



The University of
Nottingham

UNITED KINGDOM • CHINA • MALAYSIA

Keefe, Gemma (2011) The development and evaluation of a computer-based resource to enhance the education of pre-registration nursing students regarding knowledge and attitudes towards pain management. [Dissertation (University of Nottingham only)] (Unpublished)

Access from the University of Nottingham repository:

http://eprints.nottingham.ac.uk/24785/2/Appendix_2-_Original_Storyboards_for_RLOs.pdf

Copyright and reuse:


The Nottingham ePrints service makes this work by students of the University of Nottingham available to university members under the following conditions.

This article is made available under the University of Nottingham End User licence and may be reused according to the conditions of the licence. For more details see:
http://eprints.nottingham.ac.uk/end_user_agreement.pdf

For more information, please contact eprints@nottingham.ac.uk

Appendix 2: Storyboards for RLOs

School of Nursing Reusable Learning Object Specification Pain Management Essentials for Student Nurses- Pain Assessment

Frame	Text	Imagery
1	<p>Title Page</p> <p>Pain Assessment</p> <p>An RLO to prepare student nurses to recognise and prioritise pain through assessment of hospitalized patients.</p> <p>'Start'</p>	<p>Image- patient in pain</p>  <p>Trigger button- click to move onto next page</p>
2	<p>Learning Aims</p> <p>Learning Aims</p> <p>After completing this resource you will be able to:</p> <ul style="list-style-type: none"> ◆ Recognise when a patient is in pain ◆ Understand the basics about what pain is and its physiology ◆ Implement pain assessment and undertake subsequent reassessment ◆ Know how to act upon findings to ensure pain relief is provided for the patient <p>'Continue'</p>	<p>Trigger button- click to move onto next page</p>
3	<p>Section 1</p> <p>Introduction to Pain</p> <p>Pain is the most common reason for people seeking health care, yet it is regularly ignored or lowly prioritised. This is often because there are no tests or diagnostic machines that can directly measure if a person is in pain, or how much pain.</p> <p>Instead nurses rely on patient's self report.</p> <p>Quick question: Sam is sitting up in bed, talking and laughing with a visiting friend. When you ask him how his pain is he reports it is 8/10. Bob is curled up in bed, grimacing, with a deathly white face. When you ask him how his pain is he reports it is 8/10. Whose pain is worse?</p> <p>Answer: Neither. Joking with visitors can be a form or</p>	<p>Image- Nurse using obs machine on patient</p> <p>Flash- Pain is what a person says it is, existing whenever he says it does.</p> <p>Flash- question mark- trigger button to quick question</p> <p>'Sam' 'Bob' 'Neither'</p> <p>Trigger buttons- click to answer question</p>

	<p>distraction that the patient uses to cope with pain. The best indicator of pain is the patient's own report of pain.</p> <p>'Next'</p>	<p>Trigger button- click to move onto next page</p>						
4	<p>Section 1</p> <p>Historically staff used to label patients who reported high pain intensity as hypochondriacs. But pain is subjective- whilst one person may feel mild throbbing from an injury, another person with a similar injury may experience intense stabbing pains instead.</p> <p>'Next'</p>	<p>Image- patients in pain</p> <p>Trigger button- click to move onto next page</p>						
5	<p>Section 1</p> <p>Variation in pain experience occurs because pain perception is part of the nervous system. Pain receptors in the skin or tissue are activated and the stimulus travels via nerves to the brain, where it is perceived as pain.</p> <p>As such it can be influenced by a range of factors- conscious thought, emotion, mood and general health, as well as the extent of tissue damage itself. For example, pain is likely to be stronger when you are tired or miserable. Genetics also play a role in how sensitive you are to pain.</p> <p>'Next'</p>	<p>Image- body map showing pain pathway Animation- of hammer hitting toe and stimulus travelling up to brain and perceived as pain</p> <p>Trigger button- click to move onto next page</p>						
6	<p>Section 1</p> <p>Pain Myth</p> <p>If the patient doesn't seem to be in pain, he isn't in pain.</p> <p>The answer is false. Pain is subjective- it's whatever the patient says it is, occurring whenever he says it does. People react and behave differently to pain and don't always expect to find physiological markers of pain such as vital sign changes or grimacing.</p> <p>'Continue'</p>	<p>Activity- 'true' 'false' Trigger buttons- click to choose answer</p> <p>Trigger button- click to move onto next page</p>						
7	<p>Section 2</p> <p>Types of Pain</p> <p>There are two main types of pain- acute and chronic. Match the descriptions to the types.</p> <p>Whilst you may see patients on the ward that have chronic pain, this is usually managed by their GP- so focus more on assessing and managing any</p>	<p>Activity- drag and drop descriptions into table</p> <table border="1"> <thead> <tr> <th>Acute</th> <th>Chronic</th> </tr> </thead> <tbody> <tr> <td>Sudden onset, usually related to injury or illness</td> <td>Pain that persists for longer than 3 months</td> </tr> <tr> <td>Short lasting, can be severe</td> <td>Where tissue has healed but pain</td> </tr> </tbody> </table>	Acute	Chronic	Sudden onset, usually related to injury or illness	Pain that persists for longer than 3 months	Short lasting, can be severe	Where tissue has healed but pain
Acute	Chronic							
Sudden onset, usually related to injury or illness	Pain that persists for longer than 3 months							
Short lasting, can be severe	Where tissue has healed but pain							

