SECTION 6

Useful resources

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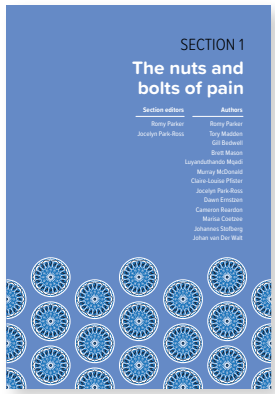
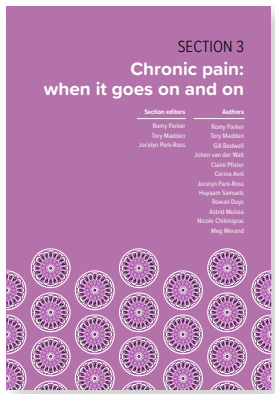
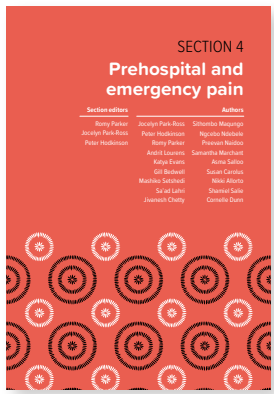
About the book

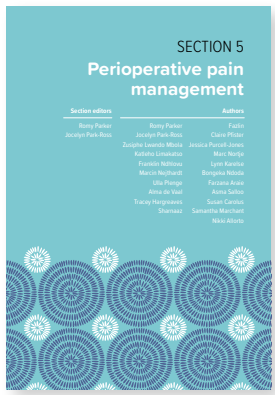
This open access textbook is aimed at all healthcare disciplines, including nurses, doctors, rehabilitation and allied healthcare and prehospital care providers.

Throughout the book, essential evidence-based pain knowledge is interwoven with contextual case studies and patient stories, centering the patient experience to enhance understanding of the physiology, assessment, and treatment of pain.









In this section we are providing you with useful resources that you may wish to print out for easy access in future. These are all materials you have already come across in the book, but here we present them as single-page, printer-friendly versions.

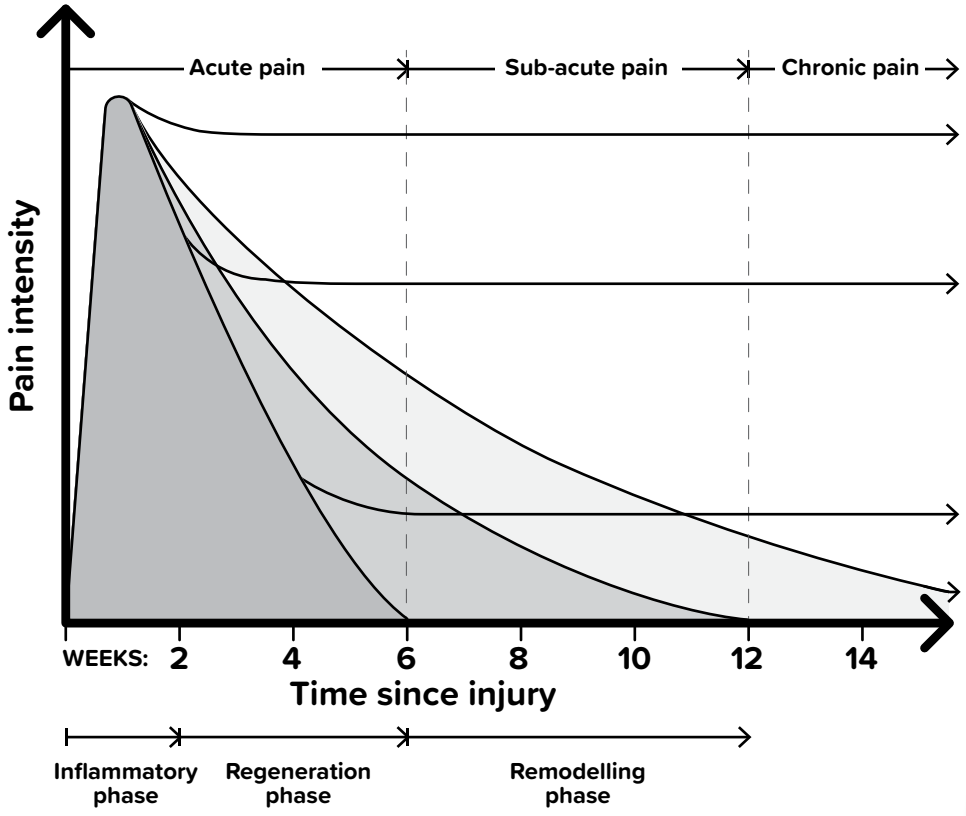
Contents:

Time-based definitions of pain

- **Acute pain:** Pain lasting up to 6-weeks. As you can see in the diagram, this 6-week time reminds us that acute pain is usually associated with normal tissue healing processes in the inflammatory and regeneration phases of healing.
- **Sub-acute pain:** Pain between 6 weeks and 3 months after an injury. As you can see in the diagram, this pain may be associated with tissue healing processes during the remodelling phase of healing.
- **Chronic pain:** Chronic pain is defined as pain on most days for more than 3 months. Why 3 months? Because, after 3 months, most tissues have healed, so this pain has persisted beyond normal tissue healing processes.

Mechanism-based definitions of pain

- **Nociceptive:** "Pain that arises from actual or threatened damage to non-neural tissue and is due to the activation of nociceptors (2).
- **Neuropathic:** "Pain arising from lesion or disease of the somatosensory nervous system" (2).
- **Nociplastic:** "Pain that arises from altered nociception despite no clear evidence of actual or threatened tissue damage causing the activation of peripheral nociceptors or evidence for disease or lesion of the somatosensory system causing the pain" (3) .



Resource from the book,
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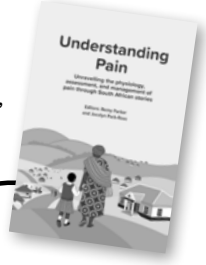
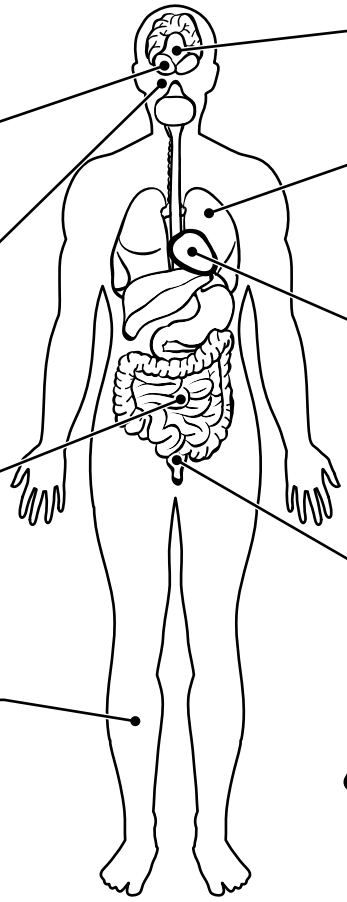


Symptoms of dysautonomia



Pupillomotor
- Impaired pupil response (uncomfortable in bright light)
- Difficulty with vision

Secretomotor
- Difficulty sweating, tearing and other fluid production (dry eyes, dry mouth, difficulty swallowing, dry skin)

Gastrointestinal
- Nausea, vomiting, diarrhea, constipation, abdominal pain, reflux, heartburn, impaired motility

Orthostatic intolerance
- Difficulty standing still, fatigue, lightheadedness
- Increase in symptoms with upright posture, fainting (syncope) or near-fainting, pallor

Neurological
- Migraine, cognitive deficits, brain fog & mental clouding

Pulmonary
- Shortness of breath
- Easily winded
- Difficulty breathing

Cardiovascular
- Palpitations, chest discomfort
- High heart rate (tachycardia)
- Low heart rate (bradycardia)
- High or low blood pressure
- Abnormal blood vessel functioning
- Blood pooling

Urinary
- Difficulty with urine retention and/or excretion

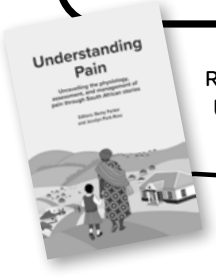
Symptoms can be sudden and unpredictable in onset

The FLACC pain scale

Categories	Score Zero (0)	Score one (1)	Score two (2)
Face	No particular expression or a smile	Occasional grimaces or frown, withdrawn, disinterested	Frequently to constantly quivering chin, clenched jaw
Legs	Normal position or relaxed	Uneasy, restless, tense	Kicking or legs drawn up
Activity	Lying quietly, normal position, moves easily	Squirming, shifting back and forth, tense	Arched, rigid or jerking
Cry	No crying (awake or asleep)	Moans or whimpers, occasional complaints	Crying steadily, screams or sobs, frequent complaints
Consolability*	Content, relaxed	Reassured by occasional touching, hugging or being talked to, distractible	Difficulty to console or comfort

Each category is scored as 0-2 and a total score of 0-10 is calculated.

