MINISTRY OF HEALTH MALAYSIA

PAIN AS THE 5TH VITAL SIGN

Guidelines for Paramedics: Management of Pain in Adult Patients

Guidelines for Doctors: Management of Pain in Adult Patients

3rd Edition

Pain as The 5th Vital Sign Guideline: 3rd Edition

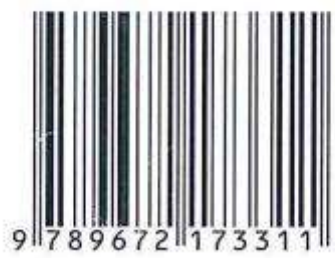
This document was developed by the Clinical Audit Unit, Medical Care Quality Section of Medical Development Division, Ministry of Health Malaysia and the National Pain Free Programme Committee.

Published in September 2018

A catalogue record of this document is available from the National Library of Malaysia
ISBN: 978-967-2173-31-1

A copy of this document is also available at MOH Portal: *www.moh.gov.my*

ISBN 978-967-2173-31-1



FOREWORD

Pain is one of the most common reasons why patients seek medical treatment, and yet many patients still suffer in pain. Pain is an unpleasant sensory and emotional experience associated with actual or potential tissue damage. Pain is not just a physical sensation, but it is also influenced by attitudes, beliefs, personality and social factors, and it can affect emotional and mental wellbeing.

Realizing how pain can affect our patients' experience, proper pain assessment in the Ministry of Health (MOH) healthcare facilities is deemed crucial in ensuring our patients receive adequate pain management. Improving pain assessment, hence, is an important strategy to improve pain management. The "Pain as the 5th Vital Sign" initiative was initiated by the Ministry of Health in 2008 with the objective of ensuring the patient's pain is being addressed effectively and up until now, the objective remains the same.

The most essential part of the implementation of this initiative is the continuous training of healthcare providers, specifically in pain assessment and management. This book provides a standardized training module for paramedics and doctors to refer to when necessary. I would like to congratulate and thank the editorial team for their hard work in publishing this guideline. I sincerely hope that all MOH staff will use these guidelines to ensure the proper pain assessment and management of pain are being carried out to deliver the best quality of care to patients.

Dato' Dr. Azman bin Abu Bakar
Deputy Director-General of Health
Ministry of Health Malaysia

PREFACE

This book is a revision of the 2nd Edition of the Pain as the 5th Vital Sign booklet published in 2013. It consists of Guideline for Paramedics: Management of Pain in Adult Patients, and Guideline for Doctors: Management of Pain in Adult Patients. The content was reviewed and updated in accordance with the recent development of Pain Management in Malaysia. This book includes basic information on pain assessment and management for the Paramedics and Doctors. It is our greatest hope that this book will be a useful resource for Ministry of Health staff in ensuring the best quality of care, especially in pain management, is delivered to our patients.

National Pain Free Programme Committee
2018

CONTRIBUTORS

1. Dr. Mary S. Cardosa
2. Dr. Ungku Kamariah Ungku Ahmad
3. Dr. Ng Kim Swan
4. Dr. Kavitha Bhojwani
5. Dr. Aminuddin Ahmad
6. Dr. Harijah Wahidin
7. Dr. Muralitharan Perumal
8. Dr. Paa Mohamed Nazir Abdul Rahman
9. Dr. Faizah Muhamad Zin
10. Dr. Anith Syazwani Adnan
11. Dr. Nur Mastura Aliyasaa'
12. Nursing Division MOH

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Part 1: Guidelines for Paramedics: Management of Pain in Adult Patients

Part 2: Guidelines for Doctors: Management of Pain in Adult Patients

Management of Pain in Adult Patients Guidelines for PARAMEDICS

1.1 INTRODUCTION

- Pain is a common symptom experienced by many patients. Patients often have to tolerate severe pain due to poor pain management.

- Poor pain management in patients is due to:
  - Ignorance
  - Inexperience
  - Overwork
  - Traditional fears related to opioids, including fear of addiction and fear of side effects like respiratory depression
  - Failure of patients to ask for pain relief

- **Recognition** and **Assessment** of pain are important aspects in patient care that we need to seriously undertake in order to make sure patients are comfortable.

- Pain is very subjective and the ***patient's self-report*** is the gold standard in the measurement of pain.

- Healthcare professionals should not just guess what the patient's pain level is; rather, we should ask the patient and believe the patient's report.

- **Do not ignore patients complain of pain.**

- Patients' pain should be recognized, assessed and treated adequately to:
  - *Promote holistic patient-centered care*
  - *Facilitate rapid recovery and discharge*
  - *Reduce post-operative morbidity*

- When patients complain of pain, healthcare providers need to act and evaluate the results of this action. Paramedics are often the first to have to attend to patients in pain and nursing action can make a big difference to a patient in pain.

- An action may not necessarily be administering analgesics. There are many non-pharmacological techniques which can relieve pain, e.g. repositioning the patient to make him/her more comfortable. You will then need to reassess the patient to check the effectiveness of your action and to decide whether analgesic medication or other treatment is required.

- "Pain as the 5th Vital Sign" brings about multiple benefits to the patients, and to the organization. Importantly it promotes paramedics-patient interaction, doctor-patient interaction and client satisfaction. It also incorporates the 10 'S' as recommended by the Nursing Division, Ministry of Health Malaysia.

10 'S'

Salam / Greet
Senyum / Smile
Sopan / Well mannered
Sensitif / Sensitive
Segera / Immediately
Sentuh / Touch
Segak / Professional
Selia / Supervise
Semangat / Motivated
Selidik / Study & audit

1.2 OBJECTIVES

"Pain as the 5th Vital Sign" was launched by the Ministry of Health (MOH) in 2008 as one of the strategies to enhance the pain services in the country.

The objective of this module is to train paramedics in order to implement Pain as the 5th Vital Sign effectively in MOH hospitals, thus meeting the objectives of the "Pain Free Hospital" concept proposed by the MOH in 2011 and primary healthcare in 2015, by:

- improving the understanding of pain
- teaching a simple framework of pain assessment and pain management

Specific objectives of this module are to enable paramedics to:

i. Define pain and describe types of pain.
ii. Undertake a comprehensive assessment of pain in your patients.
iii. Use pain assessment tools effectively.
iv. Assess patients' pain level effectively.
v. Identify and carry out appropriate interventions in pain management.
vi. Involve patients in their pain management.

1.3 DEFINITION OF PAIN

Pain is defined as "an unpleasant sensory and emotional experience associated with actual or potential tissue damage or described in terms of such damage".

Merskey and Bogduk, International Association for the Study of Pain (IASP) 1994.

1.4 TYPES OF PAIN

- Acute pain – pain associated with tissue injury e.g. pain after surgery, fracture, burns, inflammation, etc.
    - Nociceptive somatic pain is usually well localized, described as sharp, aching or throbbing, often worse on movement.
    - Visceral pain is usually poorly localized; described as deep, cramping, gnawing or colicky.
- Chronic pain – pain lasting for more than 3 months or pain that persists after the injury has healed.
    - May be nociceptive (somatic or visceral) or neuropathic.
    - Neuropathic pain is pain resulting from injury to the central or peripheral nervous system and is often described as burning, shooting, stabbing; it may be associated with numbness, tingling or other sensory changes.
    - Includes chronic cancer pain.

1.5 EFFECTS OF ACUTE PAIN

I. Restricts movement
II. Disturbs sleep/ rest
III. Restricts activities e.g. Activities of Daily Living (ADLs)
IV. Affects emotions and relationships, e.g. patient may be depressed, anxious, irritable
V. Adverse physiological effects on various systems:
    a. Cardiovascular system: increased HR, BP → increased stress on heart
    b. Respiratory system: reduced cough, cannot take deep breaths → increased risk of pneumonia, hypoxia
    c. Endocrine system: increased stress hormones
    d. Gastrointestinal system: ileus

PAIN ASSESSMENT

Why pain assessment?

- To ensure patients in pain receive adequate pain relief with minimal side effects.

When should pain be assessed?

- At regular intervals – as the **5th vital sign** during routine observation of other vital signs i.e. BP, heart rate, respiratory rate and temperature. This can be 4-hour interval or upon any specific orders.
- On admission of patient.
- On transfer-in of patient.
- At other times apart from scheduled observations:
    - Half to one hour after administration of analgesics and nursing intervention.
    - During and after any painful procedure in the ward e.g. wound dressing.
    - Whenever the patient complains of pain.
- Pain should not be assessed only at rest but also on movement and with function e.g. coughing and deep breathing.

Who should do pain assessment?

- All Doctors
- All paramedics
- All medical students
- All paramedic students

  ….. Everyone

Which pain assessment tool to use?

There are many pain assessment tools available, including:

- Numerical Rating Scale (NRS) - 0 to 10
- Visual Analogue Score (VAS) - a mark made on a line 100 mm long
- Categorical Score – mild/ moderate/ severe
- Functional Score – ability to walk, sit, cough etc.
- FLACC Observational Pain Score
- IASP Faces Scale

The pain assessment tool that is recommended for use in our hospitals is the Ministry of Health (MOH) pain scale as shown below. This is used in adults and in children more than 7 years old.

