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Nakhon Pathom Rajabhat University

Chapter1-3

Pain Management Nursing

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DEFINITION OF PAIN

The International Association for the Study of Pain (IASP) defines pain as a "sensory and emotional experience associated with tissue damage or described in terms of such damage."

DEFINITION OF PAIN

- McCaffery defined pain as "whatever the experiencing person says it is and whenever he says it does (1979)."

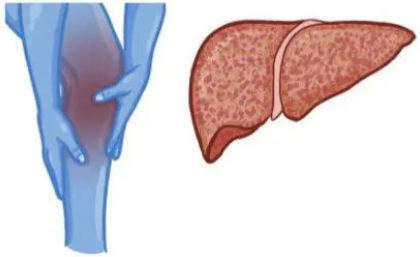
- The American Pain Society goes further by stating that it is "not the responsibility of clients to prove they are in pain; it is the nurse's responsibility to accept the clients report of pain (2005)."

PAIN
CATEGORIES

* **ACUTE**
  - SUDDEN ONSET
  - RESOLVES within 3 MONTHS

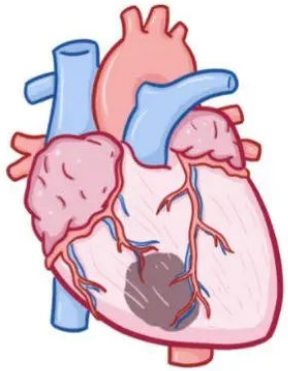
* **CHRONIC**
  - GRADUAL ONSET
  - LASTS > 6 MONTHS

* **NOCICEPTIVE**
  - SOMATIC
  - VISCERAL

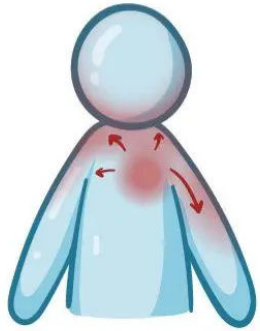


* **NEUROPATHIC**
  - DAMAGE or DYSFUNCTION of SOMATOSENSORY NERVOUS SYSTEM

* **ISCHEMIC**
  - INSUFFICIENT OXYGEN SUPPLY



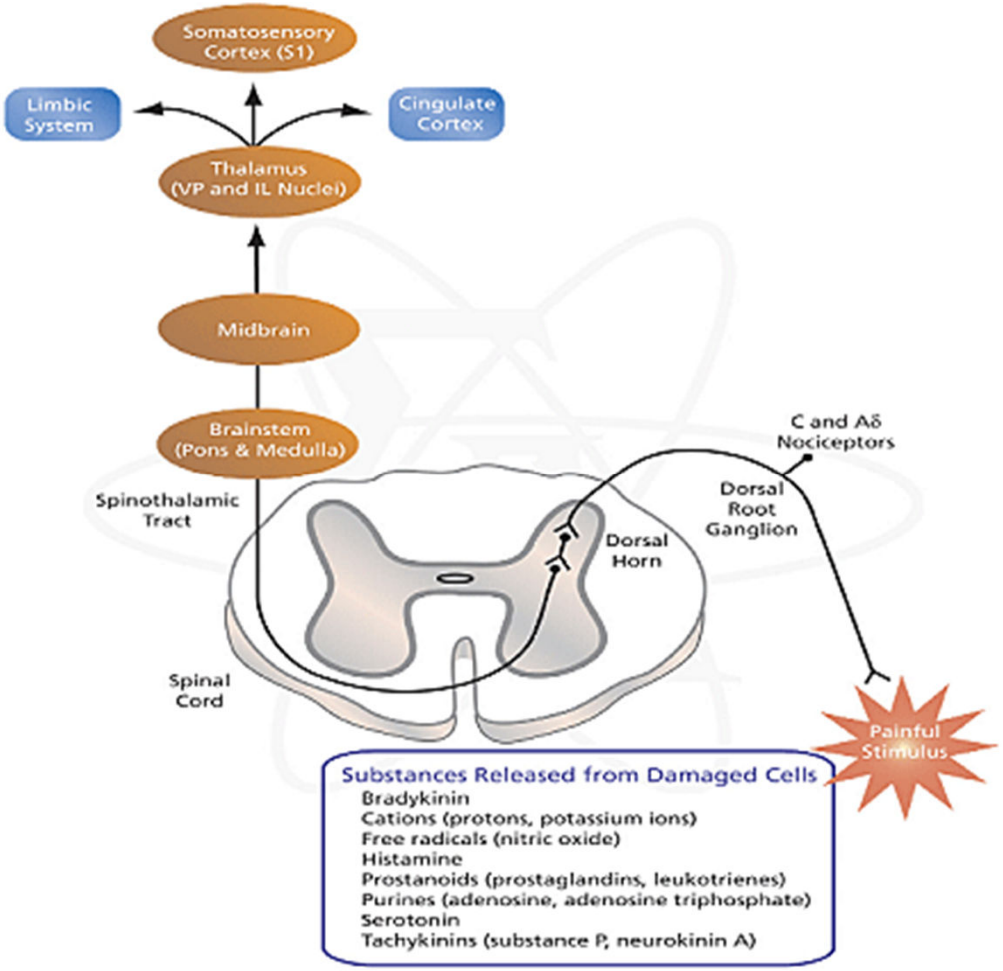
* **REFERRED**
  - PAIN FELT in DIFFERENT LOCATION



