Assessment and Management of Pain in Adults: A Clinical Guide for Healthcare Providers

ASSESSMENT AND MANAGEMENT OF PAIN IN ADULTS: A CLINICAL GUIDE FOR HEALTHCARE PROVIDERS

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This book is a guide for healthcare providers on how to assess and manage pain in adults.

PART I
DEFINITIONS

1.

PAIN DEFINITIONS

Emily Martinez Rivera, BNSc, RN and Monakshi Sawhney, PhD, NP

Pain is a universal experience, and is understood in different ways. Given the complex and dynamic nature of pain, it is imperative to utilize a systematic approach for both assessment and management of pain (Registered Nurses' Association of Ontario (RNAO), 2025). Pain is a highly subjective experience; it is best described by the person experiencing it.

The International Association for the Study of Pain (IASP) defines **pain** as "an unpleasant sensory and emotional experience Raja et al., 2020). This definition is supported by six additional key concepts:

1. Pain is a personal experience and is influenced by biological, psychological, and social factors.
2. Pain is more than a neurological response (i.e., experienced through the activity of sensory neurons). "Pain and nociception are different phenomena. Pain cannot be inferred solely from activity in sensory neurons." (Raja et al, 2020)
3. An individual's understanding of pain changes over the lifespan.
4. Clinicians need to respect the individual's experience of pain and be cognizant of patient's cultural and linguistic diversities (Knisely et al., 2025).
5. Pain can be a catalyst for adaptation, but it can also have negative effects on function and social and psychological well-being. (Raja et al, 2020)
6. There are many ways to express pain (verbal and behavioural) "Verbal description is only one of several behaviors to express pain; inability to communicate does not negate the possibility that a human or a non-human animal experiences pain." (Raja et al, 2020).

2.

PAIN BY MECHANISM

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Pain by Mechanism

Pain can be classified by its inferred pathophysiology or mechanism: **nociceptive (physiological) pain, neuropathic pain or nocioplastic pain.**

To understand pain based on pathophysiology it is important to understand the term **nociception.**

Nociception

Nociception is "the neural process of encoding noxious stimuli" (International Association for the Study of Pain). It is the nervous system's process of encoding and transmitting information regarding potentially damaging or damaging stimuli (eg: heat, pressure, chemicals) from the peripheral to central nervous system.

Nociception has four specific processes: transduction, transmission, perception, and modulation (Kendroud, et al., 2022).

1. Transduction is the first process and it begins with tissue/cell damage. When tissues/cells are damaged by either thermal stimuli (e.g., burn), mechanical stimuli (e.g., cut), or chemical stimuli (e.g., chemotherapy), the damaged cells release pain-sensitizing and inflammatory substances, including prostaglandins, bradykinin, histamine, prostaglandins, serotonin, and substance P. These substances activate nociceptors, resulting in transduction, or the generation of electrical activity in peripheral terminals (an action potential) (Kendroud, et al., 2022).

2. Transmission is the second process. The pain-sensitizing and inflammatory substances (released in the transduction phase) surround the pain nerve fibres (A-delta and C fibres) in the extracellular fluid. The pain nerve fibres spread of message of a noxious stimuli or painful substance from the peripheral nervous system to the central nervous system via the afferent peripheral nerve fibres to the dorsal horn of the spinal cord. Within the dorsal horn of the spinal cord, a synaptic transmission from the *afferent* (sensory) peripheral nerve to the spinothalamic tract nerves occurs through a complex neurophysiological and neurochemical mechanism, resulting in the relay of the signal to various higher brain centres (Kendroud, et al., 2022).

3. Perception is the third nociceptive process and involves the conscious awareness of pain. Once a pain stimulus reaches the cerebral cortex, the brain interprets the intensity, quality, and character of the pain, as well as information from past experiences (Kendroud, et al., 2022). Psychological, social, spiritual, and cultural associations are also involved in processing the perception of the pain. The somatosensory cortex identifies the location and intensity of the pain, and the association cortex determines how we feel about the pain. As a person becomes aware of pain, a complex reaction unfolds. Psychological and cognitive factors interact with neurophysiological factors in the perception of pain. Perception gives awareness and meaning to pain so that a person can then react. The reaction to pain comprises the physiological and behavioural responses that occur after pain is perceived.

4. Modulation of pain is the fourth process and it refers to the increase or decrease in pain signal intensity that can occur before, during, and after pain is perceived. After the brain perceives the pain, inhibitory neurotransmitters are released these include endogenous opioids (endorphins and enkephalins), serotonin, norepinephrine, and gamma aminobutyric acid, which work to decrease the transmission of pain and help produce an analgesic effect (Kendroud, et al., 2022; Song et al., 2024). A protective reflex response may also occur with pain perception. A-delta fibres send sensory impulses to the spinal cord, where they synapse with spinal motor neurons. The motor impulses travel via a reflex arc along *efferent* (motor) nerve fibres back to a peripheral muscle near the site of stimulation, thus bypassing the brain. Contraction of the muscle leads to a protective withdrawal from the source of pain (Henrich et al., 2022). A common example is when a person touches a hot stove, a burning sensation is felt, but the hand also reflexively withdraws from the hot surface. When superficial fibres in the skin are stimulated, a person moves away from the pain source.

