GUIDELINES FOR PAIN MANAGEMENT IN EMERGENCY & TRAUMA DEPARTMENT
ADVISOR

Dr Sabariah Faizah Jamaluddin
Senior Consultant Emergency Physician
Hospital Sg. Buloh

DEVELOPING TEAM

Dr. Mohd Anizan Aziz
Emergency Physician
Hospital Teluk Intan

Dr. Iskasyymar Ismail @ Ismail
Medical Lecturer/ Emergency Physician
Universiti Putra Malaysia

Dr. Cecilia Anthonysamy
Emergency Physician
Hospital Serdang

Dr. Siti Suhaila Hamzah
Emergency Physician
Hospital Sungai Buloh

Dr. Arman Hawari
Emergency Physician
Hospital Sultanah Bahiyah

Dr. Fauzi Che Hussin
Emergency Physician
Hospital Raja Perempuan Zainab

Dr. Rashdan Rahmat
Emergency Physician
Hospital Sultan Ismail

Dr. Nik Ahmad Shaiffudin Nik Him
Medical Lecturer/ Consultant Emergency Physician
Universiti Sultan Zainal Abidin

Dr. Abdul Kursi Abdul Latif
Emergency Physician
Hospital Raja Permaisuri Bainun

REVIEWER

Dr. Ungku Kamariah Ungku Ahmad
Consultant Anaesthesiologist
Hospital Sultan Ismail

Dr. Harijah Wahidin
Consultant Anaesthesiologist
Hospital Melaka
<table>
<thead>
<tr>
<th>CONTENT</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>A. Introduction</td>
<td>3</td>
</tr>
<tr>
<td>B. Holistic Pain Management in Triage</td>
<td>13</td>
</tr>
<tr>
<td>C. Adult Pain Scenarios</td>
<td>18</td>
</tr>
<tr>
<td>D. Procedural Sedation and Analgesia in Emergency and Trauma Department</td>
<td>35</td>
</tr>
<tr>
<td>References</td>
<td>45</td>
</tr>
</tbody>
</table>
A. INTRODUCTION

   i. Pain is the Most Common Reason Patients Present to Emergency Department (ED)

   Studies have shown that pain is one of the most common reasons patients visit the emergency department. Pain, as a presenting complaint, account for up to 78% of visits to the ED.

   ii. The Under treatment of Pain: Oligoanalgesia

   Acute pain has been reported by 60 to 80% of ED inpatients but pain was found to be frequently under treated. Only 38% of patients evaluated for major trauma in ED received analgesics. A study in HKL in 2007 revealed that only 26.5% of 85% of patients in moderate and severe pain received analgesia in the emergency department despite the pain scores being displayed prominently on the patients’ case records.

   iii. Importance of Pain Management

   The management of pain is often regarded as less important compared to arriving at diagnosis and treatment proper. Yet a physician’s primary duty is to comfort, manage and reduce the suffering of a patient.

   “Any failure to relieve pain is both morally and ethically unacceptable”.

   “All patients have a RIGHT to pain relief, creating a duty of care”.

   Royal College of Surgeons and Anaesthetists (1990).

   “The relief of pain should be a human right"

   Global Day Against pain, October 11th 2004, organized by International Association for the Study of Pain (IASP) and European Federation of the IASP chapters

   iv. Understanding Pain Experience

   a. Great steps to improving pain and suffering in a patient starts with understanding what pain is to the patient. We must understand a diverse spectrum of psychological, sociocultural, temporal and situational variables affects how people perceive and express their pain. Age, sex, ethnicity, accompanying psychiatric problems and economic status of
the patient are among the factors that may affect the way individual express his / her complaints. Thus the painful experience becomes a unique phenomenon for each patient.

v. **Respect for Patient's Pain**

Pain is what the patient states it is and physicians must respect this. The patient’s self-report is the most reliable indicator of the presence and intensity of pain. Physicians should trust patients’ subjective report of pain unless there is evidence to the contrary.

vi. **Difference in Perception of Pain among Patients and Physician**

In order to improve pain management, first we must recognize that currently there is a gap between how physician and patients perceive pain. It has been shown that physicians as well as other health care providers consistently underestimate patients’ pain. In a comparative study done in ED HKL, it was found that there was a significant difference in the mean pain score of patients and doctor (1.19±1.57), and patients and triager (2.44 ± 1.67) where healthcare workers scores were lower.

vii. **Failure to Recognise Severity of Pain**

Failure to recognize severity of pain may be because we do not ask the patient. Even when we do ask, we often discredit the response, judging that the pain is less than reported, basing this judgment on our past experience of similar problems, even though the patient’s pain is most influenced by his or her past.

viii. **Benefits of Pain Management**

Understanding of pain physiology has led to recommendations of early, aggressive analgesic intervention for post-surgical and trauma patients, with the goal being not only to reduce the discomfort of pain, but also to interrupt the pain cycle triggered by release of stress hormones. This cycle has been shown to induce a negative physiologic response, which can lead to significant complications, including infection, thrombosis, and dysphoria in the recovery period. Therefore, appropriate analgesic intervention can promote earlier mobilization, shorter hospitalization, and reduced cost, in addition to improved satisfaction.

ix. **Timeliness of Pain Management**

It is also important to address pain quickly because patients become increasingly more sensitive to painful stimulus the longer the pain is uncontrolled. Hyperalgesia is the state where a painful stimulus causes
more pain than normally expected. With increased irritation, nerve fibers normally not associated with pain sensation are recruited, with non-painful stimuli now inducing pain.

Guidelines for the management of pain in the ED have been introduced by the British Association of Accident and Emergency Medicine (BAEM) in 2005 state that:

- Patients in severe pain (pain score, 7-10) should receive appropriate analgesia within 20 minutes of arrival or triage, whichever is the earliest.
- Patients with moderate pain (pain score, 4-6) should be offered analgesia at triage.
- Ninety percent of patients with severe pain should have documented evidence of reevaluation and action within 30 minutes of receiving the first dose of analgesic.
- Seventy-five percent of patients with moderate pain should have documented evidence of reevaluation and action within 60 minutes of receiving the first dose of analgesic.

x. Ministry of Health Circular 9/2008

The Emergency Medicine and Trauma Services (EMTS) welcomes the Ministry of Health directive to implement pain as the fifth vital sign through circular 9/2008. We have taken the impetus to customise and tailor make pain management in a holistic manner to suit the unique position of the EMTS as front liners in our hospitals.

2. Patient Care Objective in Pain Management:

i. Relief of Pain and Suffering is integral to the mission of EMTS

ii. Health Care Team Members have an ethical obligation to offer pain relief interventions to patients consistent with their medical, psychological, and social history and should respect the individual personal, cultural and religious values in regard to the relief of pain and suffering. This obligation arises from the health care professional’s primary commitment to promote patient wellbeing and to prevent or diminish pain and suffering, respect for all persons and justice.

iii. Pain will be addressed as the fifth vital sign.
iv. Pain management is a collaborative effort that includes ongoing and individualized assessment, planning, intervention, and evaluation of pain and pain relief.

v. Pain will be managed holistically by psychological, non-pharmacological and pharmacological method.

vi. Pain management is a joint responsibility among the members of the health care team. This included addressing pain status of each patient on every review, every visit, consultation if pain treatment is ineffective, and discharge planning for continuing pain management needs.

vii. Special attention is paid to high-risk populations when assessing and managing pain.

viii. Healthcare professional have the responsibility to acquire and maintain the knowledge and skills to assess and manage pain effectively.