PHYSIOLOGY OF PAIN

Four processes of nociceptive (normal) pain:

- Transduction
- Transmission
- Perception
- Modulation.



THEORIES OF PAIN

- ***Specificity Theory*** **:**

❖ Von Frey (1895)

❖the body has a separate sensory system for perceiving pain—just as it does for hearing and vision

❖ this system contains its special receptors for detecting pain stimuli, its own peripheral nerves and pathway to the brain, and its area of the brain for processing pain signals.

THEORIES OF PAIN

Pattern theory :

- Goldschneider (1920) proposed that there is no separate system for perceiving pain, and the receptors for pain are shared with other senses, such as touch.
- According to this view, people feel pain when certain patterns of neural activity occur, such as when appropriate types of activity reach excessively high levels in the brain.

THEORIES OF PAIN

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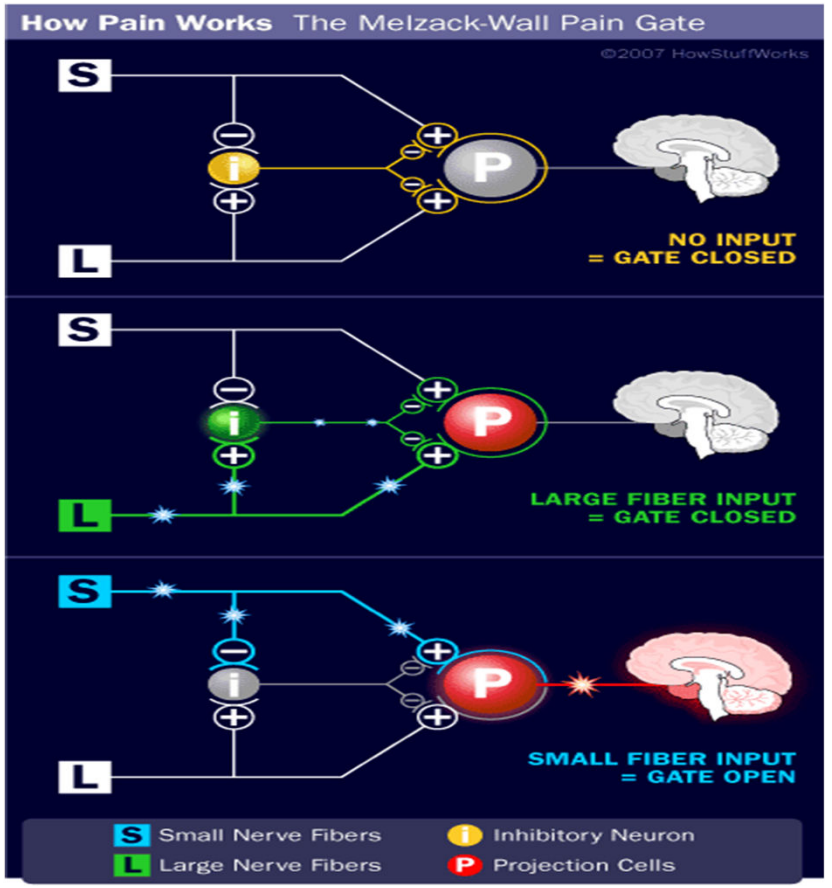
Gate Control Theory :

- Ronald Melzack and Patrick Wall proposed the Gate Control Theory in 1965.
- account for both "top-down" brain influences on pain perception as well as the effects of other tactile stimuli in appearing to reduce pain
- there is a "**gate**" or control system in the dorsal horn of the spinal cord through which all pain information must pass before reaching the brain.
- they can inhibit the communication of stimulation, while in other cases they can allow stimulation to be communicated into the central nervous system.