*Consolability means that they can be comforted or consoled.



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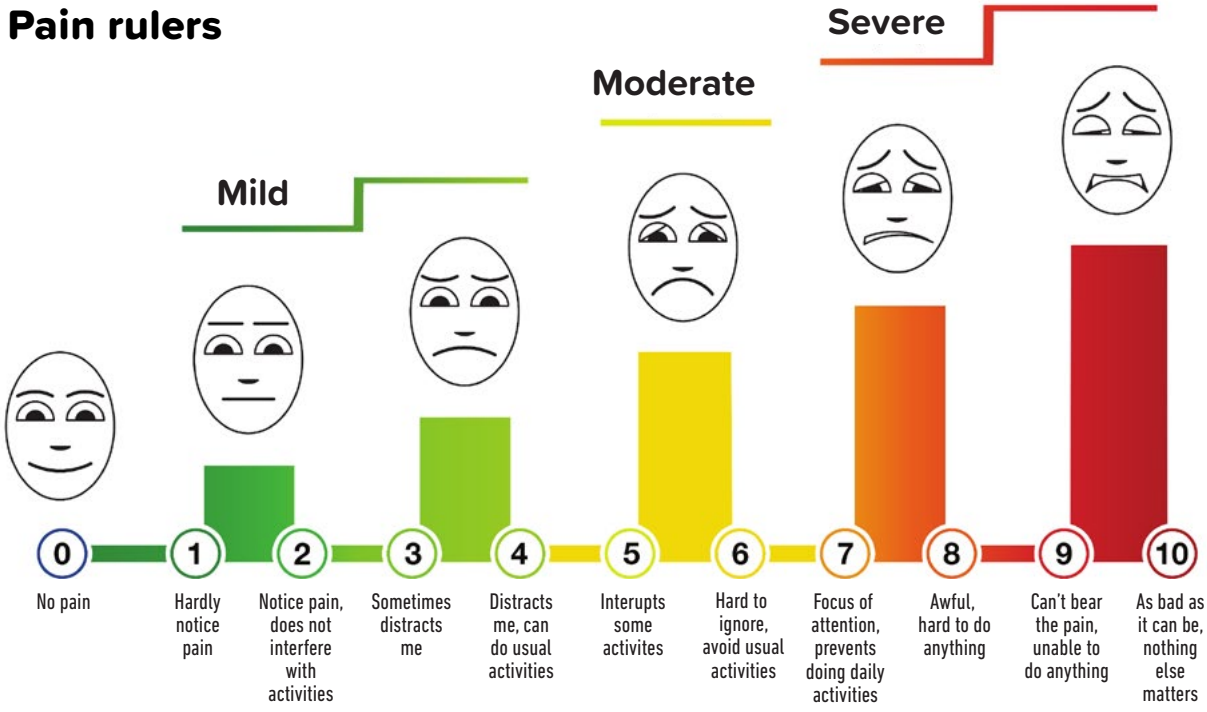
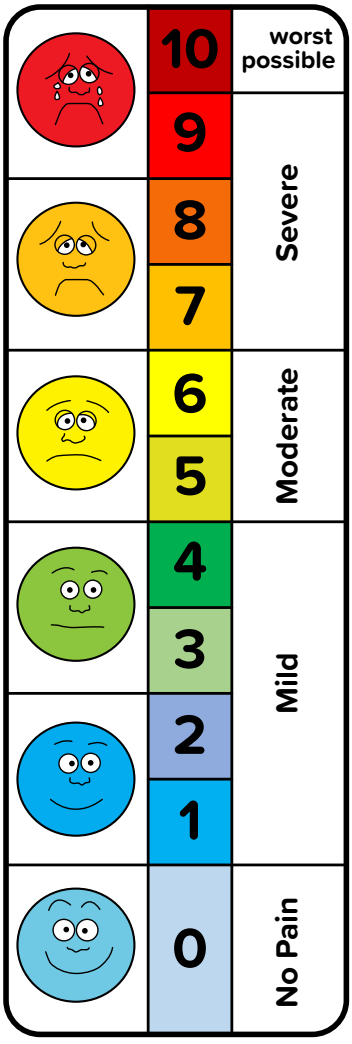
The OPQRSTUVW of Pain

Gather information on the...	Examples of questions to ask	How will you use this information?
Onset	• When and how did this start? • How long does the pain last? • How often do you get the pain?	Establish a timeline to link to stage of healing. Helps to classify pain as acute or chronic; and nociceptive, neuropathic or nociplastic
Provoking and palliating (easing) activities	• What causes the pain? • What makes it better? • What makes it worse?	Provides information for identifying mechanisms in the PNS, spinal cord, brain, and synergistic systems.
Quality of the pain	• Can you describe your pain?	Different pain types have particular qualities, e.g., neuropathic pain is typically burning, electrical, and associated with tingling or pins and needles.
Region or radiation	• Where is the pain? • Does the pain spread? • Where does it spread to?	Provides information for identifying mechanisms in the PNS (discrete area, dermatome, or nerve distribution), spinal cord (referral within a spinal segment), or brain (homuncular referral).
Severity	• How severe is your pain? • How severe is it right now/at its best/at its worst and on average? • How severe is your pain when you try to be active?	Understanding what impact, the pain is having on the person, and to guide treatment choices.
Treatment	• What treatments have you tried for your pain? • How well did that work? • Have you had any side-effects from these treatments?	Provides information for identifying mechanisms in the PNS, SC, brain, and synergistic systems.
Understanding beliefs and impact	• What do you think is causing your pain? • What do you think is wrong? • What are you worried this pain could mean? • What can you not do because of your pain? • How is this pain affecting you and your family?	Information on what might be contributing to the perception of threat and generation of pain. Informs a functional focus in the treatment plan – after all, our goal is to restore function! This information is critical for the healthcare professional to gain insight into the threat factors.
Values	• What is your goal in getting your pain treated? • What do you want me as a healthcare professional to do for your pain? • What are you not doing because of your pain that you want to be able to do? • What is your pain stopping you from doing?	Informs treatment planning and ensures that we are on the same page in terms of restoring participation in meaningful life roles. Helps the healthcare professional understand what the person in pain has lost or is afraid of losing in terms of participation in their lives e.g. "I'm not being the father I want to be".
What else?	• What else is going on in your life? • How are you generally? • What else do you think it would be useful for me to know?	Information useful to evaluate what synergistic systems might be contributing in terms of stress, sleep, immune, and endocrine systems.

Pain rulers





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Defence and Veterans Pain Rating Scale (Source: Defence & Veterans Center for Integrative Pain Management)

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Vertical pain rating scale (Source: PainOut)

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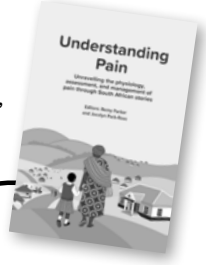
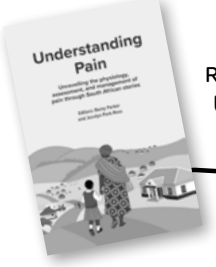
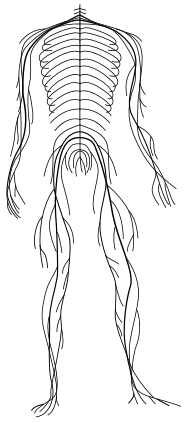