3. The Principles of Pain Control

   i. Analgesia should be integrated into a comprehensive patient evaluation and management plan.

   ii. The emotional and cognitive aspects of pain must be recognized and treated.

   iii. There is no reliable way to objectively measure pain.

   iv. Pain is most often under-treated, not over-treated.

   v. Pain control must be individualized.

   vi. Anticipate rather than react to pain.

   vii. Whenever possible, let the patient control his or her own pain.

   viii. Pain control is often best achieved by combination therapy.

   ix. Pain control requires a multidisciplinary, team approach.

(Adopted from Jones JB, Cordell WH. Management of pain and anxiety in the severely injured patient.)
4. Pain Management with a Holistic Approach

Components of Holistic Pain Care:

i. **Patient and non-patient management:**

Holistic pain management in the emergency department must care not only for the patient but also for the often stressed and grieving family and friends of the patient.

ii. **Pharmacological**

The use of pharmaceutical analgesia should be titrated and individualized and made available for more and more number of patients in pain.

iii. **Non Pharmacological**

Non pharmaceutical method such as offering a wheel chair, trolley, ice pack, immobilization, sling, splints, dressing and bandaging is just as important as pharmaceutical methods.

iv. **Psychological Counseling**

An attentive and supportive attitude of listening and explaining why it is painful and how to cope with the pain with techniques such as relaxation exercise or distraction may help to calm the patient.

v. **Reassurance / consolation**

Patient often needs reassurance and consolation that pain relief can be expected and he or she would be made more comfortable.

vi. **Personal Interaction**

It is very important to communicate and understand each patients’ experience of pain with a personal touch and interaction.

vii. **Ambient / Pain Relieving Environment**

Quiet serene surrounding with soft lights and relaxing music helps in the relief of pain.
5. Concept and Philosophy of Holistic Pain Management in EMTS

Pain management in the ED has to be holistic and broadly all encompassing, with a pain education and training module customized and tailor made to EMTS setting

i. The Implementation Strategies for Pain Management as 5th Vital Sign in EMTS

- The emergency department is unlike any other department in the hospital, with services rendered in various areas. These bring a unique situation to holistic pain management that requires customization and tailoring to EMTS setting. These management areas are:
  - Triage
    - Primary Triage
    - Secondary Triage
  - Non-Critical/Green Zone
  - Semi-Critical/Yellow Zone
  - Critical/Red Zone
  - Observation ward
  - Procedural Rooms

- The management of pain in ED is unique because:
  - Emergency department manages more acute pain rather than chronic pain.
  - Patients often come with highly emotional experience of trauma and care must to be rendered to manage the complex psychological aspect of pain.
  - Pain from home or trauma site is often evolving and differently felt on walking, sitting and lying down in the emergency department.
  - Pain management often involve non patient i.e. family and friends who are equally or more stressed than the patient.

ii. Different Phases and Setting of EMTS

There are various environment in the emergency department through which a patient transits and is transferred to from approaching the triage counter to waiting his turn to be seen by a doctor, to the clinical setting and transfer to ward.
iii. **The Team Work of Pain Management**

A large area of patient care involves paramedics in ED. There is great potential to train and involve these personnel in pain management. An example is a nurse driven approach to pain management that has been successfully implemented in Australia. Currently patients in triage are almost only attended to by paramedics. As front liners, these paramedics need to be aware of pain assessment and management in order to render appropriate care.

iv. **Total Quality management**

Holistic pain management is tailored to be continuous starting from arrival of patient in ED till his / her transfer to ward or discharge from ED. It also involves wait management with surveillance that is unique to ED.
CRITICAL PATHWAY OF HOLISTIC PAIN MANAGEMENT AND AS 5TH VITAL SIGN

PAIN SCORE
As 5th Vital Sign

First Look
1. Diagnose Pain
   (Stereotyping)
2. Grading Pain
3. FAQ

Pain Triage
Secondary Assessment
1. Numerical Rating Scale
2. Vital Signs
3. Quick Assessment

PRIORITIZE PAIN:
G1

Eagle Eye Observation
Review Patient in pain every 15 minutes

Arrive at Triage Counter

Holistic Pain Management

Non Pharmacological

a. Physical
   Wheel Chair
   Trolley
   Immobilisation
   Cervical Collar
   Ice Pack
   Bandage

b. Psychological
   Reassurance
   Rapport
   Empathy
   Eye Contact
   Listening
   Gentle Handling
   Enthusiasm
   Interaction
   Suggestion
   Charisma

Pharmacological
Paracetamol
NSAIDS

SURVEILLANCE TRIAGE AT WAITING AREA

GREEN ZONE
Stable
Not life threatening

YELLOW ZONE
Stable
Potentially life threatening
HR > 110, RR > 20, DBP ≥ 110
Severe pain (pain score 7-10)

RED ZONE
Unstable
Life threatening diagnosis
Dangerous mechanism of injury
PAIN ASSESSMENT AND MANAGEMENT

1. Assess and document in Emergency Clerking Sheet
2. Reassessment of Pain Score in within 30 min if Pain Score and Treatment given at Triage
3. Evaluate Pain Management Regime: Pharmacological and Non Pharmacological
4. Institute Pain Management if not done
5. Consider causes of pain
6. Consider other causes of distress (e.g. fear of the unfamiliar environment, needle phobia, fear of injury severity, shock of traumatic accident)
7. Please refer to the adult pain scenarios for specific pain management
8. If any patient requiring procedure to refer to Procedural Pain Guidelines

PAIN MANAGEMENT

MILD PAIN
Pain Score 1-3
Oral Paracetamol or/ &
NSAIDS or COX2 Inhibitor

MODERATE PAIN
Pain Score 4-6
Oral/ IV tramadol
50-100g
±Paracetamol 1g QID

SEVERE PAIN
Pain Score 7-10 (* for acute pain only)
Initiate IV Morphine pain protocol
Followed by
Regular
IV/SC Morphine 5-10mg 4H or
Aqueous Morphine 5-10mg or
REVIEW ANALGESIA WITHIN 30-60 MINUTES

GREEN ZONE

- Pain Score <4
  - Yes: Transfer to Yellow Zone
  - No: Continue management. Can allow discharge with adequate analgesia ± appropriate follow-up

YELLOW ZONE

- If pain score sustained ≥ 4
  - Follow moderate/severe pain

- If pain is not controlled
  - Refer Primary team for further management (preferably for admission or adequate supply of analgesic medication)

RED ZONE

- If pain score sustained ≥ 4
  - Follow moderate/severe pain

(Adopted from Cecilia Anthonysamy, Dato’ Sri Dr Abu Hassan Asaari; EDHKL Oct 2008)
B. HOLISTIC PAIN MANAGEMENT IN TRIAGE

All patients who came to Emergency Department with pain as the main presentation must be recognized, diagnosed and prioritized. Triaging pain should be done immediately to reduce morbidity & mortality and given priority based on the pain score.