Gate control theory

Fiber Type		What they Transmit	Characteristics	Effect on Gate
Small Fibers	Aδ	Sharp, Prickly Pain	Thin, myelinated, slow	Opens
	C-Fibre	Dull, Aching Pain	Thin, unmyelinated, slow	Opens
Large Fibers	Aβ	Non-painful Stimuli	Thick, myelinated, fast	Closes



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FACTORS THAT INFLUENCE PAIN:

❑ PSYCHOLOGICAL FACTORS

- AGE
- FATIGUE
- GENETIC MAKEUP
- MEMORY
- STRESS RESPONSE

❑ PSYCHOLOGICAL FACTORS

- FEAR AND ANXIETY
- COPING

❑ CULTURAL FACTORS

Pain Assessment for Adult

AGE	PAIN PERCEPTION
ADULTS	Fear of pain may prevent some adults from seeking care; may believe admission of pain is a weakness and inappropriate for age or sex; may consider pain a punishment for moral failure

Pain Assessment for Adult

AGE	PAIN PERCEPTION
OLDER ADULTS	May have decreased sensations or perceptions of pain; may consider pain an inevitable part of aging; chronic pain may produce anorexia, lethargy, and depression; may not report pain due to fear of expense, possible treatment, and dependency; often describe pain in nonmedical terms such as "hurt" or "ache"; may fear addiction to analgesics; may not want to bother nurses or be a "bad client"

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PAIN ASSESSMENT

- Observational assessment of pain behavior for people with severe cognitive impairment, for example, the Abbey pain scale
- Pain Assessment Checklist for Seniors with Limited Ability to Communicate
- Visually impaired patients may benefit from using a verbal rating scale

PAIN ASSESSMENT

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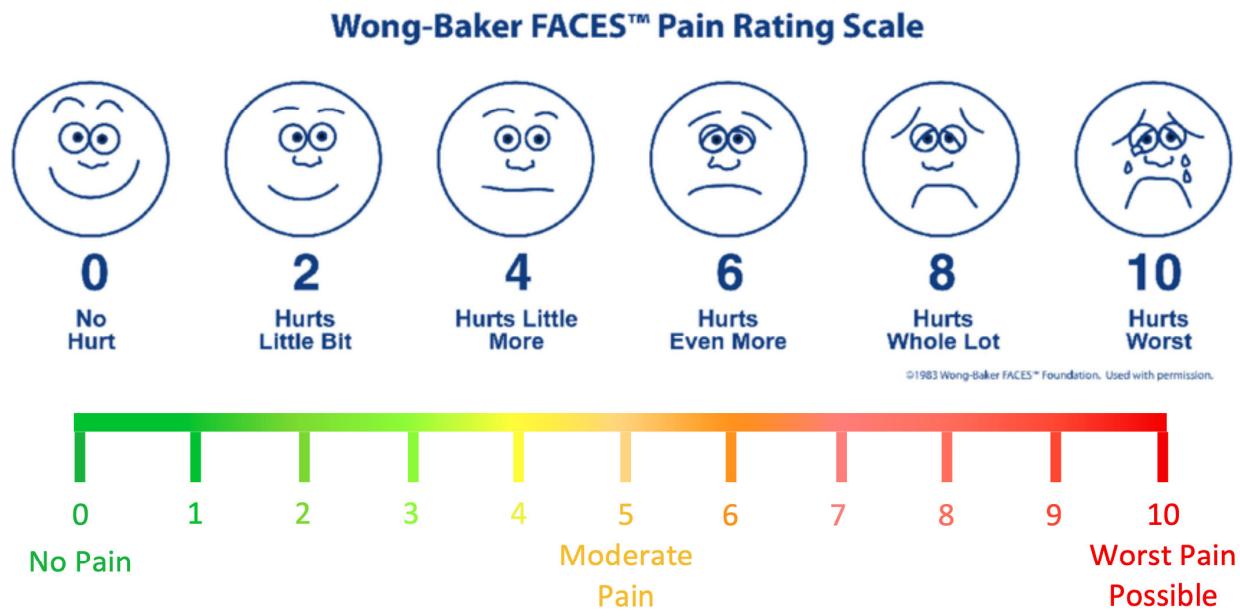
- **A pain scale** measures a patient's pain intensity or other features. Pain scales are based on self-report, observational (behavioral), or physiological data.
  - ***Examples***

