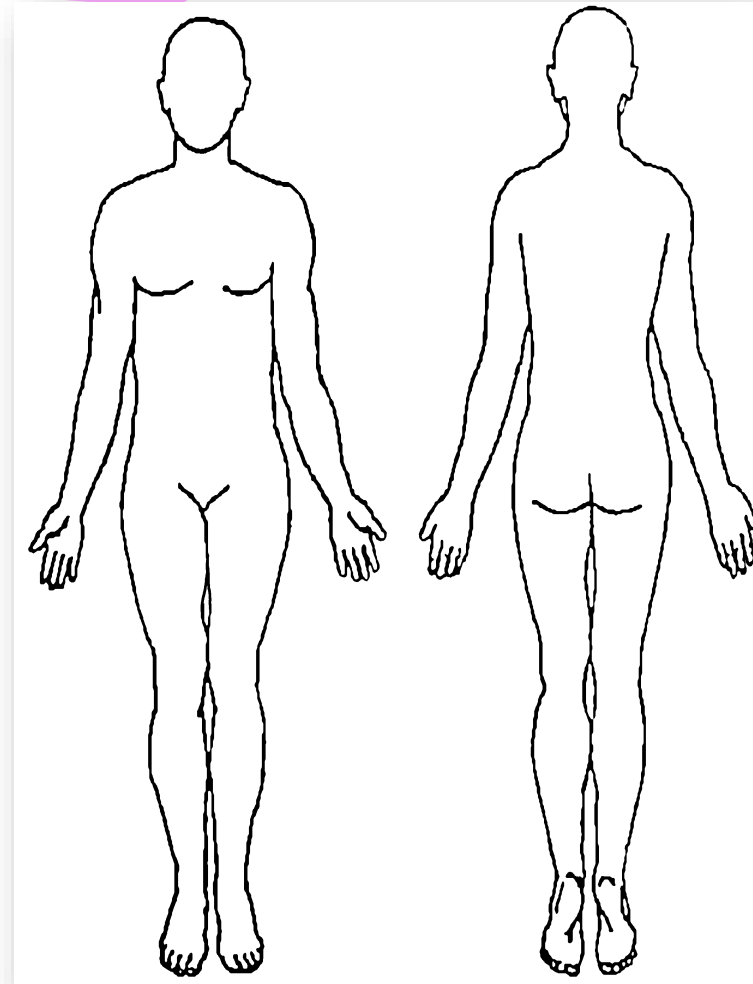
I: Intensity

“How bad is the pain?”

N: Nature and neutralising factors

“what does it feel like’

“What makes the pain better?”



PAIN MEASUREMENT TOOL

Technique

- Self reporting by patient
 - Gold standard
 - Best method
- Observer assessment
 - Observation of behaviour and vital signs
 - Functional assessment



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 asleep)	Moans or whimpers; occasional complaint	Crying steadily, screams or sobs, frequent complaints
Consolability	Content, relaxed	Reassured by occasional touching, hugging or being talked to, distractable	Difficult to console

MOH PAIN SCALE



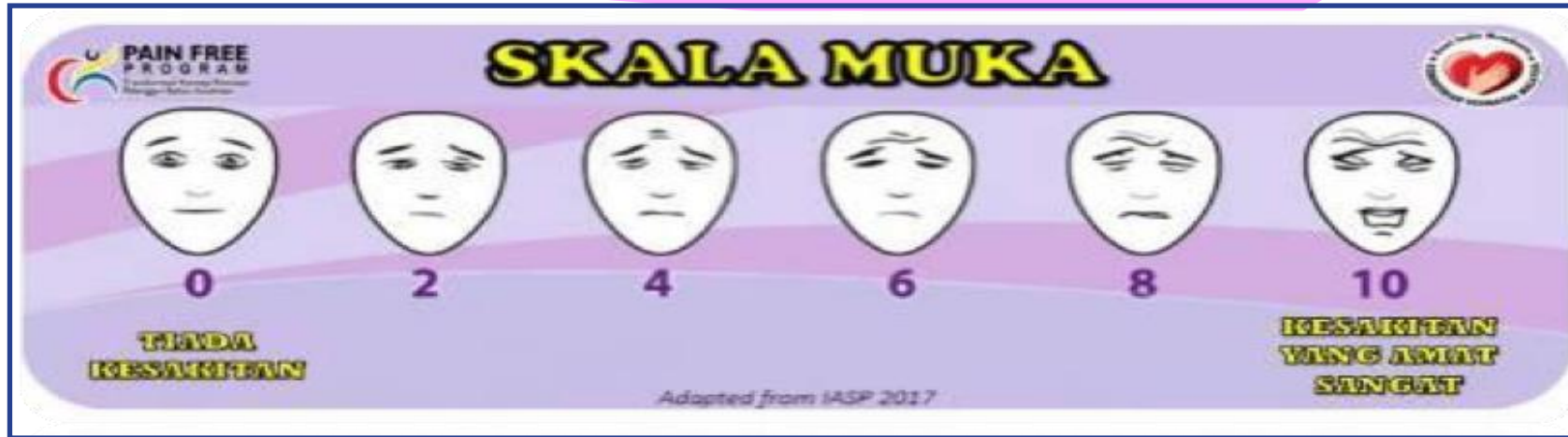
Combined Visual Analog Scale And Numerical Rating Scale
Adult And Children > 7 Years

On a scale of '0' to '10' (show the pain scale).

If '0' = no pain, and 10 = worst pain you can imagine, what is your pain score now?

Patient is asked to show the severity of pain, which is recorded as a number (0 to 10)

IASP FACE SCALE (Children 4-7 years old)



In the following instructions, say ‘Hurt’ or ‘Pain’ whichever seems right for a particular child: “These faces show how much something can hurt. This face (point to the left most face) shows no pain. The faces show more and more pain (point to each from left to right) up to this one. (point to the right most face). It shows very much pain. Point to the face that shows how much you hurt (right now)”

Do not use words like ‘happy’ or ‘sad’. This scale is intended to measure how children feel inside, not how their face looks.