Nociceptive pain

Nociceptive pain is the experience of pain associated with actual or potential tissue damage (IASP, 2011). It involves the neural processing of noxious stimuli that occurs when nociceptors (pain-sensing nerves) are activated by tissue damage or inflammation (Cohen et al., 2021).

Characteristics:

- Well-localized
- More diffuse if deeper structures or if viscera involved
- Described as: aching, sharp, dull

Neuropathic pain

Neuropathic pain is caused by a lesion or disease of the somatosensory nervous system. Neuropathic pain is

not a diagnosis. Neuropathic pain is a clinical description that requires an individual to be diagnosis with a disease that affects the nervous system such as a spinal cord injury, stroke, diabetes mellitus, or herpes zoster virus (Shingles) (IASP, 2011). Individuals with neuropathic pain have abnormal processing of stimuli related to a lesion or disease of the somatosensory nervous system (Cohen et al., 2021). This abnormal processing can cause alterations in the sensory signaling of nerves in the peripheral and central nervous system, leading to the experience of pain.

Often described as:

- Burning
- Shooting
- Numb/tingling
- Electric shocks
- Allodynia
- Hyperalgesia

Nocioplastic pain

Nocioplastic pain is pain that is related to altered nociception. With nocioplastic pain, pain is experienced even though there is no clear evidence of actual or threatened tissue damage that would lead to the activation of peripheral nociceptors. There is also no evidence of a disease or lesion that would cause the pain (Fitzcharles et al., 2021; Kosek, 2024). Individuals with nocioplastic pain report pain that is located in multiple parts of the body, and it can be widespread. They also report other CNS associated symptoms including fatigue, sleep, memory, and mood problems. This type of pain can occur in individuals with a diagnosis such as fibromyalgia or tension-type headache, or as part of a mixed-pain state where individuals experience both nociceptive or neuropathic pain (Fitzcharles et al., 2021; Kosek, 2024) .Some may also experience mixed pain, a complex overlap of the nociceptive, neuropathic, or nociplastic pain types and can be acute or chronic (Fitzcharles et al., 2021).

3.

PAIN BY DURATION

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Pain by Duration

Pain may be categorized by its duration, such as acute and chronic pain; by its pathology, such as cancer pain and noncancer pain (e.g., pain associated with arthritis, diabetic neuropathy, low back pain, and headache); or by the process of action (nociceptive or neuropathic).

Acute Pain

Acute pain is the physiological response to and experience of noxious stimuli that can become pathologic. Acute pain usually has an identifiable cause, starts suddenly, is time limited, and resolves as healing takes place. Acute pain lasts up to 7 days (but can continue up to 30 days) with the following qualifications:

- Its duration reflects the mechanism and severity of the underlying/inciting event
- Prolongations from 7 to 30 days are common
- There is lack of specific physiological mechanisms to link these durations to our current understanding of pain mechanisms (Kent et al., 2017).

Unrelieved acute pain can have a negative impact on recovery from illness or surgery, resulting in prolonged hospitalization, increased risk of complications from immobility, and delayed rehabilitation (Peng et al., 2025). Although it may not be possible to completely eliminate the pain, working with the patient and members of the interprofessional team to reduce pain to an acceptable level so that functional goals can be met is a realistic goal.

Subacute pain is pain that lasts up to 90 days. Individuals who experience prolonged acute pain should be carefully re-evaluated (Kent et al., 2017).

Chronic Postoperative Pain

Chronic postoperative pain is defined as pain that persists beyond 3 months after a surgical procedure, either

at the surgical/area of injury, or projected onto the innervation area of a nerve in this area (Rosenberger & Pogatzki-Zahn, 2022). Chronic postoperative pain can be somatic, visceral, or neuropathic in origin. A common risk factor for the development of Chronic post-operative pain is severe acute postoperative pain that lasts for more than five days (Rosenberger & Pogatzki-Zahn, 2022).

Chronic Pain

Chronic pain is pain that persists longer than 3 months and is associated with actual or potential tissue damage (IASP, 2011). Chronic pain can be intermittent or persistent, experienced at any point in life. Chronic pain may be nonmalignant or related to a cancer diagnosis.

Chronic non-cancer pain

- beyond the typical healing time and has no biological advantage
- often becomes the predominant clinical problem in some individuals
- can result from diseases, such as diabetes, shingles, arthritis or as a result of a trauma
- can also occur without known injury or disease
- may be a major cause of psychological and physical disability
- may be experienced along with other symptoms such as sleep disturbances, depression, and anxiety (De La Rosa et al., 2024).

PART II
ASSESSMENT OF PAIN

4.

ASSESSMENT OF PAIN IN INDIVIDUALS WHO CAN SELF-REPORT

Monakshi Sawhney, PhD, NP

Pain assessment should be unbiased and include the use of an appropriate validated pain assessment tool. The assessment of pain is more than just evaluating the intensity of pain (RNAO, 2025; Schofield et al., 2022).

Pain Assessment in Individuals who can Self-report

The self-report of pain is the standard for pain assessment.

Assessment if the 1st step in the pain management process. It is important to remember the assessment of pain is more than just evaluating the intensity of pain (RNAO, 2025; Schofield et al., 2022). Pain assessment in those who can self-report includes assessing the onset, provoking factors, alleviating factors, quality, location, severity, timing of the pain, the individual's understanding of why they are having pain, and if there are any values or beliefs the individual has associated with the pain.

