Essential Pain Management

EPM Lite Instructor Manual

2017

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ESSENTIAL PAIN MANAGEMENT

EPM Lite

Instructor Manual

2nd Edition
2017

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The Essential Pain Management Course has been developed with the support of the Faculty of Pain Medicine,
Australian and New Zealand College of Anaesthetists

FPM
FACULTY OF PAIN MEDICINE
ANZCA

Title - Essential Pain Management
Subtitle: EPM Lite Instructor Manual
ISBN: 978-0-9945075-0-1
Format: Paperback
Publication Date: 01/2017

Acknowledgements

We wish to acknowledge the Australian and New Zealand College of Anaesthetists for supporting the development of this program.

We are also grateful for the support of the Ronald Geoffrey Arnott Foundation, the Australian Society of Anaesthetists, the World Federation of Societies of Anaesthesiologists and the International Association for the Study of Pain.

We thank our colleagues for their advice and help with course materials, especially Max Sarma and Haydn Perndt (Australia), Gertrude Marun and Harry Aigeeleng (Papua New Guinea), Luke Nasedra (Fiji), Kaeni Agiomea (Solomon Islands) and Gwyn Lewis (New Zealand). Thanks also to Paul Cargill for his hard work. Special thanks to Diane Perndt for her graphic design skills and endless patience.

Thank you to Timothy Pack (USA) for allowing us to use his rat illustration.

Disclaimer

We have done our best to provide accurate information regarding medication doses and other treatments, however this book may contain mistakes. In addition, treatment options vary from country to country. It is important that health workers double-check medication doses and use their clinical judgement when treating patients.

CONTENTS

PART I: INTRODUCTION

Essential Pain Management

Improving lives around the world by training health workers to recognize, assess and treat pain.

HOW TO USE THIS MANUAL

This manual is designed as a workbook for the half-day EPM Instructor Workshop as well as a reference manual for instructors teaching on an EPM Lite Workshop.

Part II gives an overview of adult learning and teaching techniques used in EPM Lite.

Part III outlines the practical aspects related to running an EPM Lite Workshop.

Parts IV and V give detailed suggestions for the lectures and case discussions based on the experience of instructors in many parts of the world. We recommend that lectures are kept short to allow adequate time for interaction during brainstorming sessions and case discussions. These discussions are the core of EPM.

Part VI contains medication information, sample documents and other information.

THE EPM PROGRAM

Unrelieved pain is a major global healthcare problem and its importance is often unrecognized.

EPM **aims** to:

- Improve pain knowledge.
- Teach students and health workers to **R**ecognize, **A**ssess and **T**reat pain (**RAT**)
- Address pain management barriers.
- Train local health workers to teach EPM.

Pain management is often poorly taught. EPM uses interactive teaching methods to improve pain knowledge and increase awareness of pain as an important clinical issue.

Effective pain management requires a systematic approach. In many ways, good pain management is similar to good trauma management – both require teamwork and a systematic approach. Health workers are familiar with the ABC approach in trauma management. RAT (Recognize, Assess, Treat) provides a similar systematic approach in pain management.

There are often many barriers to pain management. EPM helps health workers to identify these barriers and explore ways of overcoming them.

Finally, good pain management often requires local solutions to local problems. EPM is designed to be self-sustaining with early handover of teaching to local instructors.

The **EPM Program** comprises:

- EPM Workshop
- EPM Lite Workshop
- EPM Instructor Workshop
- Additional teaching resources and support

The **EPM Workshop** is a one-day program designed for multidisciplinary groups. Participants learn the basics of pain management, apply the RAT approach during case discussions, and problem-solve pain management barriers.

EPM Lite is designed specifically for medical and nursing students and is based on the standard one-day EPM Workshop. The content of both workshops is similar but there is less emphasis on pain management barriers in EPM Lite.

The **EPM Instructor Workshop** is a half-day workshop designed to give new instructors the knowledge and skills to teach the one-day EPM Workshop and/or EPM Lite.

When EPM is introduced into a new centre or country, a 3-part process is usually used:

- Potential instructors attend a standard EPM Workshop or EPM Lite Workshop taught by experienced instructors.
- Potential instructors attend the EPM Instructor Workshop.
- New instructors teach health workers or students on an EPM Workshop or EPM Lite Workshop.

For more information, please go to the EPM website (**www.essentialpainmanagement.org**) or contact **epm@anzca.edu.au**.

PART II: TEACHING BASICS

ADULT LEARNING

Definitions

Learning can be defined as "a change in behaviour resulting from experience". During our lives, we learn many things, sometimes by accident!

Teaching involves planning. Therefore, teaching is a "planned experience causing a change in behaviour".

How do health workers learn?

Health workers often learn from their experience with patients. They may also learn during formal or informal teaching experiences. Examples include:

- Lectures
- Discussion with colleagues
- Hands-on training, e.g. learning surgical skills
- Simulation training, e.g. crisis management teaching

What types of teaching were used during the EPM Lite Workshop?

Was the teaching effective?

What do adult learners like?

This depends on the learner, the subject or skill being taught, and the skills of the teacher. For example, some learners prefer a traditional lecture; others prefer a group discussion. Many skills are best taught using hands-on methods.

Overall, adult learners learn best when the teaching is:

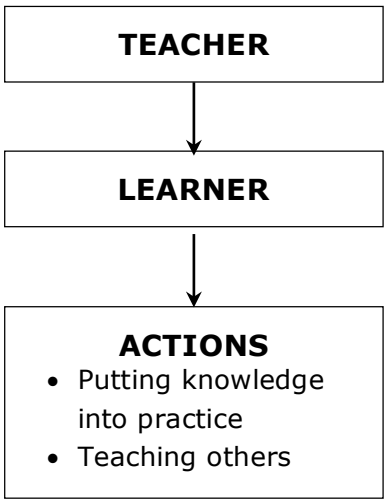
- Well structured
- Relevant
- Interactive

Teaching quality	**Strategies**
Structure	Planning, knowing course content Good teaching materials Clear aims, clear summaries Starting on time, finishing on time
Relevance	Knowing your audience Using examples Getting feedback
Interaction	Asking questions Group discussions, brainstorming Getting feedback

Adult learners also learn best when given constructive (useful) feedback, e.g. marking of essays, skills feedback.

Relationship between teaching, learning and action

One of the aims of EPM is to improve pain management by improving knowledge. What are the steps in this process?



Step 1
Getting knowledge from the teacher to the learner

- The teacher must present relevant information in an understandable way.
- The learner must have the time to learn.
- The learner must be keen to learn.

Step 2
Using knowledge to improve pain management (action)

- The learner must want to act.
- The learner must know how to use the knowledge.
- The learner must have the time and resources to put the knowledge into practice.

Both **knowledge** and **attitude** are vital in this process. Change will only happen when health workers have knowledge and want to make a change.

"You can talk the talk, but you also need to walk the walk!"

TEACHING OVERVIEW

We can divide teaching into two parts:

- Preparation
- Delivery

All teaching requires **preparation**. For a lecture, this may mean research and writing of slides. It is vital to think about who will be in your audience. What level of information is required? What examples will be most relevant?

In the case of EPM Lite, the slides have already been prepared, but the instructor still needs to be familiar with the information on the slides.

The instructor also needs to prepare the *environment*.

- Lecture room, seating
- Air-conditioning or fans
- Marker pens and board
- Data projector, other equipment

Delivery of the teaching activity can be further divided into three parts:

- Beginning (introduction and aims)
- Middle (main course content)
- End (questions and summary)

GIVING A LECTURE

What are the advantages and disadvantages of a lecture?

How can a lecture be made more effective?

A lecture can be a very good teaching method if it is:

- Well structured
- Relevant
- Interactive

Asking questions

Questions are an important way of making a lecture more interactive. They also have a number of other advantages:

For the learner:

- Encourages participation
- Active learning

For the teacher:

- Tests pre-existing knowledge (relevance)
- Tests understanding of information

Questions can either be closed or open. Both types of questions can be useful.

Closed questions can be answered with one word or a few words. There is often just one right answer, e.g. *"What does RAT stand for?"* Using a simple closed question may be a good way to encourage participation by shy participants.

Open questions usually need a longer answer and encourage discussion, e.g. *"How do you think EPM can help patients with cancer pain at your hospital?"* This type of question may allow ideas to grow, but can use up a lot of time.

RUNNING A DISCUSSION GROUP

Discussions are used in two main ways during an EPM Lite Workshop:

- During lectures
- Small group case discussions

What are the advantages and disadvantages of a group discussion?

How can a group discussion be made more effective?

Like a lecture, a discussion group is more effective if it is:

- Well structured
- Relevant
- Interactive

Structure depends on good preparation and delivery. Choose an appropriate topic or case. Choose an appropriate seating layout (for small groups, it works well to sit in a circle facing each other). Don't forget to structure your delivery. Begin with clear aims, encourage participation by all group members during the discussion itself, and end with questions and a summary of the main points.

Choosing an appropriate topic or case is also important for relevance. Make the topic or case "real". "What would you do in your ward?" "What dose of morphine would you actually give?"

Encourage group interaction – don't do all the talking!

Case Discussions

Case discussions are a special type of discussion group. They are very important in EPM Lite because they allow participants to work together to manage cases using the RAT system. The same way of thinking can be used to manage cases in real life.

The level or complexity of the discussion is determined by the background and knowledge of the participants. Groups tend to find local solutions for local problems.

Brainstorming

Brainstorming is a type of discussion that can be very useful during lectures or small group discussions. It is important to use a whiteboard, blackboard or paper to record ideas. It is useful to ask one of the participants to be a "scribe" (write down the ideas).

The following steps are used in brainstorming:

- **Introduce** the topic or question and ask for ideas from all participants.
    - "What are the main barriers to good pain relief where you work?"

- **Write** all ideas on the board or paper – there is no such thing as a "wrong" idea. Avoid discussing the ideas during this part of the brainstorming.
    - "There is no right or wrong answer here. What barriers have you seen where you work?"

- **Discuss** the ideas. Which ones are the most important? Does the group agree with all the ideas?
    - "What barriers do you think are the most important? Do you agree with what Dr A said?"

- **Decide** what is important. As an instructor, you will need to highlight the main learning points from the discussion.
    - "From our discussion, it seems that staff knowledge is one of the most important barriers. Do you agree?"

- **End** with questions and a short summary.
    - "We had a good discussion about barriers and found that patient factors, medication availability, staff knowledge and system issues can all affect whether or not a patient gets pain relief. We decided that staff knowledge is probably the most important barrier."

PART III: RUNNING AN EPM LITE WORKSHOP

WORKSHOP RESOURCES

- EPM Lite Manual
    - Can be freely copied and distributed
- EPM Lite PowerPoint presentation
- EPM Lite Certificates
- Other documents
    - Attendance form
    - Pre-course test
    - Post-course test
    - Feedback forms

EPM resources are revised from time to time. Please email the EPM Office (**epm@anzca.edu.au**) for the most up-to-date resources.

PRE-COURSE CHECKLIST

- ☐ Discuss with appropriate organization, e.g. hospital or health department
  (See **www.essentialpainmanagement.org** for an EPM flyer and other information.)

- ☐ Consider funding
  - Transport, accommodation?
  - Catering?
  - Room hire?
  - Printing?

- ☐ Identify other instructors

- ☐ Put up workshop notices

- ☐ Identify workshop participants
  - Maximum of 20 to 25
  - Consider makeup of group – doctors, nurses, other health workers. A mixture often works well.
  - Consider sending out pre-course reading

- ☐ Organize room
  - Size?
  - Seating, ventilation, air-conditioning?

- ☐ Organize laptop and projector

- ☐ Organize catering
  - Morning or afternoon tea
  - Lunch?

- ☐ Create timetable and allocate instructors

- ☐ Arrange printing
  - Workshop manuals
  - Timetable
  - Attendance form
  - Pre-course test
  - Post-course test
  - Certificates
  - Feedback forms
- ☐ Consider sending manuals to participants before the workshop
- ☐ Check equipment
  - Laptop
  - Projector
  - Whiteboard or blackboard
  - Whiteboard markers or chalk
  - Name badges
  - Paper, pens?
- ☐ Send out workshop reminders

POST-COURSE CHECKLIST

- ☐ Collect feedback form and post-course tests
- ☐ Give out certificates
- ☐ Take a group photo
- ☐ Analyse feedback and tests
- ☐ Write an EPM report
- ☐ Start planning the next EPM Workshop!