1. Primary Triage

Primary Triage is the first triage done to all the patients who came to Emergency department (ED). The aim is to recognize, to diagnose and to manage pain. Pain assessment should be done via first look once the patient arrived in front of ED. Brief targeted history is taken regarding pain. At this level, pain management can be done via non-pharmacological methods (core components of Art and Personality and corporate culture of triage)

Other modalities are by providing walking sticks, wheelchairs or trolleys to appropriate patients. Bandage, ice pack, arm sling, immobilization and cervical collar should be applied if needed. Patient should be reassured accordingly before proceeding to secondary triage.

2. Secondary Triage

This is the second phase of triage where assessment being assessed subjectively and objectively. The aim is to confirm, to grade, to triage/prioritize and to manage the pain. Brief targeted history is taken. All the vital signs including pain score should be assessed objectively. E.g. Visual Analogue Score (VAS) - (Wong Baker), Numerical Rating Scale (NRS) or FLACC scores for infants. The pain score should be charted in the pain observation chart. The emotional and cognitive aspects of pain must be recognized & treated. (Refer table 1)

Management of pain is done as per pain score and the stereotyping using pharmacological or/and non-pharmacological. Patient with severe pain should be upgraded to yellow zone.
### Table 1 Approach to Pain Assessment and Management in Triage

<table>
<thead>
<tr>
<th>Eyeballing</th>
<th>Verbal</th>
<th>Focused Examinations</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Aim:</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>a. <strong>To recognize pain by visual stereotyping</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Facial Expression / frowning e.g. grimacing</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Tears &amp; Crying</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Reaction and Behavioral pattern:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Aggressive &amp; Agitated</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Shouting</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Weak &amp; lethargy</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Typical body posture:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Leaning forward → e.g. Pancreatitis</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Lying perfectly still → e.g. bowel perforation/ peritonitis</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Rolling around in agony → e.g. bowel/ureteric colic</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Limping → e.g. pain of the affected limb</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Universal sign of chest pain</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Stiffness of the back → e.g. Back pain</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- ‘Torticollis’ → e.g. Neck pain</td>
<td></td>
<td></td>
</tr>
<tr>
<td>b. <strong>5) Obvious Clinical Signs</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>e.g.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Inflammation/abscess</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Fracture/swelling</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Bruises</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Wounds</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Red eyes</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Sweating</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Burn area</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Aim:</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>a. <strong>To diagnose pain by Frequently Asked Questions (FAQ)</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>b. <strong>To manage pain by Non Pharmacological means</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>c. <strong>Serve of Urgency</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>a. To diagnose pain by FAQ</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Brief targeted history of pain:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Onset</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Site</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Radiating pain</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Aggravating/Relieving pain</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Nature &amp; Progression</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Associated symptoms</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>b. Non Pharmacological Pain Management</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Application of the Art and personality of the triageur:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Reassuring &amp; Counseling</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Voice tone – soft &amp; gentle</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Correct word &amp; accent</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Empathy – feeling, sensitivity</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Body language</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Facial expressions</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Care</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Respect patient’s feeling</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Other Non-pharmacological pain management</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Bandage, ice pack, arm sling, cervical collar, walking sticks, trolleys, wheelchairs</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Immobilization (e.g. use of traction, arm sling)</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>c. Incorporate pain as the 5th vital signs</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Choose appropriate Pain Scale (NRS, VAS, Wong and Baker or FLACC scoring)</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Aim:</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>a. <strong>To confirm pain</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>b. <strong>To grade the pain</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>c. <strong>To aid in triage/prioritize</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>d. <strong>To manage pain:</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Pharmacological</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Non Pharmacological</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>a. To confirm pain via quick Vital Signs and Examination:</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Pulse Rate</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Respiratory Rate</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Blood Pressure</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Temperature</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Pain Scoring as 5th Vital Signs e.g.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Tachycardia</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- High Blood Pressure</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Increased Respiratory rate</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Others:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Cold clammy peripheries</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Dysfunctional State (e.g. not able to walk or stand)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Rapid examination to rule out life threatening condition and to examine the site of pain</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>b. To Grade pain</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• To do Pain Score and document (in the Vital Sign chart)</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>c. To Aid in Triage</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Base on G1 stereotyping pain as mentioned above</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>d. To Manage pain</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Pharmacological/ non Pharmacological</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Base on the grading of pain</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Base on the types of pain</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
### Administration of Analgesia

The choice of analgesia given is based on the pain score. A trained doctor should be put in charge for pain management to avoid maltreatment in triage area. The analgesia used in triage should be categorized into:

- Medication prescribed by Paramedics
- Medication prescribed by Doctors

Allergy and past medical history (e.g. liver failure, renal impairment, etc.) should be obtained to avoid preventable side effects especially in special group of patients (pediatric, elderly and pregnant women). Doctor's consultation should be obtained before administration of certain medications:

### Table 2: Analgesic Ladder for Acute Pain Management

<table>
<thead>
<tr>
<th>SEVERE</th>
<th>UNCONTROLLED</th>
</tr>
</thead>
<tbody>
<tr>
<td>7-10</td>
<td>To refer to APS For: PCA or Epidural or other forms of analgesia</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>SEVERE</th>
<th>UNCONTROLLED</th>
</tr>
</thead>
<tbody>
<tr>
<td>4-6</td>
<td>7-10</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>MILD</th>
<th>MODERATE</th>
</tr>
</thead>
<tbody>
<tr>
<td>1-3</td>
<td>4-6</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>MILD</th>
<th>MODERATE</th>
</tr>
</thead>
<tbody>
<tr>
<td>1-3</td>
<td>4-6</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>MILD</th>
<th>MODERATE</th>
</tr>
</thead>
<tbody>
<tr>
<td>1-3</td>
<td>4-6</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Regular Opioid</th>
<th>PRN Additional Tramadol</th>
<th>PRN IV/SC Morphine 5-10mg 4H</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tramadol 50-100mg TDS-QID</td>
<td>± PCM 1g QID</td>
<td>± NSAID/COX2 Inhibitor</td>
</tr>
<tr>
<td>PRN PCM &amp;/or NSAID/COX2 Inhibitor</td>
<td></td>
<td>PRN IV/SC Morphine 5-10mg 4H</td>
</tr>
<tr>
<td>Regular</td>
<td>Aqueous Morphine 5-10mg 4H</td>
<td>Aqueous Morphine 5-10mg 4H</td>
</tr>
<tr>
<td>No Medication Or PCM 1g QID</td>
<td>Or</td>
<td>Or</td>
</tr>
<tr>
<td>Additional Tramadol 50-100mg (max total Dose: 400mg/day)</td>
<td>IR Oxycodone 5-10mg 4-6H</td>
<td>IR Oxycodone 5-10mg</td>
</tr>
<tr>
<td>± PCM 1g QID</td>
<td>± NSAID/COX2 Inhibitor</td>
<td>± NSAID/COX2 Inhibitor</td>
</tr>
</tbody>
</table>
3. Surveillance Triage

Surveillance triage is done in Green waiting area to ensure the continuity of care and to reassess the effectiveness of pain management given. Pain reassessment and charting should be done by a trained dedicated staff, and the regular interval based on the onset of the drug actions. Patient in severe pain should be up-triaged for rapid de-escalation of pain.