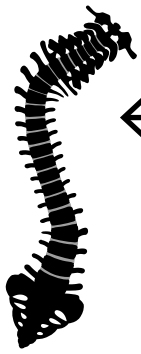
Red flags and conditions

Red Flag	Potential indicator of...
Unremitting night pain (i.e., linked to clock time rather than sleeping position)	Nociceptive pain mechanism
Sudden, unexplained weight loss (≥5kgs within 3 months)	Malignancy, tuberculosis, HIV
Bladder and/or bowel incontinence	Cauda equina syndrome
Saddle anaesthesia, (i.e., loss of sensation in the perineal area and medial aspects of both thighs)	Cauda equina syndrome
Night sweats (i.e., drenching clothing/linen)	Tuberculosis
Acute onset of severe, unremitting pain	Nociceptive pain mechanism
Bilateral pins and needles or loss of sensation	Neurological compromise e.g., spinal stenosis
New onset of severe headaches	Nociceptive pain mechanism of structures of the head and neck (including the brain)
Groups of red flags	
Pain in an extremity associated with pallor, pulselessness, and paraesthesia	Vascular compromise, e.g., compartment syndrome, deep vein thrombosis
No improvement in pain over one–month; insidious (gradual) onset, person >50 years old; no relief with bed rest; systemically unwell; unexplained weight loss, fevers ,and thoracic pain (26)	Malignancy
Bladder and/or bowel incontinence; saddle anaesthesia, (i.e. loss of sensation in the perineal area and medial aspects of both thighs), unilateral or bilateral radicular pain and/or loss of sensation or power in a dermatome/myotome, person <50 years old, unilateral symptoms progressing to bilateral (27)	Cauda equina syndrome
Insidious, increasing low back pain with progressive sensory/motor loss, progressive bowel and/or bladder incontinence or dysfunction (27)	Lumbar spinal stenosis
Thoracolumbar spinal or referred pain which may be localised (can point to it with one finger) or diffuse, unexplained weight loss, night sweats, progressive sensory/motor loss, progressive bowel and/or bladder incontinence of dysfunction, low grade fevers, gibbus, pain on percussion of the vertebrae, paraspinal cold abscess, no mechanism of injury, gradual onset of pain, history of pulmonary tuberculosis, immunocompromised, younger than 20, or older than 50 years of age (28, 29)	Spinal tuberculosis (TB spine)
Significant corticosteroid use, osteoporosis, >65 years old, female, trauma or history of falls, previous fracture, thoracic pain, new onset severe pain, (27)	Spinal fracture



Mind-mapping all the information gathered in the assessment to identify targets for treatment





Pain

Peripheral Nervous System

Spinal Cord

Brain

Evidence of activity

Signs of inflammation
Primary hyperalgesia
Clear aggravating and easing factors
Within tissue healing times
Good response to analgesics and NSAIDs

Evidence of activity

Allodynia
Secondary hyperalgesia
Pain referred in a spinal segment
Temporal summation
Response to medication

Evidence of activity

Where is the pain?

Cortical activity contributing to pain

Pain referred to multiple areas
Pain gets worse (Sensitivity to Physical Activity)
Central Sensitisation Inventory Score >40
Two-point discrimination altered
Altered left-right discrimination
Pain on imagining movement

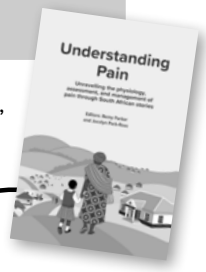
Synergistic Systems

Evidence of activity

Sleep disturbances
Autonomic nervous system dysfunction
Endocrine system dysfunction
Immune system dysfunction

What vulnerability factors seem to be contributing to pain for this person?

Depression
Anxiety
Pain catastrophising
Fear-avoidance beliefs



Resource from the book,
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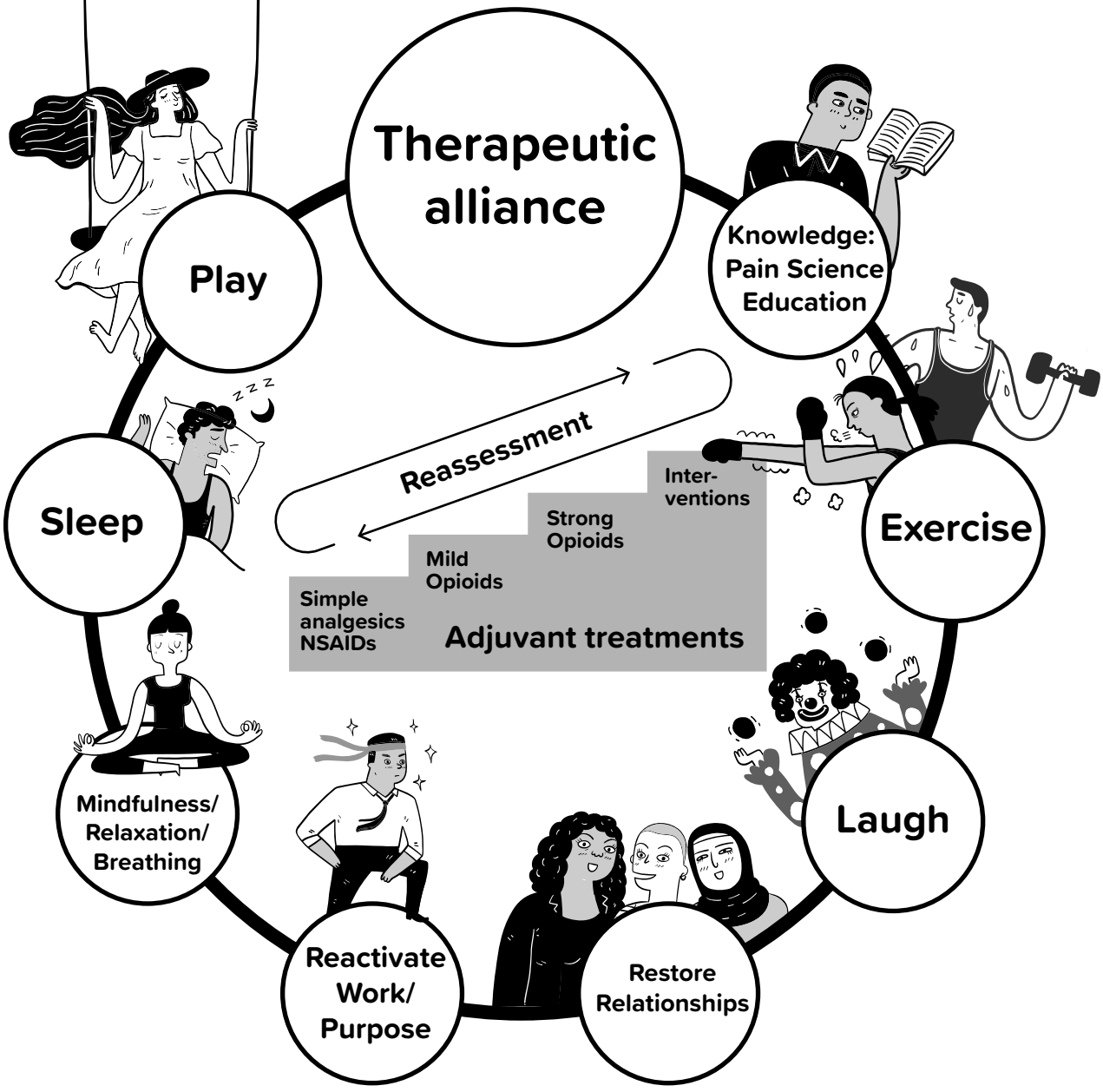
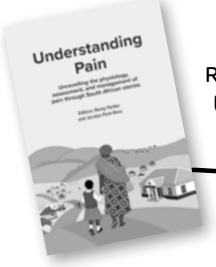
The WHO analgesic ladder in the context of holistic pain treatment strategies