Figure 1.6.1 MOH Pain Scale

The MOH pain scale is a scale that combines NRS, the VAS and faces scale. The patient is asked to indicate his/ her level of pain intensity by pointing along a scale. The scale has numbers and the pain score is recorded as a number from 0 to 10.

In children less than 7 years old and cognitively impaired adults, other scales like IASP Faces Scale or FLACC scale can be used. In patients who are sedated and intubated, pain assessment will rely on observations and behavioral assessment.

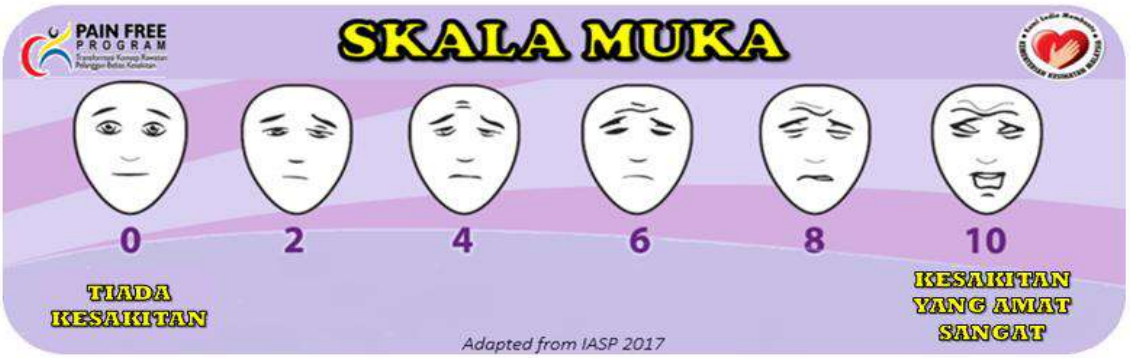

Figure 1.6.2 MOH Face Scale

Kategori	Permarkahan		
	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 menggelupur
Tangisan	Tidak menangis (keadaan tidur atau terjaga)	Merengek dan kadang-kadang mengeluh	Menangis berterusan, berteriak dan teresak-esak, sering mengeluh
Kebolepujukan	Tenang	Masih dapat dipujuk dengan sesekali sentuhan, pelukan atau kata-kata Masih boleh dialih perhatian	Sukar dipujuk
Setiap kategori diberi markah 0-2 dengan jumlah keseluruhan 0-10			

Figure 1.6.3 FLACC Scale

How to use the pain assessment tool?

- Greet patient.
- Inform the purpose: to get the patient's correct pain score for proper treatment
- Show patient the pain assessment tool and teach him/her how to use it, e.g. using the MOH Pain scale, ask the patient:

  "If '0' is no pain and '10' is the worst pain you can imagine, what number would you give your pain now?"

- Give patient time to think and give the pain score – be patient!
- Always use the same pain scale for the same patient.

  Note: Record **'Unable to Score'** for patients who are unconscious or unable to give a pain score for other reasons.

Taking the Pain History and Documentation in Pain Assessment Form

At the first contact, the paramedic should start by taking the pain history.

I. Ask the patient: listen and believe the patient's complaint of pain.

The pain history may be taken using the acronym P A I N:

- P : Place or site of pain
- A : Aggravating factors ("What makes the pain worse?")
- I : Intensity
- N : Nature ("What does the pain feel like?")
  Neutralizing factors ("What makes the pain better?")

II. In the first assessment you should mark the pain site(s), and record the date, pain score and nature of pain on the body chart. In subsequent observations, only pain scores are taken and recorded in the pain assessment chart (refer Appendix 1.4).

III. If the patient reports a new pain in a different site not previously recorded, record the new pain site in the body chart as well.

Figure 1.6.4 illustrates how to chart the pain sites and their characteristics on the body chart.

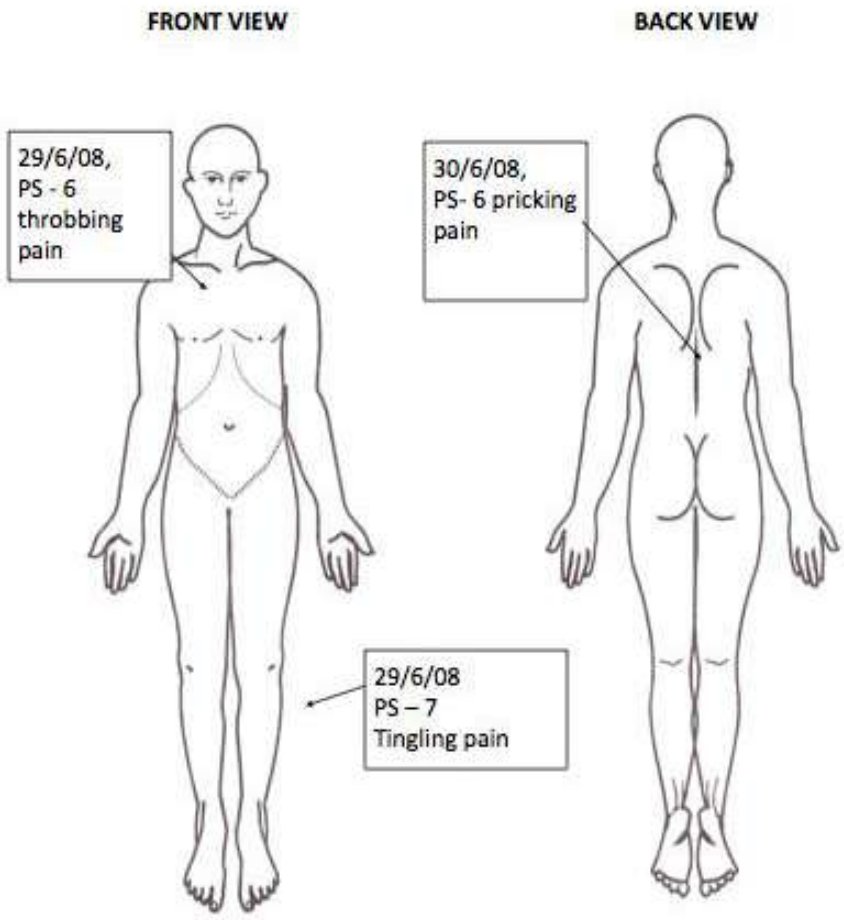

Figure 1.6.4: Body chart to show pain sites.

1.7 WHAT IS THE NEXT STEP AFTER PAIN ASSESSMENT?

Follow the Flow Chart for Pain Management in Adult patients in Hospital (refer Appendix 1.4) or primary healthcare (refer Appendix 1.5).

Pain score < 4:

Ask the patient if she/ he is comfortable and whether she/ he would like you to do anything (nursing action/ simple analgesics like paracetamol).
Usually no action is required.
Record the pain score.

Pain score ≥ 4:

- Provide non-pharmacological techniques which can reduce pain (refer Table 1.7.1).
- Check the patient's notes.
    - If analgesics are not ordered, inform the doctor to order analgesics and serve the medication.
    - If analgesics are ordered, check when the last dose of analgesic was given
        - If opioids given more than 1 hour ago, you may serve another dose after a discussion with doctor.
        - If no opioids ordered, inform doctor
- Reassess the pain (take another pain score) after 30 minutes-1hour
    - If pain score is < 4, record the pain score.
    - If pain score still ≥ 4, inform the doctor.

If the patient is already under the care of the Acute Pain Service (APS):

- Check the equipment (e.g. PCA pump or epidural infusion).
- Check to see that there is still medication in the syringe/ cassette.
- If the patient is on PCA, check that she/ he understands how to use the PCA.
- Inform the APS.

Table 1.7.1 Examples of nursing action and other non-pharmacological techniques for pain management.

	Action
Check possible causes of pain	- Blocked urinary catheter - Swollen intravenous site - Uncomfortable position of patient
Reassurance	- Explanation about the cause of the pain - Information about the analgesia that you are going to give
Relaxation techniques	- Deep Breathing - Meditation
Topical application	- Heat therapy - Ice / cold pack / cryotherapy
Touch therapy	- Massage/ soft tissue manipulation
Distraction techniques	- Reading - Listening to music / radio - Watching TV

1.8 SUMMARY AND CONCLUSION

Pain as the 5th Vital Sign is necessary to ensure patients have a pleasant and comfortable stay in the hospital. We must be very positive and implement pain assessment as diligently as we do for the other 4 vital signs of blood pressure, pulse, respiratory rate and temperature.

Pain as 5th Vital Sign promotes paramedics-patient interaction and client satisfaction, as well as reduces length of stay, morbidity and health care costs. It is beneficial to the patient, the organization and everyone in the medical profession. Regular pain assessment therefore should be made a culture in nursing just as for the other 4 vital signs.

A	Ask patients pain level regularly. Assess pain systematically.
B	Believe patient's pain level. Believe patient's family on effective pain relief method.
C	Choose pain control option appropriate for the patient and setting.
D	Deliver intervention timely, logically and in a coordinated fashion.
E	Empower patient and family in pain management.

ABCD of Pain Management & Pain Assessment (Jacox et al. 1992)

ROLES & RESPONSIBILITY OF PARAMEDICS FOR EFFECTIVE PAIN MANAGEMENT

Know how to use the pain assessment tool
Carry out pain assessment
Give Prompt nursing action
Provide Prompt pain relief
Observe for side effects of analgesics
Reassess after 30 mins to 1 hour
Record pain score in the Observation Chart
Monitor patient's pain regularly
Educate patient & family on pain assessment / treatment
Record all observations and action

1.9 REFERENCES

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Appendix 1.1a FLACC Scale

This is an observational score, and is used for paediatric patients aged >1 month to 3 years. It may also be used in adult patients who are unable to communicate verbally, e.g. very elderly patient, cognitively impaired patient.