Wait management should be applied in the waiting area to further ease the patient’s pain (Table 4).

<table>
<thead>
<tr>
<th>Table 3: Analgesia used in Triage at Emergency Department</th>
</tr>
</thead>
<tbody>
<tr>
<td>Analgesia prescribed by Paramedics</td>
</tr>
<tr>
<td>- Paracetamol</td>
</tr>
<tr>
<td>- Ethyl Chloride Spray</td>
</tr>
<tr>
<td>- Local Analgesia application (EMLA, Lignocaine Gel, Methyl Salicylate ointment)</td>
</tr>
<tr>
<td></td>
</tr>
</tbody>
</table>

**Table 4: Wait Management and Non Pharmacological Pain Management In Non-Critical Waiting Area**

1. Adequate Waiting Area
2. Ideal “Wait Management Concept”
   - Spacious and good ventilation (fans, air-conditioning, room perfume/aromatherapy)
   - Proper and comfortable chair
   - Entertainment (Television, soft calming music)
   - Children play area
   - Breast feeding room
   - Small corner library for reading materials
   - Good PA System and regular housekeeping announcements
   - Observation Counter
   - Water Cooler to provide drinks
   - Regular pain re-assessment and analgesia accordingly
# Work Process of Pain Management in Triage

<table>
<thead>
<tr>
<th>Work Process In Triage</th>
<th>Management</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Primary Triage</strong></td>
<td></td>
</tr>
<tr>
<td>1) Listen to patient and ask frequently asked questions (FAQ)</td>
<td><strong>Primary Triage</strong></td>
</tr>
<tr>
<td>2) Stereotype pain</td>
<td>- Non Pharmacological</td>
</tr>
<tr>
<td>3) Immediate Intervention:</td>
<td>- Wheelchairs</td>
</tr>
<tr>
<td>a) Non Pharmacological management</td>
<td>- Crutches</td>
</tr>
<tr>
<td>b) Psychological Management</td>
<td>- Trolleys</td>
</tr>
<tr>
<td></td>
<td>- Bandage</td>
</tr>
<tr>
<td></td>
<td>- Ice pack</td>
</tr>
<tr>
<td></td>
<td>- Elevation</td>
</tr>
<tr>
<td></td>
<td>- Immobilization</td>
</tr>
<tr>
<td><strong>Secondary Triage</strong></td>
<td></td>
</tr>
<tr>
<td>1) Rapid focus history &amp; Privacy</td>
<td></td>
</tr>
<tr>
<td>2) Vital Signs</td>
<td></td>
</tr>
<tr>
<td>3) Rapid Focus Examination &amp; Primary Survey</td>
<td></td>
</tr>
<tr>
<td>4) Management:</td>
<td></td>
</tr>
<tr>
<td>a) Non pharmacological</td>
<td><strong>Secondary Triage</strong></td>
</tr>
<tr>
<td>b) Pharmacological</td>
<td>- Reassure/Counsel</td>
</tr>
<tr>
<td>c) Psychological</td>
<td>- Voice tone (soft &amp; gentle)</td>
</tr>
<tr>
<td></td>
<td>- Correct word &amp; accent</td>
</tr>
<tr>
<td></td>
<td>- Empathy</td>
</tr>
<tr>
<td></td>
<td>- Body language</td>
</tr>
<tr>
<td></td>
<td>- Facial expressions</td>
</tr>
<tr>
<td></td>
<td>- Care</td>
</tr>
<tr>
<td></td>
<td>- Respect patient’s feeling</td>
</tr>
<tr>
<td><strong>Surveillance Triage</strong></td>
<td></td>
</tr>
<tr>
<td>1) Continuity of Patients Care</td>
<td></td>
</tr>
<tr>
<td>2) Management: Similar to secondary triage + Wait Management</td>
<td></td>
</tr>
</tbody>
</table>

- **FAQ** -specific conditions:  
  e.g. Chest pain  
  - Nausea/Vomiting  
  - Sweating  
  - Radiating pain to neck/upper limbs/jaw  
  - Risk factors

- **Yellow Zone**  
  Mild Pain, Non-Life Threatening

- **Green Zone**  
  Moderate/Severe Pain, Non-Life Threatening

- **Red Zone**  
  Pain, Life Threatening

- **Yellow Zone**  
  Pain, Life Threatening

- **Green Zone**  
  Moderate/Severe Pain, Non-Life Threatening

- **Red Zone**  
  Pain, Life Threatening
C. ADULT PAIN SCENARIOS

1. **Gout**

**Key points:**

i. There is controversy over the respective roles of NSAIDs, corticosteroids and colchicine for gout.

ii. There is evidence that NSAIDs and colchicine are **effective first line analgesics for acute gout attacks.**

iii. Corticosteroids such as prednisolone may be preferred for patients with renal impairment or complex medical problems.

iv. Colchicine has a low therapeutic index and is a potent cellular toxin in overdose.

v. Given the recurrent nature of gout and the likelihood of previous use of colchicine in a given patient, the ED provider may find it useful to ask if the drug has been efficacious in the past thus can be considered for repeat use.

**Analgesic Technique:**

**NSAIDS**

*when NSAIDs are contraindicated or ineffective, Colchicine 1000 micrograms orally, then 500 micrograms 1 hour later*

(maximum 1500 micrograms per course) ideally within 12 hours of acute episode

Do not repeat the course within 3 days.

In renal dysfunction (CrCL< 30mL/min) do not repeat course within 2 weeks.

Consider use of prednisolone when NSAIDs and colchicine are contraindicated or ineffective

**Prednisolone 50mg orally daily** (for 5 days then review)
Consider prescribing H2 antagonist/ PPI if patient at high risk for Upper Gastrointestinal bleeding

If a Pain Score ≥4, please refer to the Analgesic Ladder for Acute Pain Management.

Disposition:
  i. Pain free discharge*
  ii. Referral to KK/ Primary team for further long term follow up

2. Herpes zoster

Key points:
  i. Antivirals commenced within 72 hours of onset of the rash reduces duration of pain, duration of rash and reduces ophthalmic complications.

  ii. Herpes Zoster therapy and associated pain management should be treated early and prompt treatment of acute herpes zoster decreases the risk of Post Herpetic Neuralgia development and reduces its severity.