Another important component of pain assessment is to evaluate the individual's *ability to function*. This includes the ability to mobilize, complete activities of daily living, complete work (inside or outside the home).

The mnemonic *OPQRSTUV* can be used to guide the pain assessment process.

Pain Assessment OPQRSTUV Mnemonic

O = Onset / Origin: When and where did it start?
  P = Palliation / Provocation: What makes the pain better? What makes it worse?
  Q = Quality: What does the pain feel like (i.e., descriptors—sharp, dull, continuous, intermittent)?
  R = Region / Radiation: Where is your pain, and does it radiate?
  S = Severity: Examine severity at rest and with activity and note current pain, worst pain, and average pain. Use a valid severity assessment tool (example 0–10 scale [0 = no pain, 10 = worst possible pain], verbal rating scale (none, mild, moderate, severe).
  T = Timing / Treatment: When did the pain begin or end and how long did it last? What time of the day is the pain better and worse? What nonpharmacological and pharmacological treatments are effective?

U = Understanding: What do you believe is causing this symptom? How is this symptom affecting you, your family, or both?

V = Value: Are there any other views or feelings about this symptom that are important to you or your family? (This may include cultural and religious values).

(Adapted from the Best Practice Guideline from the Registered Nurses' Association of Ontario (RNAO). Pain: Prevention, assessment and management. 4th ed. Toronto (ON): RNAO; 2025)

Another mnemonic that can be used to guide the pain assessment process is LOTTAARP. After assessing the intensity of the pain, ask about:

- Location
- Onset
- Timing
- Type
- Associated symptoms
- Alleviating factors
- Radiation
- Precipitating event

Severity and Intensity

Tools used to assess pain intensity fall into two categories, self-report and behavioural observation (Herr et al., 2024). Examples of self-report scales include the verbal descriptor scale (VDS), the numerical rating scale (NRS), and the visual analogue scale (VAS).

- The Numeric Rating Scale (NRS) uses an 11-point scale to measure pain intensity,
    - 0 indicating no pain and 10 indicating the worst pain possible (Schofield et al., 2022).
- The Verbal Descriptors Severity Scoring (VDS) consists of words to describe the pain. The patient is asked to choose the descriptor that best reflects their current pain (Atisook et al., 2021; Vickers et al., 2023). The VDS can be very helpful for people who are not able to effectively use the NRS. The words include:
    - "None"
    - "Very mild"
    - "Mild"
    - "Moderate"
    - "Severe"
    - "Very severe"
- The Visual Analogue Scale (VAS) consists of a 10 cm straight line, representing a continuum of intensity, and has verbal descriptors at each end (Atisook et al., 2021). The person experiencing the pain

draws a vertical line between the verbal descriptors of No Pain and Worst Pain to indicate how much pain they are having. The clinician measures how far from the words 'No Pain' the person has drawn the line to quantify how much pain they are having.

- No Pain _____Worst Pain

Comprehensive Pain Assessment Tools

Comprehensive pain assessment tools are valid and reliable questionnaires. They can be used to assess pain and function or can be used to assess a specific pain type (eg: neuropathic pain, nocioplastic pain)

Examples of comprehensive pain assessment tools include:

- BPI-Short Form (Mendoza et al., 2006)
  - Includes:
    - body map
    - pain intensity (in last 24 hours worst, least and average pain; pain right now)
    - pain related interference with general activity, mood, walking, normal work, relations with others, sleep, enjoyment of life
    - https://www.mdanderson.org/research/departments-labs-institutes/departments-divisions/symptom-research/symptom-assessment-tools/brief-pain-inventory.html
- McGill Pain Questionnaire (Melzack, 1975)
  - Includes:
    - pain descriptors (quality of pain)
    - VAS
    - Verbal pain intensity
    - https://www.mcgill.ca/painresearch/research/mcgill-pain-questionnaire
- Oxford Knee Score & Oxford Hip Score (Murray et al., 2007)
  - Used to assess pain associated with osteoarthritis of the hip or knee
  - Includes questions regarding pain and function over the past 4 weeks
  - hip: https://innovation.ox.ac.uk/outcome-measures/oxford-hip-score-ohs/
  - knee: https://innovation.ox.ac.uk/outcome-measures/oxford-knee-score-oks/
- DN4 Screening tool (neuropathic pain) (Bouhassira et al, 2005)
  - Includes 4 questions
    - Does the pain have any of the following characteristics: burning, painful cold, electric shocks
    - Is the pain associated with 1 or more of the following symptoms: tingling, pins and needles, numbness, itching
    - Is the pain located in an area that has: hypoesthesia to touch, hypoesthesia to pin prick
    - In the painful area, can the pain be caused or increased by brushing

- https://aci.health.nsw.gov.au/__data/assets/pdf_file/0014/212900/DN4_Assessment_Tool.pdf
- Widespread pain index (WPI) & Symptom Severity Score (nocioplastic pain) (Wolfe et al., 2016)
  - Includes
    - 2 body maps – identify specific pain location(s) on body
    - Symptom severity over the past week: fatigue, trouble thinking or remembering, waking up tired
    - Symptom severity over the past month: pain or cramps in abdomen, depression, headache

5.

ASSESSMENT OF PAIN IN INDIVIDUALS WHO CANNOT SELF-REPORT

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Pain Assessment in Individuals Who cannot Self-Report

When an individual cannot self-report their pain it is important to identify if they are experiencing pain. This includes looking for behaviours or non-verbal indicators of pain. Valid and reliable tools exist and should be used to assess pain as appropriate (Herr et al., 2024).

