Essential Pain Management
EPM Lite
Introduction
Why EPM?
Why EPM?

• Pain is common.
• Pain is often poorly managed.
• We need a better system.
Overall EPM Aims

- Better recognition
- Better assessment
- Better treatment
Workshop Objectives

You will be able to:

• Recognize pain
  – Define pain
  – List benefits of treating pain

• Assess pain
  – Measure severity
  – Classify pain type
  – Assess other factors
Workshop Objectives

You will be able to:

• Treat pain
  – List non-pharmacological treatments
  – List pharmacological treatments
EPM Lite Plan

- Short, interactive lectures
- Case discussions
Untreated Pain
Untreated Pain

• Often hidden (not recognized)
• Causes a lot of suffering
• But ... can often be treated simply and cheaply
RAT System

- **Recognize**
- **Assess**
- **Treat**
Recognize

• Does the patient have pain?
• Do other people know the patient has pain?
Assess

• How severe is the pain?
• What type of pain is it?
• Are there other factors?
• What non-pharmacological treatments can I use?
• What pharmacological treatments can I use?
Introduction

Summary

• Pain is common.
• Pain is often poorly treated.
• We need a better system.
• RAT provides this system.
Recognize

Assess

Treat
Recognize

• Does the patient have pain?
• Do other people know the patient has pain?

• The next lecture will cover:
  – The definition of pain
  – The benefits of treating pain
What is Pain & Why Treat It?
What is Pain & Why Treat It?

Objectives

You will be able to:

- Define pain
- List the benefits of treating pain
Group Discussion

• Think of a patient who has or had pain.
• How did he or she describe the pain?
• What were the benefits of treating his or her pain?
Does this person have pain?
What is Pain?

• International Association for the Study of Pain (IASP)
  – Pain is ‘an unpleasant sensory and emotional experience associated with actual or potential tissue damage, or described in terms of such damage’.

• Are there any other definitions?
What is Pain?

• Pain is unpleasant.
• Emotions are important.
• The cause is not always visible.

• ‘Pain is what the patient says hurts.’
Does this person have pain?
Benefits of Treating Pain

• For the patient
  – Physical
    • Better sleep, improved appetite
    • Fewer medical complications
      (e.g. heart attack, pneumonia)
  – Psychological
    • Reduced suffering
    • Less depression, anxiety
Benefits of Treating Pain

• For the family
  – Improved function as part of the family
    (e.g. as a father / mother)
  – Able to keep working

• For society
  – Reduced health costs
    (e.g. shorter hospital stay)
  – Able to contribute to the community
What are the benefits for this child?
What is Pain & Why Treat It?

Summary

- Pain is an unpleasant sensory and emotional experience.
- Pain is subjective – ask the patient!
- Treating pain has many benefits:
  - For the patient
  - For the family
  - For society
Recognize

Assess

Treat
Assess

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

- How severe is the pain?
  - What is the pain score?
  - How is the pain affecting the patient?
Assess

• What is the pain type?
  – Acute or chronic?
  – Cancer or non-cancer?
  – Nociceptive or neuropathic?
Assess

- Are there other factors?
  - Physical?
  - Psychological?
• The next lectures will cover:
  – Assessment of severity
  – Classification of pain
  – Underlying physiology and pathology
Assessment of Severity
Assessment of Severity
Objectives

You will be able to:

• Understand the reasons for assessing severity
• Use different methods to assess severity
Assessment of Severity

- Guides choice of treatment
- Measures response to treatment

- ‘Pain is the 5\textsuperscript{th} vital sign.’
  - Measure and \textit{record} severity
Assessment of Severity

• What is the pain score?
  – At rest?
  – With movement?

• How is the pain affecting the patient?
  – Can the patient move, cough?
  – Can the patient work?
Methods

• Verbal Rating Scale
  – Mild, moderate, severe
  – 0 (no pain) to 10 (worst pain imaginable)

• Visual
  – Visual Analogue Scale (VAS)
  – Faces Pain Scale (FPS)

• Other more specialised methods
Visual Analogue Scale

Ask the patient to show what his/her pain is on a scale of 0 to 10.
Faces Pain Scale
Assessment of severity guides treatment and measures response.