Antiviral Therapy:

If within 72 hours of onset of rash, use:

Acyclovir 20mg/kg (up to 800mg) orally 5 times a day for 7 days
Analgesic Techniques:

Paracetamol 1g orally 4 hourly prn (to a maximum dose of 6g per 24 hour period)

and/or

**Oral Tramadol ± NSAIDs / COX-2**

If a Pain Score ≥4, please refer to the Analgesic Ladder for Acute Pain Management.

Disposition:

i. Refer to Medical/ Dermatology Team for definitive management

ii. Consider early referral to Pain Specialist to prevent progression to chronic pain

iii. Pain free discharge*

3. **Migraine (common and classic)**

The International Headache Society classifies a headache as a common migraine when

i. the pain has at least two of the following features (PUMA);
   - pulsatile
   - unilateral
   - moderate to severe
   - aggravated by movement

ii. There is at least one of the following associated symptoms:
   - nausea
   - vomiting
   - photophobia
   - phonophobia
iii. The headache lasts for between 4 and 72 hours

iv. No evidence of any other diseases that may cause these symptoms.

In addition, classic migraine can be diagnosed when at least three of the following symptoms occur:

i. one or more completely reversible aura symptoms.
ii. aura symptoms include: alterations in vision; numbness or tingling in the face, arm,
iii. or hand on one side of the body; muscular weakness or mild paralysis on one side of the body; and/or difficulty speaking or loss of speech
iv. at least one aura symptom develops gradually over > 4 minutes
v. two or more symptoms that occur at the same time
vi. no aura symptom lasts > 1 hour
vii. headache follows aura within 1 hour.

Red flags for headache include:

i. Sudden onset of severe headache especially if associated with confusion, drowsiness, vomiting or neurological signs (e.g. consider subarachnoid, intracerebral haemorrhage, dissection)
ii. Recent onset with fever, confusion or drowsiness (e.g. consider meningitis, encephalitis)
iii. Age > 50 years (increased rate of tumours, temporal arteritis, glaucoma, subdural haemorrhage and herpes zoster)
iv. Trauma.
Analgesic Techniques:
Once a diagnosis of migraine has been made and there are no “red flags”, use:

**Paracetamol**
And/or

**NSAID or COX-2**
And/or

**Metoclopramide 10mg IV**
If this fails / has failed OR for severe pain or If a Pain Score ≥4 triage patient to yellow/Red zone

Manage according to moderate and severe pain protocol

Disposition:
  i.  Pain free discharge*
  ii. Refer to Neuromedical or Medical Department,

4. **Tension headache**

Analgesic Technique:

**Paracetamol**
and/or

**NSAIDs or COX-2 inhibitor**
Consider (if unable to tolerate orally or pain score ≥4 + availability)

**Paracetamol can be given IV 1g 6 hourly prn**

*assess hydration status and manage accordingly
If a Pain Score ≥4, please refer to the Analgesic Ladder for Acute Pain Management.

Disposition:

i. Pain free discharge*,

5. Renal colic

Key points:

i. Analgesia does not hinder the diagnostic process in abdominal pain.
ii. Non-selective NSAIDs and opioids provide effective analgesia for renal colic.
iii. The use of pethidine should be avoided in favour of other opioids.

Analgesic Techniques:

For severe pain use:

**IV Morphine Pain Protocol** *(Refer Pain As The Fifth Vital Sign Guidelines Handbook Page 38)*

If morphine is contraindicated, consider

**Fentanyl at 25 to 50 micrograms IV as initial equivalent dose.**

and

**NSAID or COX-2 inhibitor**

For moderate pain use:

**Tramadol**

with or without

**NSAID or COX-2 inhibitor**
NSAIDS should be used with caution, if at all, in the elderly or in the presence of renal disease or peptic ulcer disease.

If a Pain Score ≥4 triage patient to yellow/Red zone, manage according to moderate and severe pain protocol

Disposition:
   i. Pain free discharge*

6. **Soft tissue injury**

Key points:
   i. Regular paracetamol, and then if ineffective, NSAIDS may be used for musculoskeletal pain.
   ii. NSAIDs if used for acute musculoskeletal injury should be used short term.
   iii. Short term oral weak opioids may be required.

Analgesic Techniques:

For severe pain use:

**IV Morphine Pain Protocol** (Refer Pain As The Fifth Vital Sign Guidelines Handbook Page 38)

with

**Paracetamol 1g IV (if available) or oral 4 hourly prn** (to a maximum dose of 4g per 24 hour period)

and/or

**NSAIDs or COX-2 inhibitor**
For moderate pain use:

**Paracetamol 1g orally 4 hourly prn** (to a maximum dose of 4g per 24 hour period) and/or

**NSAIDs or COX-2 inhibitor**

### 7. Abdominal pain

**Key points:**

- Analgesia does not hinder the diagnostic process in abdominal pain.

**Analgesic Technique:**

For severe pain use:

**IV Morphine Pain Protocol** (Refer Pain As The Fifth Vital Sign Guidelines Handbook Page 38)

If morphine is contraindicated, consider

**Fentanyl at 25 to 50 micrograms IV as initial equivalent dose.**

And

**Paracetamol 1g IV (if available) 4 hourly prn** (to a maximum dose of 4g per 24 hour period)

For moderate pain use:

**Paracetamol 1g orally 4 hourly prn** (to a maximum dose of 4g per 24 hour period)

If the oral and rectal routes are contraindicated,

**Tramadol IV/SC 50-100mg 6-8 hourly prn** (to a maximum dose of 400mg per 24 hour period)
Disposition:

i. Consider referral to Gastroenterologist/ General Surgeon if recurrent episodes of acute dyspepsia as outpatient.
ii. Pain free discharge*

8. Back pain (acute)

Key points:

i. Simple analgesics and physiotherapy referral should be considered for all patients with back pain of musculoskeletal origin.
ii. Postural advice, minimizing bed rest, staying active and heat wrap therapy are effective in low back pain.
iii. Spinal pathology such as osteoarthritis, spondylosis, bulging discs and canal stenosis are often asymptomatic and may not be the cause of the pain.
iv. Please refer to The Malaysian Low Back Pain Management Guidelines as well

Red Flags are features of the presentation that suggest a potentially serious condition.