	<p>acute pain a patient has.</p> <p>'Continue'</p>	<table border="1"> <tr> <td data-bbox="879 192 1142 324"></td> <td data-bbox="1142 192 1396 324">nerves continue to fire or where the nerves themselves have been damaged</td> </tr> <tr> <td data-bbox="879 324 1142 456">Relieved with medication, resolves as tissue heals</td> <td data-bbox="1142 324 1396 456">Can be severe but hard to treat as medication not always effective</td> </tr> <tr> <td data-bbox="879 456 1142 521">Post-op wound (image)</td> <td data-bbox="1142 456 1396 521">Persistent low back pain (image)</td> </tr> </table>		nerves continue to fire or where the nerves themselves have been damaged	Relieved with medication, resolves as tissue heals	Can be severe but hard to treat as medication not always effective	Post-op wound (image)	Persistent low back pain (image)										
	nerves continue to fire or where the nerves themselves have been damaged																	
Relieved with medication, resolves as tissue heals	Can be severe but hard to treat as medication not always effective																	
Post-op wound (image)	Persistent low back pain (image)																	
8	<p>Section 2</p> <p>Types of Pain</p> <p>Pain can also be categorised by what it is, not just how long it lasts.</p> <ul style="list-style-type: none"> ◆ Nociceptive- tissue damage is noticed by the pain receptors which signal to the brain, and pain is perceived. Nociceptors can recognise damage both within the skin joints and muscles (somatic), and within the deeper tissues and organs (visceral). ◆ Neuropathic- the nerves themselves are damaged. <p>For each different type, pain feels differently, so can be used as a tool to diagnose and treat the pain. Match the pain sensation to the category.</p> <p>'Continue'</p>	<p>Activity- drag and drop into table</p> <table border="1"> <tr> <td data-bbox="879 719 1038 752">Somatic</td> <td data-bbox="1038 719 1190 752">Visceral</td> <td data-bbox="1190 719 1396 752">Neuropathic</td> </tr> <tr> <td data-bbox="879 752 1038 819">Picture of knife</td> <td data-bbox="1038 752 1190 819">Picture of beaver</td> <td data-bbox="1190 752 1396 819">Picture of fire</td> </tr> <tr> <td data-bbox="879 819 1038 853">Stabbing</td> <td data-bbox="1038 819 1190 853">Gnawing</td> <td data-bbox="1190 819 1396 853">Burning</td> </tr> <tr> <td data-bbox="879 853 1038 887">Aching</td> <td data-bbox="1038 853 1190 887">Crushing</td> <td data-bbox="1190 853 1396 887">Hot</td> </tr> <tr> <td data-bbox="879 887 1038 954">Throbbing</td> <td data-bbox="1038 887 1190 954">Cramping</td> <td data-bbox="1190 887 1396 954">Electric-shock/tingling</td> </tr> </table>	Somatic	Visceral	Neuropathic	Picture of knife	Picture of beaver	Picture of fire	Stabbing	Gnawing	Burning	Aching	Crushing	Hot	Throbbing	Cramping	Electric-shock/tingling	<p>Trigger button- click to move onto next page</p> <p>Trigger button- click to move onto next page</p>
Somatic	Visceral	Neuropathic																
Picture of knife	Picture of beaver	Picture of fire																
Stabbing	Gnawing	Burning																
Aching	Crushing	Hot																
Throbbing	Cramping	Electric-shock/tingling																
9	<p>Section 3</p> <p>Pain Assessment</p> <p>Acute pain assessment is fundamental to the diagnosis, management and treatment of any person with an acute condition. Failure to assess the individual's pain experience may lead to misdiagnosis or inadequate or inappropriate treatment of pain- without asking a person if they are in pain how would you know whether to give them analgesia during drug rounds and it has been shown that nurses do not rate pain intensity as accurately as the patient themselves.</p> <p>When should pain be assessed?</p> <p>There is a global drive to promote pain as 'The 5th Vital Sign', recommending that pain is assessed every time pulse, blood pressure, temperature and respiration rate are checked, and although often</p>		<p>Image- obs chart</p> <p>Animation- zoom in on section where assess pain</p>															