1. Observe behaviour
2. Select a score according to behaviour
3. Add the scores for the total

Each of the five categories (F) face, (L) legs, (A) activity, (C) cry and (C) consolability is scored from 0-2, resulting in total range of 0-10

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, distractible	Difficult to console

Appendix 1.1b *SKALA FLACC*

TRANSLATION OF FLACC SCALE IN BAHASA MALAYSIA

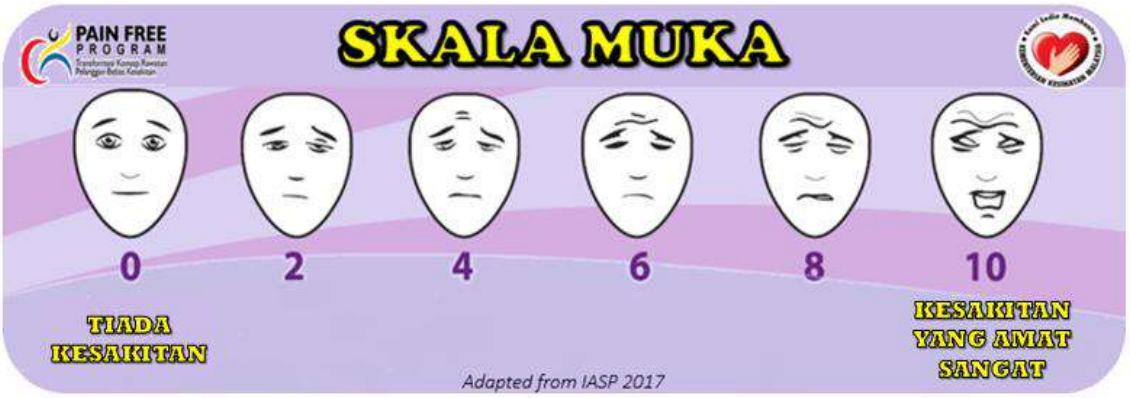
*This is for reference only and not to be used in pain measurement as it is not a validated version.

Skala FLACC: *Skala permarkahan ini adalah untuk diaplikasikan kepada kanak-kanak kurang dari 3 tahun atau pesakit lain yang tidak mampu mengadu tahap kesakitan.*

Kategori	***Permarkahan***		
	0	***1***	***2***
Wajah	*Tiada ekspresi tertentu di wajah atau dalam keadaan tersenyum*	*Kadang-kadang muka berkerut, murung, tidak bermaya atau tidak bersemangat*	*Rahang terkancing, dagu berketar (pada kadar kerap hingga berterusan)*
Kaki	*Kedudukan biasa atau selesa*	*Keadaan tidak nyaman, resah atau tegang*	*Menendang – nendang atau membengkokkan kaki*
Aktiviti	*Berbaring tenang, berkedudukan biasa, bergerak dengan nyaman*	*Berguling, bergerak depan dan belakang, tegang*	*Meringkuk, kaku atau menggelupur*
Tangis	*Tidak menangis (keadaan tidur atau terjaga)*	*Merengek dan 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*

Setiap kategori diberi markah 0-2 dengan jumlah keseluruhan 0-10

Appendix 1.2 IASP Faces Scale



Explain to the child that each face is for a person who feels happy because he has no pain (hurt) or sad because he has some or a lot of pain.

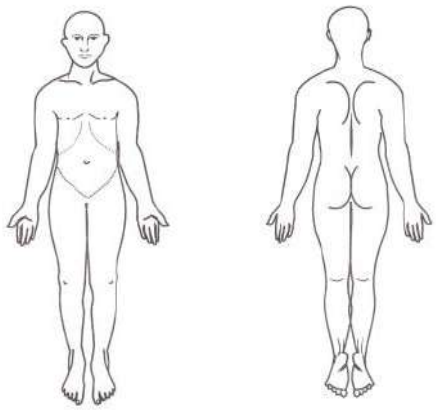
- Face 0 is very happy because he doesn't hurt at all.
- Face 2 hurts just a little.
- Face 4 hurts a little more.
- Face 6 hurts even more.
- Face 8 hurts a whole lot.
- Face 10 hurts as much as you can imagine, although you don't have to be crying to feel this bad.

Ask the child to choose the face that best describes how he is feeling.

Appendix 1.3 Example of Pain Assessment Chart

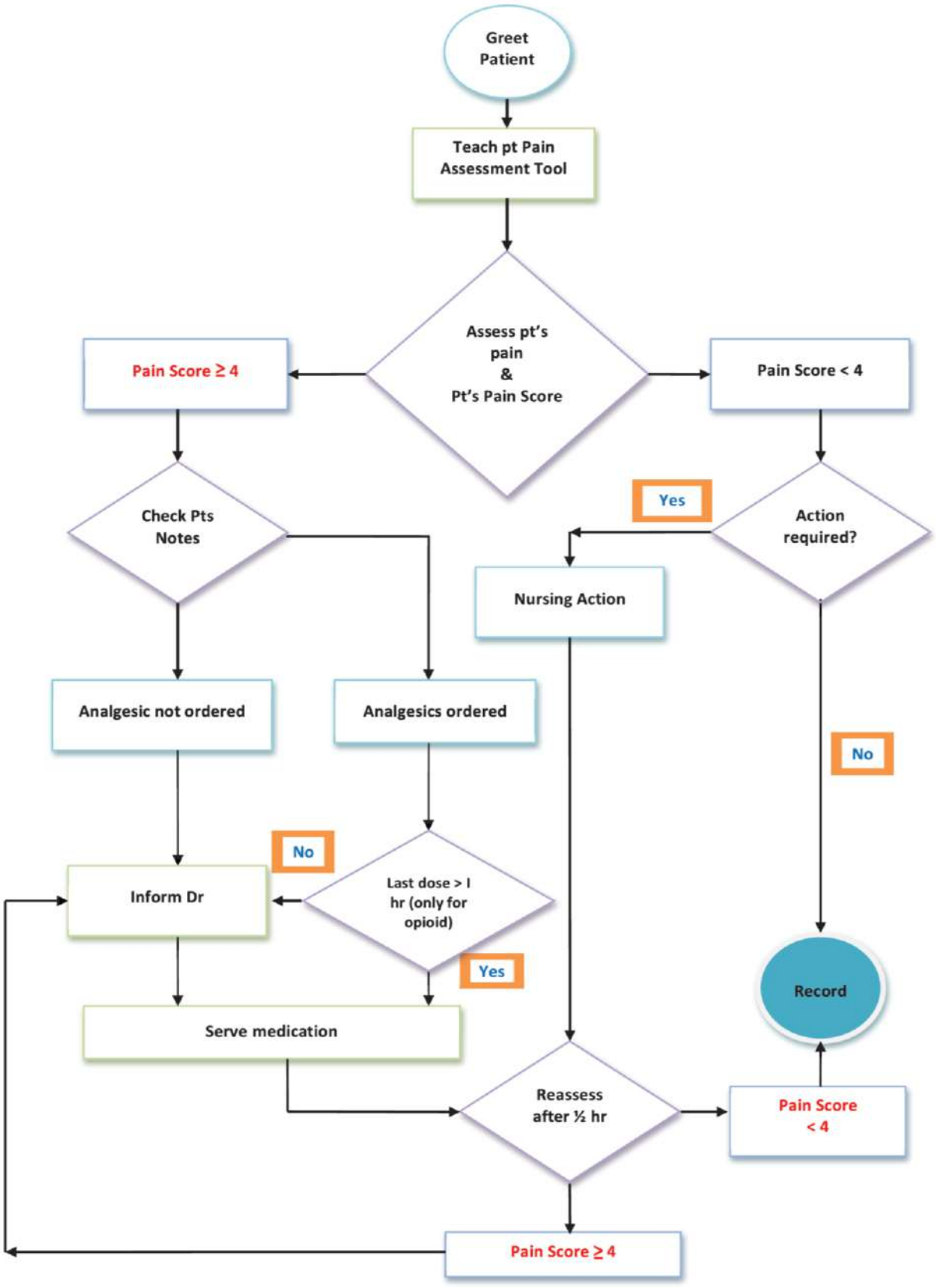
PAIN ASSESSMENT CHART

Hospital ……..