EPM LITE WORKSHOP PROGRAM

The following program gives suggested timings. It is important to keep lectures short to allow plenty of time for group brainstorming and case discussions.

Time	**Duration (mins)**	**Lecture / Discussion**	**Instructor/s**
0830-0850	20	Welcome, introductions Pre-test	
0850-0900	10	Introduction	
0900-0920	20	What is pain and why treat it?	
0920-0930	10	Assessment of severity	
0930-0945	15	Classification of pain	
0935-0950	15	Pain physiology and pathology	
0950-1010	20	Pain treatment overview	
1010-1030	*20*	*Morning tea*	
1030-1050	20	Pain medications	
1050-1110	20	Using the RAT system	
1110-1210	60	Case discussions	
1210-1230	20	Post-test and answers Feedback	

This is a busy program – with a lot of material to cover in only four hours. Variations in the delivery of the workshop are possible and encouraged.

Examples include:

- Distribution of the EPM Lite Workshop Manual to participants before the course. Pre-reading may allow the lecture material to be covered more quickly.
- Asking the participants to complete the self-assessment questions in the manual before the workshop. Answers to the questions are provided at the end of the manual.
- Asking participants to bring a pre-prepared case. In Auckland, New Zealand, the participants discuss their cases during the *What is Pain and Why Treat It?* lecture and later analyse the cases using RAT.
- Using group discussions to cover some of the lecture material rather than slides, e.g. using a group discussion to cover indications, advantages and disadvantages of important pain medications in the *Using Pain Medications* lecture.

Other suggestions are provided in Part IV.

There will probably only be time for a maximum of four small group case discussions. Unused cases can be used in small group teaching sessions at a later date.

WRITING AN EPM LITE WORKSHOP REPORT

It is very important that a brief report is written at the end of each workshop, especially when EPM Lite is being trialled in a new centre. This helps with the following:

- Evaluation of the program
- Planning of future courses
- Feedback to funders and therefore future funding

The following is a suggested format for the report:

- **Executive Summary**
- Background
- Courses
    - **Dates and types**
    - **Instructors**
    - **Participants**
    - Venue, catering
    - Teaching materials
    - Assessment
    - Feedback
- Publicity / Liaison / Other Activities
- Success and Relevance of the Workshop
- **Recommendations**
- **Acknowledgements**
    - **People**
    - **Financial**
- Appendices
    - Course program
    - Participant lists
    - Test results
    - Local information
    - Other information

The minimum report information is shown by the **items in bold.**

A sample report is shown in Appendix 7.

Please also submit a summary report using the online reporting tool – available at **www.essentialpainmanagement.org**.

PART IV: EPM LITE LECTURES

WELCOME / INTRODUCTIONS / PRE-TEST (20 minutes)

The content of the opening depends on where the course is being held and the makeup of the participant group.

If EPM Lite is being run for the first time, it may be appropriate to invite a senior clinician, university head of department or health department representative to open the workshop. A few words from a local doctor or nurse about local pain management problems may help to set the scene for the workshop.

We ask all instructors and participants to briefly introduce themselves. Introductions are an excellent *icebreaker* – they prepare the participants for an interactive workshop.

Allow about 10 minutes for the pre-course test. It is important to tell the participants that the course is confidential and is designed to assess knowledge and attitudes at the start of the day. Another test will be conducted at the end of the workshop to assess learning.

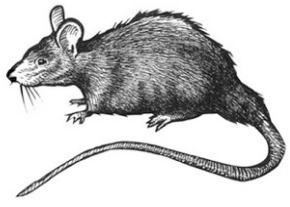
LECTURE 1: INTRODUCTION (10 minutes)

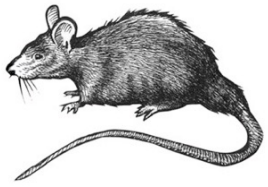
This is a short but important lecture because it sets the tone for the workshop. The teaching aims of the lecture are:

- To outline the course content
- To briefly introduce the RAT approach

Note: RAT will be covered in detail later so it is important not to spend too much time covering it during Lecture 1.

	Slide	Notes
1.0	 **Essential Pain Management** **EPM Lite**	
1.1	**Introduction**	
1.2	**Why EPM?**   	Globally, pain is not managed as well as it could be.
1.3	**Why EPM?** Pain is common. Pain is often poorly managed. We need a better system.	

1.4	**Overall EPM Aims** Better recognition Better assessment Better treatment	
1.5	**Workshop Objectives** ***You will be able to:*** Recognize pain • Define pain • List benefits of treating pain Assess pain • Measure severity • Classify types of pain • Assess other factors	
1.6	**Workshop Objectives** ***You will be able to:*** Treat pain • List non-pharmacological treatments • List pharmacological treatments	
1.7	**EPM Lite Plan** Short, interactive lectures Case discussions	
1.8	**Untreated Pain** 	

1.9	**Untreated Pain** Often hidden (not recognized) Causes a lot of suffering But … can often be treated simply and cheaply	Untreated pain is like a rat!
1.10	**RAT System** Recognize Assess Treat 	The letters RAT can also help us manage pain.
1.11	**Recognize** Does the patient have pain? Do other people know the patient has pain?	
1.12	**Assess** How severe is the pain? What type of pain is it? Are there other factors?	
1.13	**Treat** What non-pharmacological treatments can I use? What pharmacological treatments can I use?	
1.14	?	

1.15	**Introduction** **Summary** Pain is common. Pain is often poorly treated. We need a better system. RAT provides this system.	

LECTURE 2: RECOGNIZE / WHAT IS PAIN and WHY TREAT IT? (20 minutes)

In this session, the participants use cases* they have seen to:

- Understand the definition of pain
- Think about the benefits of treating pain – for the patient, the patient's family and society.

(*A good option may be to ask participants to prepare a case before the workshop.)

Health workers are much more likely to treat pain if they understand the benefits of treatment (and the harm that can occur if pain is not treated).

The use of a group discussion (slide 2.3) helps to "break the ice", i.e. it encourages the participants to start talking and contributing. A good teaching technique is to ask participants to discuss the cases for a few minutes in groups of two or three people, and then to invite contributions from the whole group.

Optional Case Discussions

The benefits of treating pain can alternatively be taught as a whole group brainstorming session using the following cases:

CASE 1

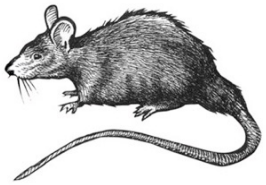
A 55-year-old woman has breast cancer that has spread to her spine. She has severe chest wall and low back pain and is expected to die within a few weeks.

Why should we treat her pain?

CASE 2

A 40-year-old man has just had a laparotomy for bowel obstruction. He is unable to get out of bed because of pain.

Why should we treat his pain?

	Slide	Notes
R1	**Recognize** Assess Treat 	
R2	**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	
2.1	**What is Pain & Why Treat It?**	
2.2	**What is Pain & Why Treat It?** **Objectives** *You will be able to:* Define pain List the benefits of treating pain	
2.3	***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?*	*The use of italic lettering in the slides is designed to prompt you to ask questions or start discussions.*
2.4	***Does this person have pain?*** 	

2.5	**What is Pain?** International Association for the Study of Pain • 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 does the IASP definition mean? Other definitions? "Pain is what the patient says hurts".
2.6	**What is Pain?** Pain is unpleasant. Emotions are important. The cause is not always visible. 'Pain is what the patient says hurts.'	Emphasize that the cause of pain is not always obvious - it is important to believe the patient.
2.7	***Does this person have pain?*** 	This patient does not appear to be in pain. Does this mean she does not have pain? How would you find out?

2.8	**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
		Hopefully, participants will have identified these benefits during the group discussion.

2.9	**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	
2.10	***What are the benefits for this child?*** 	
2.11	?	
2.12	**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	

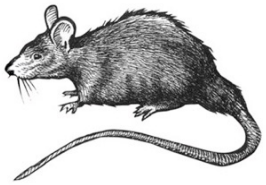
LECTURE 3: ASSESS / ASSESSMENT OF SEVERITY (10 minutes)

Slides A1 to A6 reinforce the Assess part of RAT and provide an introduction for the next three lectures:

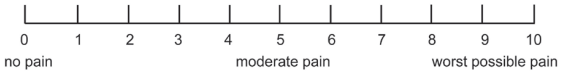
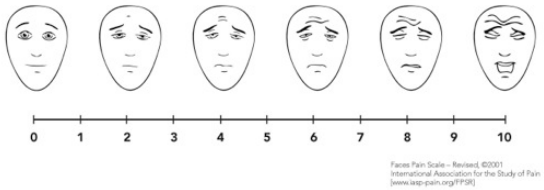
- Assessment of Severity
- Classification of Pain
- Pain Physiology and Pathology

The information in these lectures helps us to assess pain patients more effectively.

Assessment of Severity is a short lecture. It is important to emphasise that initial assessment of severity helps guide choice of treatment, and repeated assessment measures response to treatment.

	Slide	Notes
A1	Recognize **Assess** Treat 	
A2	**Assess** How severe is the pain? What type of pain is it? Are there other factors?	
A3	**Assess** How severe is the pain? • What is the pain score? • How is the pain affecting the patient?	
A4	**Assess** What is the pain type? • Acute or chronic? • Cancer or non-cancer? • Nociceptive or neuropathic?	

A5	**Assess** Are there other factors? • Physical? • Psychological?	
A6	**Assess** The next lectures will cover: • Assessment of severity • Classification of pain • Underlying physiology and pathology	
3.1	**Assessment of Severity**	
3.2	**Assessment of Severity Objectives** *You will be able to:* Understand the reasons fro assessing severity Use different methods to assess severity	
3.3	**Assessment of Severity** Guides choice of treatment Measures response to treatment 'Pain is the 5th vital sign.' • Measure and *record* severity	
3.4	**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?	

3.5	**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	
3.6	**Visual Analogue Scale** Ask the patient to show what his/her pain is on a scale of 0 to 10.  	
3.7	**Faces Pain Scale**  	
3.8	?	
3.9	**Assessment of Severity Summary** Assessment of severity guides treatment and measures response Common methods include: • Verbal Rating Scale • Visual Analogue Scale • Faces Pain Scale	

LECTURE 4: CLASSIFICATION OF PAIN (15 minutes)

Not all pain is the same! It is important to classify the type of pain because this will guide treatment.

Pain can be very difficult to classify and there are a number of different classifications. We use a simple classification because it allows us to easily assess a patient and choose the right treatment.

Emphasize that the EPM classification has three parts:

- Duration
- Cause
- Mechanism

In the slides, phrases in *italics* indicate questions for discussion by the group.

We will practise classifying pain later during the case discussions.

A more detailed classification by neural mechanism can be found in the EPM Lite Manual, p13.

	Slide	Notes
4.1	**Classification of Pain**	
4.2	**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	
4.3	**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 mechanism?	It is important to ask all three questions when classifying pain.

<table>
<tr>
<td>4.4</td>
<td>Classification of Pain
<table><tr><td>Duration</td><td>Acute
Chronic</td></tr><tr><td>Cause</td><td>Cancer
Non-cancer</td></tr><tr><td>Mechanism</td><td>Nociceptive (physiological)
Neuropathic (pathological)</td></tr></table></td>
<td>This is a simplified classification but it works well in practice.</td>
</tr>
<tr>
<td>4.5</td>
<td>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</td>
<td>Ask the group to think of examples of acute pain (e.g. fracture) and chronic pain (e.g. back pain)</td>
</tr>
<tr>
<td>4.6</td>
<td>Cancer versus Non-Cancer
  </td>
<td></td>
</tr>
<tr>
<td>4.7</td>
<td>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?</td>
<td>What cancers do you see most commonly?
Causes of non-cancer pain?
• Surgery or injury
• Arthritis
• Headache
• Childbirth
• No obvious cause</td>
</tr>
</table>

4.8	**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?*	Examples • Fracture • Burn
4.9	**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 • Sciatica • Amputation pain • Diabetic neuropathy
4.10	**Examples of Pain Types**	
4.11	**Acute Non-Cancer Pain** Examples • Fracture, appendicitis Symptom of tissue injury or illness Usually nociceptive Occasionally neuropathic (e.g. sciatica)	
4.12	***How would you classify low back pain?*** 	

4.13	**Chronic Non-Cancer Pain** Examples • Chronic back pain, arthritis Injury may not be obvious Complex, may be mixed nociceptive and neuropathic Different pharmacological treatments may be needed	
4.14	**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	
4.15	?	
4.16	**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.	