Common methods include:
- Verbal Rating Scale
- Visual Analogue Scale
- Faces Pain Scale
Classification of Pain
Classification of Pain

Objectives

You will be able to:

• Classify types of pain
• Give examples of types of pain
• Understand that treatment depends on the pain type
Classification of Pain

• Not all pain is the same!
• Three main questions:
  1. How long has the patient had pain?
  2. What is the cause?
  3. What is the pain mechanism?
# Classification of Pain

<table>
<thead>
<tr>
<th>Duration</th>
<th>Acute</th>
<th>Chronic</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cause</td>
<td>Cancer</td>
<td>Non-cancer</td>
</tr>
<tr>
<td>Mechanism</td>
<td>Nociceptive (physiological)</td>
<td>Neuropathic (pathological)</td>
</tr>
</tbody>
</table>
Acute versus Chronic

• Acute
  – Pain of recent onset and probable limited duration

• Chronic
  – Pain lasting for more than 3 months
  – Pain lasting after normal healing
  – Sometimes no identifiable cause
Cancer versus Non-Cancer
Cancer versus Non-Cancer

• Cancer pain
  – Progressive
  – May be mixture of acute and chronic

• Non-cancer pain
  – Many different causes
  – Acute or chronic

Can you give examples of non-cancer pain?
Nociceptive Pain

• Obvious tissue injury or illness
• Sometimes called physiological or inflammatory pain
• Protective function
• Description
  – Sharp and/or dull
  – Well localised

Can you give examples?
Neuropathic Pain

• Caused by a lesion or disease of the sensory nervous system
• Tissue injury may not be obvious
• Does not have a protective function
• Description
  – Burning, shooting, pins and needles, or numbness
  – Not well localised

Can you give examples?
Examples of Pain Types
Acute Non-Cancer Pain

• Examples
  – Fracture, appendicitis
• Symptom of tissue injury or illness
• Usually nociceptive
• Occasionally neuropathic (e.g. sciatica)
How would you classify low back pain?
Chronic Non-Cancer Pain

• Examples
  – Chronic back pain, arthritis

• Cause may not be obvious

• Complex, may be mixed nociceptive and neuropathic

• Different pharmacological treatments may be needed
Cancer Pain

• Examples
  – Uterine cervical cancer, breast cancer
  – Metastases in bone

• Features of acute and chronic pain
  – May be acute on chronic

• Often mixed nociceptive and neuropathic pain

• Usually gets worse over time if untreated
Classification of Pain

Summary

• Deciding on the type of pain is important
  – Acute / chronic
  – Cancer / non-cancer
  – Nociceptive / neuropathic

• Treatment depends on the pain type.
Pain Physiology and Pathology
Pain Physiology and Pathology

Objectives

You will be able to:

• Understand normal pain physiology
  – Nociceptive pathway
  – Factors affecting pain perception

• Understand the basis of neuropathic pain (pathology)
Why is pain physiology important?

• Many factors affect how we feel pain.
  – Psychological factors are very important.

• Different treatments work on different parts of the pathway.
  – More than one treatment is usually needed.
Nociception and Pain

• Nociception
  – How pain signals get from the site of injury to the brain.

• Pain
  – How we perceive or feel pain.

• Nociception is not the same as pain!
Is this man feeling pain?
Nociception is not the same as pain!

Beliefs
- e.g. religion

Psychol. factors
- e.g. anger, anxiety

Cultural issues
- e.g. expectations

Other illnesses
- e.g. cancer

Personality

Social factors
- e.g. family, work

Pain
What the patient says hurts.
What must be treated.

Modified from Analgesic Expert Group. Therapeutic Guidelines 2007
Physiology

- 4 steps:
  - Periphery
  - Spinal cord
  - Brain
  - Modulation

- We will look at each step.
Periphery

- Tissue injury
- Release of chemicals
- Stimulation of pain receptors (nociceptors)
- Signal travels in Aδ or C nerve to spinal cord.
Spinal Cord

- Dorsal horn is the first relay station.
- Aδ or C nerve synapses (connects) with second order nerve.
- Second order nerve travels up opposite side of spinal cord.
Brain

- Thalamus is the second relay station.
- Connections to many parts of the brain.
  - Cortex
  - Limbic system
  - Brainstem
- Pain perception occurs in the brain.
Modulation

- Descending pathway from brain to dorsal horn.
- Usually inhibits pain signals from the periphery.
Neuropathic Pain

• Pathological pain
• Abnormality of nociceptive pathway
  – Peripheral nerves
  – Spinal cord or brain
• Needs different pharmacological treatments

How do patients describe their pain?
Neuropathic Pain - Mechanisms

• Abnormal nerve tissue, e.g. amputation neuroma
• Abnormal firing of pain nerves
• Changes in chemical signalling in the dorsal horn
• Abnormal nerve connections in the dorsal horn
• Loss of normal inhibitory function
Pain Physiology and Pathology

Summary

• Nociception is not the same as pain.
• Physical and psychological factors affect how we feel pain.
• Different treatments work on different parts of the nociceptive pathway.
• Neuropathic pain needs different pharmacological treatments.
Recognize
Assess
Treat
Treat

• Non-pharmacological treatments?
• Pharmacological treatments?