FLACC SCALE

Category	Scoring		
	0	1	2
Face	No particular expression or smile	Occasional grimace or frown, withdrawn, disinterested	Frequent to constant quivering chin, clenched jaw
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Activity	Lying quietly, normal position, moves easily	Squirming, shifting back and forth, tense	Arched, rigid or jerking
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- Use for 1 month to 4 year old, cognitively impaired or language barrier
- Observational tool looking at behavioural changes
 - Observe for 2-5 min

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				

WHEN SHOULD PAIN BE ASSESSED

1. At regular interval

- as the 5th vital signs during routine observation of BP, HR, RR, and temperature
- This can be done 4hourly, 6hourly or 8hourly

2. On admission of patient

3. On transfer in of patient



WHEN SHOULD PAIN BE ASSESSED

4. At other times apart from scheduled observations:

- ½ to 1 hour after administration of analgesics and nursing intervention for pain relief
- Before, during and after any painful procedures in the ward e.g. wound dressing
- Whenever the patient complains of pain

PAIN ASSESSMENT		
PROCEDURE:		
PAIN SCORE		MEDICATIONS & TIME GIVEN
BEFORE		
DURING		
AFTER		

WHO SHOULD BE ASSESSED

ALL patients

- Wards
- Labour room
- Operating theatre- under neural axial blockade or regional anaesthesia
- Recovery room
- ICU/ HDU/CCU
- Ambulatory day care units
- Clinics



WHO DOES PAIN ASSESSMENT

EVERYONE

- All doctors
- All nurses/ AMO
- All Allied Health personnel
- All medical students
- All student nurses/ AMO




SELECTION OF PAIN ASSESSMENT TOOL

- Use the **standard tool** for pain assessment
- Use appropriate scale for age, learning and development

***Always use the same tool for the same patient**

NURSING OBSERVATION CHART

(Vital Signs Chart). PS.KKM1/2014

Patient's Name : Age : Ward :							
DATE	TIME	BP	PR	RR	T° C	PS	NURSING INTERVENTION

OVERVIEW OF ACUTE PAIN MANAGEMENT

Aims:

- To discuss non pharmacological and pharmacological treatment
- To classify pain treatments

NON-DRUG TREATMENT

■ Physical :

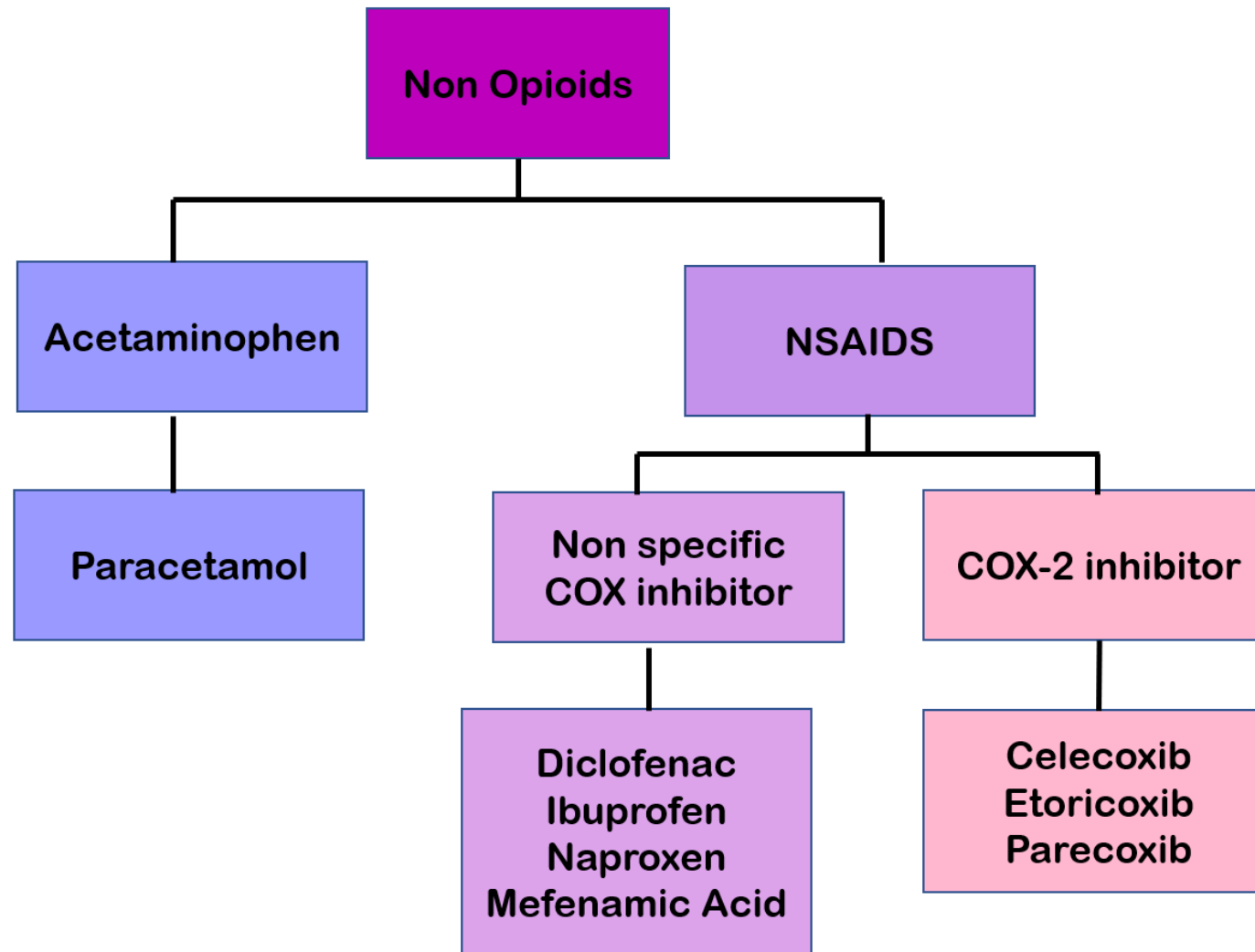
- Rest, Ice, Compression, Elevation
- Surgery
- Physiotherapy
- Acupuncture, massage
- Hydrotherapy