4

LECTURE 5: PAIN PHYSIOLOGY AND PATHOLOGY (15 minutes)

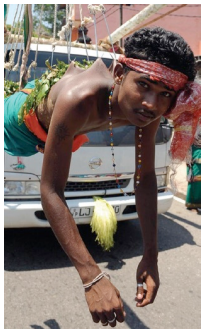
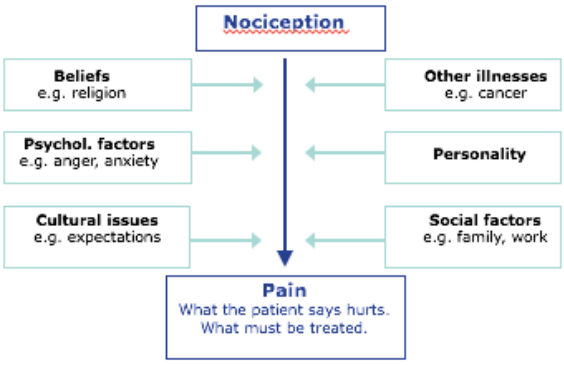
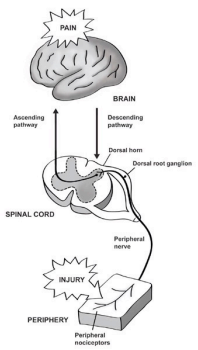
The information in this lecture may be familiar or may be new, depending on participants' year of training and whether they are medical or nursing students.

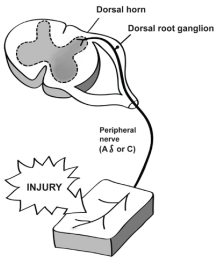
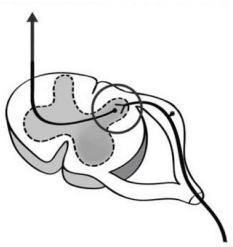
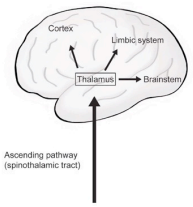
The main reasons for covering physiology and pathology are:

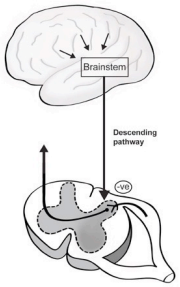
- To show that there are a number of steps in the pain pathway.
- To show that many factors can affect the pain signal - psychological factors are particularly important. Nociception is not the same as pain!
- To outline some of the differences between physiological (nociceptive) and pathological (neuropathic) pain.

It is important to not spend too much time on this lecture – it is better to spend more time on the case discussions.

	Slide	Notes
5.1	**Pain Physiology and Pathology**	
5.2	**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)	
5.3	**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.	

5.4	**Nociception and Pain** Nociception • How pain signals get from the site of injury to the brain. Pain perception • How we perceive or feel pain. Nociception is not the same as pain!	
5.5	 ***Is this man feeling pain?***	This photo was taken during a religious festival in India. The man does not appear to be in pain – why not? Psychological factors affect how we feel or perceive pain.
5.6	**Nociception is not the same as pain!**  	Many factors affect how we feel pain. Ask the group for examples. For example, depression may make pain worse.
5.7	**Physiology** 4 steps: • Periphery • Spinal cord • Brain • Modulation We will look at each step.  	

5.8		**Periphery** Tissue injury Release of chemicals Stimulation of pain receptors (nociceptors) Signal travels in Aδ or C nerve to spinal cord.	The first step is from the site of injury to the dorsal horn of the spinal cord.
5.9		**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.	The second step is from the dorsal horn of the spinal cord to the thalamus in the base of the brain.
5.10		**Brain** Thalamus is the second relay station. Connections to many parts of the brain. • Cortex • Limbic System • Brainstem Pain perception occurs in the brain.	The third step is from the thalamus to other parts of the brain.

5.11	 **Modulation** Descending pathway from brain to dorsal horn. Usually inhibits pain signals from the periphery.	At the same time, the brain is also sending signals down the spinal cord to the dorsal horn.
5.12	**Neuropathic Pain** Pathological pain Abnormality of nociceptive pathway • Peripheral nerves • Spinal cord or brain Needs different pharmacological treatments *How do patients describe their pain?*	
5.13	**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	What words do patients use? • Tingling • Burning • Shooting
5.14	?	

5.15	**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.	

LECTURE 6: TREAT / PAIN TREATMENT OVERVIEW (20 minutes)

Slides T1 and T2 reinforce the Treat part of RAT and provide an introduction for the next two lectures:

- Pain Treatment Overview
- Pain Medications

The main aims of *Pain Treatment Overview* are:

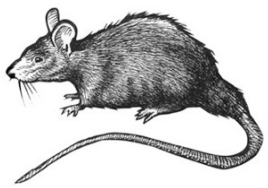
- To summarise what pain treatment options are available.
- To emphasize that both non-pharmacological and pharmacological treatments are important.
- To discuss misconceptions about placebo.

The lecture gives a simple classification of pharmacological treatments. Some medications will be discussed in more detail during the next lecture and during the case discussions.

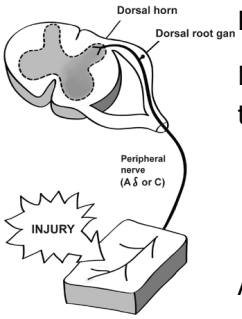
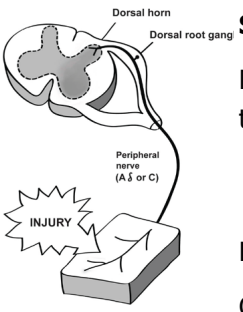
The group discussion (slide 6.3) works well as a whole group brainstorming session - ask a scribe to write the treatments on a board. After the ideas are on the board, it is useful to classify the treatments.

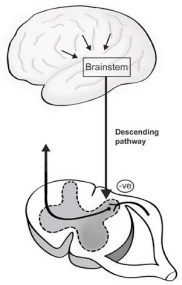
The discussion on placebo (slides 6.10 and 6.11) is important because it makes the group think about psychological aspects. Many people believe that if a patient's pain improves after placebo, then this is proof that he/she is lying about the pain. It is important that the group understands that a placebo has a real psychological effect, and we know that this will affect the way the patient feels pain. If the pain improves after placebo, this does NOT mean the patient was lying in the first place!

Limit each discussion to 3-5 minutes to avoid running over time.

	Slide	Notes
T1	Recognize Assess **Treat** 	

T2	**Treat** Non-pharmacological treatments? Pharmacological treatments? The next lectures will cover: • Non-pharmacological and pharmacological treatments • Pharmacology of common pain medications	
6.1	**Pain Treatment Overview**	
6.2	**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	
6.3	***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.*	Use whole group brainstorming for this.
6.4	**Non-pharmacological Treatments** Physical • Rest, ice, compression, elevation • Surgery • Acupuncture, massage, physiotherapy Psychological • Explanation • Reassurance • Counselling	Both non-pharmacological treatments and pharmacological treatments are important. For example, RICE reduces swelling and inflammation at the site of injury.

6.5	**Pharmacological Treatments** Simple analgesics • Paracetamol (acetaminophen) • Anti-inflammatory medicines, e.g. ibuprofen Opioids • Mild, e.g. codeine, tramadol • Strong, e.g. morphine, pethidine, oxycodone	An analgesic is a medication used to treat pain. The easiest way to classify analgesics is to put them into three groups: • Simple analgesics • Opioids • Other analgesics
6.6	**Pharmacological Treatments** Other analgesics • Tricyclic antidepressants, e.g. amitriptyline • Anticonvulsants, e.g. carbamazepine, gabapentin • Local anaesthetics • Others, e.g. ketamine, clonidine	Tramadol is often classified as an opioid but it has a relatively small opioid effect. Most of its effect is due to its action on descending inhibitory pathways.
6.7	 **Treatments** **Periphery** Non-pharm treatments • Rest, ice, compression, elevation Anti-inflammatory medicines Local anaesthetics	It is also useful to look at where different treatments work. This is important because we usually use different treatments together.
6.8	 **Treatments** **Spinal Cord** Non-pharm treatments • Acupuncture, massage Local anaesthetics Opioids Ketamine	

6.9	 **Treatments** **Brain** Non-pharm treatments • Psychological Pharmacological treatments • Paracetamol • Opioids • Amitriptyline	
6.10	***Group Discussion*** *What is a placebo treatment?* *Is it helpful or unhelpful?*	A pharmacological placebo is an inactive substance given instead of a real medication, e.g. a saline injection instead of morphine. The patient thinks he/she is getting morphine.
6.11	**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!	If a patient's pain improves after a placebo, this is often interpreted as proof that the patient did not have pain in the first place. This interpretation is incorrect because placebo has a very powerful psychological effect on pain perception.
6.12	?	
6.13	**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.	

LECTURE 7: PAIN MEDICATIONS (20 minutes)

The main aims of this lecture are:

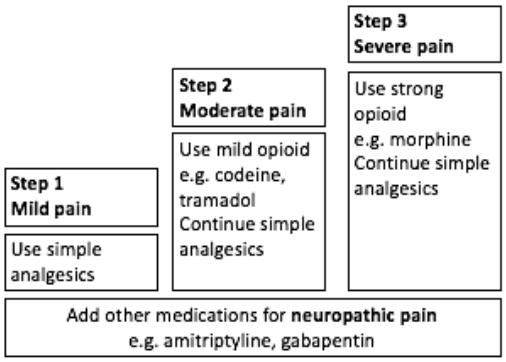
1. To outline broad principles of pharmacological treatment
2. To give examples of different types of pain medication, outlining indications, advantages and disadvantages
3. To discuss opioid addiction

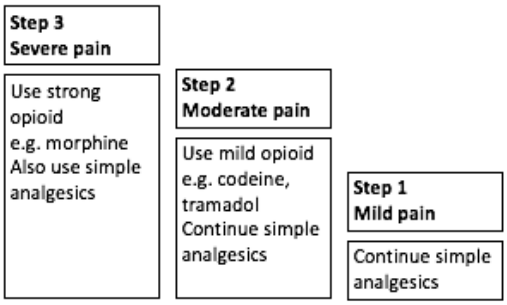
It is important to remember that this lecture is an overview. It is not possible to discuss the indications, dosages, advantages and disadvantages of individual medications in detail during the lecture. This information can be found in Appendices 1 and 2. The clinical use of individual medications can also be discussed in more detail during the case discussions.

There are two alternatives for covering the pain medication examples – either a group discussion (slide 7.9) or a series of slides (slides 7.10 to 7.18). If time allows, the slides can be used to summarise the group discussion.

The discussion on opioids and addiction (slides 7.19 and 7.20) is important because some health workers avoid giving opioids because they are concerned about addiction. Because of this, severe pain may be poorly treated. It is important to emphasise that addiction is very rare when morphine and other opioids are used appropriately (for acute pain and cancer pain).

	Slide	Notes
7.1	**Pain Medications**	
7.2	**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	

7.3	**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	
7.4	**Treatment of Cancer Pain** **WHO Ladder** 	
7.5	**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!	