	<p>uncompleted, it is a mandatory part of patient's obs charts.</p> <p>'Next'</p>	<p>Trigger button- click to move onto next page</p>
<p>10</p>	<p>Section 3</p> <p>How do you assess?</p> <p>Use the alphabet of pain.... OPQRST Click on the letters to learn more about what they assess</p> <p>O= Observable assessment</p> <p>To recognise pain, physiological factors can be an early indicator, as can pain behaviours (arrow to flow chart) and are effective in recognising pain in people who cannot respond verbally, or for patients who are unconscious, confused or disorientated.</p> <p>But vital signs are not always reliable indicators of the intensity of a patient's pain as they can be related to other symptoms or conditions, such as stress.</p> <p>'Back'</p> <p>P= Provocative or palliative</p> <p>What makes the pain worse? What makes it better?</p> <p>'Back'</p> <p>Q= Quality</p> <p>What does the pain feel like?</p> <p>It isn't easy to describe pain, but common words include pressure, throbbing, shooting, stabbing, sharp, cramping, gnawing, burning, and aching. How pain is described provides information about the mechanisms of pain- for example, burning is often neuropathic pain, and this description helps what treatment is required.</p>	<p>Flash: OPQRST Trigger button- press on letter then click on back to return to flash</p> <p>Flow chart- pain observation- one leg physiological factors</p> <ul style="list-style-type: none"> ◆ Pallor ◆ Increased blood pressure ◆ Tachycardia ◆ Sweating ◆ Nausea ◆ Vomiting ◆ Spasm around the pain site ◆ Dilated pupils ◆ Hyperventilation <p>Other leg- pain behaviours</p> <ul style="list-style-type: none"> ◆ Crying ◆ Grimacing ◆ Guarding painful area ◆ Avoiding movement ◆ Agitation or aggression ◆ Restlessness or irritability ◆ Withdrawal <p>Trigger button- click to move back</p> <p>Image: cartoon-style</p> <p>Trigger button- click to move back</p> <p>Pictures of words/images that can describe pain- a knife, fire, gun etc</p>


	<p>'Back'</p> <p>R= Region</p> <p>Where is the pain?</p> <p>Asking the patient to draw where it hurts on a body map is a key way to determine where the pain is, and can be used to compare against in future to determine if pain improving or worsening.</p> <p>'Back'</p> <p>S= Severity (Intensity)</p> <p>Typically, intensity of pain is determined using a pain assessment tool- a scale designed to enable the patient to rate the degree of pain felt, and by reassessing regularly, creates a profile of the pain over time.</p> <p>There are several types of pain intensity tool, but the most common is the numerical rating scale (the NRS)- where the patient marks the number that represents their pain- with 0 being no pain at all and 10 the worst pain ever.</p> <p>Most people can report their intensity of pain- for it is a personal experience. For children and those with impaired cognitive function, the pain faces scale is useful- where patients pick the face they feel represents their pain.</p> <p>'Back'</p> <p>T= Timing</p> <p>When did the pain start?</p> <p>Onset of pain on surgical wards is often related to surgical procedures, but can be more diverse when patients are talking about more long-term pain. There may be precipitating factors such as exercising followed by onset of chest pain (?angina), and associated factors may relate to the pain, such as swelling that has developed in conjunction with the pain, potentially indicating tissue damage.</p> <p>'Next'</p>	<p>Trigger button- click to move back</p> <p>Image- body map</p> <p>Trigger button- click to move back</p> <p>Image- pain scales- NRS and pain faces</p> <p>Trigger button- click to move back</p> <p>Trigger button- click to move onto next page</p>
11	<p>Section 3</p> <p>Factors influencing assessment of pain</p> <p>Patient factors- fear and anxiety, previous</p>	<p>Spider diagrams</p>