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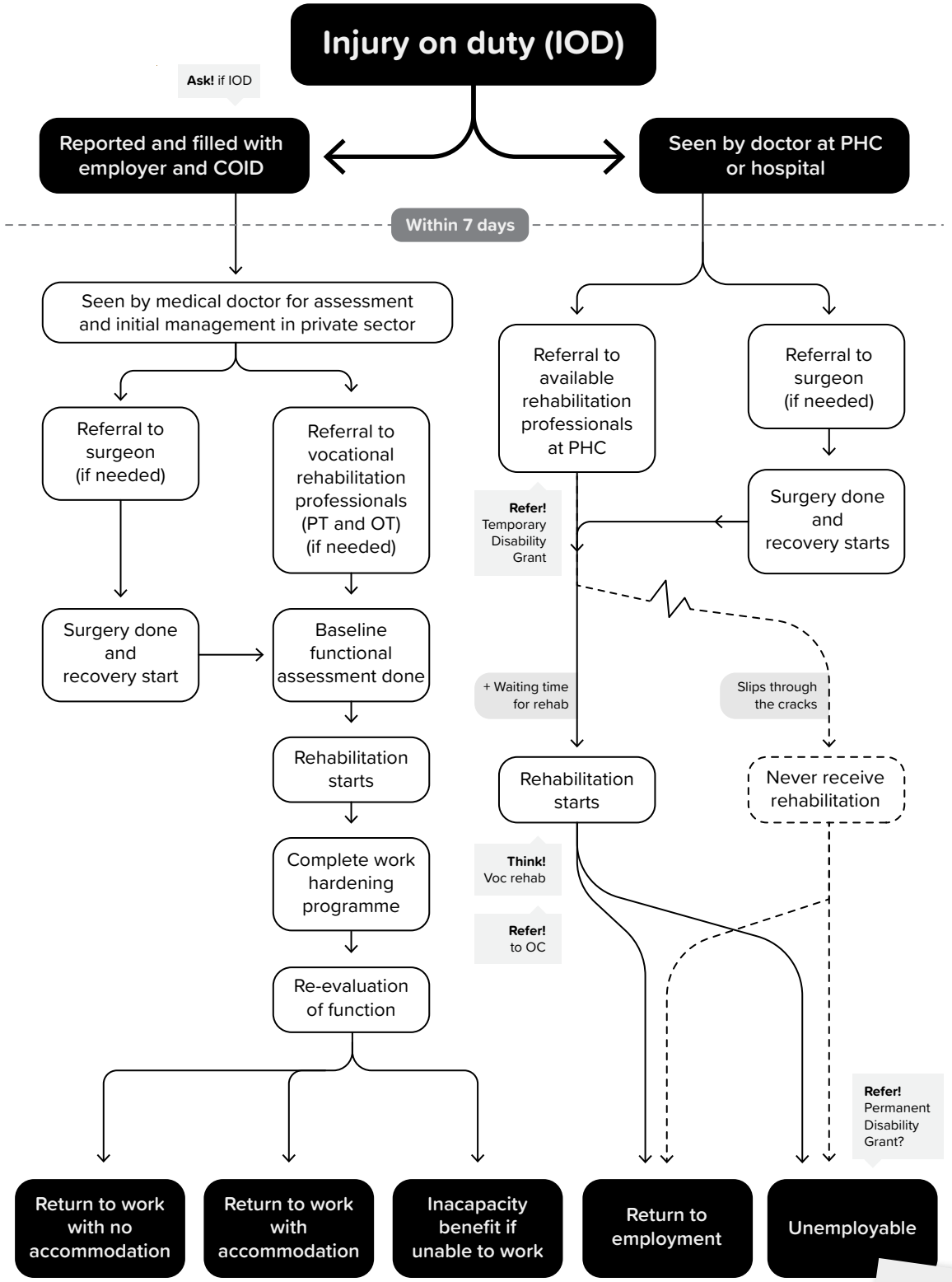
Injury on duty



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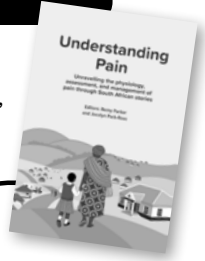


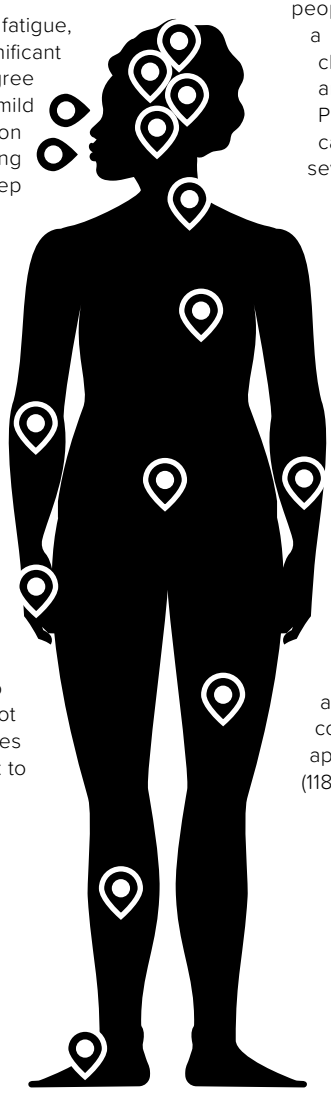
Features of fibromyalgia

Fibromyalgia is characterised by several cardinal features that are commonly experienced. These features include:

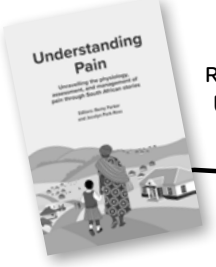
1. **Widespread pain:** pain in fibromyalgia can affect the entire body, from head to toe. People with the condition often use a variety of pain descriptors, and the pain is often described as similar to neuropathic pain (96). Paraesthesia in the limbs, hands or trunk is reported by 20-30% of sufferers (97). The type, location, and severity of pain can be influenced by various factors, including working activities, comorbidities (such as obesity (98)), and variations in temperature (99, 100). Physical or mental stress are also known to worsen pain (101, 102).
2. **Fatigue and sleep disturbances:** fatigue, both physical and mental, is a significant symptom in fibromyalgia. The degree of fatigue can range from mild tiredness to a state of exhaustion similar to that experienced during viral illnesses like influenza. Sleep disturbances are common and can include insomnia, frequent awakenings, and non-restorative sleep. Even when the duration and quality of sleep are normal, sufferers often report not feeling adequately rested (103, 104).

Other common features:

3. **Cognitive dysfunction:** cognitive dysfunction, often referred to as "fibro-fog," and memory deficits are severe symptoms experienced by many people with fibromyalgia (105). While factors such as depression, anxiety, pain, and sleep problems can contribute to cognitive symptoms, they do not fully explain the cognitive difficulties reported which sufferers often link to physical activity or diet.
4. **Multisystem symptoms:** fibromyalgia can manifest with various clinical symptoms that affect different organs and systems. These symptoms can vary in severity between people and even within the same person over time. Common symptoms include headache (with or without a history of migraines), dyspepsia, abdominal pain, alternating constipation and diarrhoea (associated with irritable bowel syndrome), genitourinary disorders, and stiffness (typically not exceeding 60 minutes of morning stiffness)(106-110).
5. **Autonomic disturbances:** autonomic disturbances are observed in fibromyalgia and can manifest throughout the body (111, 112). People may report dry mouth (xerostomia) and eyes (xerophthalmia), blurred vision, photophobia, Raynaud's phenomenon, lower limb discomfort, and restless legs syndrome (113). A feeling of instability or staggering, particularly after prolonged standing, may also be experienced (114).
6. **Psychological and psychiatric symptoms:** people with fibromyalgia often exhibit a predominant negative affect, characterised by negative emotions and generalised distress (115). Psychiatric disorders are common and can significantly impact lives and the severity of the syndrome (91). Anxiety disorders have a high prevalence (60%) in fibromyalgia, and depression is observed in 14–36% of sufferers (116). The risk of suicide is elevated in people with fibromyalgia compared to the general population (117). However, depressive symptoms are not necessarily more frequent in fibromyalgia compared to other painful conditions and may be related to maladaptive coping with psychological distress (102).



These cardinal features and common symptoms highlight the diverse and multisystem nature of fibromyalgia, contributing to the complexity of the condition and emphasising the need for comprehensive and individualised approaches to diagnosis and treatment (118).