7.6	**Treatment of Acute Nociceptive Pain** **Reverse WHO Ladder**  	
7.7	**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.	
7.8	**Chronic, Non-Cancer Pain** Non-pharmacological treatments very important May need treatments for neuropathic pain • Antidepressants, e.g. amitriptyline • Anticonvulsants, e.g. gabapentin Opioids are usually not helpful and may cause harm.	
7.9	***Group Discussion**** *Choose two medications from each class:* • *Simple analgesics* • *Opioids* • *Other analgesics* *For each medication, what are the:* • *Indications?* • *Advantages?* • *Disadvantages?*	* This is an optional way of teaching the basic pharmacology of important pain medications, but the discussion may take more time. Alternatively, the following slides summarise the indications, advantages and disadvantages of important pain medications.
7.10	**Examples of Pain Medications**	

7.11	**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	
7.12	**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	
7.13	**Tramadol** Indications • Nociceptive and neuropathic pain Advantages • Safe • Useful for different pain types • Can be used with morphine Disadvantages • Nausea and vomiting • Confusion	Possible interaction with other medications (e.g. antidepressants) to cause serotonin syndrome

<table>
<tr>
<td>7.14</td>
<td>Morphine 1

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

Advantages
• Very effective
• Cheap
• Usually safe
• PO, IV, IM, SC</td>
<td>Overall, morphine is very safe.</td>
</tr>
<tr>
<td>7.15</td>
<td>Morphine 2

Disadvantages
• Nausea and vomiting
• Respiratory depression in high dose
• Constipation
• Misunderstandings about addiction
• Legal controls</td>
<td></td>
</tr>
<tr>
<td>7.16</td>
<td>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</td>
<td>Oral morphine has a bioavailability of 1/3 to ½ because of metabolism by the liver, i.e. only 1/3 to ½ of oral dose enters the blood stream.

A patient needing 10mg morphine IM or SC 4-hourly (60mg per day) will need 120-180mg orally per day.

Consider discussing oxycodone as an alternative strong opioid. Main advantage is improved bioavailability compared to morphine.

Equivalent doses:
<table><tr><td>Morphine
IV / IM / SC</td><td>10mg</td></tr><tr><td>Morphine PO</td><td>20-30mg</td></tr><tr><td>Oxycodone PO</td><td>10mg</td></tr></table></td>
</tr>
</table>

7.17	**Amitriptyline** Indication • Neuropathic pain Advantages • Cheap • Safe in low dose • Also treats depression, poor sleep Disadvantages • Harmful in overdose • Dry mouth, drowsiness • Urinary retention	Nortriptyline is an alternative to amitriptyline.
7.18	**Gabapentin** Indication • Neuropathic pain Advantages • Safe and effective Disadvantages • Drowsiness • Dose needs to be increased slowly	Pregabalin is an alternative to gabapentin.
7.19	***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?*	There are often misconceptions about opioids. Discuss in small groups (2-3) or use whole group brainstorming, depending on time.
7.20	**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.	Patients with cancer often need increasing doses of morphine. This does not mean that they are addicted – the dose needs to be increased because their disease is progressing and they need more pain relief.
7.21	?	

7.22	**Pain Medications** **Summary** Pain can be treated with relatively cheap and safe medications. Morphine is very effective for cancer pain and acute nociceptive pain. In general, strong opioids should be avoided in chronic non-cancer pain.	

LECTURE 8: USING THE RAT SYSTEM
(20 minutes)

This lecture brings together all parts of the workshop and prepares the participants for the small group case discussions.

The first half of the lecture should be a very quick review of Recognize, Assess and Treat. The second half of the lecture comprises three pain management examples. Usually, the whole group discusses these examples using a scribe and whiteboard (or blackboard) before breaking into small groups for the case discussions. The three pain management examples are included in the EPM Lite Manual (pp 36-41).

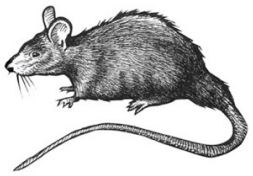
When discussing the examples, it is important to cover each step in the RAT system. For example, the steps for Assess are:

- Severity?
- Type?
- Other factors?

Type, in turn, comprises three parts:

- Acute or chronic?
- Cancer or non-cancer?
- Nociceptive or neuropathic?

	Slide	Notes
8.1	**Using the RAT System**	
8.2	**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	

8.3	**Using the RAT System** 	The RAT of pain management is very similar to the ABC of resuscitation. RAT gives us a framework for managing pain of all types.
8.4	**Using the RAT System** Recognize Assess • Severity? • Type? • Other factors? Treat • Non-pharmacological treatments • Pharmacological treatments	
8.5	**Using the RAT System** **Recognize** Does the patient have pain? Do other people know the patient has pain?	If pain is not recognized, it will not be managed adequately. Recognition is the vital first step.
8.6	**Using the RAT System** **Assess** How severe is the pain? • Measure at rest • Measure with movement	The first part of Assess is to measure the severity of the pain.
8.7	**Using the RAT System** **Assess** What type of pain is it? • Acute or chronic? • Cancer or non-cancer? • Nociceptive or neuropathic?	The second part of Assess.

8.8	**Using the RAT System** **Assess** Are there other factors? • Physical factors • Psychological and social factors	The third part of Assess.
8.9	**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)	
8.10	**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	
8.11	**Using the RAT System** **Treat** Pharmacological treatments – Neuropathic Pain • Consider using tramadol, tricyclic antidepressant (e.g. amitriptyline) or anticonvulsant (e.g. gabapentin)	

8.12	**Using the RAT System** **Reassess** Repeat RAT Is your treatment working? Are other treatments needed?	
8.13	**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?*	
8.14	**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?*	
8.15	**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?*	
8.16	?	

8.17	**Using the RAT System Summary** Recognize Assess • Severity? • Type? • Other factors? Treat • Non-pharmacological treatments • Pharmacological treatments Reassess	
8.18	 www.essentialpainmanagement.org epm@anzca.edu.au facebook.com/essentialpainmanagement	

POST-TEST / FEEDBACK / CLOSE (20 minutes)

It is important to leave some time for participants to complete the post-course test and feedback form.

In general, we have found that a printed test paper works better than a PowerPoint presentation. After the participants have completed the test, it is useful to quickly go through the answers with the whole group.

Participant feedback is important for the workshop instructors and also provides valuable information for the course developers and funders. The feedback form is available at **epm@anzca.edu.au.**

If appropriate, finish the workshop with certificates and a group photo.

PART V: EPM LITE CASE DISCUSSIONS

RAT EXAMPLES

These cases are discussed during Lecture 8 to prepare participants for the small group case discussions. The example cases also appear in the EPM Lite Workshop Manual.

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?

1. RECOGNIZE

- Pain easily recognized
- Obvious cause, patient likely to be distressed

2. ASSESS

- **Severity**
  - — Pain may be moderate to severe
- **Type**
  - — Acute pain, musculoskeletal (non-cancer) cause
  - — Nociceptive mechanism, pain described as sharp, aching
  - — Possibility of neuropathic pain is nerve injury
- **Other factors**
  - — Other factors may be contributing to the pain (e.g. anxiety, infection if old injury)

3. TREAT

- **Non-pharmacological treatments**
  - — Reduce inflammation (immobilisation, sling)
  - — Surgery will probably be necessary
  - — Prevention or treatment of infection
  - — Explanation and reassurance

- **Pharmacological treatments**

    — Pain will be improved by simple medications (e.g. paracetamol) but may need to add other medications
    — Regular paracetamol (1G four times daily)
    — Consider adding codeine (30-60mg four-hourly)
    — NSAIMs will reduce inflammation but may affect bone healing
    — Morphine is effective and may be necessary if severe pain

4. REASSESS

- Repeat RAT
- Record pain scores

Summary

Moderate to severe, acute pain due to injury, nociceptive mechanism

- **Treat the injury**
- **Regular simple analgesics**
- **Morphine if severe pain**

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?

1. RECOGNIZE

- Patient may have pain in both her breast and back.
- New severe back pain may not be recognized.
- Ask the patient about her pain symptoms!

2. ASSESS

- Assessment may be difficult because of two types of pain.
- **Severity**
  - — Both breast pain and back pain may be severe.
- **Type**
  - — Chronic cancer pain getting worse over time, acute musculoskeletal pain caused by spinal metastases (e.g. collapse of vertebra with nerve compression)
  - — The pain may have both nociceptive and neuropathic features. Neuropathic symptoms may be present especially if nerve compression – burning, pins and needles
- **Other factors**
  - — Multiple factors may be contributing to the pain – physical, psychological and social.
  - — An example of a physical factor may be spinal cord compression.
  - — Try and explore these with the patient and her family.

3. TREAT

- **Non-pharmacological treatments**
  - — Treatment of breast tumour – nursing care, possibly surgery, treatment of infection
  - — Psychological or social support
  - — Other treatments?

- **Pharmacological treatments**

  — Regular simple analgesics + opioid
  — If possible, control acute, severe pain with IV morphine
  — Convert to oral morphine when pain controlled
  — Consider amitriptyline if features of neuropathic pain (especially if poor sleep)

4. REASSESS

- Repeat RAT
- Record pain scores

Summary

Severe, acute on chronic pain. Mixed cause – chronic cancer pain and acute musculoskeletal pain. Nociceptive and neuropathic mechanisms.

- **Assessment may be difficult**
- **Non-pharmacological treatments are important**
- **Regular simple analgesics**
- **Control acute severe pain with IV morphine, then change to regular oral morphine**
- **Amitriptyline may be helpful**

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?

1. RECOGNIZE

- Patient may not show outward signs of pain
- Other people may think that the patient is avoiding work.
- Ask the patient about his symptoms!

2. ASSESS

- **Severity**
  - — Pain may be moderate to severe
  - — Measure his pain score, e.g. by using Verbal Rating Scale and Functional Activity Score (FAS)
- **Type**
  - — Chronic pain, musculoskeletal (non-cancer) cause
  - — There may have been a recent injury causing acute-on-chronic pain.
  - — The pain may be difficult to localise and have both nociceptive and neuropathic features (e.g. burning, pins and needles)
- **Other factors**
  - — Multiple factors may be contributing to the pain – physical, psychological and social.

3. TREAT

- **Non-pharmacological treatments**
  - — Rest is often not helpful in chronic back pain
  - — Occasionally, there may be an acute on chronic problem that needs surgical treatment (e.g. prolapsed disc)
  - — Acupuncture, massage and physiotherapy may be helpful
  - — Psychological or social support
    - Work issues
    - Family issues

- **Pharmacological treatments**
  - Regular paracetamol and NSAIM may be helpful, especially if acute on chronic pain.
  - In general, morphine is not helpful for chronic back pain. Occasionally, morphine may be needed for acute severe nociceptive pain.
  - Consider amitriptyline if features of neuropathic pain (especially if poor sleep).

4. REASSESS

- Repeat RAT
- Record pain scores

Summary

Moderate to severe, acute on chronic non-cancer pain, mixed neuropathic and nociceptive mechanisms

- **Assessment may be difficult**
- **Non-pharmacological treatments are important**
- **Regular simple analgesics**
- **Morphine usually not helpful (unless severe nociceptive pain)**
- **Amitriptyline may be helpful**

SMALL GROUP CASE DISCUSSIONS (60 minutes)

The main aim of this session is to get the participants to use RAT to discuss the management of a variety of pain management cases.

There are 8 cases listed below. Choose four cases to discuss in small groups (4-6 participants) with one instructor per discussion. Allow 15 minutes per case (including time for questions and a summary). Encourage participants to write their RAT management plans in their manuals.

The case discussions are printed on pages 42-49 of the EPM Lite Manual. The manual allows space for the participants to write down their RAT management plans.

The other cases not used during this session can be used in small group teaching sessions at a later date.

The following summarises the RAT approach:

Recognize

- Ask and look

Assess

- Severity?
- Type?
    - Acute / chronic
    - Cancer / non-cancer
    - Nociceptive / neuropathic / mixed
- Other factors?
    - Physical
    - Psychological

Treat

- Non-pharmacological treatments
- Pharmacological treatments

Reassess

CASE 1

A 22-year-old man fell off a truck and has a fractured right femur. There are no other obvious injuries. He says the pain in his thigh is very bad.

How would you manage his pain using RAT?

By the end of this discussion, the group should have covered the following main points:

RECOGNIZE

- Easily recognized

ASSESS

- **Severity**
  - Likely to be severe
- **Type**
  - Acute, traumatic (non-cancer), nociceptive pain
- **Other factors**
  - Psychological (fear, anxiety) and physical factors (possibility of other injuries)

TREAT

- **Non-pharmacological**
  - Emphasise importance of non-pharmacological treatments
  - Reassurance
  - Immobilisation of fracture
  - Early surgery
- **Pharmacological**
  - Main pharmacological treatment is IV morphine (because this is severe, acute, nociceptive pain)
  - Don't forget simple analgesics, e.g. paracetamol
  - Good to discuss Reverse WHO Ladder

REASSESS

- Check that your treatment is working by repeating RAT.