	<p>experience, personality, culture, age, knowledge, sleep disruption, illness, the environment and the response of those around the patient. Some people have spiritual beliefs that may lead them to think pain and suffering are necessary.</p> <p>A patient especially an older patient, may play down pain if they think you are busy and don't want to make more work for you.</p> <p>Nurse factors- personal beliefs and biases, personal experience, knowledge of pain physiology, pain assessment tools and analgesia.</p> <p>'Continue'</p>	<p>Trigger button- click to move onto next page</p>
12	<p>Section 4</p> <p>Acting on your assessment</p> <p>It is important that you act upon knowledge from your assessment- if a patient is in pain, highlight it to your mentor and ensure pain relief is administered.</p> <p>And document your assessment in the patient's notes- it formalises the pain assessment process, providing legal evidence that assessment has been conducted, and can be used as a comparative in future to monitor progression of intensity.</p> <p>'Next'</p>	<p>Scanned in image of care plan with patient assessment</p> <p>Trigger button- click to move onto next page</p>
13	<p>Section 4</p> <p>Pain Treatment</p> <p>There are a range of analgesics available to relieve pain, categorised according to their mechanism of action:</p> <ul style="list-style-type: none"> ◆ Adjuvants e.g. paracetamol ◆ NSAIDs e.g. ibuprofen, diclofenac ◆ Opiates e.g. codeine (weak), morphine (strong) <p>Generally the rule of thumb is to start with the weaker drugs and add in drugs from higher classes, as in the analgesic ladder.</p> <p>Combining analgesics that work by different mechanisms, such as an opioid with paracetamol, results in better pain control- the paracetamol gives a base pain relief so a smaller dose of an opiate will provide sufficient analgesia to break the pain barrier, and since opiates have lots of side effects, these are reduced with smaller doses.</p> <p>'Next page'</p>	<p>Image of analgesic ladder</p> <p>Trigger button- pain barrier graph</p> <p>Trigger button- click to move onto next page</p>

14	<p>Section 4</p> <p>Don't wait until intensity rates at 8-9/10 on the pain scale- any analgesia given then will take a longer time to break the pain barrier- in effect the drug has more work to do because there is more pain, so is better given early to prevent pain ever reaching that intensity.</p> <p>Nurses can be reluctant to administer morphine where it is prescribed PRN (as required) due to fears of addiction. Yet less than 1% of patients using opiates for pain relief develop addiction, and it wouldn't be prescribed if it wasn't appropriate to be given.</p> <p>'Continue'</p>	<p>Graph of pain 2</p> <p>Trigger button- click to move onto next page</p>
15	<p>Section 5</p> <p>Reassessment</p> <p>Reassessment is also essential, and again mandatory- as part of the medication administration protocol, any drug given has to be evaluated for efficacy and adversity- check with the patient that the analgesia is working, and not inducing side effects.</p> <p>Different people react differently to different drugs- tramadol for example can be a highly effective pain reliever for some people, yet in others can cause nausea, vomiting and even hallucinations- seeing a roomful of flying snails or the bed a sheer mass of crawling spiders!</p> <p>'Continue'</p>	<p>Trigger button- click to move onto next page</p>
16	<p>Section 6</p> <p>Summary</p> <ul style="list-style-type: none"> ◆ Failure to undertake assessment of the individual's pain experience may lead to misdiagnosis and inappropriate or inadequate treatment of pain ◆ The most effective way of measuring the amount of pain a patient experiences is self-report ◆ Pain assessment should be undertaken every time a patient's obs are monitored- it is mandatory. ◆ Act upon your assessment- ensure pain relief is provided. ◆ Reassess to make sure what you did worked. ◆ Document your assessment, intervention and reassessment in the patient's notes. 	<p>Image: cartoon of a person saying 'that didn't hurt so much did it!'</p>

17	Resources References..... For more information of pain physiology and anatomy: link to other pain RLOs (if ok with Nick)	Trigger button to other RLOs
----	---	------------------------------

School of Nursing Reusable Learning Object Specification
Pain Management Essentials for Student Nurses: Pain Treatment