Behavioural and Nonverbal Indicators of Pain

Vocalizations

- Moaning
- Crying
- Gasping
- Grunting

Facial Expressions

- Grimacing
- Clenched teeth
- Wrinkled forehead
- Tightly closed or widely opened eyes
- Lip biting

Body Movements

- Restlessness
- Immobilization

- Increased hand and finger movements
- Laboured breathing
- Pacing activities
- Rhythmic or rubbing motions
- Protective movement of body parts

Social Interaction

- Avoidance of conversation
- Focused only on activities for pain relief
- Avoid social contacts
- Reduced attention span
- Withdrawn
- Difficult to console

(Chan et al., 2014; Feldt, 2000; Herr et al., 2024; Warden et al., 2003)

Valid and reliable assessment tools for individuals who cannot self report their pain

Older adults living with dementia :

- Pain Assessment in Advanced Dementia Tool (PAINAD) (Warden et al., 2003) https://geriatric-toolkit.missouri.edu/cog/painad.pdf
- Pain Assessment Checklist for Seniors with Limited Ability to Communicate Tool (PACSLAC and PASSLAC II) (Chan et al., 2014; Fuchs-Lacelle et al., 2005) https://geriatricpain.org/pain-behavior-tool-critique
- Pain Assessment in Impaired Cognition (PAIC15) (Kunz et al., 2020) https://geriatricpain.org/pain-behavior-tool-critique

6.

FACTORS THAT INFLUENCE THE PERCEPTION OF PAIN

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Influencing factors

There are a number of influencing and confounding variables that can influence the perception and intensity of pain. The most common are anxiety, depression and sleep (De La Rosa, 2024; Gómez et al., 2020; Rouhi, 2023). If any of these influencing factors are present, it is important to manage these symptoms in addition to managing pain. The first step is to assess for the presence of influencing factors.

Anxiety and Depression

Depression and anxiety can exacerbate the pain perception in all clinical setting (De La Rosa, 2024; Gómez et al., 2020).

Assessing anxiety and depression along with pain is important as these conditions frequently coexist and intensify one another. Pain and mood disorders share neurobiological pathways and brain regions, therefore emotional distress can increase pain perception by lowering tolerance and increasing sensitivity. When chronic pain occurs alongside untreated anxiety or depression, patients often experience greater disability, reduced motivation, and lower engagement in therapy. A holistic assessment that addresses both physical and psychological factors enables clinicians to create more accurate diagnoses and integrated treatment plans.

- An example of a depression screening tool that can be used as part of the assessment of pain is the PHQ 9.
    - The PHQ 9 includes 9 items that asks over the last two weeks, how often have you been bothered by the following problems.
    - The questions are rated as occurring: 1) Not at all; 2) Several days; 3) More than half the days; 4) Nearly every day.

        1. little interest or pleasure in doing things
        2. feeling down, depressed, or hopeless
        3. trouble falling or staying asleep, or sleeping too much

4. Feeling tired or having little energy
5. Poor appetite or overeating
6. Feeling bad about yourself — or that you are a failure or have let yourself or your family down
7. Trouble concentrating on things, such as reading the newspaper or watching television
8. Moving or speaking so slowly that other people could have noticed? Or the opposite — being so fidgety or restless that you have been moving around a lot more than usual
9. Thoughts that you would be better off dead or of hurting yourself in some way

(https://www.apa.org/depression-guideline/patient-health-questionnaire.pdf)

- An example of a anxiety assessment tool that can be used as part of the assessment of pain is the GAD 7.
  - The GAD 7 includes 7 questions and asks over the last two weeks, how often have you been bothered by the following problems.
  - The questions are rated as occurring: 1) Not at all; 2) Several days; 3) More than half the days; 4) Nearly every day.

1. Feeling nervous, anxious, or on edge
2. Not being able to stop or control worrying
3. Worrying too much about different things
4. Trouble relaxing
5. Being so restless that it is hard to sit still
6. Becoming easily annoyed or irritable
7. Feeling afraid, as if something awful might happen

Insomnia or lack Sleep

Sleep disturbance has a substantial effect on pain perception and pain sensitivity (Jain et al., 2024; Rouhi, 2023). Sleep plays a role in modulating pain, and there is a bidirectional relationship between sleep disturbance and pain sensitivity. Poor-quality or insufficient sleep disrupts neurobiological pain-inhibitory pathways, contributing to central sensitization and lowering pain thresholds, which increases both the intensity and frequency of pain (Jain et al., 2024) There is a need to assess sleep patterns and address sleep disturbances as a component of comprehensive pain assessment and management plan.

- The Pittsburg Sleep Quality Index (PSQI) provides a structured way to quantify how sleep quality. This allows clinicians to identify treatment targets, monitor progress, and differentiate sleep-driven exacerbators of pain from pain-driven sleep disruption.
  - The Pittsburgh Sleep Quality Index (PSQI) is a widely used, validated tool for assessing sleep qual-

ity over the past month in adults. It is particularly helpful in clinical settings because it captures both perceived sleep quality and specific sleep-related behaviors linked to functional impairment.