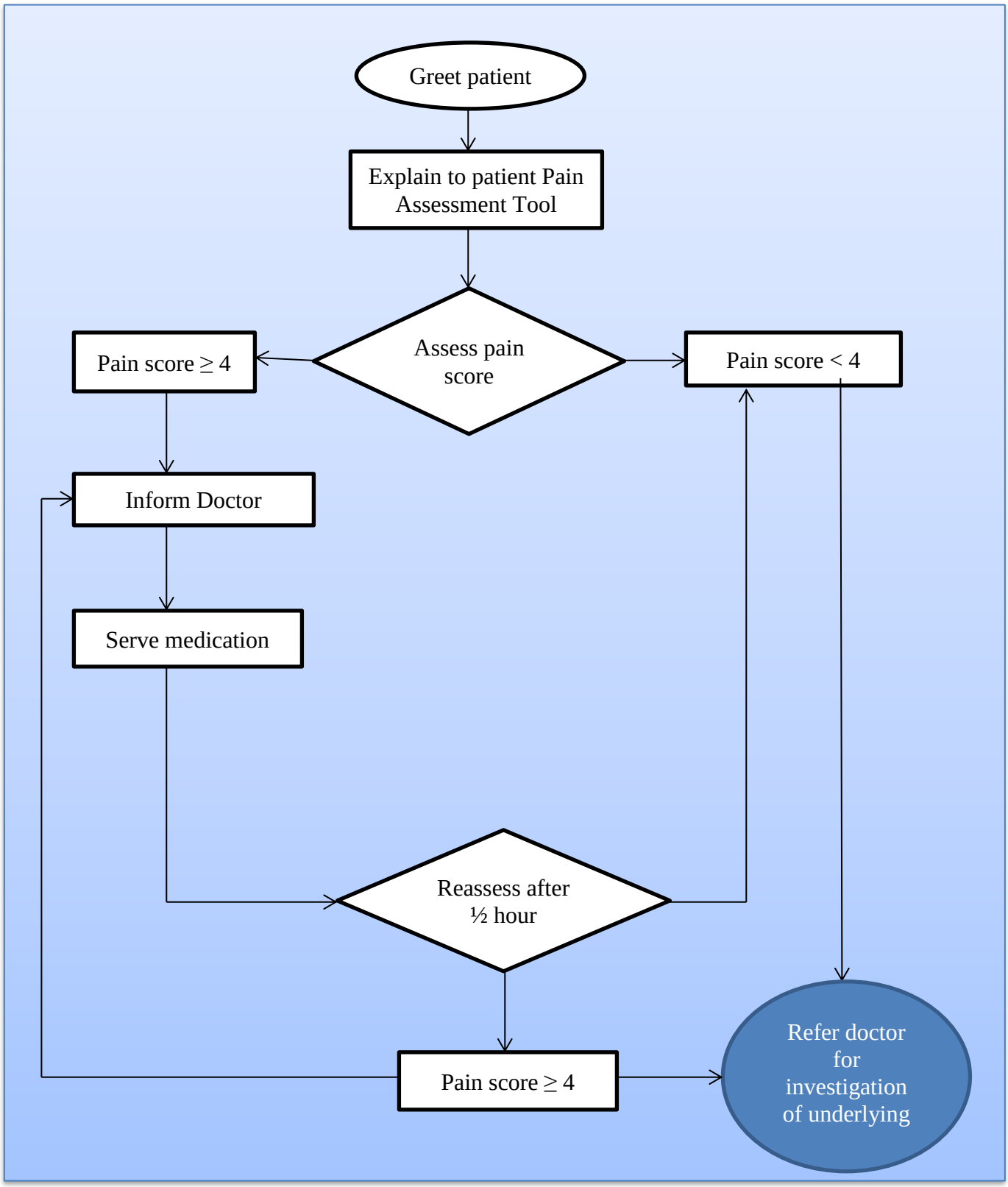
NAMA: …… RN:…… TARIKH:…… UMUR:…… WARD:…… DIAGNOSIS: ……..	

Tarikh	Masa	Tahap kesakitan *(Pain score)*	Tindakan Kejuruwatan	Ubat yang diberi	Masa ubat diberi	Komen/ Tanda-tangan

Appendix 1.4 FLOW CHART FOR PAIN MANAGEMENT IN ADULT PATIENTS IN HOSPITALS (PARAMEDICS)



Appendix 1.5 FLOW CHART FOR PAIN MANAGEMENT IN ADULT PATIENTS IN PRIMARY CARE (PARAMEDIC)



Management of Pain in Adult Patients
Guidelines for DOCTORS

2.1 INTRODUCTION:

Pain is under-treated for various reasons and inadequate pain assessment has been identified as one of the greatest barriers to effective pain management. There is also a general lack of awareness of the importance of pain assessment.

Pain as the 5th Vital Sign was launched by the Ministry of Health (MOH) in 2008 as one of the strategies to enhance the pain services in the country. This is also one of the essential elements of achieving a status of "Pain Free Hospital", a concept proposed by the MOH in 2011. The Pain as the 5th Vital Sign is now further extended to primary healthcare since 2015 and Oral Health in 2018. It is now known as Pain Free Programme.

Implementation of Pain as the 5th Vital Sign allows better assessment of pain leading to better and effective pain management in both primary care and hospital settings. This will result in reducing unnecessary referrals and hospitalization, early ambulation, faster recovery and reduced length of hospital stay.

2.2 DEFINITION OF PAIN

Pain is "an unpleasant sensory and emotional experience associated with actual or potential tissue damage, or described in terms of such damage".

Merskey and Bogduk, International Association for the Study of Pain (IASP) 1994.

2.3 CLASSIFICATION OF PAIN

Basis of classification	Types of pain
Duration	Acute Pain (less than 3 months) Chronic Pain (more than 3 months) Acute on chronic pain
Cause	Cancer Pain Non-cancer pain
Mechanism	Nociceptive pain (physiological) Neuropathic pain (pathological)

Table 2.3.1: Types of Pain

	Acute Pain	Chronic Pain
Onset and timing	Sudden onset, short duration. Resolves or disappears when tissues heal.	Onset may be insidious. Pain persists despite tissue healing
Duration	Less than 3 months	More than 3 months
Signal	A warning sign of actual or potential tissue damage	Not a warning signal of damage: a false alarm
Severity	Severity correlates with amount of damage	Severity may be out of proportion of damage. There are 'Good days" and 'Bad days"
CNS involvement	CNS intact Acute pain is a symptom	CNS may be dysfunctional Chronic pain is a disease
Psychological effects	Less, but unrelieved pain can cause anxiety & sleeplessness (which improves when pain is relieved)	Often associated with depression, anger, fear, social withdrawal, etc.
Common causes / Examples	• Surgery • Fracture • Burns or cuts • Labour and childbirth • Myocardial infarction • Inflammation e.g. abscess, appendicitis	• Headache • Low back pain • Cancer pain • Arthritis pain • Chronic pancreatitis • Chronic abdominal pain from "adhesion colic" • Neuropathic pain - e.g.Post-herpetic neuralgia - Diabetic peripheral neuropathy - Post-spinal cord injury pain - Central post-stroke pain

Table 2.3.2: Differences between acute and chronic pain

	Nociceptive pain "Physiological pain"	Neuropathic pain "Pathological pain"
Cause	Obvious tissue injury	Nerve injury or Central/peripheral nervous system abnormality
Function	Protective function	No discernable biological function
Description of pain	Sharp Dull Throbbing Well localised	Burning Shooting Stabbing, lancinating Poorly localised
Aggravating / relieving factors	Aggravated by movement Relieved by rest	Spontaneous pain
Other symptoms	None or related to underlying pathology	Numbness Pins and needles Allodynia Dysaesthesias

Table 2.3.3: Differences between Nociceptive pain and Neuropathic pain

Nociceptive Pain

Nociceptive pain is pain resulting from activity in neural pathways cause by actual tissue damage or potentially tissue damaging stimuli. E.g. mechanical low back pain, post-surgical pain or sports injury.

Neuropathic Pain

Neuropathic pain is defined as pain that is caused by a lesion or disease of the somatosensory system (IASP 2011). It could be peripheral neuropathic pain due to damaged nerve (trauma or diabetic peripheral neuropathy) or central neuropathic pain due to injury to spinal cord or brain (neuropathic pain in spinal cord injury or central post stroke pain) and maintain by a number of different mechanisms. This is a pathological pain.

2.4 ADVERSE EFFECTS OF UNRELIEVED SEVERE ACUTE PAIN

1) **Physiological**
   a) Cardiovascular system: increased HR, BP, increased risk of myocardial ischaemia
   b) Respiratory system: atelectasis, increased risk of hypoxemia, orthostatic pneumonia
   c) Neuro-endocrine: increased stress hormones
   d) Musculoskeletal: immobility, deep vein thrombosis
   e) Gastrointestinal system: ileus
   f) Higher risk of developing chronic pain e.g. post-surgical pain syndrome

2) **Psychological**
   a) Anxiety
   b) Insomnia

3) **Economic**
   a) Increased in-hospital complications
   b) Prolonged length of stay in the hospital
   c) More frequent visit to health clinics
   d) Increased health care utilization and costs
   e) Reduce productivity

2.5 PAIN PHYSIOLOGY

Pain physiology is essential as it allows us to have a better understanding of pain and approach to treatment of pain. *Nociception* is the neural process of encoding noxious stimuli; *transduction* refers to the conversion of noxious stimuli to action potential, which is then *transmitted* along the pain pathway to the sensory cortex in the brain where *perception* of pain occurs.