Summary

- **Severe, acute, non-cancer (traumatic), nociceptive pain**
- **Use the Reverse WHO Ladder and use morphine to control the pain.**
- **Don’t forget non-pharmacological treatments, e.g. immobilisation.**

Other notes:

CASE 2

A 44-year-old woman with known cervical cancer is admitted to hospital because she can't look after herself at home.

How would you manage her pain using RAT?

By the end of this discussion, the group should have covered the following main points:

RECOGNIZE

- Pain may have been ignored.
- Why can't she look after herself at home?
- Does the family know that she has pain?

ASSESS

- **Severity**
  - May be severe
  - How would you measure severity? Consider Functional Activity Score (FAS)
- **Type**
  - Pain is likely to be complicated
  - Chronic or acute on chronic
  - Cancer cause
  - Likely to be mixed nociceptive and neuropathic pain. Spread of cancer to other parts of pelvis and possibly other parts of the body (e.g. bones)
- **Other factors**
  - Psychological (anxiety, fear of dying)
  - Physical (symptoms due to spread of cancer, other diseases)

TREAT

- **Non-pharmacological**
  - Likely to be very important
  - Discussion with patient and family, reassurance that pain can be treated.

- **Pharmacological**
  - Good to discuss WHO Ladder
  - Main pharmacological treatment is oral morphine.
  - Also give simple analgesics, e.g. paracetamol
  - If possible, discuss control of severe pain with IV/SC morphine or fast release oral morphine (see Appendix 5). Morphine should be changed to slow release tablets when pain is controlled.
  - Remember that regular morphine often causes constipation. How can constipation be prevented or treated?
  - Amitriptyline or an anticonvulsant medication (e.g. gabapentin) may be required if features of neuropathic pain.

REASSESS

- Is your treatment working? Repeat RAT.

Summary

- **Possibly severe pain**
- **Chronic or acute on chronic pain caused by cancer, mixed nociceptive and neuropathic mechanism**
- **Use the WHO Ladder and control the pain with morphine.**
- **Remember that the oral dose of morphine is 2-3 times the IV/IM or SC dose.**
- **Add anti-neuropathic medications if necessary (e.g. amitriptyline or gabapentin)**

Other notes:

CASE 3

A 60-year-old man has just had a laparotomy for bowel obstruction. He is now lying very still and appears to be in severe pain.

How would you manage his pain using RAT?

By the end of this discussion, the group should have covered the following main points:

RECOGNIZE

- Pain may not be recognized because he is lying very still in bed.
- Staff may be busy and may not be checking him regularly.
- It will be important to assess pain on movement as well as at rest

ASSESS

- **Severity**
  - Likely to be severe
- **Type**
  - Likely to be acute, non-cancer, nociceptive pain.
- **Other factors**
  - Other factors may be contributing to the pain. These may be psychological (e.g. anxiety about underlying cause of bowel obstruction, lack of social supports) or physical (e.g. pneumonia)

TREAT

- **Non-pharmacological**
  - Non-pharmacological treatments are still important in acute nociceptive pain
  - Explanation and reassurance. Nursing care, assistance with positioning and assistance with mobilization
- **Pharmacological**
  - Main pharmacological treatment is IV morphine. Patient-controlled analgesia (PCA) may be appropriate, if available. IM or SC administration may be used in some settings.
  - Regular paracetamol
  - Consider other medications, e.g. tramadol

REASSESS

- Check and record pain scores.

Summary

- **Severe, acute, non-cancer (surgical), nociceptive pain**
- **Don’t forget non-pharmacological treatments, e.g. explanation and reassurance, good positioning.**
- **Use Reverse WHO Ladder and control pain with IV morphine if possible.**
- **Continue other medications, e.g. paracetamol and tramadol.**

Other notes:

CASE 4

A 5-year-old girl has advanced bone cancer that has spread from her leg to her spine. She cries most of the time and is frightened of injections.

How would you manage her pain using RAT?

By the end of this discussion, the group should have covered the following main points:

RECOGNIZE

- Pain is probably recognized but family and staff may feel helpless

ASSESS

- **Severity**
  - Likely to be severe
- **Type**
  - Likely to be complicated
  - Could be chronic or acute on chronic
  - Pain due to cancer
  - Likely to be mixed nociceptive and neuropathic pain. Neuropathic pain by be caused by spread of cancer to her spine
- **Other factors**
  - It is vital to assess other factors.
  - Psychological – fear of injections, fear of dying, knowledge that family is anxious and upset
  - Physical – symptoms due to spread of cancer

TREAT

- **Non-pharmacological**
  - Non-pharmacological treatments are very important.
  - Explanation to girl and family that pain can be managed.
  - It is also important to discuss the fears and concerns of the family.

- **Pharmacological**
  - If appropriate, discuss medication dosage calculations with the group. Assume the girl weighs 15 kg.
  - Pain needs to be controlled with morphine
    - Fast release oral morphine (if available),
      e.g. 0.2 mg/kg x 15 kg = 3 mg every 3 hours
    - Patient is frightened of injections (IM injection or insertion of IV) but she may be able to have subcutaneous morphine if fast release oral morphine is not available or patient cannot swallow. Insert SC butterfly cannula and give 1.5-3.0 mg every 3 hours until pain controlled.
  - Change over to slow release morphine tablets when pain controlled (or liquid if patient cannot swallow tablets)
  - Don't forget simple analgesics, e.g. paracetamol

REASSESS

Summary

- **Complicated pain, possibly severe**
- **Chronic or acute on chronic pain caused by cancer, likely mixed nociceptive and neuropathic mechanism**
- **Psychological factors will be very important. Explanation and reassurance will be vital.**
- **Control the pain with morphine and change to slow release oral morphine as soon as possible.**
- **Don't forget other medications, e.g. paracetamol and medications to treat neuropathic symptoms.**

Other notes:

CASE 5

A 49-year-old man with longstanding diabetes has to have a below knee amputation for gangrene. You see him four weeks after the amputation and he complains of leg pain.

How would you manage his pain using RAT?

By the end of this discussion, the group should have covered the following main points:

RECOGNIZE

- Pain may be poorly recognized or his symptoms (e.g. burning, numbness) may be poorly understood

ASSESS

- **Severity**
  - — Pain may be severe
  - — How is it affecting him?
- **Type**
  - — Pain is likely to be complicated
  - — Acute or acute on chronic, non-cancer, nociceptive or neuropathic depending on cause.
  - — Nociceptive pain may be due to stump infection or trauma; neuropathic pain may be due to nerve damage from the amputation or phantom pain. What is phantom pain?
- **Other factors**
  - — Psychological and physical factors (e.g. diabetes control, infection, other diseases)

TREAT

- **Non-pharmacological**
  - — Non-pharmacological treatments likely to be very important. This is true for any chronic pain.

- **Pharmacological**
  - If the pain is chronic or neuropathic, morphine is unlikely to be helpful.
  - Simple analgesics (e.g. paracetamol) may be helpful.
  - Consider tramadol because of its effectiveness in both nociceptive and neuropathic pain.
  - Start amitriptyline 10 mg at night, especially if not sleeping.
  - Carbamazepine, gabapentin or sodium valproate may also be helpful if neuropathic pain.

REASSESS

Summary

- **This man's pain may be poorly recognized and poorly understood.**
- **Possibly severe pain.**
- **Acute or acute on chronic pain, non-cancer cause, could be nociceptive or neuropathic or mixed.**
- **For chronic and neuropathic pain, e.g. phantom pain, non-pharmacological treatments will be very important. Strong opioids should be avoided.**
- **Other medications may be helpful, e.g. paracetamol, amitriptyline and anticonvulsant medications.**

Other notes:

CASE 6

A 9-year-old boy with probably appendicitis is waiting for an operation.

How would you manage his pain using RAT?

By the end of this discussion, the group should have covered the following main points:

RECOGNIZE

- Pain may be overlooked by health workers.
- Ask the patient (or parents, especially for younger children)

ASSESS

- **Severity**
  - Pain may be moderate to severe.
- **Type**
  - Acute pain, non-cancer cause
  - Nociceptive mechanism but pain may not be well localised in early appendicitis.
- **Other factors**
  - Other factors may be contributing, e.g. fear, anxiety, parents not with him.

TREAT

- **Non-pharmacological**
  - Early surgery
  - Reassurance
  - Support from family
- **Pharmacological**
  - Medications may not be well absorbed if given PO
  - Pain will be improved by simple medications (e.g. paracetamol 15 mg/kg PO or PR 4-hourly)
  - Will probably need to add other medications (e.g. codeine 0.5 mg/kg, tramadol 1 mg/kg)
  - For severe pain, an IV should be inserted and morphine given IV until pain controlled (0.02 mg/kg 10-minutely, e.g. 0.5 mg IV 10-minutely for a 25kg boy).

REASSESS

Summary

- **Moderate to severe pain, acute, non-cancer cause, nociceptive mechanism**
- **Psychological factors will be important – give explanation and reassurance to the patient and his family.**
- **Use simple analgesics (e.g. paracetamol), and add other medications if required, e.g codeine or tramadol. Morphine may be required if pain is severe..**

Other notes:

CASE 7

A 24-year-old woman presents to a clinic with a two-year history of severe headache. Doctors told her 6 months ago that there is "nothing wrong inside her head".

How would you manage her pain using RAT?

By the end of this discussion, the group should have covered the following main points:

RECOGNIZE

- Patient may not show outward signs of pain.
- Other people may think that she doesn't have pain.
- Ask the patient! 'Pain is what the patient say hurts.'

ASSESS

- **Severity**
  - — Pain may be severe despite appearances.
  - — Score the severity.
- **Type**
  - — Chronic pain, non-cancer cause
  - — The cause may not be obvious - assume that the patient underwent investigations 6 months ago and the doctors were unable to find a brain tumour or other cause of raised intracranial pressure (ICP).
  - — The pain may be difficult to localise and have neuropathic features. Ask about shooting, burning and other neuropathic symptoms.
- **Other factors**
  - — Psychological and social factors may be contributing to the pain. It is important to ask about these. Is the patient depressed?

TREAT

- **Non-pharmacological**
  - ○ Reassurance that there is not evidence of a brain tumour or other life-threatening disease
  - ○ Acupuncture and massage may be helpful.
  - ○ Psychological therapies and counselling are likely to be the mainstays of treatment.

- **Pharmacological**
  - Paracetamol and a NSAIM may be helpful. NSAIM should usually only be used short-term.
  - Tramadol may be helpful but avoid strong opioids.
  - Consider amitriptyline if features of neuropathic pain (especially if poor sleep)

REASSESS

Summary

- **This woman's pain may not be taken seriously by other people. Remember: 'Pain is what the patient says hurts.'**
- **Possibly severe pain. Chronic, non-cancer cause, with neuropathic features.**
- **Psychological factors are likely to be contributing to the pain.**
- **Non-pharmacological treatments are likely to be the mainstays of treatment.**
- **Strong opioids should be avoided..**

Other notes:

CASE 8

A 12-year-old girl was admitted three days ago with burns to her chest and abdomen. She needs dressing changes every 2-3 days.

How would you manage her pain using RAT?

By the end of this discussion, the group should have covered the following main points:

RECOGNIZE

- Patient may not appear to be in pain between dressing changes. She may be very fearful of the dressing changes. Need to ask the patient.
- Staff on a burns ward will usually recognize that the patient has pain.

ASSESS

- **Severity**
  - Pain may be moderate to severe, especially when old dressings removed.
- **Type**
  - Acute pain, non-cancer cause
  - Usually nociceptive mechanism but may have some neuropathic features if the burns have caused nerve damage.
- **Other factors**
  - Psychological factors (e.g. fear and anxiety) will be contributing to the pain.
  - Physical factors (e.g. infection of burns) may also be contributing.

TREAT

- **Non-pharmacological**
  - Reassurance ("We can help with the pain." "Your burns are healing well.")
  - Support from family, distraction
  - Patient may be able to remove own dressings.
  - Surgery may be required.

- **Pharmacological**
  - Fast release oral morphine 30 minutes before dressing change (0.3 mg/kg, e.g. 9 mg for a 30-kg girl)
  - Oral ketamine may be useful for very painful dressing changes (up to 5 mg/kg given 30 minutes before)
  - Entonox may be helpful in some situations
  - Regular oral paracetamol +/- oral morphine if there is pain in between dressing changes.
  - Low dose amitriptyline (e.g. 5-10 mg at night) may be helpful if burns severe.