• The next lectures will cover:
  – Non-pharmacological and pharmacological treatments
  – Pharmacology of common pain medications
Pain Treatment Overview
Pain Treatment Overview

Objectives

You will be able to:

• Describe the non-pharmacological and pharmacological treatments that are available
• Classify pain treatments
• Understand the role of placebo treatment
Group Discussion

• Name at least 10 non-pharmacological treatments that can be used to treat pain.
• Name at least 10 pharmacological treatments that can be used to treat pain.
Non-Pharmacological Treatments

• Physical
  – Rest, ice, compression, elevation
  – Surgery
  – Acupuncture, massage, physiotherapy

• Psychological
  – Explanation
  – Reassurance
  – Counselling
Pharmacological Treatments

• Simple analgesics
  – Paracetamol (acetaminophen)
  – Anti-inflammatory medicines, e.g. ibuprofen

• Opioids
  – Mild, e.g. codeine, tramadol
  – Strong, e.g. morphine, pethidine, oxycodone
Pharmacological Treatments

• Other analgesics
  – Tricyclic antidepressants, e.g. amitriptyline
  – Anticonvulsants, e.g. carbamazepine, gabapentin
  – Local anaesthetics
  – Others, e.g. ketamine, clonidine
Treatments - Periphery

- Non-pharm treatments
  - Rest, ice, compression, elevation
- Anti-inflammatory medicines
- Local anaesthetics
Treatments - Spinal Cord

- Non-pharm treatments
  - Acupuncture, massage
- Local anaesthetics
- Opioids
- Ketamine
Treatments - Brain

- Non-pharm treatments
  - Psychological

- Pharmacological treatments
  - Paracetamol
  - Opioids
  - Amitriptyline
Group Discussion

- What is a placebo treatment?
- Is it helpful or unhelpful?
Placebo Treatment

• Psychological factors are important.
• If a placebo treatment works, this does not mean that the patient did not have pain or was telling lies!
Pain Treatment Overview

Summary

• Both non-pharmacological and pharmacological treatments are important.
• Different treatments work on different parts of the nociceptive pathway.
• Pain medications can be classified into simple analgesics, opioids and other analgesics.
Pain Medications
Pain Medications

Objectives

You will be able to:

• Outline broad principles of pharmacological treatment
• Summarise the major advantages and disadvantages of important medications
• Address concerns about opioid addiction
Broad Principles

• This lecture:
  – Gives a broad overview of pharmacological treatment in common situations
  – Gives examples of medications

• For more detail, including doses:
  – Case discussions
  – EPM manual and EPM app
Treatment of Cancer Pain

WHO Ladder*

Step 1
Mild pain
- Use simple analgesics

Step 2
Moderate pain
- Use mild opioid e.g. codeine, tramadol
- Continue simple analgesics

Step 3
Severe pain
- Use strong opioid e.g. morphine
- Continue simple analgesics

Add other medications for **neuropathic pain**
- e.g. amitriptyline, gabapentin

*Modified
WHO Ladder

- Developed for cancer pain
- Emphasises oral treatment
- Treats nociceptive pain
- May need other medications for neuropathic pain

- Don’t forget non-pharmacological treatments!
Treatment of Acute Nociceptive Pain
Reverse WHO Ladder

**Step 3**
Severe pain

Use strong opioid
- e.g. morphine
Also use simple analgesics

**Step 2**
Moderate pain

Use mild opioid
- e.g. codeine, tramadol
Continue simple analgesics

**Step 1**
Mild pain

Continue simple analgesics
Reverse WHO Ladder

• Mainly useful for severe acute nociceptive pain
  – Trauma pain
  – Post-operative pain

• Start at the top and ‘step down the ladder’ as the pain improves.
Chronic, Non-Cancer Pain

- Non-pharmacological treatments very important
- May need treatment for neuropathic pain
  - Antidepressants, e.g. amitriptyline
  - Anticonvulsants, e.g. gabapentin
- Opioids are usually not helpful and may cause harm.
Group Discussion*

• Choose two medications from each class:
  – Simple analgesics
  – Opioids
  – Other analgesics

• For each medication, what are the:
  – Indications?
  – Advantages?
  – Disadvantages?