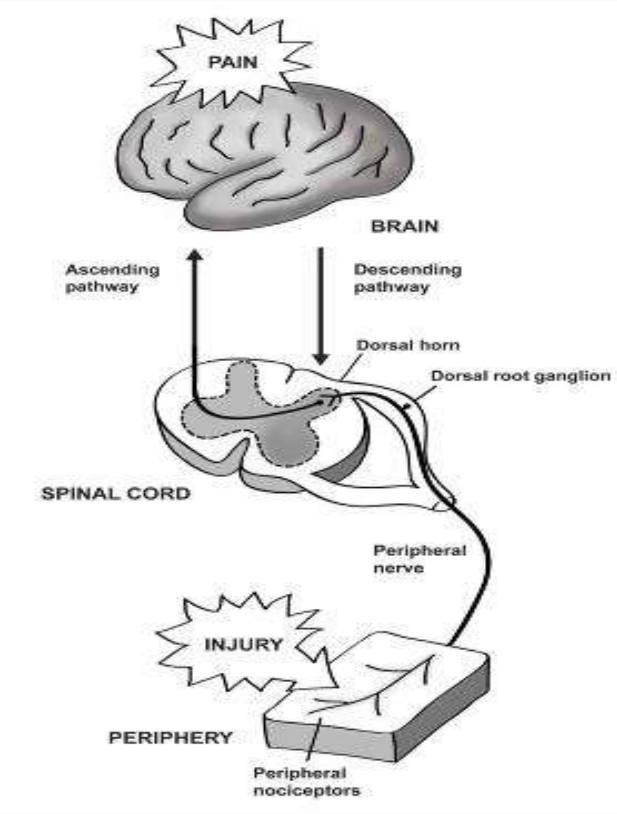


Figure 2.5.1: Pain Pathway

Tissue injury leads to release of chemicals stimulating the pain receptors (nociceptors) resulting in generation of pain signal that is transmitted along the Aδ or C nerve fibre to spinal cord. These nerves synapse in the dorsal horn of the spinal cord (1st relay station) with the second order neurons, which cross over to the opposite side and ascend as the spinothalamic tract. Another synapse occurs in the thalamus (2ndrelay station) from where information is carried to the sensory cortex (where pain is perceived), the limbic system (emotional aspect of pain) and the brainstem.

The pain pathway is not a rigid pathway but is subjected to modulation along its pathway at the spinal cord or brain. These can be ascending or descending, inhibitory or facilitatory modulation that will decrease or enhance pain perception. For example: anxiety enhances but relaxation decreases pain perception.

Importantly, ***nociception is not the same as perception of pain***. Pain perception is affected by many factors including emotions and psychological factors, cultural belief and coping strategies.

2.6 PAIN ASSESSMENT

Pain assessment requires taking a detailed pain history. We use the PAIN approach in this guideline.

P	Place	Where is your pain?
A	Aggravating factors	What makes your pain worse?
I	Intensity	What is your pain score now? At rest and on movement. What is the worst level of pain (score) you experience in a day? What is the least pain (score) you experience in a day?
N	Nature Neutralizing factors	Describe your pain – e.g. aching, throbbing, burning, shooting, stabbing, sharp, dull deep, pressure, etc. What makes your pain better?

Table 2.6.1: PAIN Approach

Other questions to ask about pain (more important in patients with chronic pain)

- Pattern of pain:
    - Is the pain always there (constant)? Or does the pain come and go (intermittent or episodic pain)?
- Associated symptoms:
    - Do you have the following symptoms in the painful area or elsewhere?
    - Numbness, tingling, allodynia (pain from a non-painful stimulus), hyperalgesia (pain out of proportion to a painful stimulus)
- Impact of pain on mood and function:
    - How does the pain affect your sleep? Your appetite? Your mood? Your daily activities? Your relationships? Your work?
- Past History:
    - Past medical/surgical history, past and current medications.
- Other information:
    - Patient's understanding about his/her pain and its cause; expectations about pain management.

Pain assessment tools

Self-report of pain is the gold standard. The clinical tool that is widely available in our hospitals is the Ministry of Health (MOH) pain scale shown below. This is used in adult and in children more than 7 years old.

Figure 2.6.1: MOH Pain Scale.

In children less than 7 years and cognitively impaired adults, other scales like FLACC scale (refer Appendix 1.1a & 1.1b) and IASP Faces Scale (refer Appendix 1.2) can be used. In patients who are sedated and intubated, pain assessment will rely on observation and behavioral assessment.

When should pain be assessed?

Pain should be assessed together with the other 4 vital signs (heart rate, blood pressure, respiratory rate and temperature):

- Regularly at 4-hour intervals or upon any special orders,
- On admission
- Transfer in
- Whenever the patient complains of pain
- During and after any painful procedure (e.g. wound dressing)
- Reassessment of pain after interventions (e.g. administration of pain medications or other non-pharmacological interventions)
- Upon discharge

Pain should be assessed not just at rest but also on movement and with functions e.g. deep breathing, coughing.

2.7 MANAGEMENT OF ACUTE PAIN

Acute pain management is classified into:

1. Non-pharmacological
2. Pharmacological

Physiotherapy approaches	**R**est, **I**mmobilisations, **C**old compression, **E**levation (RICE) TENS Heat/Cold pack Stretching exercise Strengthening exercise
Psychological approaches	Explanation and reassurance Address anxiety Breathing relaxation Counseling
Traditional / complementary medicine	Acupuncture Massage/ Aromatherapy Music
Occupational Therapy	Modification of activities of daily living, play, leisure and work

Table 2.7.1: Non-pharmacological approaches

Pharmacological approach

- Analgesic medications can be broadly classified into non-opioids and opioids.
- Non-opioids include e.g. Paracetamol, NSAIDs, COX-2 inhibitors.
- Opioids can be further classified into weak opioids (e.g. Tramadol, Codeine, Dihydrocodeine) and strong opioids (e.g. Morphine, Oxycodone, Pethidine, Fentanyl).
- Other adjuvant medications, used mainly in the management of neuropathic pain, include antidepressants (e.g. amitriptyline, duloxetine) and anticonvulsants (e.g. carbamazepine, gabapentin and pregabalin).

Refer Appendix 2.1 for more information on analgesic medications.

Placebo

A placebo treatment involves giving a patient a medicine that has no pharmacological effect (e.g. giving an injection of saline for pain). Because psychological factors are very important, the patient's pain may improve. If the placebo treatment works, this does not mean the patient did not have pain in the first place or that the patient was lying!

Analgesic Strategies

Regular assessment of pain will be carried out by nurses. They will alert doctors when patient's pain score is ≥ 4 (refer Appendix 1.4). Management by doctors is outlined in the flowchart in Appendix 2.2. Primary care pain management can be referred to Appendix 2.3.

Analgesic ladder for acute pain

The WHO analgesic ladder recommends using simple analgesics (e.g. paracetamol, NSAIDs) for mild to moderate pain. For moderate pain, additional weak opioids (e.g. tramadol, dihydrocodeine) should be considered. In patients with moderate to severe pain, strong opioids like morphine must be offered. In addition, adjuvants are used for neuropathic pain at all steps of the analgesic ladder.

A modified analgesic ladder for management of acute pain is shown in Appendix 2.4.

Intravenous morphine pain protocol

Rapid control of severe acute pain may be necessary in certain situations e.g.

- In the recovery ward, immediately after an operation
- In the emergency department, following acute trauma
- To manage episodes of incidental pain e.g. wound dressing, physiotherapy
- In severe acute exacerbation of pain in cancer patients

Rapid pain relief can be achieved by titration, i.e. by giving repeated small intravenous bolus doses of opioid (e.g. morphine 0.5 or 1mg every 5 minutes) until the patient is comfortable.

The smaller and more frequent intravenous doses permit a more rapid, predictable and readily observable response and allow titration of dose to response. Indeed, this is the rationale behind PCA and explains the success of this technique.

The practical application of this is shown in the "IV Morphine Pain Protocol". (Refer Appendix 2.5)

2.8 THE R-A-T APPROACH TO PAIN MANAGEMENT

*(adapted from Morriss & Goucke 2011, Essential Pain Management Workshop Manual, pp 27-30).

The **R-A-T** approach provides a simple framework for pain management by any healthcare provider, and is outlined below.

R = Recognize
A = Assess
T = Treat

RECOGNISE

We sometimes forget to ask whether the patient has pain and sometimes patients don't or can't tell us. If you don't look or ask, you don't find!

1. Does the patient have pain?
   a. Ask
   b. Look (frowning, moving easily or not, sweating?)

2. Do other people know the patient has pain?
   a. Other healthcare workers
   b. Patient's family

ASSESS

To treat pain better, we need to think about the cause and type of pain. We may be able to better treat the injury that is causing the pain. We may also be able to choose appropriate drugs to treat the pain itself.

1. Measure the severity
   a. What is the pain score? (Use the MOH Pain Scale, Faces Scale or FLACC Scale)
      i. At rest
      ii. With movement

   b. How is the pain affecting the patient?
      i. Can the patient move, cough?
      ii. Can the patient work?

2. Make a pain diagnosis
   a. Acute or chronic?
   The cause of acute nociceptive pain may be obvious, but chronic pain may be more complicated. In chronic pain, psychological factors may be more important and the pain may have both nociceptive and neuropathic features. The pain may also be acute on chronic (e.g. fracture in a patient with chronic cancer pain).

   b. Cancer or non-cancer?
   Does the patient's disease explain the pain?

There may be an obvious cause of the pain that requires specific treatment. E.g.

i. Fracture needing splinting or surgery
ii. Infection needing cleaning and antibiotics

c. Nociceptive or neuropathic?

Neuropathic pain is more likely in some situations, e.g. Diabetes Mellitus, nerve injury (including amputation), chronic pain and cancer pain.