■ Psychological

- Support/ Explanation
- Reassurance
- Counselling
- Distraction / guided imagery
- Relaxation



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

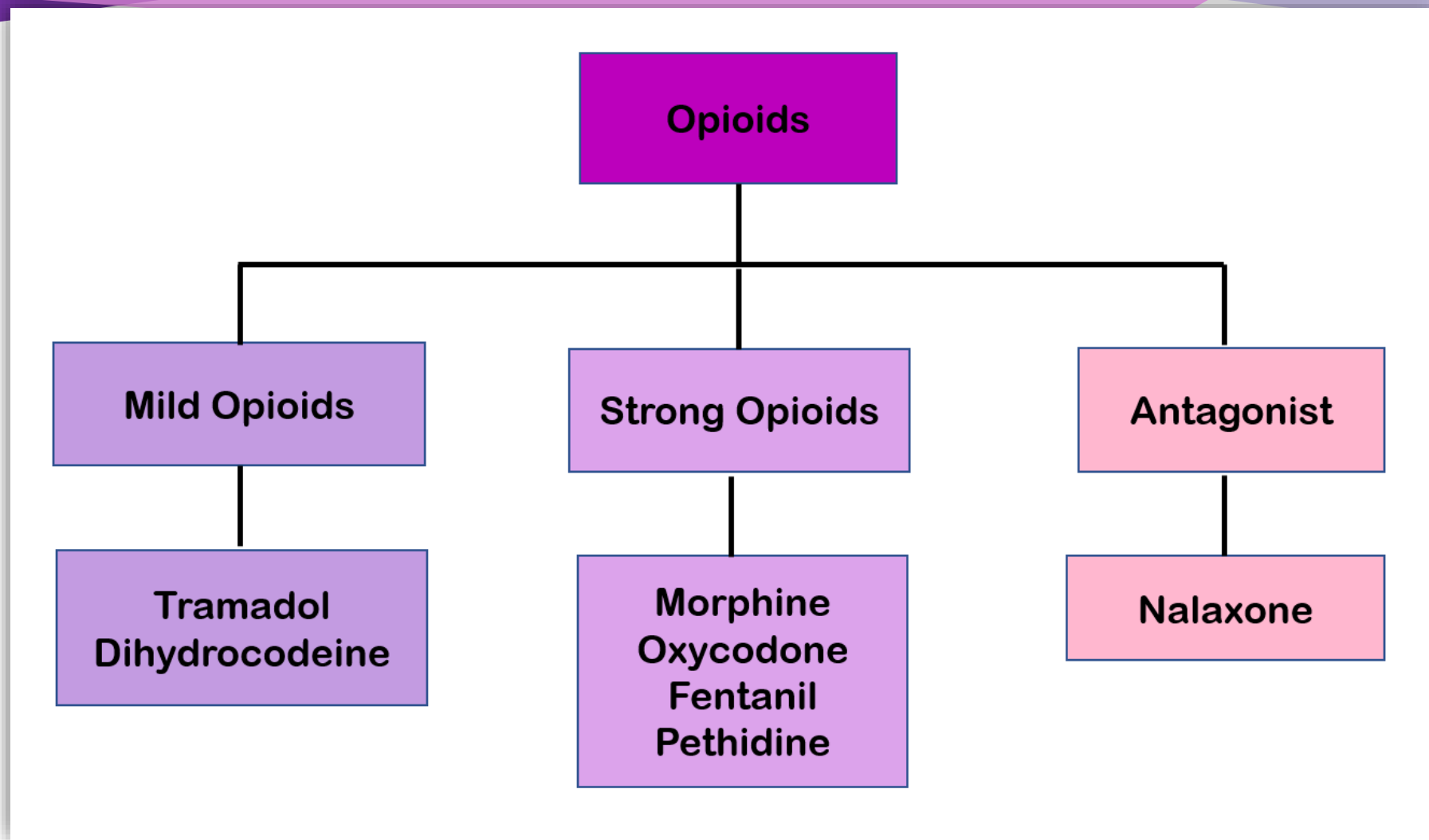
NON STEROIDAL ANTI INFLAMMATORY DRUGS (NSAIDS)

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

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	IHD Cerebrovascular Disease	A/w lower risk of serious upper gastrointestinal SE compared to traditional NSAIDs
Etoricoxib	120mg daily (APS) x 48hrs 60 – 90mg daily (for longer term use) Elderly: 30mg Daily	Hypertension Increase in CSV events	Hypersensitivity to sulphonamides Higher doses a/w higher incidence of GIT, CVS side effect	Use the lowest effective dose for the shortest duration necessary
Parecoxib (IV)	20 – 40mg 6 – 12hrly Max 80mg/day (72hrs) >65yrs & <50kg: ½ dose Max 40mg daily		Patient with indication of cardioprotection require aspirin as supplement Uncontrolled HPT	