Pain Rating Scale – Wong-Baker FACES™ & Visual Analogue Scale (VAS)



Source:
Pain assessment in children undergoing venipuncture: The Wong-Baker faces scale versus skin conductance fluctuations - Scientific Figure on ResearchGate. Available from: https://www.researchgate.net/figure/Wong-Baker-Faces-TM-Pain-Rating-Scale-Reproduced-with-Permission-of-the-Wong-Baker-Faces_fig1_236604762 [accessed 12 Feb, 2020]

PAIN ASSESSMENT

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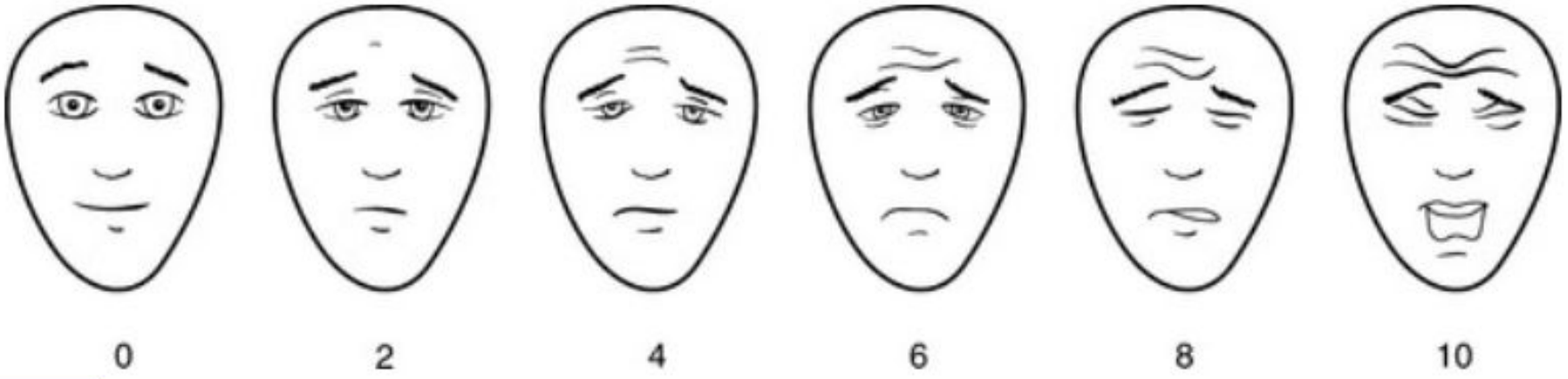
- **Bieri-Modified:** 6 cartoon faces starting from a neutral state and progressing to tears/crying. Scored 0-10 by the child. Used for children >3 years.



Bieri Faces-R Pain rating scale. When the faces pain scale is used, these instructions may be given: "These faces show how much something can hurt. This face [point to left-most face] shows no pain. The faces show more and more pain [point to each from left to right] up to this one [point to right-most face]—it shows very much pain. Point to the face that shows how much you hurt [right now]."

Abbey Pain Scale

For measurement of pain in people with dementia who cannot verbalise.

How to use scale: While observing the resident, score questions 1 to 6

Name of resident: .....

Name and designation of person completing the scale: .....

Date: .....**Time:** .....

Latest pain relief given was.....at .....hrs.