*Optional, if time
Examples of Pain Medications
Paracetamol (Acetaminophen)

• Indications
  – Mild nociceptive pain
  – Moderate to severe nociceptive pain
    (with other medications)

• Advantages
  – Cheap, safe
  – PO, PR, IV

• Disadvantages
  – Liver damage in overdose
Ibuprofen

• Indications
  – Mild, moderate or severe nociceptive pain

• Advantages
  – Cheap
  – Usually safe if given short-term

• Disadvantages
  – Gastric and renal side effects
  – Interferes with blood clotting

7.12
Tramadol

• Indications
  – Nociceptive and neuropathic pain

• Advantages
  – Safe
  – Useful for different pain types
  – Can be used with morphine

• Disadvantages
  – Nausea and vomiting
  – Confusion
Morphine 1

• Indications
  – Moderate to severe, acute, nociceptive pain
  – Cancer pain

• Advantages
  – Very effective
  – Cheap
  – Usually safe
  – PO, IV, IM, SC
Morphine 2

• Disadvantages
  – Nausea and vomiting
  – Respiratory depression in high dose
  – Constipation
  – Misunderstandings about addiction
  – Legal controls
Morphine Dosing

• Oral dose is 2-3 times IV / IM / SC dose.  
  *Why is this?*

• Tolerance
  – Increased dose needed over time
  – Very high doses may be needed in cancer treatment
Amitriptyline

• Indication
  – Neuropathic pain

• Advantages
  – Cheap
  – Safe in low dose
  – Also treats depression, poor sleep

• Disadvantages
  – Harmful in overdose
  – Dry mouth, drowsiness
  – Urinary retention
Gabapentin

• Indication
  – Neuropathic pain

• Advantages
  – Safe and effective

• Disadvantages
  – Drowsiness
  – Dose needs to be increased slowly
Group Discussion

• What is addiction?
• How common is opioid addiction in patients with pain?
• Would this stop you giving opioids to a patient who has pain?
Opioids and Addiction

• Addiction – Three C’s
  – Craving
  – Loss of control
  – Negative consequences

• Addiction is very rare in acute pain and cancer pain.

• Addiction may occur if strong opioids are used to treat chronic non-cancer pain.
Pain Medications
Summary

• Pain can be treated with relatively cheap and safe medications.
• Morphine is very effective for cancer pain and acute severe nociceptive pain.
• In general, strong opioids should be avoided in chronic non-cancer pain.
Using the RAT System
Using the RAT System

Objectives

You will be able to:

• Summarise the RAT system
• Apply this system to different types of pain
• Understand the importance of reassessment
Using the RAT System
Using the RAT System

• Recognize
• Assess
  – Severity?
  – Type?
  – Other factors?
• Treat
  – Non-pharmacological treatments
  – Pharmacological treatments
Using the RAT System

Recognize

• Does the patient have pain?
• Do other people know the patient has pain?
Using the RAT System

Assess

• How severe is the pain?
  – Measure at rest
  – Measure with movement
Using the RAT System

Assess

• What type of pain is it?
  – Acute or chronic?
  – Cancer or non-cancer?
  – Nociceptive or neuropathic?
Using the RAT System

Assess

• Are there other factors?
  – Physical factors
  – Psychological and social factors
Using the RAT System

Treat

• Non-Pharmacological Treatments
  – For both nociceptive and neuropathic pain
  – Physical
    (e.g. rest, ice, elevation, physiotherapy, massage)
  – Psychological
    (e.g. reassurance, explanation, counselling)
Using the RAT System

Treat

• Pharmacological Treatments – Nociceptive Pain
  – Consider paracetamol, NSAIMs, tramadol, codeine, morphine
  – Use combinations
    (e.g. paracetamol + NSAIM + opioid)
  – Use IV morphine for acute, severe pain
Using the RAT System

Treat

• Pharmacological Treatments – Neuropathic Pain
  – Consider using tramadol, tricyclic antidepressant (e.g. amitriptyline) or anticonvulsant (e.g. gabapentin)
Using the RAT System

Reassess

• Repeat RAT
• Is your treatment working?
• Are other treatments needed?
Using the RAT System

Example 1

• A 32-year-old man caught his right hand in machinery at work. He presents with a compound fracture of his hand.

• *How would you manage his pain using RAT?*
Using the RAT System

Example 2

• A 55-year-old woman presents with a large breast tumour with spread to her spine. She has severe pain.

• How would you manage her pain using RAT?
Using the RAT System
Example 3

• A 51-year-old man has a 2-year history of lower back pain which sometimes radiates down his right leg. He fell recently and is now having problems walking.

• How would you manage his pain using RAT?
Using the RAT System

Summary

- Recognize
- Assess
  - Severity?
  - Type?
  - Other factors?
- Treat
  - Non-pharmacological treatments
  - Pharmacological treatments
- Reassess