PHARMACOLOGICAL TREATMENT



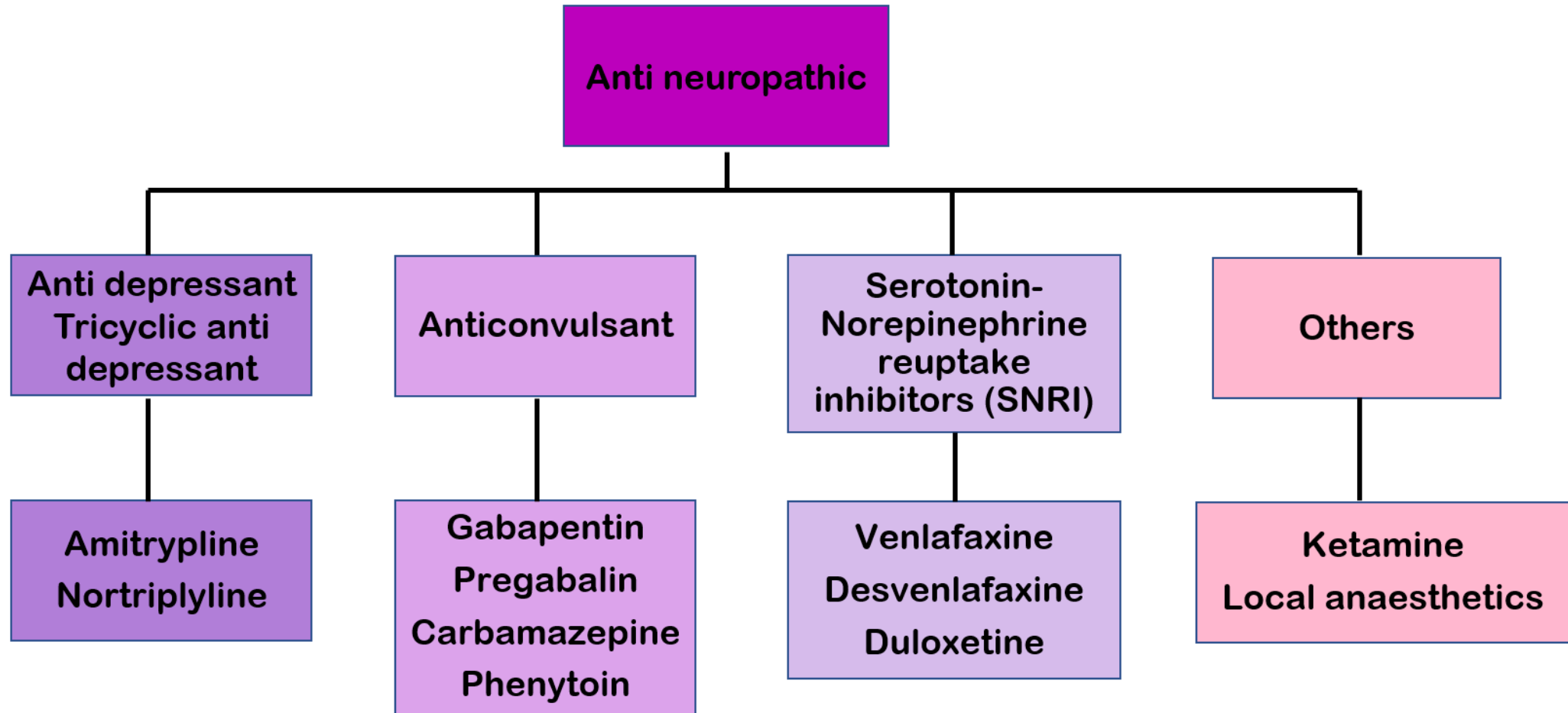
WEAK OPIODS / COMBINATION

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

PHARMACOLOGICAL TREATMENT



Ascending pathway

Non drug treatment

- Acupuncture
- Massage

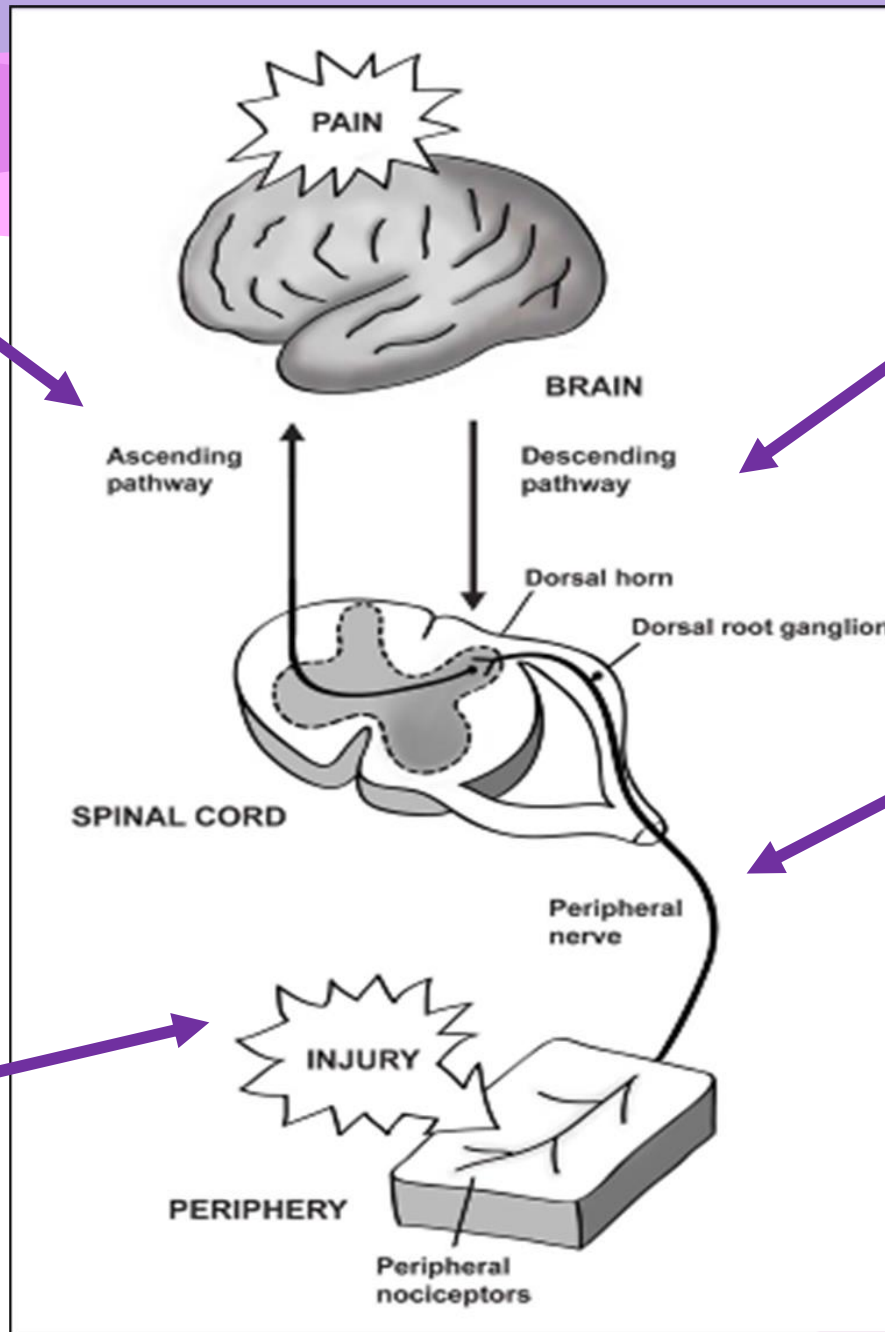
Drug treatment

- Paracetamol
- Opioids / Tramadol
- Ketamine
- Pregabalin/ gabapentin
- Clonidine