In acute back pain these can include:

i. Symptoms or signs of infection or risk factors for infection (fever, immunosuppression, steroid use and history of IV drug use)
ii. History of trauma (this includes minor trauma in the elderly, osteoporotic or those on corticosteroids)
iii. History of malignancy or recent unexplained weight loss
iv. Neurological signs or Cauda equina syndrome
v. Age greater than 50 years.
Analgesics Technique:

For severe pain use:

**IV Morphine Pain Protocol** (Refer Pain As The Fifth Vital Sign Guidelines Handbook Page 38)
and

**Paracetamol 1g orally 4 hourly prn** (to a maximum dose of 4g per 24 hour period)
and/or

**NSAIDs or COX-2 inhibitor**

For moderate pain use:

**Paracetamol 1g orally 4 hourly prn** (to a maximum dose of 4g per 24 hour period)
and/or

**NSAIDs or COX-2 inhibitor**

Disposition:

i. Pain free discharge*.
ii. Consider referral to Primary Team/ Physiotherapy

9. **Burns**

Key points:

i. Titrated boluses of IV morphine will most likely be required for effective analgesia in acute severe burns.
ii. Opioid dose requirements will typically be higher for burns patients than for other emergency situations.
iii. Non-pharmacological interventions such as cooling and covering are important pain control measures.
Analgesic Techniques:

For severe pain use:

**IV Morphine Pain Protocol** (Refer Pain As The Fifth Vital Sign Guidelines Handbook Page 38)

If morphine is contraindicated, consider

**Fentanyl** at 25 to 50 micrograms IV as initial equivalent dose.

And

**Paracetamol 1g IV (if available)/ Oral 4 hourly prn** (to a maximum dose of 4g per 24 hour period)

For moderate pain use:

**Paracetamol 1g orally 4 hourly prn** (to a maximum dose of 4g per 24 hour period)

If the oral and rectal routes are contraindicated,

**Paracetamol can be given IV 1g 6 hourly**

Disposition:

i. Pain free discharge*

ii. Consider referral to Plastic/ General Surgeon

10. Cardiac pain

Key points:

i. Patients presenting with cardiac chest pain should receive glyceryl trinitrate (GTN) and morphine

ii. Therapies to ameliorate coronary ischaemia such as beta blockers and reperfusion therapies may also reduce pain.
Management and Analgesia Technique:

Aspirin 300mg oral initial dose

and

Glyceryl trinitrate (GTN) sublingual spray 400 micrograms

or

Sublingual tablet 0.5 mg

Repeat every 5 minutes as needed and if tolerated (monitor for hypotension) to a maximum of 3 doses

with or without

IV Morphine Pain Protocol (Refer Pain As The Fifth Vital Sign Guidelines Handbook Page 38)

If morphine is contraindicated, consider

Fentanyl at 25 to 50 micrograms IV as initial equivalent dose.

11. **Dental Pain**

Key points:

i. Evidence for dental pain management is largely based on tooth extraction research.

ii. Paracetamol, NSAIDs and tramadol provide effective analgesia for acute dental pain.

iii. Dental nerve block provides effective analgesia for acute dental pain.

Analgesics Technique:

For severe pain use:

IV Morphine Pain Protocol (Refer Pain As The Fifth Vital Sign Guidelines Handbook Page 38)
If morphine is contraindicated, consider

**Fentanyl at 25 to 50 micrograms IV as initial equivalent dose.**
and/or

**NSAIDs or COX-2 inhibitor**

For moderate pain use:

**Paracetamol 1g orally 4 hourly prn** (to a maximum dose of 4g per 24 hour period)
or

**NSAIDs or COX-2 inhibitor**

**Disposition:**
- Refer to Dental team
- Pain free discharge*

**12. Fractures and dislocation**

**Key points:**
- Immobilisation, resting the injured site, ice and elevation of a suspected fracture are important pain control measures.
- Femoral nerve block in combination with IV opioids is more effective than IV opioids alone in treating pain from fractured neck of femur.
- Anticipate procedures where some movement is required, such as x-ray, and ensure adequate analgesic cover.

**Analgesics Techniques:**

For severe pain use:

**IV Morphine Pain Protocol** *(Refer Pain As The Fifth Vital Sign Guidelines Handbook Page 38)*
If morphine is contraindicated, consider

**Fentanyl at 25 to 50 micrograms IV as initial equivalent dose.**

And/Or

**Paracetamol can be given IV/Oral 1g 6 hourly**

And/Or

**NSAIDs or COX-2**

For moderate pain use:

**Paracetamol 1g orally 4 hourly prn** (to a maximum dose of 4g per 24 hour period)

And/Or

**NSAIDs or COX-2 inhibitor**

If the oral and rectal routes are contraindicated,

**Paracetamol can be given IV 1g 6 hourly**

**For reduction of dislocations:**

i. To facilitate reduction of dislocations of major joints, refer to Procedural Pain Management in Emergency Department

ii. These techniques should only be performed in a monitored clinical area with sufficient staffing levels by clinicians with advanced airway skills and specific training in the use of these medications.

13. **Abdominal Aortic Aneurysm**

**Key Points:**

i. Treating pain in patients with suspected ruptured AAA, the most important consideration is the effect the analgesic will have on the patient's haemodynamic status.
ii. Opioid in small titrated doses, are the analgesics recommended by experts in AAA pain relief.

iii. Hypotension is much less likely to occur with fentanyl since this agent does not cause the histamine release often associated with morphine.

**Analgesic Techniques:**

Severe Pain

**Fentanyl (initial dose 50 to 100 mcg IV, then titrated)**

Or

**IV Morphine Pain Protocol** *(Refer Pain As The Fifth Vital Sign Guidelines Handbook Page 38)*

**Disposition:**

i. Refer to Vascular/ General Surgeon

14. **Biliary Tract Pain**

**Key Points:**

i. There are no significant differences between morphine and other pure mu receptor agonists.

ii. NSAIDs provide good analgesic effect, lack untoward effects on biliary tract pressure, and (perhaps through anti-inflammatory activity) seem to reduce the rate of progression from uncomplicated biliary colic to acute cholecystitis.

**Analgesics Techniques:**

Severe Pain:

**IV Morphine Pain Protocol** *(Refer Pain As The Fifth Vital Sign Guidelines Handbook Page 38)*

Or

**NSAIDs or COX-2 inhibitor**
Disposition:
  i. Consider referral to General Surgeon
  ii. Pain free discharge*

15. **Bites and stings: Marine**

Key Points:
  i. Marine envenomation can result from discharging nematocysts (e.g. jellyfish, fire coral), puncturing spines (e.g. sea urchins, stingrays), or actual bites (e.g. blue octopus, sea snakes).
  ii. For the jellyfish (Cnidaria or Coelenterates) envenomation, hot water immersion (40 to 45 degree Celsius via immersion or shower, for up to 90 minutes), can inactivate venom and achieve better pain relief than alternative approaches such as acetic acid, papain and opioids).
  iii. Whether considering physical interventions (e.g. warm water immersion), topical therapies (e.g. acetic acid dousing), or IV drug therapy (e.g. with antivenom), treatment for different marine envenomation, even though from different members of the same genus, can vary significantly.