REASSESS

Summary

- **Likely moderate to severe pain, mainly associated with dressing changes.**
- **Acute pain, non-cancer cause, nociceptive mechanism but possibly with some neuropathic features.**
- **Fear and anxiety are likely to be important contributors to the pain.**
- **Oral morphine and oral ketamine given before dressing changes may be very helpful.**

Other notes:

NOTES

APPENDICES

Appendix 1: Medicine Formulary for Adults

Note: Exact formulations (e.g. tablet strength) may vary.
Exact morphine doses will depend on the individual patient.

Abbreviations:

- IM = intramuscular, IV = intravenous, PO = oral, PR = rectal, SC = subcutaneous
- OD = once daily, BD = twice daily, TDS = three times daily, QDS = four times daily

1. Simple Analgesics

Medication	**Uses**	**Problems**	**Adult dose**
Paracetamol / acetaminophen (Pamol, Panadol, Tylenol)	Generally very safe Good for mild pain but can be useful for most nociceptive pain Usually need to add other medications for moderate to severe pain Also used to lower body temperature in fever	Not all patients are able to take oral liquids or tablets Can cause liver damage in overdose	Usually given PO but can be given PR PO or PR: 1G (two 500 mg tablets) QDS Maximum dose: 4G per 24 hours
Aspirin	Can be used with paracetamol Good for nociceptive pain	Not all patients are able to take oral tablets Side effects: Gastro-intestinal problems, e.g. gastritis Kidney damage Fluid retention Increased risk of bleeding	PO: 600 mg (two 300 mg tablets) 4-6 hourly Maximum dose: 3.6 G per 24 hours

Diclofenac (Voltaren, Voltarol)	As above for aspirin	As above for aspirin, but can be given IM or PR	PO: 25-50 mg TDS PR: 100 mg OD IM: 75 mg BD Maximum dose: 150 mg per 24 hours
Ibuprofen (Brufen, Nurofen)	As above for aspirin	As above for aspirin	PO: 400 mg TDS or QDS
Naproxen (Naprosyn)	As above for aspirin	As above for aspirin	PO: 500 mg BD

2. Opioids

Medication	**Uses**	**Problems**	**Adult dose**
Codeine	Generally very safe Often added to paracetamol and/or NSAIM for moderate pain	Not all patients are able to take oral liquids or tablets Similar side effects to other opioids: Constipation Respiratory depression in high dose Misunderstandings about addiction Different patients require different doses (variable dose requirement)	Usually given PO but sometimes given IM PO or IM: 30-60 mg 4-hourly
Tramadol (Tramal)	Can be used with paracetamol and/or opioids for nociceptive pain Sometimes helpful for neuropathic pain Less respiratory depression and constipation than morphine	Not widely available Nausea and vomiting Confusion	PO or IV: 50-100 mg QDS

Morphine	Very safe if used appropriately Often added to paracetamol and/or NSAIM for moderate to severe pain Oral morphine very useful for cancer pain In general, should be avoided in chronic non-cancer pain Available as either fast release tablets or syrup, or slow release tablets	Similar problems to other opioids: Constipation Sedation and respiratory depression in high dose* Nausea and vomiting Myths about addiction Oral dose is not the same as the injected dose *Monitor RR and sedation, especially in elderly patients and patients receiving other sedating medications	Can be given PO, IV, IM or SC Different patients require different doses Oral dose is 2-3 times the injected dose PO (fast): 10-30 mg 4-hourly (e.g. for controlling cancer pain) PO (slow): BD dosing (may need high doses for cancer pain) IV: 2.5-10 mg (e.g. during or after surgery) IM or SC: 2.5-10 mg 4-hourly *Use a lower dose (e.g. half-dose) in elderly patients*
Pethidine (Demerol)	As above for morphine Often added to paracetamol and/or NSAIM for moderate to severe pain	As above for morphine Seizures caused by metabolite (norpethidine) if high dose given for more than 24 hours	PO: 50-100 mg 4-hourly IV or IM dose about 10 times morphine dose IV: 25-50 mg (e.g. during or after surgery) IM or SC: 50-100 mg 4-hourly *Use a lower dose (e.g. half-dose) in elderly patients*
Oxycodone (Oxynorm, Oxycontin)	As above for morphine Can be used for cancer pain Available as fast release (Oxynorm) or slow release (Oxycontin)	As above for morphine Not widely available	PO (fast): 5-10 mg 4-hourly PO (slow): 10 mg BD, increased as needed *Use a lower dose (e.g. half-dose) in elderly patients*

3. Other Analgesics (in alphabetical order)

Medication	Uses	Problems	Adult dose
Amitriptyline	Useful in neuropathic pain. Also used to treat depression and improve sleep	Sedation Postural hypotension (low blood pressure) Anticholinergic side effects: Dry mouth Urinary retention Constipation	PO: Usually 25 mg at night "Start low, go slow", especially in elderly patients (e.g. start at 10 mg, increase every 2-3 days as tolerated)
Carbamazepine (Tegretol)	Anticonvulsant ("membrane stabiliser") Useful in neuropathic pain	Sedation Unsteadiness Confusion in high dose	PO: 100-200 mg BD, increased to 200-400 mg QDS as tolerated "Start low, go slow", especially in elderly patients
Clonidine	May be useful if pain is difficult to treat	Not widely available Sedation Hypotension	IV: 15-30 mcg 15-minutely up to 1-2 mcg/kg PO: 2 mcg/kg
Gabapentin	Anticonvulsant ("membrane stabiliser") Useful in neuropathic pain	Sedation	PO: 100 mg TDS, increased to 300-600 mg TDS as tolerated Maximum dose: 1800 mg per 24 hours
Ketamine	May be useful in severe pain (nociceptive or neuropathic) Also used as a general anaesthetic	Sedation (only need small dose for pain relief) Dreams, delirium, hallucinations	IV: 5-10 mg for severe acute pain SC infusion: 100 mg over 24 hours for 3 days, can be increased to 300 mg, then 500 mg per 24 hours
Sodium valproate (Epilim)	Anticonvulsant ("membrane stabiliser") Useful in neuropathic pain	Gastro-intestinal side effects, sedation	PO: 200 mg 8-12-hourly

Appendix 2: Paediatric Medicine Doses

Note: Exact formulations (e.g. tablet strength) may vary.
Exact morphine doses will depend on the individual patient.

Abbreviations:

- IM = intramuscular, IV = intravenous, PO = oral, PR = rectal, SC = subcutaneous
- OD = once daily, BD = twice daily, TDS = three times daily, QDS = four times daily

1. Simple Analgesics

Paracetamol / acetaminophen	PO or PR: 15 mg/kg 4-hourly Maximum dose: 90 mg/kg per 24 hours (or 60 mg/kg per 24 hours for children under one year old)
Aspirin	PO: 15 mg/kg 4-6 hourly Not for children under 16 years old
Diclofenac	PO or PR: 1 mg/kg BD or TDS
Ibuprofen	PO: 5 mg/kg QDS
Indomethacin	PO: 0.5-1 mg/kg TDS
Naproxen	PO: 5-10 mg/kg BD or TDS Not for children under 2 years old

2. Opioids

Codeine (**see below**)	PO: 0.5-1 mg/kg 4-hourly
Tramadol	PO or IV: 1-2 mg/kg QDS
Morphine – fast	IV: 0.02 mg/kg 10-minutely (e.g. after surgery) IM or SC: 0.1-0.2 mg/kg 3-4-hourly PO (fast release): 0.2-0.4 mg/kg 3-4-hourly (e.g. for controlling cancer pain)
Morphine – slow	PO (slow release): Start with 0.6 mg/kg BD, increase every 48 hours as required
Pethidine / meperidine	IV: 0.5 mg/kg 10-minutely (e.g. after surgery) IM: 1mg/kg 3-4-hourly
Oxycodone	IV, SC or PO (fast): 0.1 mg/kg 4-hourly PO (slow): 0.2-0.5 mg/kg BD

3. Other Analgesics

Amitriptyline	PO: 0.5 mg/kg at night
Carbamazepine	PO: 2 mg/kg BD to TDS
Clonidine	PO: 2.5 mcg/kg as a pre-med for painful procedures
Sodium valproate	PO: 5 mg/kg BD to TDS Can be increased to 10 mg/kg/dose

Note:
In the United Kingdom and many other countries, **codeine is not recommended for** children aged less than or equal to 12 years.

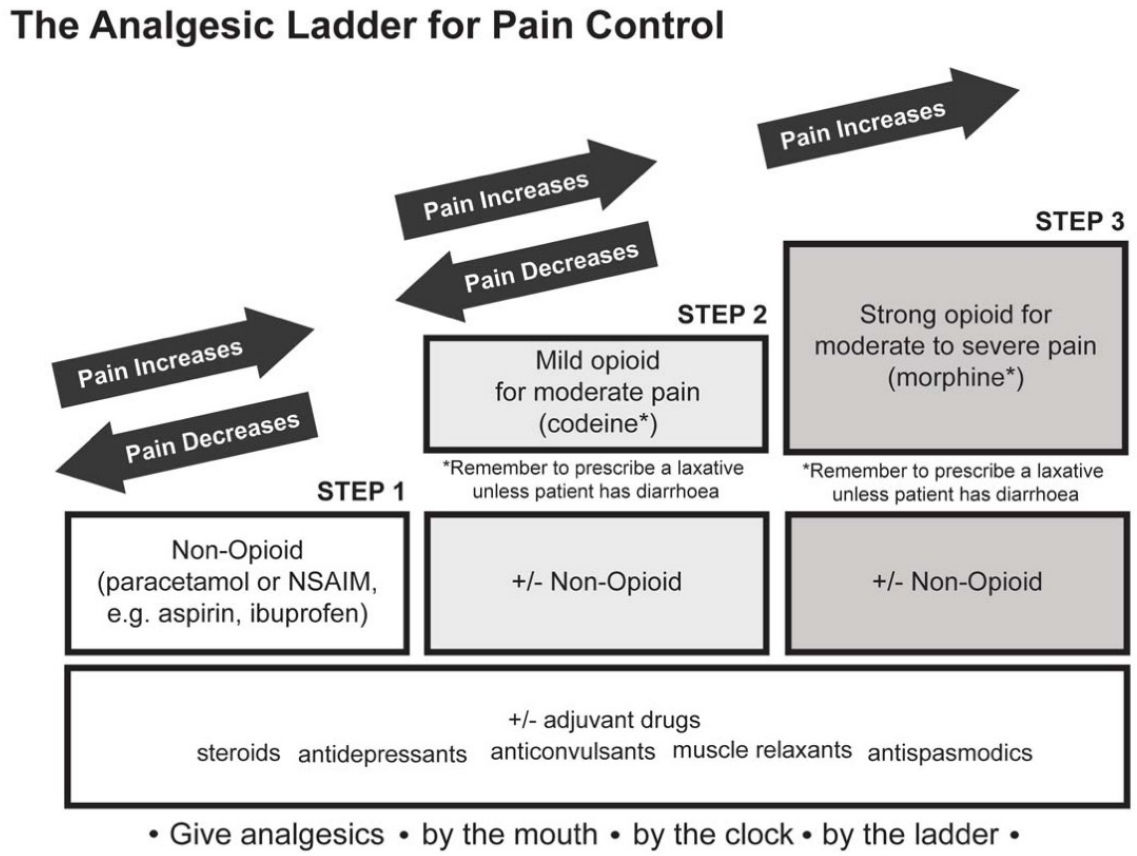
Appendix 3: WHO Analgesic Ladder

This "ladder" was developed by the WHO to mainly guide treatment of cancer pain. It may not work well for some other types of pain, e.g. neuropathic pain.

In cancer pain, the correct dose of morphine for an individual is the dose that provides the best pain relief with the minimum of side effects.

Medicines should be given:

1. By mouth – so that medicines can be taken at home.
2. By the clock – medicines are given regularly so that pain does not come back before the next dose.
3. By the ladder – gradually giving bigger doses and stronger medicines until the patient is pain-free.
4. For the individual – there is no standard dose of morphine. The correct dose is the dose that relieves the patient's pain.
5. With attention to detail – includes working out the best times to give medicines and treating side effects (e.g. giving a laxative to treat constipation).