Q1. **Vocalisation**
eg. whimpering, groaning, crying **Q1** ☐
Absent 0 *Mild 1* *Moderate 2* *Severe 3*

Q2. **Facial expression**
eg: looking tense, frowning grimacing, looking frightened **Q2** ☐
Absent 0 *Mild 1* *Moderate 2* *Severe 3*

Q3. **Change in body language**
eg: fidgeting, rocking, guarding part of body, withdrawn **Q3** ☐
Absent 0 *Mild 1* *Moderate 2* *Severe 3*

Q4. **Behavioural Change**
eg: increased confusion, refusing to eat, alteration in usual patterns **Q4** ☐
Absent 0 *Mild 1* *Moderate 2* *Severe 3*

Q5. **Physiological change**
eg: temperature, pulse or blood pressure outside normal limits, perspiring, flushing or pallor **Q5** ☐
Absent 0 *Mild 1* *Moderate 2* *Severe 3*

Q6. **Physical changes**
eg: skin tears, pressure areas, arthritis, contractures, previous injuries. **Q6** ☐
Absent 0 *Mild 1* *Moderate 2* *Severe 3*

Add scores for 1 – 6 and record here ⇨ **Total Pain Score** ☐

Now tick the box that matches the Total Pain Score ⇨

0 – 2 No pain	3 – 7 Mild	8 – 13 Moderate	14+ Severe

Finally, tick the box which matches the type of pain ⇨

Chronic	Acute	Acute on Chronic

Dementia Care Australia Pty Ltd
Website: www.dementiacareaustralia.com

Abbey, J; De Bellis, A; Piller, N; Esterman, A; Giles, L; Parker, D and Lowcay, B.
Funded by the JH & JD Gunn Medical Research Foundation 1998 – 2002

PAIN SCALES

- **CRIES:** Assesses Crying, Oxygen requirement, Increased vital signs, facial expression, and sleep. An observer provides a score of 0-2 for each parameter based on changes from baseline. The scale is useful for neonatal postoperative pain.

DATE/TIME						
Face 0 - No particular expression or smile 1 - Occasional grimace or frown, withdrawn, disinterested 2 - Frequent to constant quivering chin, clenched jaw						
Legs 0 – Normal position or relaxed 1 – Uneasy, restless, tense 2 – Kicking, or legs drawn up						
Activity 0 – Lying quietly, normal position, moves easily 1 – Squirming, shifting back and forth, tense 2 – Arched, rigid or jerking						
Cry 0 – No cry (awake or asleep) 1 – Moans or whimpers; occasional complaint 2 - Crying steadily, screams or sobs, frequent complaints						
Consolability 0 – Content, relaxed 1 – Reassured by occasional touching, hugging or being talked to, distractible 2 – Difficult to console or comfort						
TOTAL SCORE						

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PAIN SCALES

- **NIPS:** Neonatal/Infants Pain Scale has been used mostly in infants less than 1 yr of age. Facial expression, cry, breathing pattern, arms, legs, and state of arousal are observed for 1-minute intervals before, during, and after a procedure, and a numeric score is assigned to each. A score >3 indicates pain

- **CHEOPS:** Children's Hospital of Eastern Ontario Scale. Intended for children 1-7 years old. Assesses cry, facial expression, verbalization, torso movement, if a child touches the affected site, and position of legs. A score >/= 4 signifies pain.

PAIN SCALES

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FLACC: Face, Legs, Activity, Crying, Consolability scale has been validated from 2 mo to 7 years. FLACC uses 0-10 scoring.

DATE/TIME						
Face 0 - No particular expression or smile 1 - Occasional grimace or frown, withdrawn, disinterested 2 - Frequent to constant quivering chin, clenched jaw						
Legs 0 – Normal position or relaxed 1 – Uneasy, restless, tense 2 – Kicking, or legs drawn up						
Activity 0 – Lying quietly, normal position, moves easily 1 – Squirming, shifting back and forth, tense 2 – Arched, rigid or jerking						
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TOTAL SCORE						