- LA

Nerve terminal

Drug treatment

- NSAIDS



Descending pathway

Drug treatment

- Opioids / Tramadol
- SNRI
- TCA
- Clonidine

Peripheral pathway

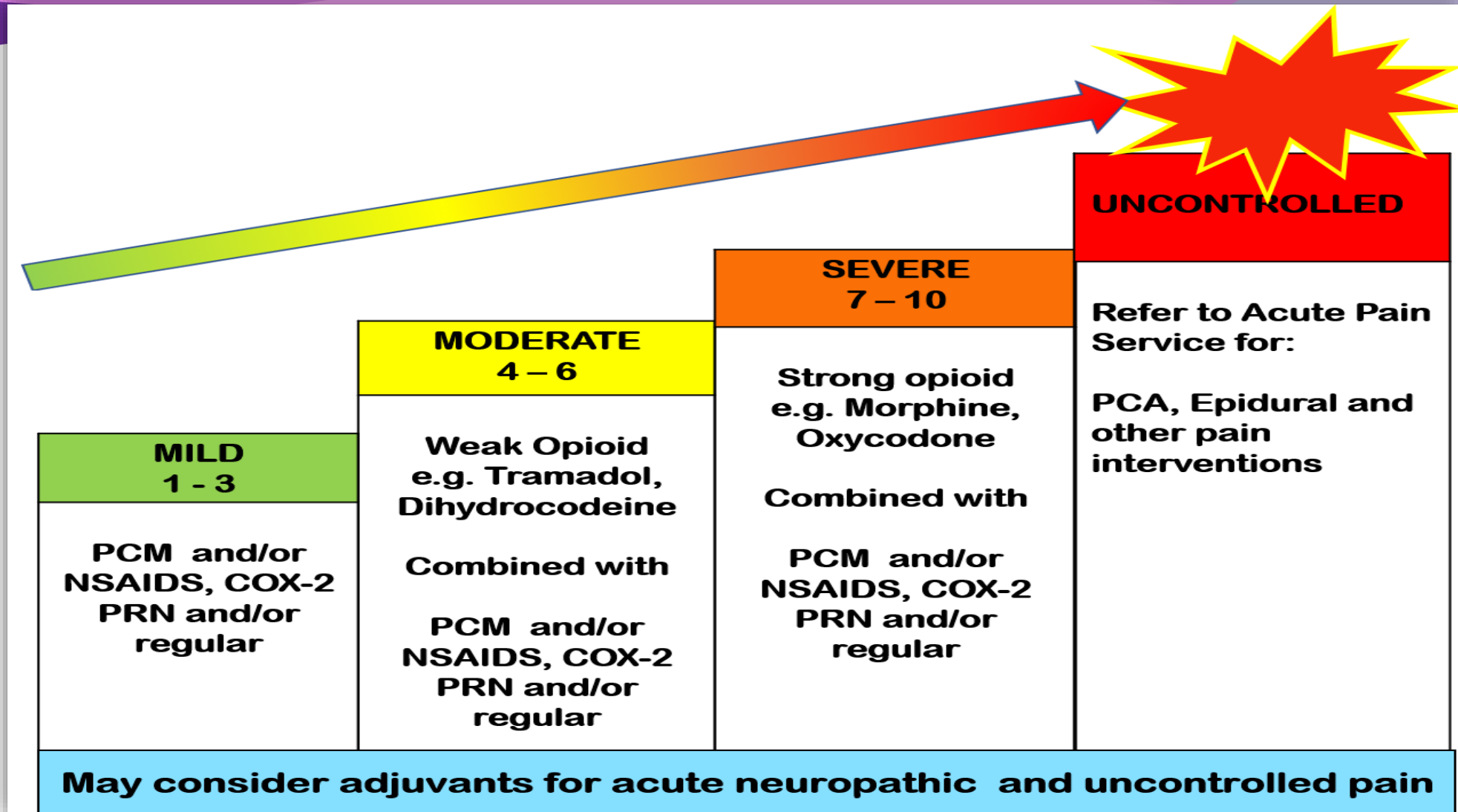
Non drug treatment

- RICE
- Psychological

Drug treatment

- LA
- NSAIDS

MODIFIED ANALGESIC LADDER



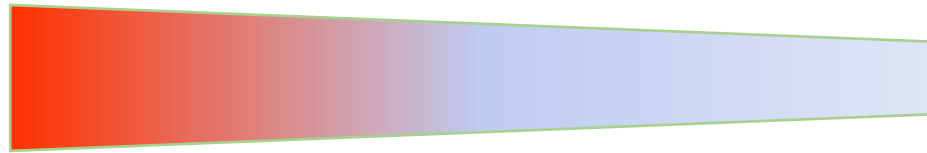
MORPHINE AND OTHER OPIOIDS: ADDICTION?