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Patient Healthcare Pathway

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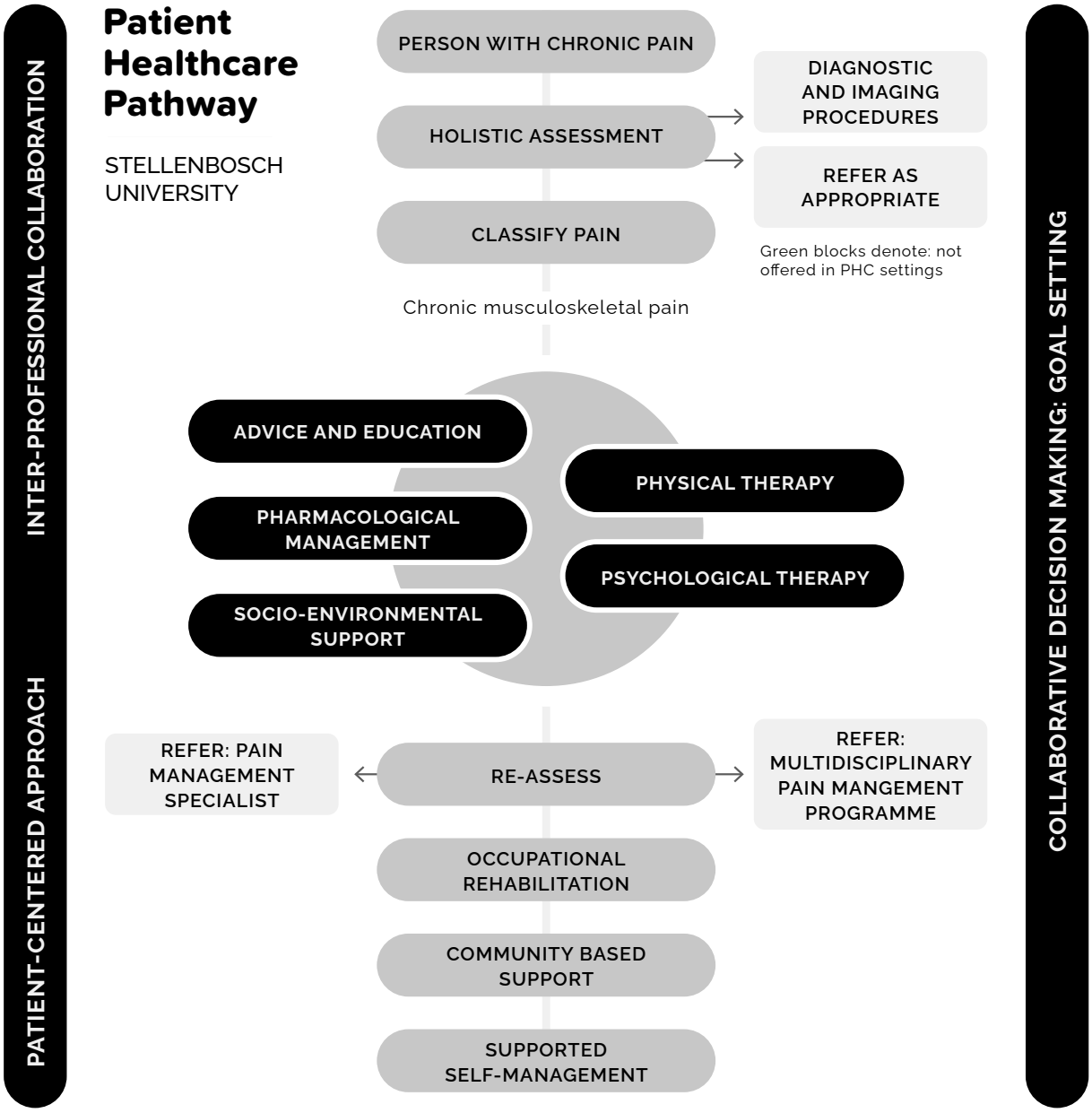

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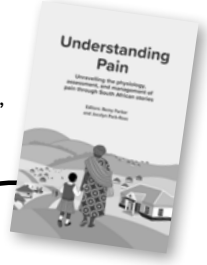
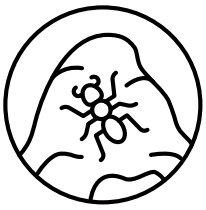


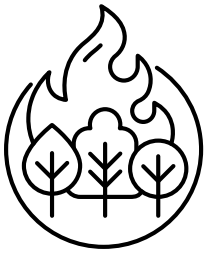
African metaphors to explain chronic pain (pg 1 of 3)

In society we often use metaphors to explain ideas or concepts. Metaphors are useful when we are learning a new concept or trying to help someone shift a paradigm because the person hearing the metaphor has to make sense of it. This "sense making" facilitates deeper and more personal learning. Here are some examples of metaphors we use to help people understand pain.



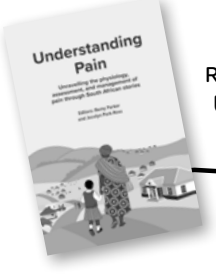
Pain which has continued despite tissue healing

When I was a child, we used to play in the veld where there were lots of ant hills. Ant hills were great fun: you could climb up them and look over the long grass, or you could hide behind them and ambush your brother. Sometimes the ants were still living in the ant hill and when we climbed up on to their homes and damaged the walls, the ants would all come out and start to repair the damage we had done. We didn't really notice the ants' hard work though. The next day we would come back and climb up again and damage it again, and once again the ants would have to come out and make repairs. After a while, we noticed the ants' hard work and how clever they were about fixing their home, but we didn't stop playing and climbing up the ant hills! Then we noticed that the ants started to come out even when we didn't climb up and damage the walls. The ants felt the vibrations as we ran nearby, they could hear us, they knew what was coming next and they set off the alarm and sent out the worker ants to get to work.



Pain which occurs when nothing dangerous has happened

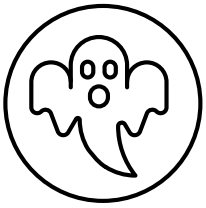
In the summer in my grandmother's village, the bush gets very dry, and everyone worries about fires. Fires destroy homes and burn the crops and the grazing. If there is a fire, everyone needs to come and help to fight it. There is an old man who lives at the top of the hill; he can see long distances from his house. It's his job to look out for smoke so that he can warn everyone in the village of any fire by ringing a big bell next to his house. When the bell rings, everyone drops whatever they are doing, they grab their buckets and sacks, and they come together to fight the fire and save their homes. This system has always worked well and kept the village safe. But this summer the old man rang the bell almost every day, so everyone kept stopping their work and getting ready to fight a fire, only to find that there was no fire! After a few times of this happening, everyone started to get annoyed, because they weren't getting any work done! Finally, my grandmother went up the hill to talk to the old man and find out what might be happening. As she got to the top of the hill, he shouted "smoke!" and started to run off to ring the bell. My grandmother turned to look where he was pointing and saw...fog! Wait, don't ring the bell: it's not smoke, it's fog coming in from the sea!



African metaphors to explain chronic pain (pg 2 of 3)

Pain becoming more and more severe despite minor or no tissue damage

I remember how, during the drought, everyone kept telling us to make sure that taps were properly turned off. Don't waste water! A dripping tap wastes lots of precious water. Where I grew up, the droughts were always in winter. It was bitterly cold at night. We would get into bed and wriggle around until we were warm and comfortable before going to sleep. Sometimes, though, just as I was warm and comfortable and nearly falling asleep, I would hear it, the tap was dripping! Oh no! It's too cold to get out of bed! So, I would pull the blanket over my ear so I couldn't hear the dripping and get to sleep. But I could still hear it! I would put the pillow over my ear, but the dripping got louder! I pushed my hand against the pillow, against my ear and tried to ignore it, but it got louder! Eventually I had to get out of my warm bed and walk to the cold bathroom to turn off the tap. I'm sure that little drip couldn't be that loud!?



Pain depends on context

My family loves to sit around a fire at night and tell stories. Sometimes we tell funny stories, sometimes we tell scary stories. If someone is telling a scary story I can feel my heart beating in my chest, my throat squeezes tight, and I get really scared! One night my uncle was telling us a really scary story. In the middle of the story, my brother crept around behind me, and put his hand on my neck. I nearly died of fright! I screamed, I jumped up, my heart nearly jumped out of my chest and my legs were like jelly! It's funny, because my brother often does that to me during the day, he creeps up behind me and puts his hand on my neck, but during the day it never gives me a fright, I just turn and smile and say hello!

Pain when there is nothing wrong with the tissues

My husband travels away from home a lot and he worries about me being home alone. He decided it would be a good idea to install a very fancy new burglar alarm system all the way around the outside of the house. This system worked with sensors and beams, so if anything went through the beam, the alarm would go off. He thought this was a good idea because then I would know if someone was coming too close to the house, and I could be warned and respond before anything dangerous had happened. But the second night of setting the alarm - it went off! The dogs started to bark, I jumped out of bed and grabbed a torch, the telephone rang from the armed response company – everyone was ready for attack! But there was nothing and no one there. It was all OK, false alarm. Eventually I got back to sleep! But the next night the very same thing happened! Oh no, obviously my home is being targeted. The thieves must know my husband is away. Check the doors and locks, be careful! A few nights later it happened again! Oh no! Now what do I do? I asked the armed response guards to drive past my house many times, I didn't sleep well, I kept waking up to check that all was safe.