- The questionnaire includes 19 patient-reported items across 7 domains: sleep latency, duration, efficiency, disturbances, medication use, daytime dysfunction, and subjective sleep quality.
- These domains generate a global score between 0 and 21, with scores >5 indicating clinically meaningful sleep disturbance.
- It includes the following questions:

- 1. During the past month, what time have you usually gone to bed at night?
- 2. During the past month, how long (in minutes) has it usually taken you to fall asleep each night?
- 3. During the past month, what time have you usually gotten up in the morning?
- 4. During the past month, how many hours of actual sleep did you get at night?

For each of the remaining questions, choose one of the following:

- Not during the past month
- Less than Once a week
- Once or twice a week
- Three or more times a week

- 5. During the past month, how often have you had trouble sleeping because you . . .
  - a) Cannot get to sleep within 30 minutes
  - b) Wake up in the middle of the night or early morning
  - c) Have to get up to use the bathroom
  - d) Cannot breathe comfortably
  - e) Cough or snore loudly
  - f) Feel too cold
  - g) Feel too hot
  - h) Had bad dreams
  - i) Have pain
  - j) Other reason(s), please describe
  - k) How often during the past month have you had trouble sleeping because of this?
- 6. During the past month, how would you rate your sleep quality overall? (Very good; Fairly good; Fairly bad; Very bad)
- 7. During the past month, how often have you taken medicine to help you sleep (prescribed or "over the counter")? (Not during the last month; Less than once a week; Once or twice a week; Three or more times a week)
- 8. During the past month, how often have you had trouble staying awake while driving, eating meals, or engaging in social activity? (Not during the last month; Less than once a week; Once or twice a week;

Three or more times a week)

- 9. During the past month, how much of a problem has it been for you to keep up enough enthusiasm to get things done? (No problem at all; Only a very slight problem; Somewhat of a problem; A very big problem)

- 10. Do you have a bed partner or room mate? (No bed partner or room mate; Partner/room mate in other room; Partner in same room, but not same bed; Partner in same bed). If you have a room mate or bed partner, ask him/her how often in the past month you have had any of the following with the following options (Not during the last month; Less than once a week; Once or twice a week; Three or more times a week)

  - ° a) Loud snoring
  - ° b) Long pauses between breaths while asleep
  - ° c) Legs twitching or jerking while you sleep
  - ° d) Episodes of disorientation or confusion during sleep
  - ° Other restlessness while you sleep; please describe

7.

ASSESSMENT OF PAIN IN INDIVIDUALS WHO ARE CRITICALLY ILL

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Adults in a critical care setting who may not be able to self-report their pain can be assessed using the Critical Care Pain Observation Tool (CPOT) (Gélinas et al., 2021, Shahiri & Gélinas, 2023).

PART III
TREATMENT OF PAIN

Once pain is perceived, if it is not managed effectively, a cycle of events begins that can significantly diminish the meaning and quality of a person's life. Pain can be physically and emotionally exhausting and can interfere with the ability to function and engage with others.

8.

NON-PHARMACOLOGICAL MANAGEMENT

Monakshi Sawhney, PhD, NP

Several nonpharmacological interventions do not need a prescriber's order but are initiated by nurses. These approaches are used in addition to, not in place of, pharmacological measures (RNAO, 2025). Nonpharmacological interventions include cognitive-behavioural and physical approaches.

The goals of cognitive-behavioural interventions, such as relaxation and distraction, are to change pain perceptions, alter pain behaviour, and provide a greater sense of control (Bartels et al., 2025; Darnall, 2025).

Relaxation is mental and physical freedom from tension or stress. Relaxation techniques include meditation, yoga, guided imagery, and progressive relaxation exercises. The environment should be quiet and free of stimuli. The individual may sit in a comfortable chair or lie in bed. Guided imagery and relaxation exercises may be done together or separately.

Progressive relaxation of the entire body takes about 15 minutes. Progressive relaxation exercises involve controlled breathing exercises and a series of contractions and relaxation of muscle groups. Breathing slowly and diaphragmatically, allowing the abdomen to rise slowly and the chest to expand fully establishes a regular breathing pattern. Once this breathing patter is established, the individual can systematically tense muscles in different parts of the body, and then to relax them completely.

Distraction

The reticular activating system inhibits painful stimuli if an individual receives sufficient or excessive sensory input. Boredom or isolation may cause people to focus on their pain and thus perceive it more acutely. Pleasurable stimuli cause the release of endorphins that help a person ignore or become unaware of pain. Distraction works best for short, intense pain lasting a few minutes, such as during a needle-stick or intravenous insertion. Examples are praying, describing photos or pictures aloud, listening to music, using therapeutic humour, and playing games, some involving the use of virtual reality technology.

Music

Music can promote relaxation and decrease physiological pain, stress, and anxiety by diverting attention away from pain (Anbalagan et al., 2024; Liet al., 2024). Music can be chosen by either the individual or health care provider. The use of earbuds or noise-cancelling headphones may assist with concentration and block out

ambient noise. Although some benefits can be achieved with music therapy as a means of distraction, the evidence is weak to moderate regarding the effects of music therapy on reducing acute pain.