**Analgesics Techniques:**

First line:

**Warm water immersion or shower** (40 to 45 degree Celsius, as tolerated for 90 minutes)

**Jellyfish: Acetic acid dousing with 4-5% solution household vinegar**

And/Or

**IV Morphine Pain Protocol** (Refer Pain As The Fifth Vital Sign Guidelines Handbook Page 38)
Special Cases:

Antivenom available:
Consider for intractable pain or severe toxicity

Irukandji-like syndrome:

**Magnesium** (0.05 g/kg IV, maximum 2.5 g over 20-30 minutes, with repeat dosing and infusion rates guided by side effects and magnesium levels)

**Benzodiazepines:**
Diazepam 5-10 mg IV 4 H for cramping

Failure of acetic acid, especially for stings of the sea nettle:

Slurry of bicarbonate (baking soda) in water

---

**Note:**

*Pain Free Discharge* consists of the following:

i. Referral to appropriate discipline for long term management

ii. Acceptable pain score (pain score < 4) upon discharge

iii. Adequate analgesic medication
1. Introduction

i. Various procedures performed in the Emergency and Trauma Department (ETD) has grown exponentially over the last several decades. Performing such procedures may produce pain to the patients and must be addressed properly by the healthcare providers. This can be achieved by considering the goals of pain management and determining if a particular patient requires any intervention during a procedure to prevent the pain; by using both non-pharmacological as well as pharmacological approaches.

ii. The goals during a procedure that must be fulfilled:
   - Patient safety;
   - Minimizing pain and anxiety associated with procedure;
   - Minimizing patient's motion during the procedure;
   - Maximizing the chance of success of a procedure; and returning the patient to pre-sedation state as quickly as possible

iii. When performing a procedure, the healthcare personnel should be:
   - Professional
   - Sensitive
   - Thorough
   - Gentle
   - Thoughtful
   - Efficient

iv. With the introduction of shorter-acting sedatives for sedation and opioids for pain control, specific reversal agents for both opioids and benzodiazepines, and the availability of non-invasive monitoring equipment, procedural sedation can now be safely administered in many healthcare settings.
2. Identifying Procedural Pain

Procedural pain can be encountered in various situations:

i. Uncaring attitude and poor patient handling – rough, disregard pain
ii. Examination process
iii. Diagnostic process
iv. Therapeutic process

i. Uncaring attitude:

- Including poor patient’s handling
- Disrespect of patient and disregard patient’s suffering
- Often seen during mobilization of patient, nursing care, during procedure e.g. commanding, shouting etc.
- Will enhance the real pain and increase the patients’ suffering of pain in terms of psychological aspect

This attitude can be managed by taking these necessary steps:

- Assessment of personality and characters
- Awareness and evaluation
- Supervision and monitoring
- Counseling, psychotherapy
- Warning, punitive action and reprimand

ii. Poor bedside manners will also cause this type of pain.

iii. Diagnostic processes that can produce pain:

- Blood taking
- X-rays, CT scan
- Ultrasound
- Maneuvering of body parts
- Mobilization and transportation of patient

iv. Therapeutic process causing pain may include the following:

- IV, IM, SC injections
- Procedure – catheterization, close manual reduction (CMR) etc.
- Lavage
- Foreign body removal
- Suturing
- Wound dressing

All these processes can produce pain and untoward events to the patients. In turn, the number of complaints towards the healthcare personnel might also increase.
3. Steps in managing procedural sedation and analgesia

Before the Procedure:

i. Establish a plan for managing patient comfort if the procedure is likely to produce pain or anxiety.

- Select appropriate pharmacologic and non-pharmacologic interventions.
- Develop a plan to help the patient cope during the procedure (e.g., distraction, breathing, relaxation)
- Consider procedural sedation if:
  - The procedure is believed to be significantly painful.
  - Immobility of the patient is required for a longer period of time.
  - The patient expresses great concern or distress at the thought of being awake during the procedure.
  - Special groups of patient e.g. paediatric patient, patient with cognitive impairment
- If procedural sedation is in the best interest of the patient but cannot be administered in the current setting, consider transfer to an alternate location where the administration of procedural sedation is possible (e.g. from yellow zone to the red zone, or from emergency department to the operation theatre)
- Consider pre-emptive analgesia.

ii. Prepare

General Preparation

- Assess patient’s condition and vital signs.
- Explanation to Patient and/or family:
  - About the procedure to the patient
  - Patient’s right to request additional pain relief
  - Pain score target during the procedure should be less than 4
  - Acknowledge patient’s fears/concerns and modify the comfort management plan accordingly.
- Agree on optimal patient’s position
- Prepare relaxation, distraction, and coping techniques based on patient preference, capabilities, and experience.
- Ensure that medications are administered to allow sufficient time for effectiveness before the procedure.
• Prepare the health care team:
  o Know the procedure specifics:
    - What will be done?
    - How long it is anticipated to take?
    - What kind of pain is anticipated?
  o Identify someone to lead the distraction and coping techniques so the
    patient is not confused or over stimulated (if multiple staff are present)
  o Know how often the procedure will need to be repeated

**Preparation for procedural under sedation**

• Assessment of the patient (ASA 1 and ASA 2 only) (see Table 1)

• Ensure patient is Nil by mouth (NBM)

• Consider premedication (e.g. metoclopramide, ranitidine) base on the
  assessment by the doctor.

**Table 1: American Society of Anaesthesiologist (ASA) physical status classification system**

<table>
<thead>
<tr>
<th>ASA Class 1</th>
<th>Normally healthy patient</th>
</tr>
</thead>
<tbody>
<tr>
<td>ASA Class 2</td>
<td>A patient with mild systemic disease</td>
</tr>
<tr>
<td>ASA Class 3</td>
<td>A patient with severe systemic disease that is not incapacitating</td>
</tr>
<tr>
<td>ASA Class 4</td>
<td>A patient with an incapacitating severe systemic disease that is a constant threat to life</td>
</tr>
<tr>
<td>ASA Class 5</td>
<td>A moribund patient who is not expected to survive for 24 hours with or without operation</td>
</tr>
</tbody>
</table>

**During the Procedure:**

i. Use agreed-upon distraction/coping techniques.

ii. Continuous assessment of vital signs and depth of sedation (if opiates or other sedative agent is being used) (see Table 2)

iii. If pain and/or anxiety are not well controlled during the procedure, ask the health care provider performing the procedure to stop so that further evaluation can be conducted and the need for additional support (pharmacologic and/or non-pharmacologic) determined.
Table 2: Continuum of Depth of Sedation

<table>
<thead>
<tr>
<th></th>
<th>Minimal sedation (Anxiolysis)</th>
<th>Moderate sedation/analgesia (conscious sedation)</th>
<th>Deep sedation/analgesia</th>
<th>General anaesthesia</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Responsiveness</strong></td>
<td>Normal response to verbal stimulation</td>
<td>Purposeful response to verbal or tactile stimulation</td>
<td>Purposeful response after repeated or painful stimulation</td>
<td>Unarousable even with painful stimulation</td>
</tr>
<tr>
<td><strong>Airway</strong></td>
<td>Unaffected</td>
<td>No intervention required</td>
<td>Intervention may be required</td>
<td>Intervention often required</td>
</tr>
<tr>
<td><strong>Spontaneous Ventilation</strong></td>
<td>Unaffected</td>
<td>Adequate</td>
<td>May be inadequate</td>
<td>Frequently inadequate</td>
</tr>
<tr>
<td><strong>Cardiovascular function</strong></td>
<td>Unaffected</td>
<td>Usually maintained</td>
<td>Usually maintained</td>
<td>May be impaired</td>
</tr>
</tbody>
</table>

After the Procedure:

i. Continue to monitor vital sign. If opioid is being used, patient need to be observed for a minimum of 4 hours.

ii. Document the procedure, including an evaluation of the patient’s experience, from the patient, and HCP perspectives including recommendations for future procedures in the medical record.

iii. Develop and implement a comfort management plan for after the procedure, because the pain resulting from the procedure itself may not subside when the procedure is completed and must be treated appropriately.