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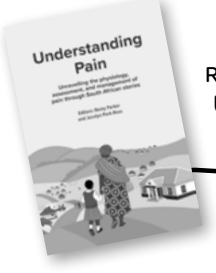

Resource from the book,
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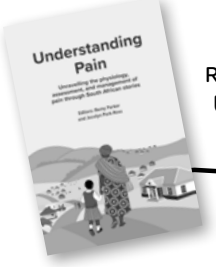
African metaphors to explain chronic pain (pg 3 of 3)

Every little noise made me jump! The next night I couldn't get to sleep, I was so scared. I sat and stared at the dark garden, and then I saw it - the Cape Eagle Owl swooping across the garden, and as he swooped the alarm went off! Of course! Owls hunt at night, and alarm beams aren't going to stop them flying into my garden to catch a mouse or a lizard! Having a super sensitive alarm to warn us before anything dangerous came close to the house sounded like a good idea, but now it was causing more stress and trouble, not less.

Some people are just more sensitive than others

My aunt had a small herd of cows which got milked every morning. When we were visiting her it was exciting to get up early in the morning and go into the barn with all the cows. My aunt made milking look so easy, but it was hard for me to learn how to do it. My aunt knew each of the cows and their preferences. Many of the cows were very relaxed and as soon as my aunt sat down and leant against them with her forehead, their milk would come in and she would start squirting milk into the bucket. These were the cows she let me practice on. But there was one cow who was different. My aunt said she was just a bit sensitive, a bit special maybe. That one cow, my aunt first had to talk to her a little bit and rub her face, then my aunt had to run her hand along her spine and down to her back legs. Finally, before starting to milk her, my aunt would ask the cow if she was ready, and that cow would turn and look at my aunt as she put her hand on her udder. If my aunt did all of these things, the cow's milk would come in and my aunt said she was the most reliable milk producer she had. But, if my aunt didn't follow this routine, or if anyone else tried to milk this cow – then no milk! There would be kicking and stamping and even if there was some milk the bucket would probably get kicked over!

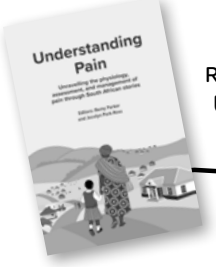


The Budapest criteria for Complex Regional Pain Syndrome (CRPS)

A: The person with pain has continuing pain which is disproportionate to any inciting event	☒
B: The person with pain has at least one sign in two or more of the categories	☒
C: The person with pain reports at least one symptom in three or more of the categories	☒
D: No other diagnosis can better explain the signs and symptoms	☒

Category		**Sign (you can see or feel a problem?**	**Symptom (the person with pain reports a problem)**
1: "Sensory"	*Allodynia* (to light touch and/or temperature sensation and/or deep somatic pressure and/or *hyperalgesia* (to pinprick)	☒	☒ *Hyperesthesia** does also qualify as a symptom
2: "Vasomotor"	Temperature asymmetry and/or skin colour changes and/or skin colour asymmetry	☐ If you notice temperature asymmetry it must be >1°	☒
3: "Sudomotor/ oedema"	Oedema and/or sweating changes and/or sweating asymmetry	☐	☒
4: "Motor/ trophic"	Decreased range of motion and/or motor dysfunction (weakness, tremor, dystonia) and/or trophic changes (hair/nail/skin)	☒	☒

Allodynia – pain from a normally non-painful stimulus
Hyperesthesia – abnormal increase in sensitivity to normal stimuli
Vasomotor – relating to constriction or dilation of blood vessels
Sudomotor/oedema - A medical term used to describe something that stimulates the sweat glands.
Motor dystonia – disorder in motor coordination



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Overcoming barriers to assessing and managing pain in the emergency setting

How healthcare system resources may contribute to poor pain assessment and management

Culture within the healthcare setting

All healthcare workers must be advocates for improved pain assessment, management and easement in emergency care to create a culture within the workplace which focuses on assessing and relieving pain.

Limited time to assess and reassess

You may work in a setting where the pressure of the patient load limits your time available to assess and reassess pain, and to communicate with team members.

Limited access to analgesic medications

Pain is an emergency! Healthcare systems must ensure healthcare practitioners are able to care for persons with pain. Do what you can with what you have, and advocate for more resources.

Limited access to personnel qualified to prescribe and administer medications

If medication is not in your scope of practice, you can be a strong advocate for non-pharmacological management and, if resources are available, call for assistance for analgesia from another practitioner.

How interpersonal interactions may contribute to poor pain assessment and management

Personal, cultural or spiritual beliefs

A person's cultural and personal beliefs affect their experience and communication of pain, such as being stoic or brave, which may limit the person's communication about their pain. Healthcare workers must ensure that they create a rapport with the person in pain to encourage them to communicate about their pain and their concerns.

Assessment

As healthcare workers, we must not assume that the person with pain is familiar with pain scales, is clear about the question we are asking of them or has told us everything about their pain that you need to know for assessment and management. They may be communicating in their second language or be stressed about their condition and distracted. Check in with the person in pain, ask if you can make anything clearer or if they have any questions – this is an opportunity to show caring and build rapport, which can empower them to understand and manage their pain.

Fear of injections & more pain

Needles and healthcare workers are common causes for fear! Healthcare workers must work to reassure and partner with people with pain to manage their anxiety and distress, including using open communication like asking for concerns, and coaching on using mindfulness or deep breathing techniques.

Understanding of analgesia and pain management options

A person with pain may not be aware of available analgesia options or may be concerned about side-effects or sedation from medication. Creating an open communication style which invites questions and conversation about a person's questions and concerns is empowering – take the time to talk!

Fear of being accused of drug seeking and opioids

Clear communication with the person with pain, and inviting them to ask questions will help to create trust.

Fear of costs

People may be afraid of incurring costs related to their healthcare, and it is always best to be open and invite a person with pain to share their concerns.

How healthcare workers may contribute to poor pain assessment and management

Complexity of managing underlying disease or severity of illness or injury

People who are critically ill or injured may require many simultaneous decisions and emergency actions and pain can easily be overlooked during emergency care. Work as a team to advocate for a culture of better pain management practises by embedding pain assessment and management in routine care.

Fear of masking symptoms or affecting physical examination

Emergencies can be complex, and we may be hesitant to administer analgesia before a full assessment. The evidence is clear: people who receive early analgesia have better health outcomes. Don't hesitate to give the analgesia!

Knowledge of regional anaesthesia techniques

Some people may benefit from regional anaesthesia, especially trauma patients! There are nerve blocks which can be done using anatomical landmarks and do not require ultrasound guidance. Motivate for opportunities to learn this exciting skill.

Fear of causing or supporting analgesic addiction

Opioid addiction is a concern globally. Multimodal analgesia may help lessen the need for strong opioids, and opioid sparing strategies such as ketamine infusions can also be considered. Using Pain Science Education empowers a person to understand their pain and be more in control of how their pain is managed, including understanding the role and risk of opioids to make informed decisions where appropriate.

Fear of hospital or regulatory sanctions

Equip yourself with knowledge of the rules and regulations you are concerned about and ask for help from a senior or experienced colleague. Documentation of your treatment and consultations is important for medicolegal concerns.

Education and experience of pain management and analgesic medications

Healthcare worker experience and understanding of pain management hugely contributes to their confidence and ability to manage pain. All healthcare practitioners must be empowered through comprehensive pain physiology, assessment and management in undergraduate education and ongoing learning, including current evidence about analgesic medications, doses and side effects (including sedation and nausea) to ensure they are comfortable with administration. Don't be afraid to look things up or consult a colleague or senior! Drug doses, treatment guidance and much more are available on reliable information sources like hospital, provincial and national clinical guidelines, and apps like EMGuidance.

Failure to ask about pain or underestimating pain severity

Documenting, assessing and reassessing pain can be improved through creating a culture of focusing on pain assessment and managing within healthcare teams, and you can be a part of creating this culture.

Fear of treating the elderly

Treating the elderly can challenge your knowledge, especially if they have dementia or are particularly frail. When in doubt, consult with a colleague or senior clinician either in person or telephonically.