Frame	Text	Imagery
1	<p>Title Page</p> <p>Pain Medicine</p> <p>An RLO to prepare student nurses to prioritise pain and recognise common pain medications for hospitalised patients.</p> <p>'START'</p>	<p>Image- patient in pain</p>  <p>Trigger button- click to move onto next page</p>
2	<p>Learning Aims</p> <p>Learning Aims</p> <p>After completing this resource you will be able to:</p> <ul style="list-style-type: none"> ◆ Recognise when a patient is in pain ◆ Understand the basics about pain and pain assessment ◆ Outline the various pharmaceutical methods for treating acute pain, ◆ Be aware of the adverse effects of analgesics ◆ Name non-pharmaceutical methods of pain management and be aware of when they can be effective ◆ Identify risks associated with strong pain medicines, the elderly and those with opiate-addiction <p>'Continue'</p>	<p>Trigger button- click to move onto next page</p>
3	<p>Section 1</p> <p>Introduction to Pain</p> <p>Pain is the most common reason for people seeking health care, yet it is regularly ignored or lowly prioritised. This is often because there are no tests or diagnostic machines that can directly measure if a person is in pain, or how much pain.</p> <p>Instead nurses rely on patient's self report.</p> <p>Quick question: Sam is sitting up in bed, talking and laughing with a visiting friend. When you ask him how his pain is he reports it is 8/10. Bob is curled up in bed, grimacing, with a deathly white face. When you ask him how his pain is he reports it is 8/10. Whose pain is worse?</p>	<p>Image- Nurse using obs machine on patient</p> <p>Flash- Pain is what a person says it is, existing whenever he says it does.</p> <p>Flash- question mark- trigger button to quick question</p> <p>'Sam' 'Bob' 'Neither'</p> <p>Trigger buttons- click to answer question</p>

	<p>Answer: Neither. Joking with visitors can be a form or distraction that the patient uses to cope with pain. The best indicator of pain is the patient's own report of pain.</p> <p>'Next'</p>	Trigger button- click to move onto next page				
4	<p>Section 1</p> <p>Historically staff used to label patients who reported high pain intensity as hypochondriacs. But pain is subjective- whilst one person may feel mild throbbing from an injury, another person with a similar injury may experience intense stabbing pains instead.</p> <p>'Next'</p>	<p>Image- patients in pain</p> <p>Trigger button- click to move onto next page</p>				
5	<p>Section 1</p> <p>Variation in pain experience occurs because pain perception is part of the nervous system. Pain receptors in the skin or tissue are activated and the stimulus travels via nerves to the brain, where it is perceived as pain.</p> <p>As such it can be influenced by a range of factors- conscious thought, emotion, mood and general health, as well as the extent of tissue damage itself. For example, pain is likely to be stronger when you are tired or miserable. Genetics also play a role in how sensitive you are to pain.</p> <p>'Next'</p>	<p>Image- body map showing pain pathway Animation- of hammer hitting toe and stimulus travelling up to brain and perceived as pain</p> <p>Trigger button- click to move onto next page</p>				
6	<p>Section 1</p> <p>Pain Myth</p> <p>If the patient doesn't seem to be in pain, he isn't in pain.</p> <p>The answer is false. Pain is subjective- it's whatever the patient says it is, occurring whenever he says it does. People react and behave differently to pain and don't always expect to find physiological markers of pain such as vital sign changes or grimacing.</p> <p>'Continue'</p>	<p>Activity- 'true' 'false' Trigger buttons- click to choose answer</p> <p>Trigger button- click to move onto next page</p>				
7	<p>Section 2</p> <p>Types of Pain</p> <p>There are two main types of pain- acute and chronic. Match the descriptions to the types.</p>	<p>Activity- drag and drop descriptions into table</p> <table border="1"> <tr> <td>Acute</td> <td>Chronic</td> </tr> <tr> <td>Sudden onset, usually related to</td> <td>Pain that persists for longer than 3</td> </tr> </table>	Acute	Chronic	Sudden onset, usually related to	Pain that persists for longer than 3
Acute	Chronic					
Sudden onset, usually related to	Pain that persists for longer than 3					