To diagnose neuropathic pain, ask about specific symptoms, e.g. burning, shooting, pins and needles, numbness. Allodynia and phantom limb pain are also neuropathic pain.

3. Are there other factors?
   a. Physical factors (other illnesses)
   b. Psychological and social factors
      i. Anger, anxiety, depression
      ii. Lack of social support

Pain diagnosis examples:

a. Acute non-cancer nociceptive pain
b. Chronic cancer neuropathic pain

TREAT

Treatment can be divided into non-pharmacological and pharmacological treatments. Both types of treatments are important. Many factors may be contributing to an individual patient's pain, so there is no set list of treatments. The exact treatment will depend on the individual patient, the type of injury or disease, the type of pain and other factors contributing to the pain.

1. Non-pharmacological treatments
   a. Physical
      i. RICE (Rest, immobilization, cold compression, elevation)
      ii. Nursing Care
      iii. Physiotherapy, Occupational therapy, acupuncture, massage
      iv. Surgery and/ or nerve blocks may be required

   b. Psychological
      i. Explanation and reassurance
      ii. Input from social workers or religious leader
      iii. Family support

2. Pharmacological treatments
    a. Nociceptive Pain - use the Analgesic ladder (Appendix 2.4)
        i. Mild - Paracetamol (± NSAIDs)
        ii. Moderate - Paracetamol (± NSAIDs) + weak opioid (Tramadol or DF118).
        iii. Severe - Paracetamol (± NSAIDs) + strong opioid (Morphine)
    b. Neuropathic Pain -
        i. Traditional analgesic medications may not be useful
        ii. Use other drugs (antineuropathic agents or adjuvants) - Amitriptyline, Carbamazepine, Gabapentin
        iii. Do not forget non-pharmacological treatments

2.9 MANAGEMENT OF SIDE EFFECTS

Side effect of opioids administration:

- nausea and vomiting – common
- respiratory depression – uncommon but life-threatening

Nausea and vomiting

Treatment options:

- Metoclopramide 10-20 mg stat and 6-hourly
- Ondansetron 8 mg IV stat and 8H if necessary
- Granisetron 2 mg IV stat and 8H if necessary
- Haloperidol 1 mg BD IV or 1.5 mg BD oral
- Dexamethasone 4 mg IV stat

Pain treatment should be continued.

Respiratory depression

Varying degree of respiratory depression can occur with the use of opioids. It is an uncommon side effects following appropriate dosage of opioids. Occurrence of respiratory depression is ***always associated with sedation***. Risk of respiratory depression is minimal if strong opioids are titrated to its effect and are used appropriately for pain relief. (i.e. not to help patients to sleep or to calm down agitated patients). It is also rare in patients who are on chronic opioids use (e.g. patients on morphine for cancer pain). Presence of pin-point pupils usually indicate opioid-induced respiratory depression.

Respiratory depression warrants intervention when

- The respiratory rate is <8/minute AND sedation score* = 2 (difficult to arouse)
  or
- Sedation score is 3 (unarousable)

* Refer Appendix 2.6 for sedation score

Management:

1. Stop all opioids and sedative medications.
2. Administer oxygen via (face mask or nasal prongs)
3. Stimulate the patient and tell him/her to breathe
4. Dilute Naloxone 0.4mg/ml in 4 mls of water or normal saline. Administer Naloxone in aliquots of 0.1 mg up to 0.4 mg every 1-2 minutes till patient wakes up or respiratory rate >10/minutes.
5. Monitor respiratory rate, sedation score hourly for next 4 hours.
6. Repeat another dose of naloxone if respiratory depression recurs.
7. Refer the patient to the ICU / HDU for close monitoring +/- naloxone infusion in severe or recurrent respiratory depression.

Summary

Pain can be acute or chronic, cancer or non-cancer, nociceptive or neuropathic. It is important to differentiate between different types of pain, as the approach to their treatment is different. Acute pain is a symptom of underlying disease and is usually easily relieved while chronic pain is a disease and its management require a multidisciplinary multimodal approach.

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Appendix 2.1 Notes on Analgesic Medications

1. List of analgesic medications:

NON OPIOIDS

- **Paracetamol**
- **NSAIDs**
  - Diclofenac (Voltaren)
  - Mefenamic Acid (Ponstan)
  - Ibuprofen (Brufen)
  - Naproxen (Naprosyn, Synflex)
  - Ketoprofen (Orudis, Oruvail)
  - Meloxicam (Mobic)
- **COX2 inhibitors**
  - Celecoxib (Celebrex)
  - Etoricoxib (Arcoxia)
  - Parecoxib (Dynastat)

OPIOIDS

- **Weak opioids**
  - Dihydrocodeine (DF118)
  - Tramadol (atypical opioid; also increases the levels of serotonin and noradrenaline in the CNS)
- **Strong opioids**
  - Morphine
  - Fentanyl
  - Oxycodone
  - Pethidine
- **Partial agonist opioids**
  - Nalbuphine

ANTINEUROPATHIC AGENTS

- **Antidepressants**
  - Tricyclic antidepressants
    - Amitriptyline
    - Nortriptyline
- **Anticonvulsants**
  - Carbamazepine
  - Gabapentin
  - Pregabalin
- **Others**
  - Ketamine

2. Pharmacology of NSAIDs and COX2 inhibitors

a. 4 major effects

- Analgesic
- Anti-inflammatory
- Anti-pyretic
- Anti-platelet

b. 5 major side effects:

- Allergic reaction (cross allergy is common between different NSAIDs / COX2 inhibitors)
- Gastric irritation / ulceration / bleeding (less with COX2 inhibitors)
- Reduced renal blood flow (long term use can lead to renal failure)
- Anti-platelet effect (can lead to bleeding; less with COX2 inhibitors)
- Cardiovascular effects – (increased risk of stroke and myocardial infarction, more in COX2 inhibitors)

Note: the main difference between NSAIDs and COX2 inhibitors is that COX2 inhibitors have a lower incidence of peptic ulceration and upper GI bleed, and COX2 inhibitors have less risk of bleeding.

3. Pharmacology of Morphine

Introduction:

- Acts on the mu and kappa opioid receptors in spinal cord and brain
- Potent analgesic agent – the "gold standard" opioid analgesic
- Commonly used as an analgesic in moderate to severe acute pain
- Also used in moderate to severe cancer pain, and sometimes in chronic non-cancer pain.

Pharmacokinetics:

- Bioavailability of oral route is 30% due to first pass effect (metabolized in liver)
- Converted to morphine-6-glucuronide (active metabolite) and Morphine-3-glucuronide in liver
- Elimination half-life is 3-4 hours, excreted via kidney
- Caution in patients with impaired liver and/or renal functions
- Peak analgesic effect:
    - IM / SC: 30 minutes
    - IV: 5 minutes

4. A note on Pethidine in acute pain management

Pethidine is a popular analgesic in Malaysian hospitals, both in the wards as well as in the emergency department. However, pethidine is **NOT recommended** in postoperative pain relief and in chronic or recurrent pain conditions because of the active metabolite, norpethidine, which can accumulate in the body with prolonged use of high doses, and in renal impairment and give rise to convulsions. In addition, Pethidine is thought to have a higher addiction potential when compared to other opioids.

5. Naloxone

Naloxone is a pure opioid antagonist.

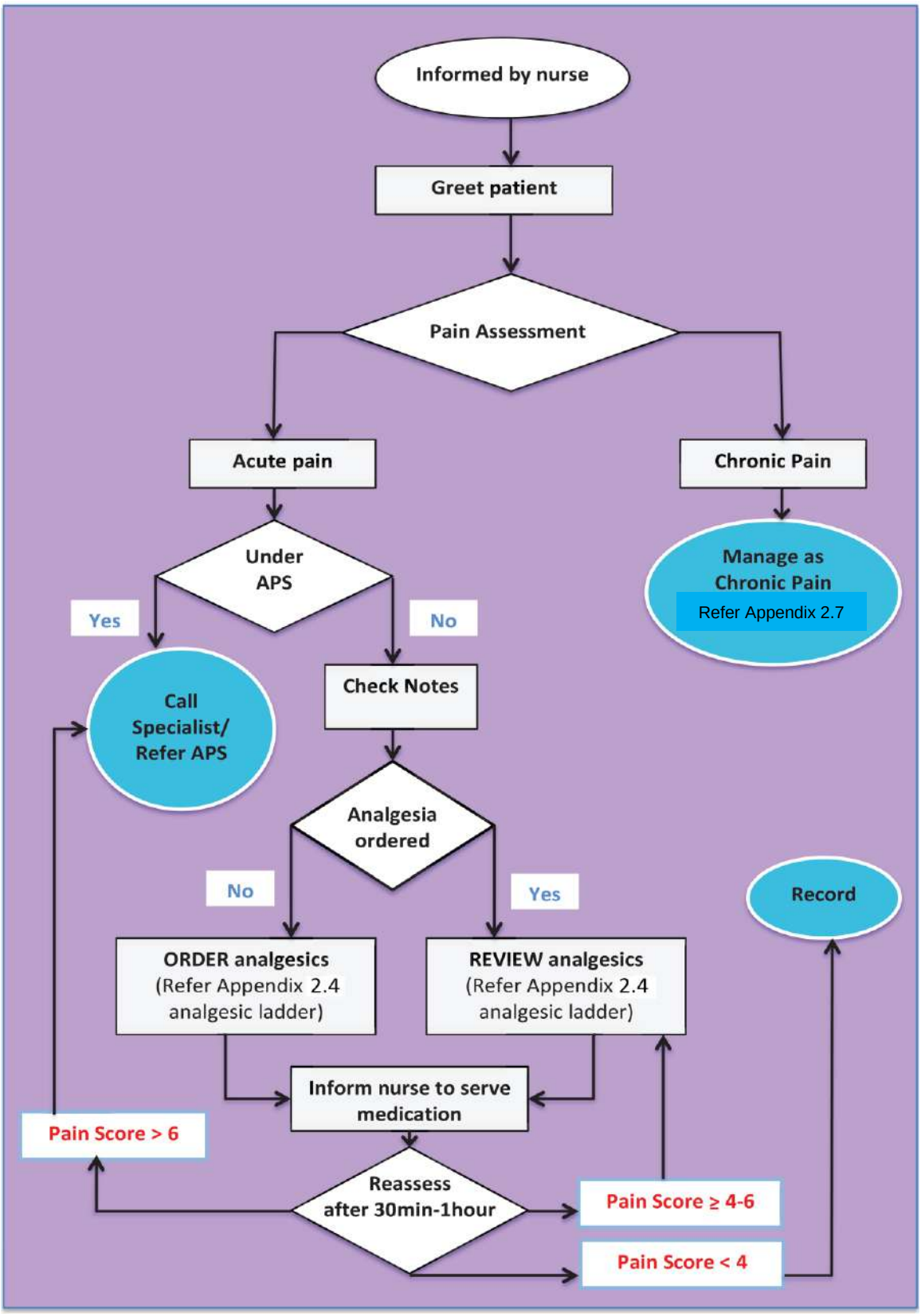
Doses for treating opioid-induced respiratory depression:

- Adult: 0.1 – 0.4 mg IV/IM/SC; IV dose may be repeated every 1-2 minutes
- Paediatric: 0.01 mg/kg IV (maximum 0.4 mg), repeat every 2 minutes.

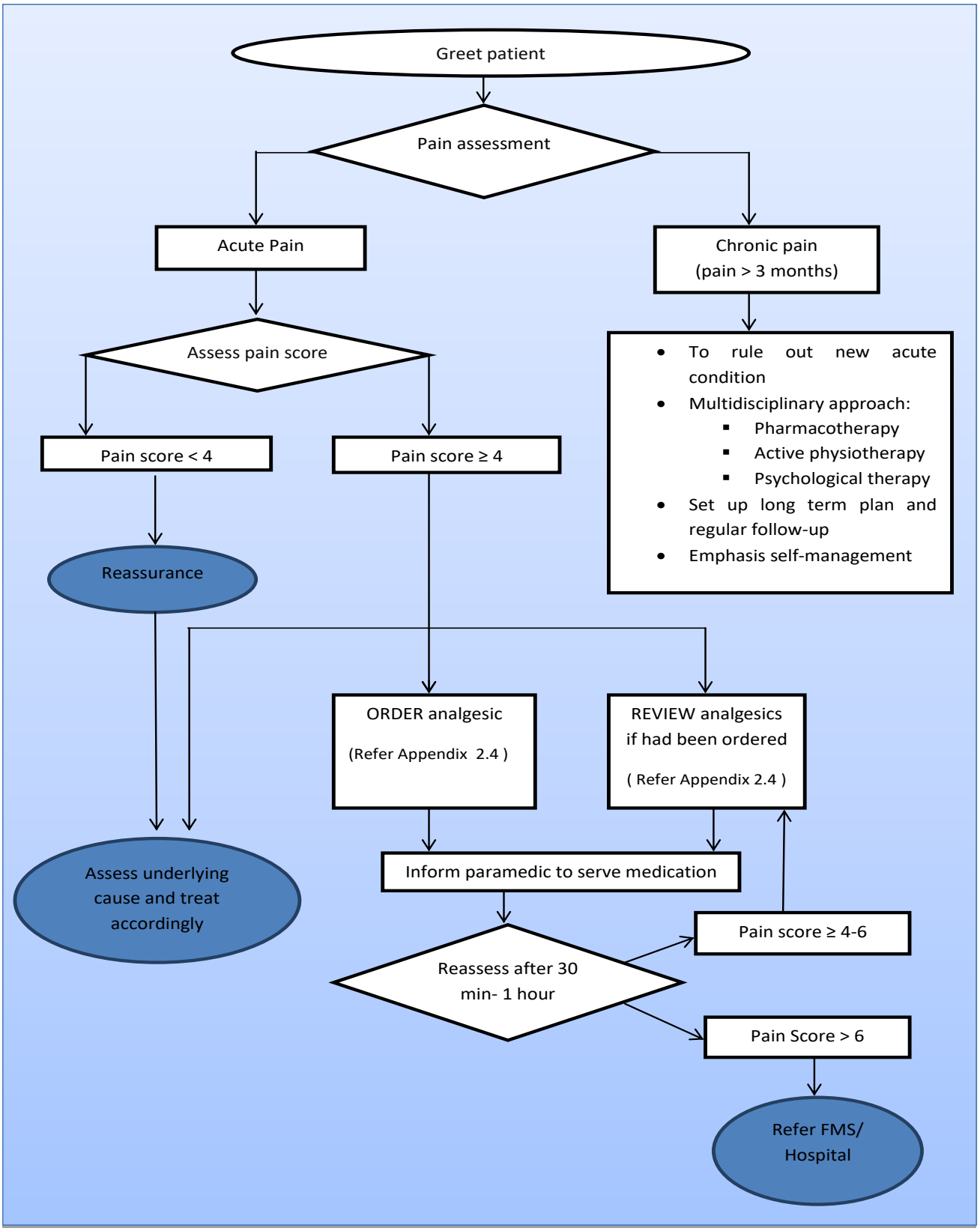
The half-life of naloxone is 45-60 minutes; this is important to know because when used to antagonize respiratory depression due to morphine, the effect of naloxone may wear out before the effect of morphine (half-life 3-4 hours). Therefore, after treating morphine-induced respiratory depression, the patient has to be monitored closely for at least another 4 hours, to monitor potential risk of re-depression .

It is available in ampoules of 0.4 mg/ml (adult dose) or 0.02 mg/ml (paediatric dose). Naloxone should be available in every emergency drug trolley.

Appendix 2.2 FLOW CHART FOR PAIN MANAGEMENT IN ADULT PATIENT IN HOSPITALS (DOCTORS)



Appendix 2.3 FLOW CHART FOR PAIN MANAGEMENT IN ADULT PATIENT IN PRIMARY CARE (DOCTORS)