- Addiction does NOT occur if morphine is used for the relief of pain (acute pain or cancer pain)
- Patient on PCA will reduce the dose of morphine once the wound heals and pain decreases
- Patient may develop tolerance but it is not a problem if use for short term

SO HOW LONG DO I NEED TO CONTINUE WITH PAIN MEDICATION?



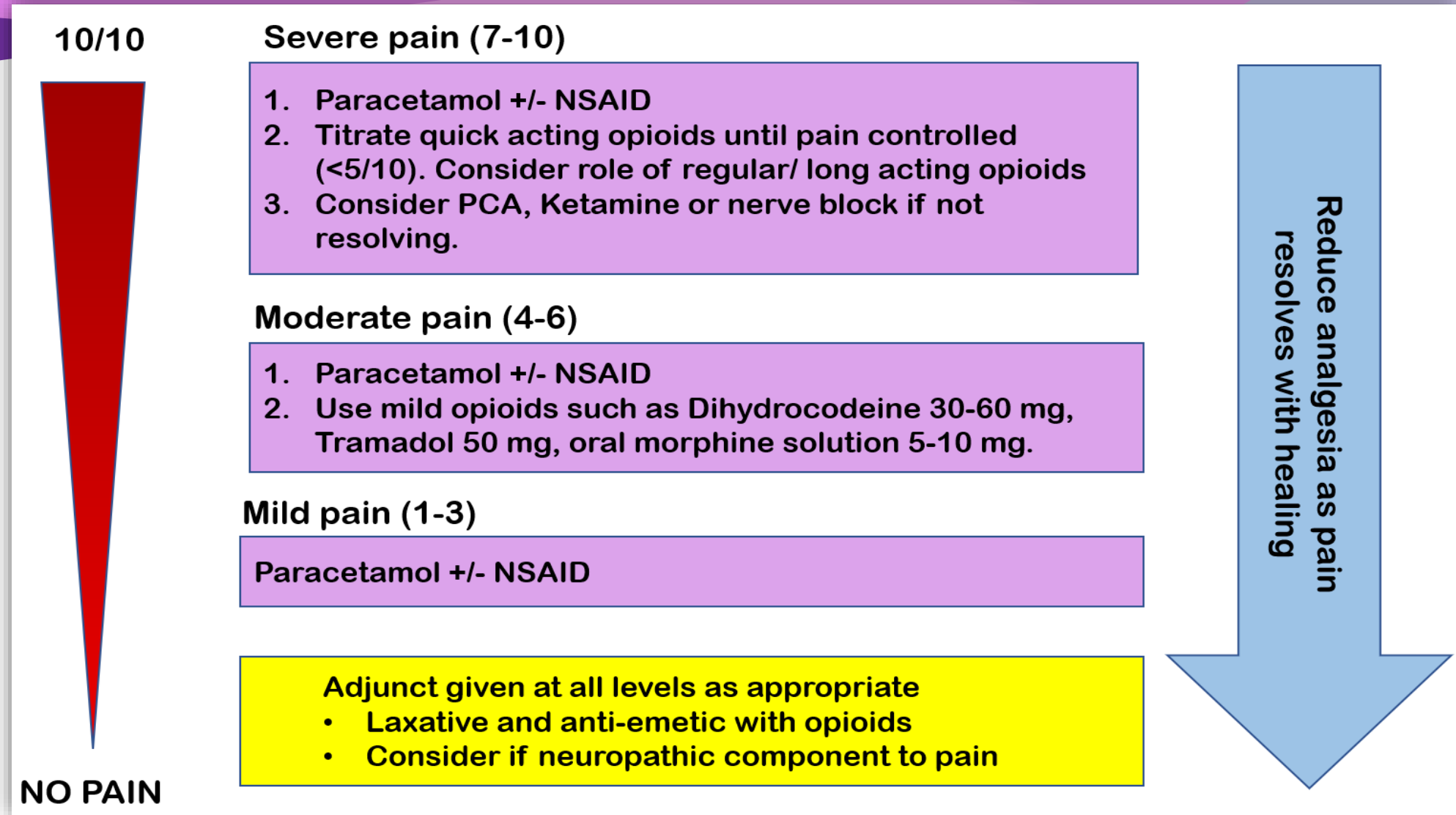
SPECTRUM OF PAIN



NO PAIN

- Sudden / Short duration
 - Actual or potential tissue damage
 - Resolves with healing
-
- Acute pain should resolve in a few days once the acute cause has settled and begun to heal.
 - Usually regular dose of medication can gradually be reduced and given as PRN only once pain is settling.

REVERSE PAIN LADDER



- Prescription should be for the shortest duration < 7 days (ideally 3 days).
- Clinicians must review and assess again before providing a second prescription.



WHAT TO DO IN SEVERE ACUTE PAIN?