Appendix 4: Using Morphine for Cancer Pain

The most important medication for managing cancer pain is morphine. Acute severe pain may need to be controlled with morphine injections but this should be changed to oral morphine as soon as the pain is under control.

The oral morphine dose is 2-3 times the injected dose.

Steps for controlling pain with morphine:

1. Control severe pain quickly with injections or fast release oral morphine. Give 4-hourly as needed.

2. Work out morphine requirement per 24 hours.
   e.g.: Patient needing 5mg IM/SC morphine every 4 hours
   IM/SC morphine requirement per day = 6 x 5 mg = 30 mg
   Equivalent oral morphine dose is 2-3 times (60-90 mg)

3. Halve the total daily oral dose and give as slow release morphine twice daily.
   e.g.: Total daily oral dose = 60-90 mg
   Start with slow release morphine 30 mg PO BD
   Increase BD dose as needed and ensure that the pain is improving.

4. Continue to give extra fast release morphine 4-hourly if needed for "breakthrough pain". If frequent extra doses are needed, work out total daily dose and increase the slow release morphine dose.

Appendix 5: WHO Essential Medicines List

The following table is based on the WHO Model List, 16th edition (updated). Medicines useful for managing pain can be found in a variety of sections of the list (e.g. anticonvulsants, medicines used in mood disorders).

For the full list, see:
http://www.who.int/medicines/publications/essentialmedicines/en/

Analgesics, Antipyretics, Non-Steroidal Anti-Inflammatory Medicines (NSAIMs) (section 2)	
Non-opioids and NSAIMs (section 2.1)	
Acetylsalicylic acid (aspirin)	**Suppository:** 50 mg to 150 mg **Tablet:** 100 mg to 500 mg
Ibuprofen (>3 months)	**Tablet:** 200 mg; 400 mg
Paracetamol	**Oral liquid:** 125 mg per 5ml **Suppository:** 100 mg **Tablet:** 100 mg to 500 mg
Opioid Analgesics (section 2.2)	
Codeine	**Tablet:** 15 mg (phosphate); 30 mg (phosphate)
Morphine	**Injection:** 10 mg (morphine hydrochloride or morphine sulfate) in 1 ml ampoule **Oral liquid:** 10 mg (morphine hydrochloride or morphine sulfate) per 5 ml **Tablet:** 10 mg (morphine sulfate) **Tablet (prolonged release):** 10 mg; 30 mg; 60 mg (morphine sulfate)
Anticonvulsants, Antiepileptics (section 5)	
Carbamazepine	**Oral liquid:** 100 mg per 5 ml **Tablet (chewable):** 100 mg; 200 mg **Tablet (scored):** 100 mg; 200 mg

Valproic acid (sodium valproate)	**Oral liquid:** 200 mg/5 ml **Tablet (crushable):** 100 mg **Tablet (enteric-coated):** 200 mg; 500 mg
Medicines Used in Mood Disorders (section 24)	
Amitriptyline	**Tablet:** 25 mg (hydrochloride)
Other Medications	
General Anaesthetics (section 1.1)	
Ketamine	**Injection:** 50 mg (as hydrochloride) per ml in 10 ml vial
Nitrous oxide	**Inhalation**
Local Anaesthetics (section 1.2)	
Bupivacaine	**Injection:** 0.25%; 0.5% (hydrochloride) in vial
Lidocaine (lignocaine)	**Injection:** 1%; 2% (hydrochloride) in vial
Lidocaine + epinephrine (lignocaine + adrenaline)	**Injection:** 1%; 2% (hydrochloride) + epinephrine 1:200 000 in vial
Antiemetic Medicines (section 17.2)	
Dexamethasone	**Injection:** 4 mg/ml in 1-ml ampoule **Oral liquid:** 0.5 mg/5 ml; 2 mg per ml **Solid oral dosage form:** 0.5 mg; 0.75 mg; 1.5 mg; 4 mg
Metoclopramide (not in neonates)	**Injection:** 5 mg (hydrochloride)/ml in 2-ml ampoule **Tablet:** 10 mg (hydrochloride)
Ondansetron (>1 month)	**Injection:** 2 mg base/ml in 2-ml ampoule (as hydrochloride) **Oral liquid:** 4 mg base/5 ml **Solid oral dosage form:** Eq 4 mg base; Eq 8 mg base; Eq 24 mg base.

Appendix 6: Answers to Chapter Questions

What is Pain?

1. **From a biological point of view, why is it beneficial for pain to be unpleasant?**
   Nociceptive pain has a protective function. It acts as an early warning system, e.g. withdrawal of hand from a flame to prevent further injury. After injury, pain discourages contact and movement and promotes recovery.

2. **Give an example of pain where there is no obvious tissue damage.**
   Tension type headache, non-specific low back pain, fibromyalgia.

3. **Pain can influence emotions, but can emotions influence pain?**
   Yes, e.g. increased anxiety will increase a patient's perception of pain. Conversely, reduced anxiety will reduce pain.

Why Should We Treat Pain?

1. **Can the experience of pain make a person stronger in the long term?**
   Not usually. Unrecognized and untreated pain is generally not desirable because it can have negative physical and psychological consequences.

2. **What are the benefits of treating chronic low back pain in a 45-year-old man?**
   For the patient: Relief of suffering, improved function, fewer psychological problems.
   For his family: More engaged in family life, able to work and maintain income.
   For society: Productive member of society, fewer ongoing health costs.

3. **Is it necessary to treat pain in newborn babies?**
   Yes, babies still experience pain. It is therefore humane to treat pain. Benefits include reduced stress response, improved feeding, reduced parental anxiety.

Classification of Pain

1. **How can you tell when a patient's pain has gone from acute to chronic?**
   The pain has lasted for more than three months or the pain has lasted after normal healing.

2. **Give some examples of chronic, non-cancer, nociceptive pain.**
   Arthritis, non-united fracture, chronic toothache, non-healing skin ulcer. These conditions may also have some features of neuropathic pain.

3. **Give some examples of neuropathic pain.**
   Painful diabetic neuropathy, phantom limb pain, post-shingles pain, sciatica, chronic tension type headache, fibromyalgia.

Pain Physiology and Pathology

1. **Give an example of a person experiencing nociception without pain and someone experiencing pain without nociception.**
   Nociception without pain: General anaesthesia, psychological states overriding pain perception (e.g. religious trance).
   Pain without nociception: Pathological pain with abnormal sensory processing, e.g. trigeminal neuralgia, painful diabetic neuropathy.

2. **How quickly do nociceptors transmit information compared with other sensory nerves?**
   Slower than other sensory nerves. Conduction velocity of C fibres is 0.5-2 m/s, Aδ fibres 3-30 m/s, Aß fibres 30-75 m/s, Aα fibres 80-120 m/s

3. **Nausea and vomiting are sometimes associated with pain. What is the mechanism for this?**
   There are connections from pain pathways in the brainstem, limbic system and cortex to the vomiting centre (area postrema) in the medulla. The vomiting centre coordinates the act of vomiting.

4. **What is central sensitization? How does it occur?**
   Pathological pain state where there is increased sensitivity or excitability of nerves within the central nervous system. Pain can occur spontaneously (no peripheral input) or normally non-painful stimuli can become painful.

Pain Treatment

1. **How does a placebo medicine reduce a person's pain?**
   If the person believes that the medicine will be effective, modulatory pathways will be activated and these will inhibit the pain signal and therefore reduce the persons' perception of pain.

2. **How does acupuncture work?**
   The exact answer is unknown but acupuncture may work by causing release of endogenous opioids (endorphins) or by stimulating Aß fibres resulting in inhibition of the pain signal in the dorsal horn.

3. **What is the best medication for severe, acute, nociceptive pain?**
   Morphine

4. **Why are membrane stabilizing medications effective for some types of pathological pain?**
   They reduce sensitivity and/or spontaneous activity in damaged pain nerves.

Using the RAT System

1. **What are the three components of "Assess"?**
   - How severe is the pain?
   - What type of pain is it? (Acute or chronic? Cancer or non-cancer? Nociceptive or neuropathic?)
   - Are there other factors?

2. **Are non-pharmacological treatments more effective in acute or chronic pain?**
   Non-pharmacological treatments are important in both acute and chronic pain. In some types of chronic pain, non-pharmacological treatments have a much bigger role than pharmacological treatments, e.g. psychological therapy in chronic non-cancer pain.

3. **Do NSAIMs have a role in chronic pain management?**
   Yes, but only if there is an inflammatory component. They should be prescribed at the lowest effective dose and for the shortest time to minimize the risk of side effects.

Appendix 7: Sample Report

REPORT

ESSENTIAL PAIN MANAGEMENT (EPM) WORKSHOPS

NONAME HOSPITAL

15 and 16 March 2012

Executive Summary

- Globally, pain (of all types) is often an unrecognized and inadequately treated problem.

- Fortunately, many effective pain management strategies are "low tech" and cheap and can offer significant improvements to an individual's quality of life.

- The Essential Pain Management (EPM) workshop has been developed:
    - To improve knowledge about pain.
    - To provide a simple framework for treating pain.
    - To address pain management barriers.

- We ran two EPM Workshops at Noname Hospital on 15 and 16 March 2012. We successfully trained a total of 41 health workers.

- Recommendations:
    - Run 6-monthly EPM Workshops at Noname Hospital.
    - Add oral liquid morphine to hospital formulary.
    - Improve pain assessment and ward protocols.

Background

Noname has a population of 150,000. The city's main hospital has 300 beds.

Course participants identified a number of common pain problems, e.g. cancer pain due to advanced breast cancer, postoperative pain and chronic low back pain. If inadequately treated, these pain problems can cause considerable distress for individual patients as well as many negative effects for their family and community.

The EPM Workshop was developed in 2010 to improve pain management worldwide. The workshop uses a management framework called RAT, standing for Recognize, Assess and Treat. This has been used very successfully to discuss common and also difficult pain management scenarios.

Course Dates

We ran two EPM Workshops. Workshop 1 was on 15 March 2012 and Workshop 2 was on 16 March 2012. Both workshops were held at Noname Hospital.

Course Instructors

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Course Participants

See separate list.

Workshop 1: 21 participants (5 doctors, 15 nurses and 1 pharmacist)

Workshop 2: 20 participants (8 doctors, 10 nurses and 2 physiotherapists)

Most participants were based at Noname Hospital but six came from Othername Clinic.

Venue and Catering

The workshops were held in the Nursing Lecture Room, Noname Hospital. This was an excellent venue with space next door for case discussions.

A healthy light lunch was provided by the hospital cafeteria on both days.

Teaching Materials

The standard EPM Workshop slides were used. 50 manuals were printed by the hospital's education unit.

Assessment

Course participants completed a 25-question test at the beginning and end of the workshop to assess learning during the day. There was a marked improvement in scores - the mean pre-course test score was 12.2 and the mean post-course test score was 19.6.

Feedback

Participants completed a feedback form at the end of each course. Overall, feedback was very positive. RAT was popular and the vast majority of participants stated that EPM would change the way they assess and treat pain. A number of participants commented that the lunch break was too short.

Examples of participant feedback:

- "The best course I have ever attended."
- "Tasty, healthy food."
- "Course needs to be longer."
- "Need more time."

Publicity / Other Activities

A reporter from the Noname Times attended Workshop 1 and wrote a short article which appeared in the newspaper on 17 March (attached).

Dr Less and Dr Edeen met with Mr Kit Amine, Head Pharmacist, to discuss problems with medication supply, especially unavailability of oral liquid morphine.

Success and Relevance of Workshops

The workshops were very successful. We ran two one-day EPM Workshops and trained 41 people.

The RAT approach to managing pain provided a simple framework for managing a variety of pain problems. A number of participants commented on the relevance of the teaching. Course participants contributed enthusiastically to discussions and came up with a number of ways of reducing pain management

barriers.

The course is cheap to run and emphasises low cost management strategies – quality of life can often be markedly improved by very simple treatments.

Recommendations

1. Run 6-monthly EPM Workshops at Noname Hospital

There is a need to run more workshops. A number of doctors and nurses wanted to attend these courses but were unable to do so because of other commitments.

We suggest running 6-monthly courses to finish training staff in the surgical and cancer wards. Regular courses are also needed to maintain knowledge and instructor skills.