	<p>Whilst you may see patients on the ward that have chronic pain, this is usually managed by their GP- so focus more on assessing and managing any acute pain a patient has.</p> <p>'Continue'</p>	<table border="1"> <tr> <td data-bbox="887 192 1134 226">injury or illness</td> <td data-bbox="1142 192 1394 226">months</td> </tr> <tr> <td data-bbox="887 226 1134 421">Short lasting, can be severe</td> <td data-bbox="1142 226 1394 421">Where tissue has healed but pain nerves continue to fire or where the nerves themselves have been damaged</td> </tr> <tr> <td data-bbox="887 421 1134 555">Relieved with medication, resolves as tissue heals</td> <td data-bbox="1142 421 1394 555">Can be severe but hard to treat as medication not always effective</td> </tr> <tr> <td data-bbox="887 555 1134 622">Post-op wound (image)</td> <td data-bbox="1142 555 1394 622">Persistent low back pain (image)</td> </tr> </table>	injury or illness	months	Short lasting, can be severe	Where tissue has healed but pain nerves continue to fire or where the nerves themselves have been damaged	Relieved with medication, resolves as tissue heals	Can be severe but hard to treat as medication not always effective	Post-op wound (image)	Persistent low back pain (image)	<p>Trigger button- click to move onto next page</p>
injury or illness	months										
Short lasting, can be severe	Where tissue has healed but pain nerves continue to fire or where the nerves themselves have been damaged										
Relieved with medication, resolves as tissue heals	Can be severe but hard to treat as medication not always effective										
Post-op wound (image)	Persistent low back pain (image)										
8	<p>Section 3</p> <p>Pain Assessment</p> <p>Acute pain assessment is fundamental to the diagnosis, management and treatment of any person with an acute condition. Failure to assess the individual's pain experience may lead to misdiagnosis or inadequate or inappropriate treatment of pain- without asking a person if they are in pain how would you know whether to give them analgesia during drug rounds and it has been shown that nurses do not rate pain intensity as accurately as the patient themselves.</p> <p>When should pain be assessed?</p> <p>There is a global drive to promote pain as 'The 5th Vital Sign', recommending that pain is assessed every time pulse, blood pressure, temperature and respiration rate are checked, and although often uncompleted, it is a mandatory part of patient's obs charts.</p> <p>'Next'</p>		<p>Image- obs chart Animation- zoom in on section where assess pain</p> <p>Trigger button- click to move onto next page</p>								
9	<p>Section 3</p> <p>Discussion with the patient is an essential part of pain assessment, alongside vital sign monitoring and observing patient behaviour for pain indicators such as grimacing.</p> <p>Ask if the patient is in pain, where it is and how intense it is.</p> <p>Determine the cause- is it related to a surgical wound or obvious injury or maybe some underlying infection?</p> <p>Knowing this can determine how to treat the pain- whether just analgesia is required whilst the wound is healing, or further tests are needed to</p>		<p>Image- evaluation form in patient's notes with example assessment.</p>								

	<p>rule out underlying problems- pain is first and foremost a warning sign that there is some kind of threat to the body, so just numbing the pain without investigation can be detrimental.</p> <p>Don't forget to document your assessment so it can be used to compare against when assessing pain in future- is the pain better or worse?</p> <p>Reassessment is also essential, and again mandatory- as part of the medication administration protocol, any drug given has to be evaluated for efficacy and adversity- check with the patient that the analgesia is working, and not inducing side effects.</p> <p>'Continue'</p>	<p>Trigger button- click to move onto next page</p>
10	<p>Section 4</p> <p>Treating Acute Pain</p> <p>Uncontrolled or poorly controlled pain diminishes a patient's physical and mental health- it delays healing. But because pain can be so difficult to treat, there are a variety of options available, categorised according to their mechanism of action.</p> <ul style="list-style-type: none"> ◆ Adjuvants ◆ NSAIDs (non-steroidal anti-inflammatory drugs) ◆ Opiates <p>Generally the rule of thumb is to start with the weaker drugs and add in drugs from higher classes, as in the analgesic ladder.</p> <p>Combining analgesics that work by different mechanisms, such as an opioid with an NSAID, may result in better pain control as the non-opioids provide additional analgesia, allowing a lower opiate dose and thus a lower risk of adverse opioid effects.</p> <p>'Next'</p>	<p>Image- WHO analgesic ladder</p> <p>Activity- fit the drugs to their rung on the ladder:</p> <p>Adjuvant- paracetamol NSAID- diclofenac, ibuprofen Strong opioid- morphine, oxycontin</p> <p>Trigger button- click to move onto next page</p>
11	<p>Section 4</p> <p>What do the drugs do?</p> <p>When giving pain relief to a person in pain, knowing what they do to the body is key to reassessing the effect of the drug on the patient, so for several common analgesics, key information is found by clicking on each of the drugs.</p> <p>Paracetamol (acetaminophen)</p>	<p>Flash: common analgesics</p> <p>Trigger button- press on each then click on back to return to flash</p>