Acupuncture

Acupuncture, traditionally embedded in naturalistic theories and in Chinese medicine dating back 2500 years, may help reduce chronic and acute pain and, if properly performed, is a safe procedure. Acupuncture involves the insertion of acupuncture needles into specific "acupuncture points" (acupoints) on the patient's body, followed by the twisting of the needle up and down by hand. Evidence from numerous systematic reviews indicates that acupuncture is potentially effective for emesis developing after surgery or chemotherapy in adults, for nausea associated with pregnancy, and for relieving dental pain and low back pain (Niruthisard et al., 2024). During the last decades, our understanding of how acupuncture analgesia works has undergone considerable development. Acupuncture activates endogenous opioid mechanisms and may stimulate gene expression of neuropeptides. The training of practitioners and the provision of acupuncture care in Canada are rapidly expanding. Chapter 36 describes the benefits and limitations of acupuncture.

Cutaneous stimulation

Cutaneous stimulation, also referred to as *touch healing* (TH) therapies, is the stimulation of the skin to relieve pain. A massage, warm bath, ice bag, and transcutaneous electrical nerve stimulation are simple ways to reduce pain perception (Johnson et al., 2022). How methods of cutaneous stimulation work is unclear. It has been suggested that TH therapies involve mechanisms of neural plasticity in somatosensory maps, thus resulting in sensory reorganization.

An advantage to cutaneous stimulation is that the measures can be used in the home, giving patients and families some control over pain symptoms and treatment. With the proper use of cutaneous stimulation, pain perception can be reduced, as well as muscle tension that might otherwise increase pain. The practitioner first helps the patient get into a comfortable position and explains the purpose of the therapy. Cutaneous stimulation should not be used directly on sensitive skin areas (e.g., burns, bruises, skin rashes, inflammation, underlying bone fractures).

Massage is a safe and effective way to reduce anxiety and minimize tension . Massage involves the manipulation of the soft tissues by either mechanical or physical means. Recent literature suggests that hand and foot massage can be an option for reducing pain, along with back or body massage.

Tactile stimulation such as rubbing or touch using moderate intensity can be used just prior to and during the vaccination of children over 4 years of age. This method works within the framework of the gate control theory whereby touch competes with pain in routing the message to the brain, thereby reducing pain.

Cold and heat applications have been shown to relieve pain and promote healing. The choice of heat or cold varies with patients' condition and preference. Use of either method may require a prescriber's order. Moist heat can help relieve pain from a tension headache, and cold applications can reduce acute pain from inflamed

joints. To avoid injury, it is important to check the temperature and avoid direct application of cold or heat to the skin. Patients at most risk for injury include those with spinal cord or other neurological injury, older people, and patients with confusion.

Application of cold packs may be effective for pain relief in certain conditions. Cold is particularly effective for dental pain and has been used to relieve pain associated with coughing and breathing in postcardiac surgery. Following orthopedic surgery, ice packs or cooling devices can help relieve postoperative pain (Aggarwal et al., 2023; Kunkle et al., 2021). Cold applications are also useful before needle-stick procedures. Cold may be placed either near or distal to the pain site. The cold should be applied for 20 minutes to achieve maximum effect. Placement of a cold pack near the actual site of pain tends to provide the most relief.

Heat application is another option for relieving pain. Heating pads or hot water bottles may be used, as can commercial heated pillows that can contour to the body. These methods are ideal at home; disposable heat and warmth solutions are used in the hospital as an infection prevention and control measure.

Although heat and cold applications are methods to consider when promoting comfort, few studies have been published addressing their impact on pain or functional qualities. Refer to Cobbett and colleagues' (2024) textbook *Canadian Clinical Nursing Skills and Techniques* for further guidance on the application of warm and cold therapy and the necessary safety precautions for use.

9.

PHARMACOLOGICAL MANAGEMENT

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Pharmacological Pain-Relief Interventions

While the ideal analgesic has yet to be developed, many opioid and nonopioid pain-relieving medications are available.

Analgesics are a common and effective method of pain relief. Although analgesics can effectively relieve pain, nurses and physicians still tend to undertreat patient's pain.

Three types of analgesics exist: (1) acetaminophen and nonsteroidal anti-inflammatory drugs (NSAIDs) and nonopioids, (2) opioids, and (3) co-analgesics, a variety of medications that enhance analgesics or have analgesic properties.

10.

ACETAMINOPHEN (PARACETAMOL), NON-STEROIDAL ANTI-INFLAMMATORY DRUGS (NSAIDS)

Monakshi Sawhney, PhD, NP

Common non-opoiod analgesics include medications such as acetaminophen (paracetamol), non-steroidal anti-inflammatory drugs (NSAIDs).

Acetaminophen (paracetamol)

Acetaminophen's mechanism of action is currently not clearly known. It's major adverse effect is hepatotoxicity.

- The maximum 24-hour dose for an adult is 4 g
- It does not affect platelet function and has minimal impact on the gastrointestinal tract.
- For postoperative or moderate to severe pain, it is often combined with opioids (e.g., hydromorphone, morphine, oxycodone) because it is opioid sparing and part of multimodal therapy (Gerriets et al., 2025).
- Intravenous acetaminophen is available in most countries, and it may be beneficial for people who are unable to take medicines by mouth. (Santos et al., 2024).
- An overdose of acetaminophen can be fatal, and toxicity can have hepatotoxic and nephrotoxic sequelae. The usual treatment for overdose is N-acetylcysteine , which can be administered via intravenous, inhalation, or oral routes (Dart et al., 2023).
- Many non-prescription medications for pain or cold or influenza symptom relief contain acetaminophen, and patients may not be aware of these "hidden" acetaminophen doses, and this can lead to dangerous overdoses of acetaminophen.
- A careful medication history can help identify individuals at risk of acetaminophen overdose.
- Patient education which includes the daily maximum dose of acetaminophen and instructions to carefully read medication labels to identify drugs that contain acetaminophen and to ensure they do not exceed the daily recommended dose can help prevent an overdose.