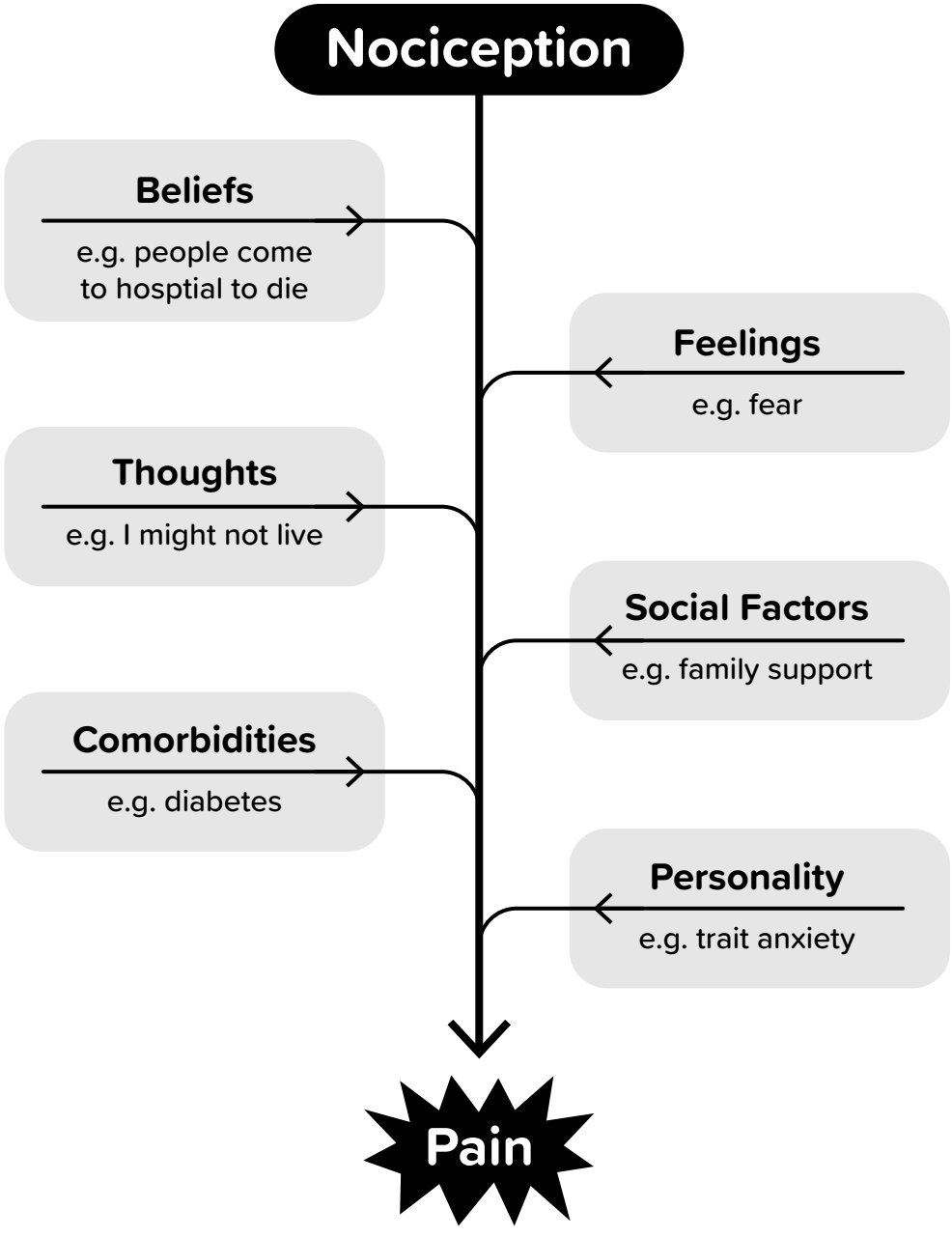
Fear of treating children

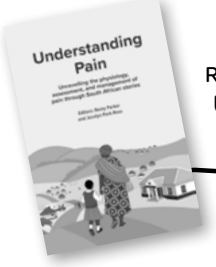
Children can be challenging to assess and treat, and confidence in managing children grows with experience. As we know, the assessment and management of pain in children is determined by their age and weight, you can prepare yourself with reference materials such as normal physiological parameters and precalculated doses. Reference tools such as PAWPER (33) and Broselow Tapes (34) are encouraged!

Bias

There is evidence that race, gender, age and language are factors in whether a person receives appropriate healthcare and pain management. Reflect on your own biases and the biases you observe in the system around you, and how this may be affecting how you are assessing and treating people with pain.

Variables which may contribute to pain after surgery





Resource from the book,
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Managing postoperative pain means paying attention throughout the perioperative period

Perioperative pain management means we must manage pain preoperatively, intraoperatively, postoperatively and through discharge to the follow-up stage. We must consider nociceptive and neuropathic mechanisms at each stage of this process. We must also consider all the variables which might contribute to a perception of threat throughout.

Preoperative

- Education and setting expectations
- Shared decision-making about treatment plans
- Optimising management of current pain
- Preemptive multimodal anaesthesia
- Non-pharmacological strategies to reduce anxiety and pain

Intraoperative

- Collaborative communication with everyone in the team about treatment plans
- Procedure-specific and patient-specific neuraxial and/or regional anaesthesia
- Procedure-specific and patient-specific local anaesthesia
- Consider intraoperative lignocaine infusion if regional anesthesia is not possible
- Consider analgesic-dose ketamine

Postoperative

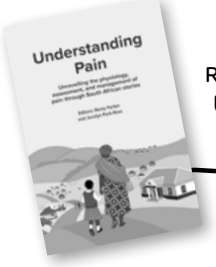
- Non-pharmacological analgesia and anxiolysis e.g. TENS, breathing, mindfulness, distraction
- Continue multimodal analgesia
- Reinforce educaiton and expectations
- Early mobilisation
- Multimodal analgesia by-the-clock
- Pain assessment by-the-clock with analgesia adjustment as needed
- If opioids have been used, implement weaning schedule as planned

Discharge

- Continue with multimodal analgesia by-the-clock
- Pain management exit plans discussed and agreed to, especially if being discharged with opioids
- Safe medication storage and disposal discussed

Follow up

- At 4 to 7 days or at most at 2 weeks - assess pain, weaning plan, sleep and mobilisation
- Review education and rehabilitation plan and expectations of recovery



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Ensure that the person undergoing surgery has an understanding of "the why, the what and the how"

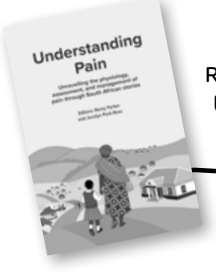
Why?	• Why is the surgery being planned? • Has the person having surgery (and their family/carers) had the opportunity to weigh up the risks and benefits of having the surgery? • Do they feel that this is the correct decision for them?
What?	• What is the surgery being planned? • Does the person having surgery understand what will be done in the operation itself?
How?	• Does the person having surgery understand the process of what will happen? • Before admission – what can they do to prepare for the best outcome possible? (including what to pack and bring to hospital, learning and practicing mindfulness-based strategies, how to mobilise after their surgery e.g. with crutches and optimising their health prior to surgery including optimising their pain management) • Once admitted – What will happen on the day they present to hospital? How will things be managed on the ward? What will happen up to the time they are taken to theatre? • In theatre – What can they expect to experience? How can their family be kept informed of their progress What will happen in postoperative recovery? • Postoperative – how they may feel, including pain, how to score their pain and how important it is to tell the staff about their pain, how their pain will be managed, what tests or investigations may be done postoperatively, how long they can expect to be in hospital.

DON'T MISS THIS

Routine assessment of postoperative pain

Pain assessment in the postoperative period should be conducted and documented regularly. A methodical approach includes:

1. Ask if they have pain. If they have pain, where is it, and can they describe it?
2. Score the severity of their pain at rest using a pain scale. Use the same pain scale each time pain is reassessed.
3. Score the severity of their pain on movement including getting in and out of bed.
4. Ask whether the pain is preventing them from doing necessary activities e.g. can the new mother breastfeed and bond with her baby.
5. Ask whether they would like treatment for their pain.