<p>Pharmacotherapeutics*: Mild pain relief and to reduce temperature</p> <p>Pharmacokinetics*: <ul style="list-style-type: none"> ◆ Orally (tablet-form), 60-98% of drug is absorbed but when taken rectally (suppository) 30-40% of drug is absorbed ◆ Widely distributed around the body fluids ◆ Excreted through the kidneys </p> <p>Pharmacodynamics*: Currently not sure how it works, possibly inhibits prostaglandin* synthesis in the central nervous system.</p> <p>'Back'</p> <p>NSAIDs</p> <p>There are many NSAIDs available.... But the most common ones seen on the ward are ibuprofen and diclofenac.</p> <p>Pharmacotherapeutics: Mild-moderate pain relief. Often used for muscular pains, sprains and arthritis.</p> <p>Pharmacokinetics: <ul style="list-style-type: none"> ◆ Most are absorbed rapidly with limited distribution around the body, and are metabolised by the liver. </p> <p>Pharmacodynamics: Interfere with prostaglandin production.</p> <p>'Back'</p> <p>Opiates</p> <p>As with NSAIDs, there are a range of opioids. Morphine is the gold standard against which other pain medications are measured as it is usually highly effective, but it does have significant side effects hence is not used as a cure-all for any pain. Oxycontin is a good alternative for those that are more sensitive to the side effects of morphine.</p> <p>Pharmacotherapeutics: Severe pain relief but morphine in low doses also relieves shortness of breath in patients with pulmonary oedema and left-sided heart failure.</p> <p>Pharmacokinetics: Readily absorbed, peak time to effect is 15 minutes if given IV, and 1-2 hours if given orally. Widely distributed around the body. Metabolised in the liver and the metabolites are</p>	<p>Pain relief graph of drugs and level of pain relief, with paracetamol highlighted.</p> <p>Trigger button- click to move back</p> <p>Pain relief graph of drugs and level of pain relief, with NSAIDs highlighted</p> <p>Image- Spider diagram of NSAIDs</p> <p>Trigger button- click to move back</p> <p>Pain relief graph of drugs and level of pain relief, with opioids highlighted.</p> <p>Image- Spider diagram of opioids</p> <p>Animation of opioid action</p>
---	--

	<p>excreted via the kidney.</p> <p>Pharmacodynamics: Bind to opiate receptors in the central nervous system*, mimicking the effect of endorphins- the body's natural pain relief system. This blocks the release of substance P, a chemical which normally enables transmission of the pain signal to the brain, thus preventing the brain perceiving that there is pain, therefore relieving pain</p> <p>'Next'</p>									
12	<p>Section 4</p> <p>Pain Myth</p> <p>Strong analgesics should only be given if the patient is unable to stand the pain anymore, because otherwise they might get addicted.</p> <p>The answer is false. Nurses are often reluctant to frequently administer strong pain medications such as morphine where prescribed PRN (as required) due to fears of addiction. Yet less than 1% of patients using opiates for pain relief become addicted, and they are the best way to control severe pain, although you can become tolerant over time.</p> <p>This is where you get used to the drug so need more to have the same effect, and is a normal reaction. If you stop taking the drug your tolerance reverts to its pre-drug state.</p> <p>'Next'</p>	<p>Trigger button- click to move onto next page</p> <p>Activity- 'true' 'false' Trigger buttons- click to choose answer</p> <p>Trigger button- click to move onto next page</p>								
13	<p>Section 4</p> <p>Adverse effects</p> <p>Match the adverse effects to the drugs</p> <p>Many patients can be hypersensitive to opiates- where smaller doses cause bigger adverse effects, which are a problem as opiates, are the only real option for trauma-related severe pain.</p> <p>But as long as the effect isn't respiratory depression, the opiate can be given, but in a carefully controlled environment and with secondary medications such as anti-emetics*, and where extensive consideration has been given to other options first.</p>	<p>Activity- drag and drop descriptions into table</p> <table border="1"> <thead> <tr> <th>Drug</th> <th>Adverse Effect</th> </tr> </thead> <tbody> <tr> <td>Paracetamol</td> <td>Rare, liver damage in overdose</td> </tr> <tr> <td>NSAIDs</td> <td>Gastro-intestinal problems such as ulceration, abdominal pain, nausea, diarrhoea, bleeding</td> </tr> <tr> <td>Opiates</td> <td>Respiratory depression, constipation, dizziness, sedation, nausea, vomiting, tolerance</td> </tr> </tbody> </table> <p>Flash- where a patient reacts adversely to</p>	Drug	Adverse Effect	Paracetamol	Rare, liver damage in overdose	NSAIDs	Gastro-intestinal problems such as ulceration, abdominal pain, nausea, diarrhoea, bleeding	Opiates	Respiratory depression, constipation, dizziness, sedation, nausea, vomiting, tolerance
Drug	Adverse Effect									
Paracetamol	Rare, liver damage in overdose									
NSAIDs	Gastro-intestinal problems such as ulceration, abdominal pain, nausea, diarrhoea, bleeding									
Opiates	Respiratory depression, constipation, dizziness, sedation, nausea, vomiting, tolerance									