Non-steroidal anti-inflammatory drugs

Nonselective NSAIDs, (examples include: Aspirin, ibuprofen, naproxen, and dicofenac) and selective NSAIDS, such as celecoxib (Celebrex®) available by prescription, provide relief for mild to moderate acute pain resulting from trauma or an inflammatory process.

- NSAIDs act directly by inhibiting the synthesis of cyclooxygenase (COX) enzymes. Two types of COX enzymes exist, COX-1 and COX-2. COX -1 acts directly on homeostasis functions whereas COX-2 is mostly expressed via an inflammatory response (Laforge et al., 2023).
- Nonselective NSAIDs have been found to be safe when taken for short periods.
- Selective NSAIDs (such as Celecoxib), are preferred for longer use because they do not interfere with platelets and cause less gastric irritation.
- NSAIDs reduce the transmission of pain from peripheral nerves to the central nervous system. NSAIDs do not depress the central nervous system, nor do they interfere with bowel or bladder function.
- Chronic NSAID use in older patients is associated with more frequent adverse effects (e.g., gastrointestinal bleeding and renal insufficiency) and should be avoided (Laforge et al., 2023).
- Taking NSAIDs with food reduces the likelihood of gastrointestinal upset.

11.

OPIOID ANALGESICS

12.

ANTI-DEPRESSANTS AND ANIT-CONVULSANT MEDICATIONS FOR PAIN MANAGEMENT

PART IV
CULTURAL CONSIDERATIONS AND PROVIDER BIAS

13.

CULTURAL CONSIDERATIONS AND PROVIDER BIAS

References

Aggarwal, A., Adie, S., Harris, I. A., & Naylor, J. (2023). Cryotherapy following total knee replacement. *The Cochrane database of systematic reviews*, *9*(9), CD007911. https://doi.org/10.1002/14651858.CD007911.pub3

Atisook, R., Euasobhon, P., Saengsanon, A., & Jensen, M. P. (2021). Validity and Utility of Four Pain Intensity Measures for Use in International Research. *Journal of pain research*, *14*, 1129–1139. https://doi.org/10.2147/JPR.S303305

Bouhassira, D., Attal, N., Alchaar, H., Boureau, F., Brochet, B., Bruxelle, J., Cunin, G., Fermanian, J., Ginies, P., Grun-Overdyking, A., Jafari-Schluep, H., Lantéri-Minet, M., Laurent, B., Mick, G., Serrie, A., Valade, D., & Vicaut, E. (2005). Comparison of pain syndromes associated with nervous or somatic lesions and development of a new neuropathic pain diagnostic questionnaire (DN4). *Pain*, *114*(1-2), 29–36. https://doi.org/10.1016/j.pain.2004.12.010

Buysse DJ, Reynolds CF, Monk TH, Berman SR, Kupfer DJ: Psychiatry Research, 28:193-213, 1989. Contact Mapi Research Trust for information on translated versions at: https://eprovide.mapi-trust.org/

Chan, S., Hadjistavropoulos, T., Williams, J., & Lints-Martindale, A. (2014). Evidence-based development and initial validation of the pain assessment checklist for seniors with limited ability to communicate-II (PACSLAC-II). *The Clinical journal of pain*, *30*(9), 816–824. https://doi.org/10.1097/AJP.0000000000000039

Chou, R., Gordon, D. B., de Leon-Casasola, O. A., et al. (2016). Management of postoperative pain: A clinical practice guideline from the American Pain Society, the American Society of Regional Anesthesia and Pain Medicine, and the American Society of Anesthesiologists' Committee on Regional Anesthesia, Executive Committee, and Administrative Council. *Journal of Pain*, *17*(2), 131–157. https://doi.org/10.1016/j.jpain.2015.12.008.

De La Rosa, J. S., Brady, B. R., Ibrahim, M. M., Herder, K. E., Wallace, J. S., Padilla, A. R., & Vanderah, T. W. (2024). Co-occurrence of chronic pain and anxiety/depression symptoms in U.S. adults: prevalence, functional impacts, and opportunities. *Pain*, *165*(3), 666–673. https://doi.org/10.1097/j.pain.0000000000003056

Feldt, K.S. (2000). The Checklist of Nonverbal Pain Indicators (CNPI). Pain Management Nursing, 1(1), 13-21.

Fuchs-Lacelle, S., & Hadjistavropoulos, T. (2005). A checklist for pain assessment in LTC. PACSLAC: Pain Assessment Checklist for Seniors with Limited Ability to Communicate. Canadian Nursing Home, 16(4), 4-7.

Gélinas, C., Bérubé, M., Puntillo, K. A., et al. (2021). Validation of the Critical-Care Pain Observation Tool–Neuro in brain-injured adults in the intensive care unit: A prospective cohort study. *Critical Care (London, England)*, *25*(1), 142. https://doi.org/10.1186/s13054-021-03561-1.