- Multimodal (pharmacologic including opioids and adjuvants, and non-pharmacologic) treatment may be indicated.
- The comfort plan should include care in the event the patient is no longer in the health care setting (i.e., home) after the procedure.

iv. Referral letter to the respective department/nearest clinic.
4. Management of pain related to procedures commonly performed in ETD

There is no single agent, or combination of agents that can be recommended for every patient or sedation procedure. Clinicians must weigh the relative needs for pain control (analgesia), sedation, and the potential risks, benefits, and alternatives when individualizing their plan for patient sedation.

i. Close manual reduction (CMR) for fracture/dislocation

Important points:

- Local application of ice, elevation and splinting of the affected limb are effective forms of analgesia for known or suspected fractures.
- Patients should be reassessed to determine if the dose has been effective and to determine if any adverse effects, especially sedation, have occurred.

<table>
<thead>
<tr>
<th>Analgesic techniques</th>
</tr>
</thead>
<tbody>
<tr>
<td>Appropriate positioning, distraction, relaxation or other coping strategies</td>
</tr>
<tr>
<td>And</td>
</tr>
<tr>
<td>1) Local Anaesthesia with/ without sedation</td>
</tr>
<tr>
<td>2) Analgesia without sedation</td>
</tr>
<tr>
<td>- Fentanyl or</td>
</tr>
<tr>
<td>- Morphine</td>
</tr>
<tr>
<td>3) Analgesia with sedation</td>
</tr>
<tr>
<td>- Ketamine with/ without midazolam or</td>
</tr>
<tr>
<td>- Fentanyl and Propofol or</td>
</tr>
<tr>
<td>- Fentanyl and Midazolam</td>
</tr>
</tbody>
</table>
ii. Insertion of chest tube and central venous line

Important points:

- Chest tube insertion is a painful procedure, especially in muscular individuals.
- While a relatively simple procedure, it carries a significant complication rate, reported as between 2% and 10%. While many of these complications are relatively minor, some may require operative intervention.
- Although often performed in emergent conditions, attention to technique in placing the chest tube is vital to avoid complications from the procedure.

---

**Analgesic techniques**

Appropriate positioning, distraction, relaxation or other coping strategies

*And*

A combination of intravenous analgesia and local anaesthesia is used for the procedure.

- IV morphine (0.05-0.2mg/kg or titrate to effect) or IV fentanyl(1-2 mcg/kg followed by 0.5-1 mcg/kg)
- An analgesic dose of ketamine (0.25mg/kg adult) is a good alternative to opioids for chest tube insertion.
- For local anaesthesia, 5mg/kg of lignocaine 1%is required. This is infiltrated under the skin along the line of the incision. The needle is then directed perpendicular to the skin and local anaesthetic infiltrated through the layers of the chest wall down onto the rib below the actual intercostal space. Here local anaesthesia is injected around the periosteum of the rib. The needle is then angled above the rib and advanced slowly until air is aspirated. The last 5 ml or so of local anaesthetic is then injected into the pleural space.

- If expertise available, intercostal block can be considered.
iii. Suturing for laceration wounds

Important points:

- Wherever possible, the least invasive technique of wound repair (skin glue and/or steristrips) should be employed as long as cosmetic result is equivalent
- Cyanoacrylate skin glue provides equivalent cosmetic outcomes to suture repair for simple lacerations in children

<table>
<thead>
<tr>
<th>Analgesic techniques</th>
</tr>
</thead>
<tbody>
<tr>
<td>Appropriate positioning, distraction, relaxation or other coping strategies</td>
</tr>
</tbody>
</table>

*And*

For local anaesthesia, maximum dose of 5mg/kg of lignocaine 1% is required.

iv. Urethral catheterization

<table>
<thead>
<tr>
<th>Analgesic techniques</th>
</tr>
</thead>
<tbody>
<tr>
<td>Appropriate positioning (e.g. swaddling), distraction, relaxation or other coping strategies</td>
</tr>
</tbody>
</table>

*And*

Topical Lignocaine lubricant should be used during the procedure

*NB.* 10 minutes is required for Lignocaine gel to take optimal effect
v. Cardioversion and pacing

Important points:

- Advanced cardiac life support (ACLS) guidelines should be followed as indicated.
- Cardioversion is always performed under sedation except if the patient is hemodynamically unstable or if cardiovascular collapse is imminent.
- Pre-procedural preparation such as intravenous access, airway management equipment, sedative agents and a converter/defibrillator monitoring device must be done.

<table>
<thead>
<tr>
<th>Analgesic techniques</th>
</tr>
</thead>
<tbody>
<tr>
<td>Appropriate positioning, distraction, relaxation or other coping strategies</td>
</tr>
</tbody>
</table>

And

Analgesia with sedation

- Ketamine with/without midazolam or
- Fentanyl and Midazolam or
- Fentanyl and Propofol
Table 3: Drug and dose reference

<table>
<thead>
<tr>
<th>Medication</th>
<th>Typical adult starting dose and repeat doses. Titrating to effect</th>
<th>Dose suggestions in older adults (age 65 and over)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fentanyl</td>
<td>1-2 mcg/kg followed by 0.5-1 mcg/kg</td>
<td>0.5 -1 mcg/kg followed by 0.25 mcg/kg</td>
</tr>
<tr>
<td>Midazolam</td>
<td>0.02-0.03 mg/kg followed by 0.01-0.02 mg/kg</td>
<td>0.02 mg/kg followed by 0.01 mg/kg</td>
</tr>
<tr>
<td>Propofol</td>
<td>0.5-1 mg/kg over 1 min followed by 0.5 mg/kg</td>
<td>0.5 mg/kg over 3 min followed by 0.25 mg/kg</td>
</tr>
<tr>
<td>Ketamine</td>
<td>0.5-1 mg/kg followed by 0.25-0.5 mg/kg</td>
<td>0.25-0.5 mg/kg followed by 0.25 mg/kg</td>
</tr>
</tbody>
</table>

Notes: Typical adult medication doses and suggestions for older adults. Agents are typically given as a bolus doses if needed, titrating to needed level of sedation and monitoring for adverse side effects. For most medications, in older patients consider starting at 50-75% of the usual adult dose. This will vary depending on the patient's overall health and status at the time of sedation. There is a paucity of evidence on the subject, so these are general suggestions. Individual patients may require higher or lower doses.
REFERENCES