We are planning to run two more EPM Workshops in September 2012.

2. Add oral liquid morphine to formulary

The lack of fast-release oral liquid morphine was identified as an important pain management barrier by the groups. This medication is on the WHO Essential Medicines List and is very important for pain control in the following situations:

- Initial control of cancer pain before starting slow-release morphine
- Pain management in paediatrics
- End-stage palliative care where patients are having difficulty swallowing

Fast-release oral morphine is also being used increasingly for post-operative pain relief.

Adding liquid morphine (morphine elixir) to the Noname Hospital formulary will be an important step in improving pain management. This will be discussed at a senior staff meeting at the end of this month.

3. Improve pain assessment and ward protocols

The groups discussed several ideas for improving pain assessment and introducing ward protocols, e.g. recording pain scores on observation charts, writing brief protocols based on the RAT framework for main types of pain (e.g. post-operative pain, cancer pain).

Acknowledgements

We are grateful for the support of Dr Friend, Medical Superintendent of Noname Hospital.

Printing and catering costs were met by the Pain-Free Foundation. Thank you very much to the Pain-Free team.

Dr Payne Less
Dr Beth Edeen
Sr Ann L Gesic

17 March 2012

Appendix 8: Sample Pain Management Protocols

A protocol can be a very helpful guide for managing pain patients in your hospital or clinic. Protocols need to be specific for where you work and take into account factors like staff numbers and local medication availability.

RAT provides a good framework for writing protocols. The case examples and following protocols can be modified for your own use.

PROTOCOL FOR ADULT POSTOPERATIVE (OR TRAUMA) PAIN

NOTES

- Effective pain relief will reduce complications and lead to earlier mobilisation and discharge.
- It is the responsibility of the surgical and/or anaesthetic team to write appropriate postoperative orders and prescribe pharmacological treatments.
- Use multi-modal analgesia (non-pharmacological treatments and a combination of pharmacological treatments)

RECOGNIZE

- Does the patient have pain?
  - Is the surgery or injury likely to cause pain?
  - Ask the patient regularly.

ASSESS

- Measure severity using a pain assessment tool.
  - Use words (mild, moderate or severe).
  - Use a score out of 10 (0 = no pain to 10 = very severe pain)
- What is the pain type?
  - For postoperative pain, the diagnosis is likely to be acute, non-cancer, nociceptive pain
  - Sometimes the pain is more complicated (e.g. underlying cancer pain0
- Are there other factors?
  - Psychological, e.g depression,
  - Physical, e.g. wound infection

NON-PHARMACOLOGICAL TREATMENTS

- Use reassurance, counselling, education where appropriate.
- Position the patient appropriately.
- More surgery may be required in some cases, e.g. drainage of abscess.

PHARMACOLOGICAL TREATMENTS

Severe pain

- If necessary, for very severe pain, give morphine 2 mg IV every 10 minutes until pain controlled.
- Give morphine 10 mg IM or SC 4-hourly
- Give paracetamol 1G PO 6-hourly
- Consider adding a NSAIM if no contraindication (renal disease, gastrointestinal upset, high blood pressure).
  - Diclofenac 50 mg PO 8-hourly
    or
  - Ibuprofen 200-400 mg PO 6-hourly

Mild-moderate pain

- Prescribe paracetamol 1G PO 6-hourly
- Consider adding a NSAIM if no contraindication (renal disease, gastrointestinal upset, high blood pressure).
  - Diclofenac 50 mg PO 8-hourly
    or
  - Ibuprofen 200-400 mg PO 6-hourly
- Add another analgesic
  - Codeine 30-60 mg PO 4-hourly
    or
  - Tramadol 50-100 mg IV or PO 6-hourly

REASSESS

- Reassess patient after 1-2 hours (or shorter if severe pain). If pain persists, consider increasing the dose of opioid or adding another analgesic.
- As severe pain improves, change from injected to oral opioid.

PROTOCOL FOR PAEDIATRIC POSTOPERATIVE (OR TRAUMA) PAIN

NOTES

- Effective pain relief will reduce complications and lead to earlier discharge.
- It is the responsibility of the surgical and/or anaesthetic team to write appropriate postoperative orders and prescribe pharmacological treatments.
- Use multi-modal analgesia (non-pharmacological treatments and a combination of pharmacological treatments)

RECOGNIZE

- Does the patient have pain?
  - Is the surgery or injury likely to cause pain?
  - Older children: Ask regularly.
  - Younger children: Ask parents, examine the child.

ASSESS

- Measure severity using a pain assessment tool.
  - Use words (mild, moderate or severe).
  - Use a faces scale.
- What is the pain type?
  - For postoperative pain, the diagnosis is likely to be acute, non-cancer, nociceptive pain.
  - Sometimes the pain is more complicated (e.g. underlying cancer pain or neuropathic pain).
- Are there other factors?
  - Psychological, e.g. fear of injections, missing family.
  - Physical, e.g. wound infection

NON-PHARMACOLOGICAL TREATMENTS

- Use reassurance, counselling, distraction, toys, education where appropriate.
- Position the patient appropriately.
- More surgery may be required in some cases, e.g. drainage of abscess.

PHARMACOLOGICAL TREATMENTS

Severe pain

- If necessary, for very severe pain, give morphine 0.02 mg/kg IV every 10 minutes until pain controlled.
- Give morphine 0.1-0.2 mg/kg IM or SC 4-hourly
- Give paracetamol 15 mg/kg PO or PR 4-hourly
- Consider adding ibuprofen 5 mg/kg PO 6-hourly

Mild-moderate pain

- Prescribe paracetamol 15 mg/kg PO or PR 4-hourly
- Consider adding ibuprofen 5 mg/kg PO 6-hourly
- Add another analgesic
  - Codeine 0.5-1 mg/kg PO 4-hourly
    or
  - Tramadol 1-2 mg/kg IV or PO 6-hourly

REASSESS

- Reassess patient after 1-2 hours (or shorter if severe pain). If pain persists, consider increasing the dose of opioid or adding another analgesic.
- As severe pain improves, change from injected to oral opioid.

PROTOCOL FOR ADULT CHRONIC NON-CANCER PAIN

NOTES

- Examples include diabetic nerve pain and chronic low back pain.
- Chronic non-cancer pain is often complicated and it may be necessary to try a variety of treatments.
- It may be difficult to completely eliminate the pain.
- In general, long term opioids are NOT helpful.

RECOGNIZE

- Does the patient have pain?
  - Ask the patient. Remember that "pain is what the patient says hurts".
  - Other people may think that the pain is not real.

ASSESS

- Measure severity using a pain assessment tool.
  - Use words (mild, moderate or severe).
  - Use a score out of 10 (0=no pain to 10=very severe pain).
- What is the pain type?
  - The diagnosis is chronic non-cancer pain.
  - The mechanism may be nociceptive, neuropathic or mixed. Ask about neuropathic symptoms (burning, shooting, tingling).
- Are there other factors?
  - Psychological factors are likely. Ask about social and psychological factors, e.g. family situation, poor sleep, anxiety.
  - Are there physical factors? Is there an underlying disease that could be treated?

NON-PHARMACOLOGICAL TREATMENTS

- Identify and suggest help for social and psychological issues.
- Use reassurance, counselling, education where appropriate.
- Exercise may be helpful.
- Consider acupuncture or massage.

PHARMACOLOGICAL TREATMENTS

- Use paracetamol 1G PO up to 6-hourly as required
- Use NSAIMs for a short duration especially if inflammation is likely, e.g. acute on chronic back pain.
  - Diclofenac 50 mg PO PRN 8-hourly
    or
  - Ibuprofen 200-400 mg PO PRN 6-hourly
- Start amitriptyline if evidence of neuropathic pain, especially if the patient has poor sleep or symptoms of depression.
  - Start 10 mg PO at night.
  - After 3 days, increase to 25 mg PO at night if required.
- Consider adding other medications if patient has neuropathic symptoms.
  - Carbamazepine 100 mg PO twice daily, increase every 3 days up to 400 mg four times daily if required.
    and
  - Tramadol 50-100 mg PO PRN 6-hourly
- Avoid using opioids.

REASSESS

- Reassess patient every few days to few weeks.
- Remind patient of the importance of non-pharmacological treatments.
- Be realistic – improvement may take some weeks.

PROTOCOL FOR ADULT CANCER PAIN

NOTES

- There are many types of cancer and pain can be very variable.
- Cancer pain usually gets worse over time. Treatment requirements also change.
- Oral morphine is the main pharmacological treatment.
- Controlling pain is an important part of end of life (palliative) care.

RECOGNIZE

- Does the patient have pain?
  - Ask the patient.
  - Pain may be ignored because there are many other problems.

ASSESS

- Measure severity using a pain assessment tool.
  - Use words (mild, moderate or severe).
  - Use a score out of 10 (0=no pain to 10= very severe pain).
- What is the pain type?
  - The diagnosis may be chronic or acute on chronic cancer pain.
  - The mechanism may be complicated – nociceptive, neuropathic or mixed. Ask about neuropathic symptoms (burning, shooting, tingling).
- Are there other factors?
  - Psychological factors are likely. Ask about social and psychological factors, e.g. anxiety, fear of dying, poor sleep, family situation.
  - Are there physical factors? Are there any other symptoms or diseases that can be treated?

NON-PHARMACOLOGICAL TREATMENTS

- Identify and suggest help for social and psychological issues.
- Use reassurance, counselling, education where appropriate. Reassure patient that you can help with pain control.
- Treat the whole person.

PHARMACOLOGICAL TREATMENTS

- Use paracetamol 1G PO 6-hourly
- Use NSAIMs, especially if inflammation is likely and pain is acute.
  - Diclofenac 50 mg PO 8-hourly
    or
  - Ibuprofen 200-400 mg PO 6-hourly
- Start regular oral morphine
  - Use fast release tablets or oral liquid morphine to control pain, e.g. 10-30 mg PO 4-hourly.
  - When pain controlled, add up dose required over 12 hours and change to slow release morphine tablets PO twice daily. Prescribe fast release tablets or oral liquid morphine for breakthrough pain, e.g. 10-30 mg PO as required 4-hourly.
- Start amitriptyline if evidence of neuropathic pain, especially if the patient has poor sleep or symptoms of depression.
  - Start 10 mg PO at night.
  - After 3 days, increase to 25 mg PO at night if required.

REASSESS

- Assess patient frequently until pain is controlled.
- After pain is controlled, reassess patient every few days to few weeks and increase morphine dose if required.
- Patients will usually need more morphine as their disease progresses. Sometimes, very high doses may be needed.

Appendix 9: Classification of Pain Type by Neural Mechanism

There is no universally agreed way to classify pain by neural mechanism. We use a simplified classification (nociceptive versus neuropathic) because this allows us to easily assess the patient and choose the right treatment.

Broadly speaking, pain can be either physiological (protective) or pathological (non-protective). The following gives a more detailed classification by neural mechanism.

Physiological pain

- Nociceptive
- Inflammatory

Pathological pain

- Neuropathic
- Dysfunctional

Nociceptive pain acts as an early-warning protective system in response to damaging or noxious stimuli.

Inflammatory pain is also protective. Inflammation results in increased sensory sensitivity after injury (lower intensity stimuli cause pain). This discourages physical contact and movement and promotes recovery.

Neuropathic pain results from damage to the peripheral or central nervous system. It can be thought of as a "hardware problem". It is not protective.

Dysfunctional pain is also not protective and can be thought of as a "software problem". There is no damage to the nervous system.

(Based on Woolf CJ. What is this thing called pain? J Clin Invest 2010;120(11):3742-4)

Appendix 10: More Information

EPM website

- Information about EPM, manual and slide downloads
- www.essentialpainmanagement.org

Acute Pain Management: Scientific Evidence

- Summary of evidence relating to acute pain management
- Available from ANZCA website (free download)
- www.fpm.anzca.edu.au/documents/apmse4_2015_final

Guide to Pain Management in Low-Resource Settings

- Detailed reference text
- Available from IASP website (free download)
- www.iasp-pain.org/FreeBooks

Worldwide Hospice Palliative Care Alliance website

- Resources relating to hospice and palliative care
- www.thewhpca.org/resources/

WHO Essential Medicines List

- Up-to-date list available from WHO website
- www.who.int/medicines/publications/essentialmedicines/en/

NOTES