Gómez Penedo, J. M., Rubel, J. A., Blättler, L., Schmidt, S. J., Stewart, J., Egloff, N., & Grosse Holtforth, M. (2020). The Complex Interplay of Pain, Depression, and Anxiety Symptoms in Patients With Chronic Pain: A Network Approach. *The Clinical journal of pain*, *36*(4), 249–259. https://doi.org/10.1097/AJP.0000000000000797

Herr, K., Anderson, A. R., Arbour, C., Coyne, P. J., Ely, E., Gélinas, C., & Manworren, R. C. B. (2024). ASPMN 2024 Position Statement: Pain Assessment in the Patient Unable to Self-Report. *Pain management nursing : official journal of the American Society of Pain Management Nurses*, *25*(6), 569–570. https://doi.org/10.1016/j.pmn.2024.09.009

Jain, S. V., Panjeton, G. D., & Martins, Y. C. (2024). Relationship Between Sleep Disturbances and Chronic Pain: A Narrative Review. *Clinics and practice*, *14*(6), 2650–2660. https://doi.org/10.3390/clinpract14060209

Kosek E. (2024). The concept of nociplastic pain-where to from here?. *Pain*, *165*(11S), S50–S57. https://doi.org/10.1097/j.pain.0000000000003305

Kunz, M., de Waal, M. W. M., Achterberg, W. P., Gimenez-Llort, L., Lobbezoo, F., Sampson, E. L., van Dalen-Kok, A. H., Defrin, R., Invitto, S., Konstantinovic, L., Oosterman, J., Petrini, L., van der Steen, J. T., Strand, L. I., de Tommaso, M., Zwakhalen, S., Husebo, B. S., & Lautenbacher, S. (2020). The Pain Assessment in Impaired Cognition scale (PAIC15): A multidisciplinary and international approach to develop and test a meta-tool for pain assessment in impaired cognition, especially dementia. *European journal of pain (London, England)*, *24*(1), 192–208. https://doi.org/10.1002/ejp.1477

Melzack R. (1975). The McGill Pain Questionnaire: major properties and scoring methods. *Pain*, *1*(3), 277–299. https://doi.org/10.1016/0304-3959(75)90044-5

Mendoza, T., Mayne, T., Rublee, D., & Cleeland, C. (2006). Reliability and validity of a modified Brief Pain Inventory short form in patients with osteoarthritis. *European journal of pain (London, England)*, *10*(4), 353–361. https://doi.org/10.1016/j.ejpain.2005.06.002

Murray, D. W., Fitzpatrick, R., Rogers, K., Pandit, H., Beard, D. J., Carr, A. J., & Dawson, J. (2007). The use of the Oxford hip and knee scores. *The Journal of bone and joint surgery. British volume*, *89*(8), 1010–1014. https://doi.org/10.1302/0301-620X.89B8.19424

Natavio, T., McQuillen, E., Dietrich, M. S., Wells, N., Rhoten, B. A., Vallerand, A. H., & Monroe, T. B. (2020). A Comparison of the Pain Assessment Checklist for Seniors with Limited Ability to Communicate (PACSLAC) and Pain Assessment in Advanced Dementia Scale (PAINAD). *Pain management nursing : official journal of the American Society of Pain Management Nurses*, *21*(6), 502–509. https://doi.org/10.1016/j.pmn.2020.04.001

Registered Nurses' Association of Ontario (RNAO). Pain: Prevention, assessment and management. 4th ed. Toronto (ON): RNAO; 2024

Rouhi, S., Egorova-Brumley, N., & Jordan, A. S. (2025). Chronic sleep deficiency and its impact on pain perception in healthy females. *Journal of sleep research*, *34*(1), e14284. https://doi.org/10.1111/jsr.14284

Schofield, P., Dunham, M., Martin, D., Bellamy, G., Francis, S. A., Sookhoo, D., Bonacaro, A., Hamid, E.,

Chandler, R., Abdulla, A., Cumberbatch, M., & Knaggs, R. (2022). Evidence-based clinical practice guidelines on the management of pain in older people – a summary report. *British journal of pain*, *16*(1), 6–13. https://doi.org/10.1177/2049463720976155

Shahiri T, S., & Gélinas, C. (2023). The Validity of Vital Signs for Pain Assessment in Critically Ill Adults: A Narrative Review. *Pain management nursing : official journal of the American Society of Pain Management Nurses*, *24*(3), 318–328. https://doi.org/10.1016/j.pmn.2023.01.004

Vickers, A. J., Assel, M., Hannon, M., Desai, P., Carlsson, S. V., McCready, T., Cracchiolo, J., & Simon, B. (2023). A comparison of brief versus explicit descriptors for verbal rating scales: interrupted time series design. Health and quality of life outcomes, 21(1), 105. https://doi.org/10.1186/s12955-023-02184-0

Warden, V., Hurley, A. C., & Volicer, L. (2003). Development and psychometric evaluation of the Pain Assessment in Advanced Dementia (PAINAD) scale. Journal of the American Medical Directors Association, 4(1), 9–15. https://doi.org/10.1097/01.JAM.0000043422.31640.F7

Wolfe, F., Clauw, D. J., Fitzcharles, M. A., Goldenberg, D. L., Häuser, W., Katz, R. L., Mease, P. J., Russell, A. S., Russell, I. J., & Walitt, B. (2016). 2016 Revisions to the 2010/2011 fibromyalgia diagnostic criteria. *Seminars in arthritis and rheumatism*, *46*(3), 319–329. https://doi.org/10.1016/j.semarthrit.2016.08.012