	'Next'	<p>opiates- losing consciousness and respiratory rate rapidly dropping, naloxone can be given to reverse the effects of the morphine.</p> <p>Trigger button- click to move onto next page</p>
14	<p>Section 4</p> <p>Adjuvant analgesics</p> <p>Some drugs are used primarily for other indications but are given as analgesics in some circumstances, for example some anti-convulsants such as gabapentin, and some anti-depressants, such as amitripyline, are used to treat neuropathic* pain.</p> <p>'Next'</p>	<p>Cartoon- patient with tablet saying "But I have back ache not depression?"</p> <p>Trigger button- click to move onto next page</p>
15	<p>Section 4</p> <p>Pain Myth</p> <p>Non pharmacological* pain interventions should be avoided since the evidence base is weak and studies are often poorly designed.</p> <p>The answer is false. For patients with chronic pain, where analgesia is only semi-effective, and as an additional form of pain relief for any patient, non-pharmacological pain interventions can be used. It is recommended that these are undertaken by trained physicians, and have been shown to be of benefit in some situations, for example use of TENS for early labour pains.</p> <p>'Next'</p>	<p>Activity- 'true' 'false'</p> <p>Trigger buttons- click to choose answer</p> <p>Spider diagram of non-pharmacological methods of pain relief.</p> <p>Trigger button- click to move onto next page</p>
16	<p>Section 5</p> <p>Pain and Elderly Patients</p> <p>Misconception: Pain is a normal part of the ageing process Present understanding: Elderly patients have a higher risk of pain related to injury, illness or other health conditions, but pain is not inevitably linked to ageing.</p> <p>Misconception: Sensitivity to pain decreases with age Present understanding: You do not get used to pain; there is no change in pain perception or sensitivity due to age.</p> <p>Misconception: Elderly people cannot use opioids Present understanding: They are safe to use in elderly people, but older patients tend to require a smaller dosage to achieve pain relief, and regular</p>	<p>Image- older person and tablets</p> <p>Each misconception and present understanding in bubbles that flash up</p>

	<p>monitoring. NSAIDs should also be used with caution as older people are more susceptible to GI disturbances, which can be exacerbated by NSAIDs.</p> <p>'Continue'</p>	<p>Trigger button- click to move onto next page</p>
17	<p>Section 6</p> <p>Pain and patients with addiction</p> <p>These patients are at high risk of under treatment of pain. The patient may be reluctant to ask for analgesia for fear his request may be understood, and the nurse may be reluctant to administer pain medication not wanting to encourage the addiction.</p> <p>The best way to manage pain is:</p> <ul style="list-style-type: none"> ◆ Regular scheduled analgesia rather than PRN ◆ Avoid NSAIDs and paracetamol (or check liver and kidney function before giving) as patients with addiction often have liver and kidney problems which can affect drug metabolism and elimination ◆ Regularly assess pain- an addicted patient may have a markedly high tolerance for opioids and require doses significantly greater than for other patients to provide relief- use reassessment of pain level, sedation, respiratory rate and functional status not the number of milligrams to determine the effect of the medication <p>'Continue'</p>	
18	<p>Section 7</p> <p>Summary</p> <ul style="list-style-type: none"> ◆ Failure to undertake assessment of the individual's pain experience may lead to misdiagnosis and inappropriate or inadequate treatment of pain ◆ The most effective way of measuring the amount of pain a patient experiences is self-report ◆ Pain assessment should be undertaken every time a patient's obs are monitored- it is mandatory. ◆ Act upon your assessment- ensure appropriate pain relief is provided. ◆ Understand the effects of different analgesics and be able to recognise adverse effects ◆ Reassess to make sure what you did worked. ◆ Document your assessment, intervention 	<p>Image: cartoon of a person saying 'that didn't hurt so much did it!'</p>

	and reassessment in the patient's notes.	
19	<p>Glossary* and Resources</p> <p>Anti-emetic Central nervous system Pharmacotherapeutics Pharmacological Pharmacokinetics Pharmacodynamics Prostaglandins</p> <p>References.....</p> <p>For more information of pain physiology and anatomy: link to other pain RLOs</p>	