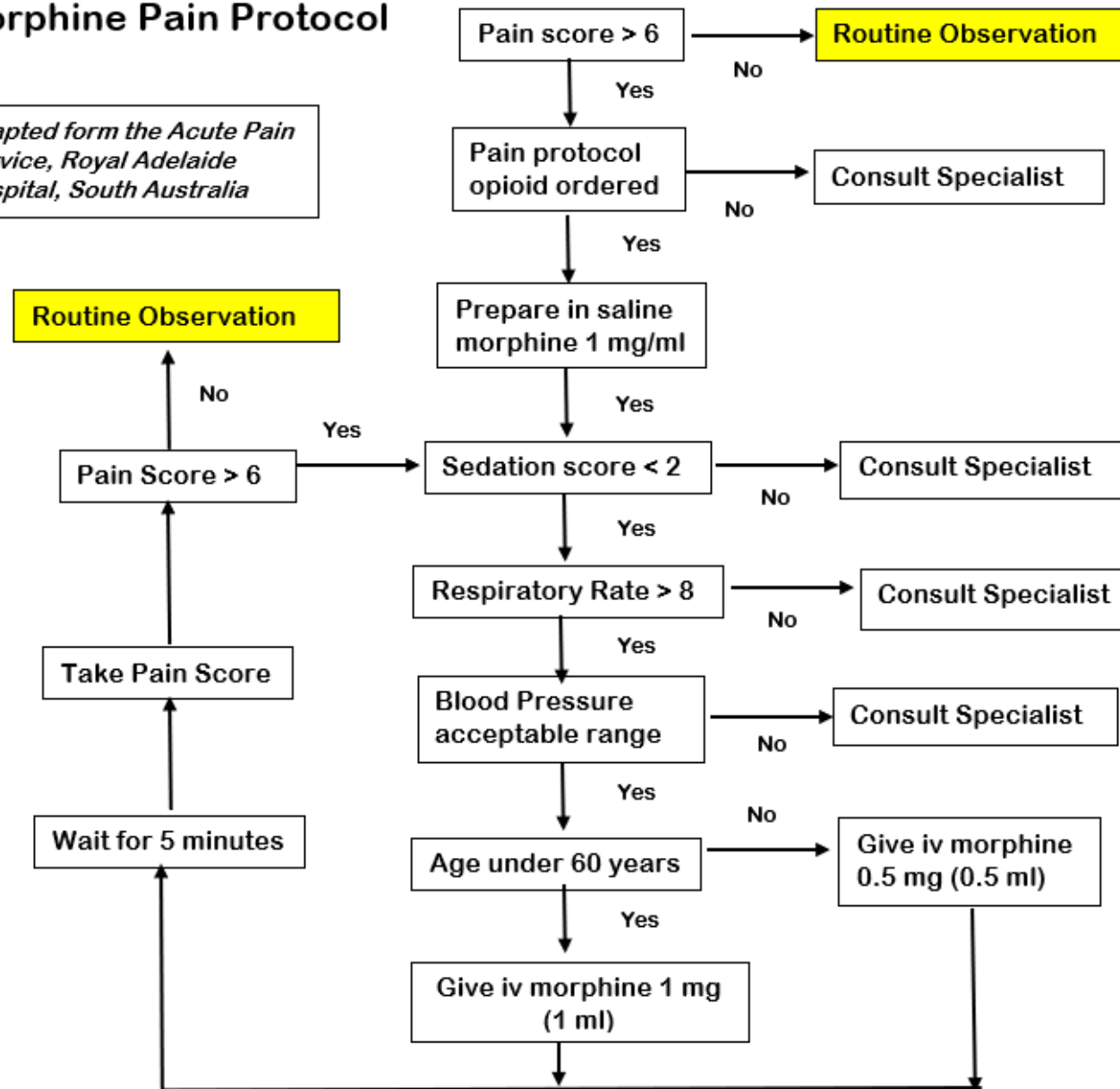


MORPHINE PAIN PROTOCOL

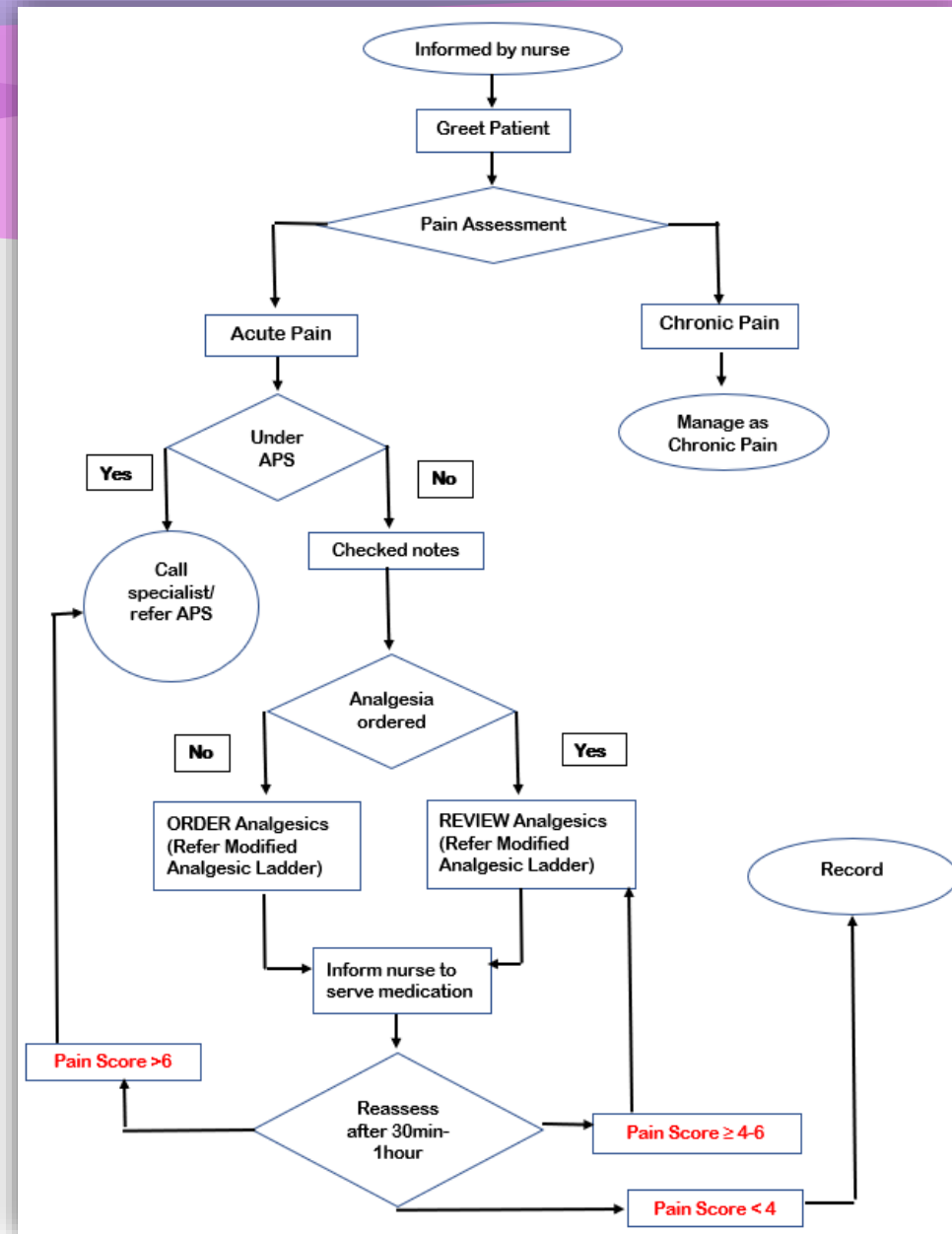
- Use for **rapid control of severe acute pain**
- Route: **IV**
- Morphine dilution: **10 mg/10 ml NS (1mg/ml)**
- Monitoring (every **5 minutes**)
 - Pain score
 - Sedation score
 - Respiratory rate
 - Blood pressure
 - Pulse rate