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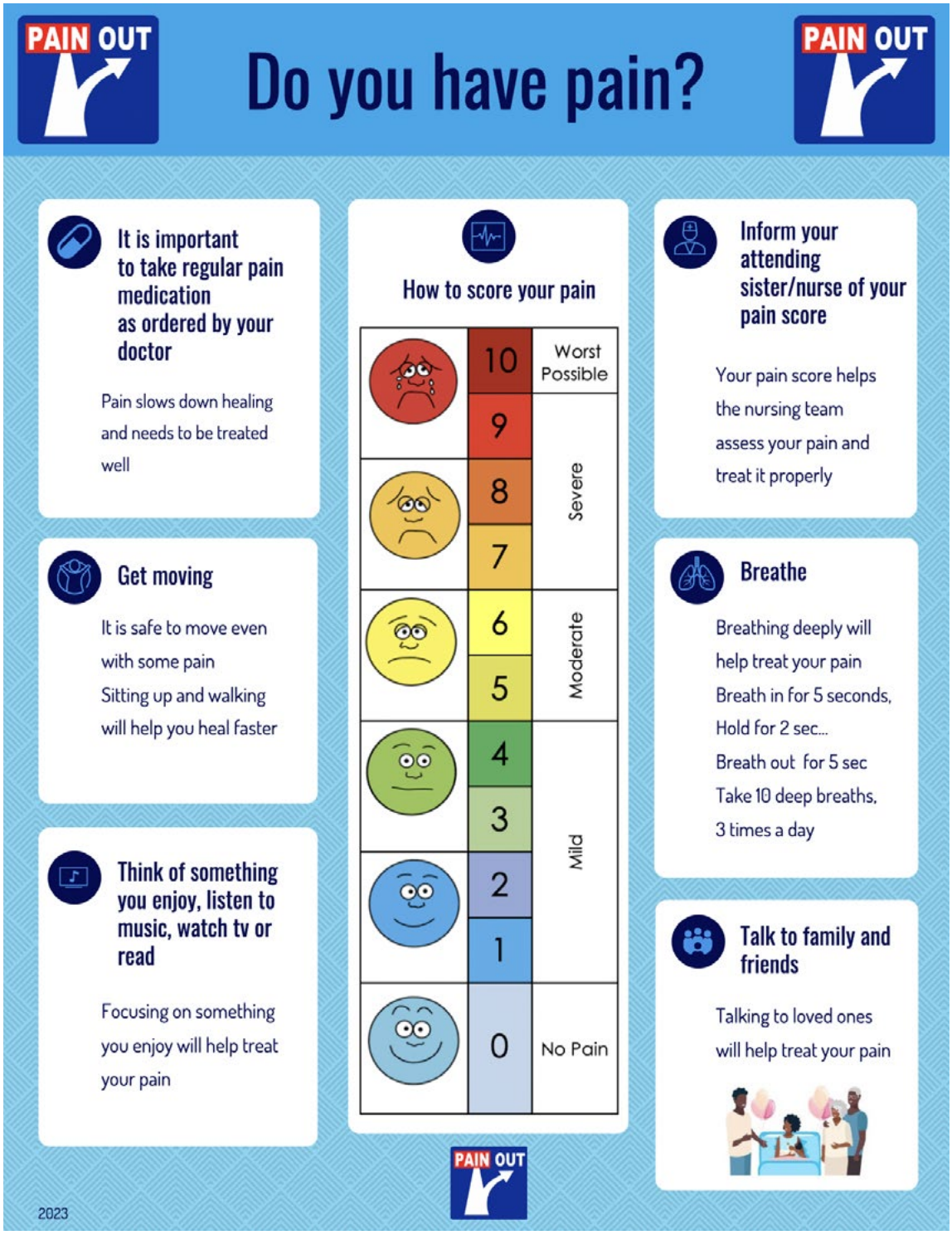
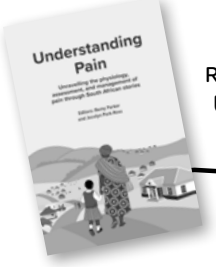
PAINOUT poster





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Perioperative NSAID decision tool for adult patients undergoing orthopaedic surgery

Perioperative NSAID decision-tool for adult patients undergoing orthopaedic surgery

1	**Ibuprofen (≤ 7 days)** should be considered in ALL patients undergoing orthopaedic procedures
2	All ASA 1 (American Society of Anesthesiologists - Level 1, normal health patient) patients may receive **ibuprofen (400 mg TDS for ≤ 7 days)**
3	Board **ibuprofen** for **10h00, 16h00 & 22h00**
4	Consider using **parecoxib 40 mg 12 hourly intravenously** or **indomethacin 100 mg 12 hourly per rectum** when oral intake not possible

RENAL

Concern of preoperative, intraoperative or postoperative hypovolaemia causing renal hypoperfusion	YES → NSAIDs not recommended
eGFR < 60 ml/min	
Ibuprofen (≤ 7 days) can be administered with acceptable risk in patients with:	
eGFR ≥ 60 ml/min	

CVS & CNS

Acute coronary syndrome +/- revascularisation < 3 months ago	YES → NSAIDs not recommended
Angina Class CCS III & IV	
Heart failure NYHA III & IV	
Intracranial hemorrhage < 1 month ago	
Intracranial hemorrhage < 3 months ago & concomitant antithrombotic treatment	
Ibuprofen (≤ 7 days) can be administered with acceptable risk in patients with*:	
Acute coronary syndrome +/- revascularisation ≥ 3 months ago	
Chronic stable angina Class CCS I & II	
Hypertension (well controlled and poorly controlled)	
Diabetes (well controlled and poorly controlled)	
Heart failure NYHA I & II	
Intracranial hemorrhage > 1 month ago (if not on antithrombotic treatment) and > 3 months ago, if on concomitant low-dose aspirin	
Ischaemic stroke on concomitant low-dose aspirin	

*In patients on low-dose aspirin for secondary cardiovascular prevention, ibuprofen should be administered minimum 30 minutes after aspirin administration

GASTROINTESTINAL

GI-bleeding/perforation**	YES → NSAIDs not recommended
Peptic ulcer disease < 3 months ago	
Co-administration of single agent antiplatelet (P2Y12 antagonists - eg. clopidogrel), dual antiplatelet treatment or anticoagulants (DOACs/Vit K antagonists)	
Add **daily Proton Pump Inhibitor*** ** to **ibuprofen treatment (≤ 7 days)** in patients with:	
Gastro Oesophageal Reflux Disease (GORD)	
Peptic ulcer disease ≥ 3 months ago	
Eradicated Helicobactor Pylori	
Concomitant use of low dose aspirin, corticosteroids or SSRIs	
Severe rheumatoid arthritis	
Age ≥ 75 years	
Prolonged periods (>12 hours) NPO awaiting urgent or emergency surgery	

**In the absence of alternative analgesia, a short course of selective NSAIDs (eg. celecoxib/parecoxib) + PPI can be administered if > 3 months since GI-bleed/perforation

***Administer daily omeprazole 20 mg or lansoprazole 30 mg during NSAID treatment

MISCELLANEOUS

Impaired synthetic liver function****	YES → NSAIDs not recommended
Multiple myeloma	
Bleeding disorders (eg. haemophilia, Von Willebrand disease, qualitative or quantitative platelet defects)	
Ibuprofen (≤ 7 days) can be administered with acceptable risk in patients with:	
Inflammatory bowel disease (non active)	
Neutropenia	
Porphyria (indomethacin, parecoxib & celecoxib are also safe to use)	
Age < 75 years	

****In the absence of alternative analgesia, a short course of ibuprofen can be administered to patients with mild liver impairment (Child Pugh A) with fully compensated liver disease, i.e. no jaundice, ascites or abnormal synthetic liver function (INR > 1.4, Albumin<35 g/L. Platelets <150)

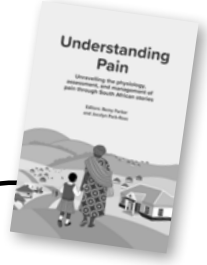
Aspirin/NSAID-exacerbated respiratory disease

RESPIRATORY

Poorly controlled asthma with hyper-reactivity to COX-1 inhibitors	YES → NSAIDs are contraindicated
A history of a severe reaction involving angioedema, urticaria or cardiovascular collapse to COX-1 inhibitors	
Isolated respiratory reactions***** to non-selective NSAIDs (COX-1 inhibitors, eg. aspirin/ibuprofen)	YES → Selective NSAIDs (COX-2 inhibitors, eg. celecoxib/parecoxib) can safely be administered
Patients with mild to moderate asthma, who experience worsening of their asthma on exposure to COX-1 inhibitors	

*****I.e. wheezing, rhinitis, nasal congestion, cough, shortness of breath or asthma exacerbation

Canadian Cardiovascular Society (CCS) grading of angina pectoris		New York Heart Association (NYHA) Functional Classification	
Class I	Angina only during strenuous or prolonged physical activity	**Class I**	No limitation of physical activity
Class II	Slight limitation; angina only during vigorous physical activity	**Class II**	Slight limitation of physical activity
Class III	Moderate limitation; symptoms with everyday living activities	**Class III**	Marked limitation of physical activity
Class IV	Severe limitation; angina at rest/inability to perform any activity without angina	**Class IV**	Any physical activity causes discomfort - symptoms of heart failure at rest

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