Appendix 2.4 Analgesic Ladder for Acute Pain Management

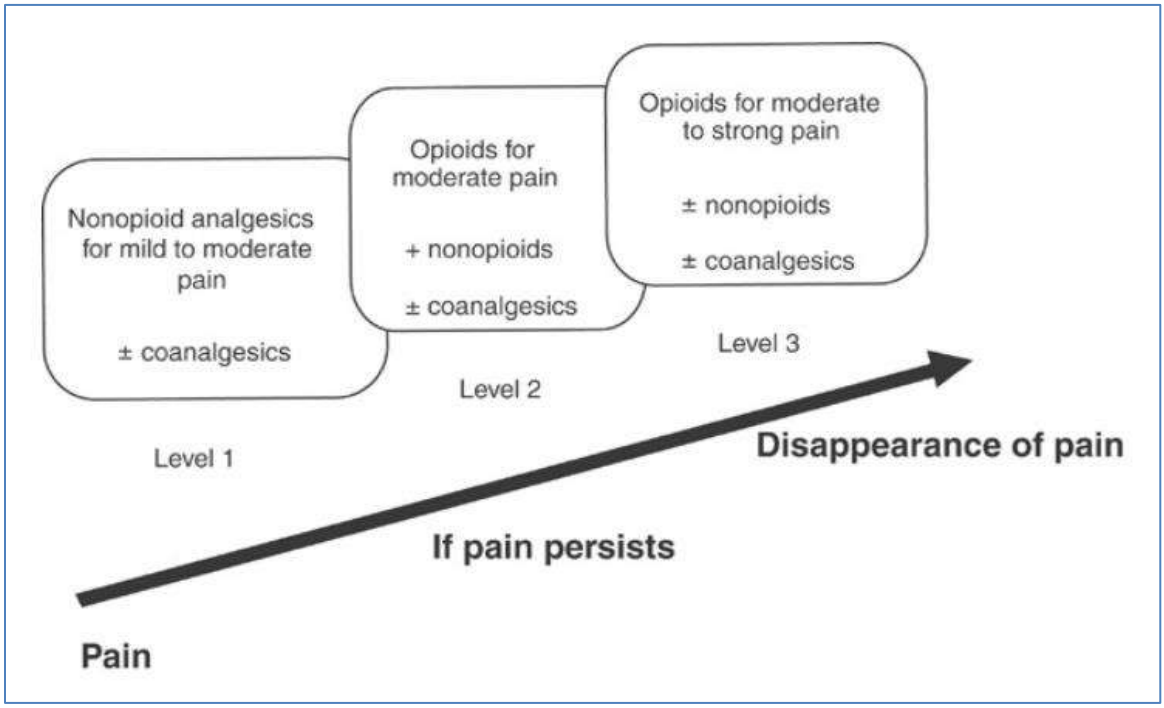


Figure 2.1. Modified WHO Analgesic ladder for acute pain management

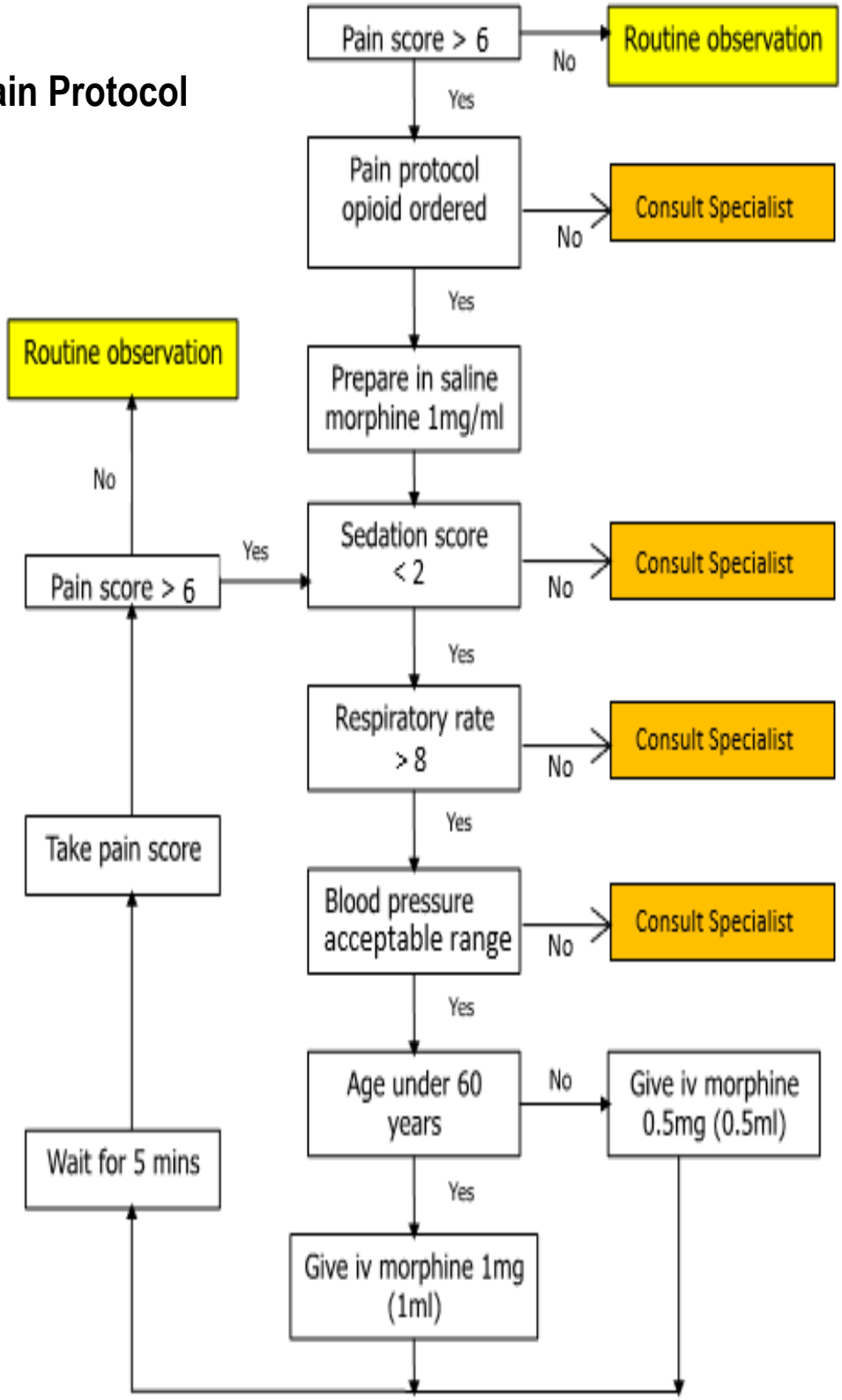
Notes:

1. Dihydrocodeine (DF118) may be used as an alternative to Tramadol
2. In NBM patients oral drugs may be replaced by
    a. Tramadol SC or IV
    b. PCM rectal
    c. Diclofenac rectal or Parecoxib IV
3. NSAIDs should be used with caution in pregnant patients and patients with asthma, thrombocytopenia, coagulopathies, and renal, hepatic or cardiac impairment.
4. NSAIDs are contraindicated in patients with hypovolemia, active peptic ulceration and those with a history of hypersensitivity, e.g. wheezing to aspirin or any other NSAIDs/COX2 inhibitors.
5. In the elderly (over 65 years) consider using a lower dose of NSAIDs/COX2 inhibitor.
6. Those at risk of gastrointestinal problems or with symptoms (epigastric pain) may be “buffered” with Proton Pump Inhibitors.
7. For those with severe pain, use SC or IV morphine and titrate to comfort (see Appendix 2.4 Morphine Pain Protocol)
8. Oxycodone (IV/oral) should only be used by APS team

Appendix 2.5 IV Morphine Pain Protocol

IV Morphine Pain Protocol

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



Appendix 2.6 Sedation score

Score	Sedation level	Clinical findings
0	None	Patient is awake and alert
1	Mild	Occasionally drowsy, easy to rouse, and can stay awake once awoken
2	Moderate	Constantly drowsy, still easy to rouse, unable to stay awake once awoken
3	Severe	Somnolent, difficult to rouse, severe respiratory depression
S	Sleep	Patient asleep

Appendix 2.7 Principles of management of chronic non-cancer pain

- Firstly, one needs to differentiate between acute and chronic pain. If the pain has been present for more than 3 months, then this patient has chronic pain (refer Table 2.1, Differences between acute and chronic pain).

- Often, the patient is already "known" to have chronic pain e.g. in emergency department where s/he is a "regular visitor" or in the surgical or orthopaedic ward where the patient gets admitted every few weeks or months. When such a patient is readmitted for the same complaint, one must still rule out any new acute condition – this can be easily done if the **site** and **nature** of pain in previous admissions had been documented. Re-investigation is required ONLY IF THE PAIN IS IN A COMPLETELY DIFFERENT SITE OR IF THE PATIENT HAS NEW SYMPTOMS E.G. VOMITING, LOSS OF WEIGHT.

- All patients with chronic pain who are coming for repeated admissions or treatment because of pain should be referred to a Pain Service.

- Analgesic management of patients with chronic non-cancer pain in the ward:
    - Avoid Inj. Pethidine and other injections (e.g. IM Diclofenac). Pethidine is not recommended in chronic pain conditions because of its high addiction potential.
    - Instead, give **regular oral** analgesics e.g. Tramadol 50-100 mg QID + Paracetamol 1 gram QID.
    - If neuropathic pain is suspected, antineuropathic agent like amitriptyline can be added (refer Appendix 2.1).
    - Avoid the use of NSAIDs / COX2 inhibitors for longer than 1-2 weeks. NSAIDs/COX2 inhibitors may be used for a few days to get control of a flare up of chronic pain, but they should never be given for long term use as the patient will have a risk of developing renal failure and have a higher risk of cardiovascular problems (stroke and myocardial infarction).
    -
- Other management of the patients with chronic non-cancer pain in the ward:
    - Refer to a physiotherapist for an exercise program (tailored to the patient's current physical abilities) that she/he can do at home.
    - Discharge the patient on a regime of regular analgesics (as described above).
    - Refer to a pain clinic for assessment and follow-up.

- If a pain clinic is not accessible, you may have to follow up the patient in your clinic.
- You should emphasize to the patient that she/ he should come for regular follow-up and not just when she/ he has flare ups (severe pain).
- When the patient comes for follow-up, focus not just on the pain itself (it will always be there) but on function and mood, i.e. what the patient is doing (back to work?), how she/ he is feeling and how is her/ his relationship with his/ her family and friends.

- At a Pain Clinic, the following are carried out:
  - Multidisciplinary Assessment of the patient, which includes
    - Medical assessment, which includes making a diagnosis and deciding whether any further investigations are indicated, as well as reviewing current treatment. This is usually the task of a pain specialist.
    - Physical assessment to look for primary and secondary musculoskeletal effects of chronic pain. This is usually done by a physiotherapist.
    - Psychological assessment which includes looking at the psychological impact of the pain, level of anxiety and depression, how the patient copes with the pain, effect on family and work, etc. This is usually done by a clinical psychologist or psychiatrist.

  - Multidisciplinary multimodal management, which includes
    - Review of current treatment
    - Making a plan, together with the patient, regarding initial and long-term pain management. This usually includes more than one of the following modalities:
      - pharmacotherapy, using appropriate drugs
      - nerve blocks and other interventions,
      - active physiotherapy, including exercises and activities that patients can do at home
      - psychological therapy, including relaxation training and other pain management strategies.

  - In the management of chronic pain, emphasis is on **self-management** (what the patient can do for him/ herself) and achieving long-term changes (e.g. from exercise) rather than short-term gains (e.g. from short acting analgesic medications).


PAIN FREE
PROGRAM
Tranformasi Konsep Rawatan
Pelanggan Bebas Kesakitan