Morphine Pain Protocol

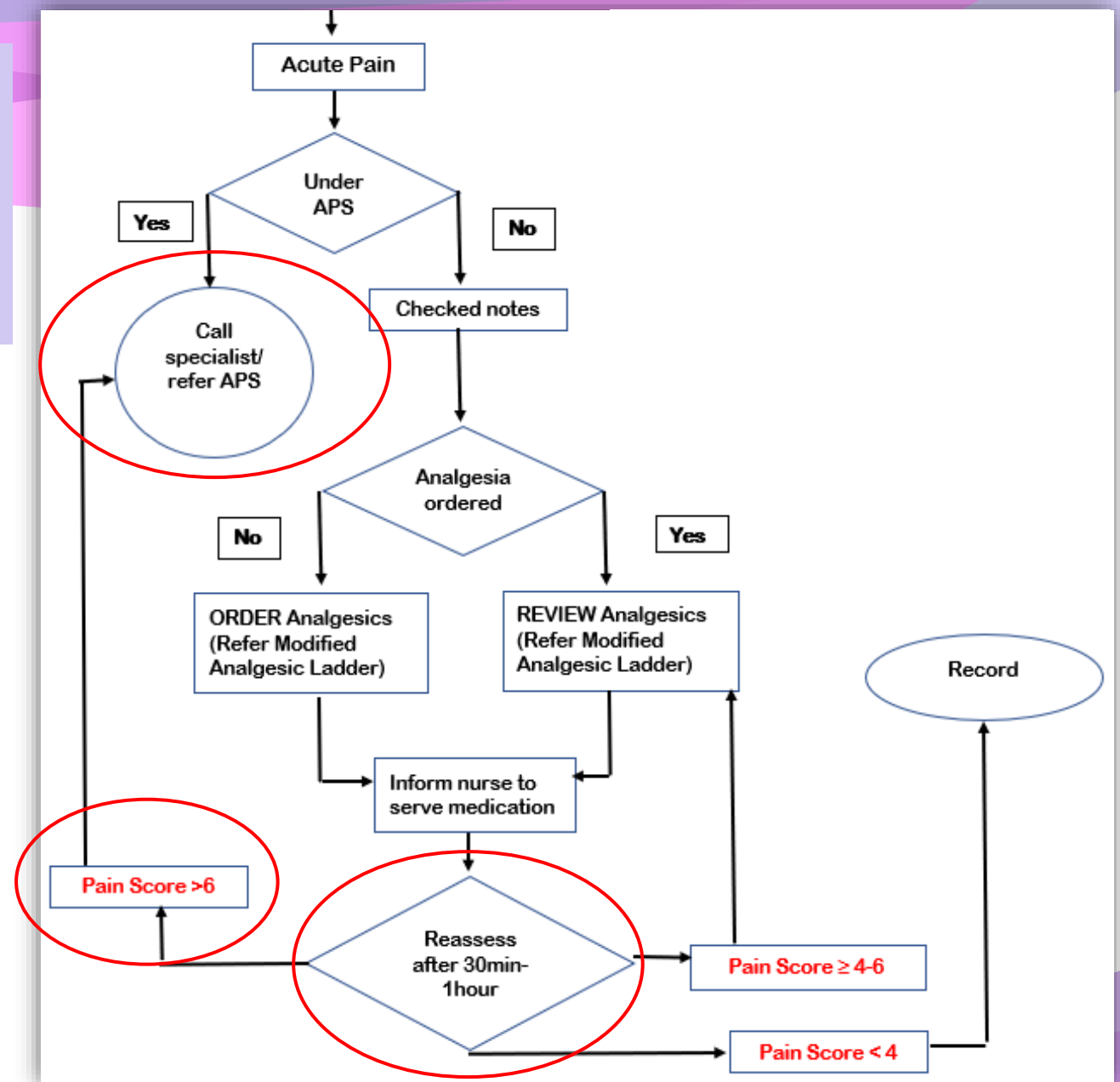
Adapted from the Acute Pain Service, Royal Adelaide Hospital, South Australia



PAIN AS 5TH VITAL SIGN: FLOW CHART FOR DOCTORS



PAIN AS 5TH VITAL SIGN: FLOW CHART FOR DOCTORS



MANAGEMENT OF OPIOID SIDE EFFECT / COMPLICATION

- Nausea & vomiting
- Respiratory depression
- Paralytic ileus

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 by sedation.
- 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

CONCLUSION

- Important to differentiate type of pain
- Pain is the 5th vital sign and should be assessed in all patients
- Use appropriate and standardized pain assessment tool
- Multimodal pain management include both pharmacological and non pharmacological treatments
- Adequate knowledge on pharmacotherapy in order to provide safe and effective treatment



THANK YOU



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