PAIN SCALES

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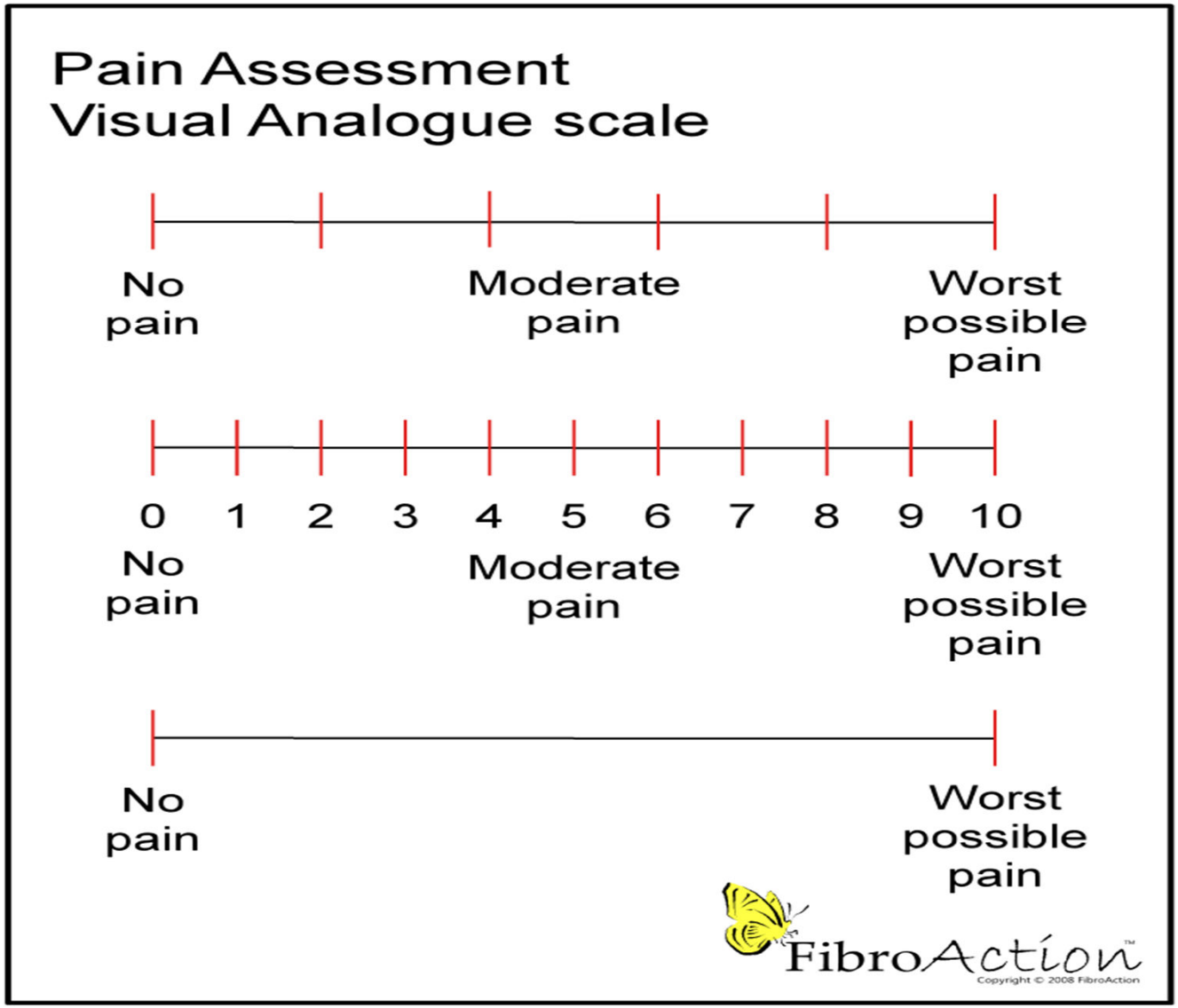
Numerical rating scale:

Used for adults and children 10 years old or older

Rating	Pain Level
0	No Pain
1 – 3	Mild Pain (nagging, annoying, interfering little with ADLs)
4 – 6	Moderate Pain (interferes significantly with ADLs)
7 – 10	Severe Pain (disabling; unable to perform ADLs)


Pain Assessment
Visual Analogue scale
No pain
Moderate pain
Worst possible pain
0 1 2 3 4 5 6 7 8 9 10
No pain
Moderate pain
Worst possible pain
No pain
Worst possible pain
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PAIN SCALES

Dolorimeter

- instrument used to measure pain threshold and pain tolerance.
- defined as "the measurement of pain sensitivity or pain intensity.".
- Dolorimeters apply steady pressure, heat, or electrical stimulation to some area, or move a joint or other body part and determine what level of heat or pressure or electric current or amount of movement produces a sensation of pain.

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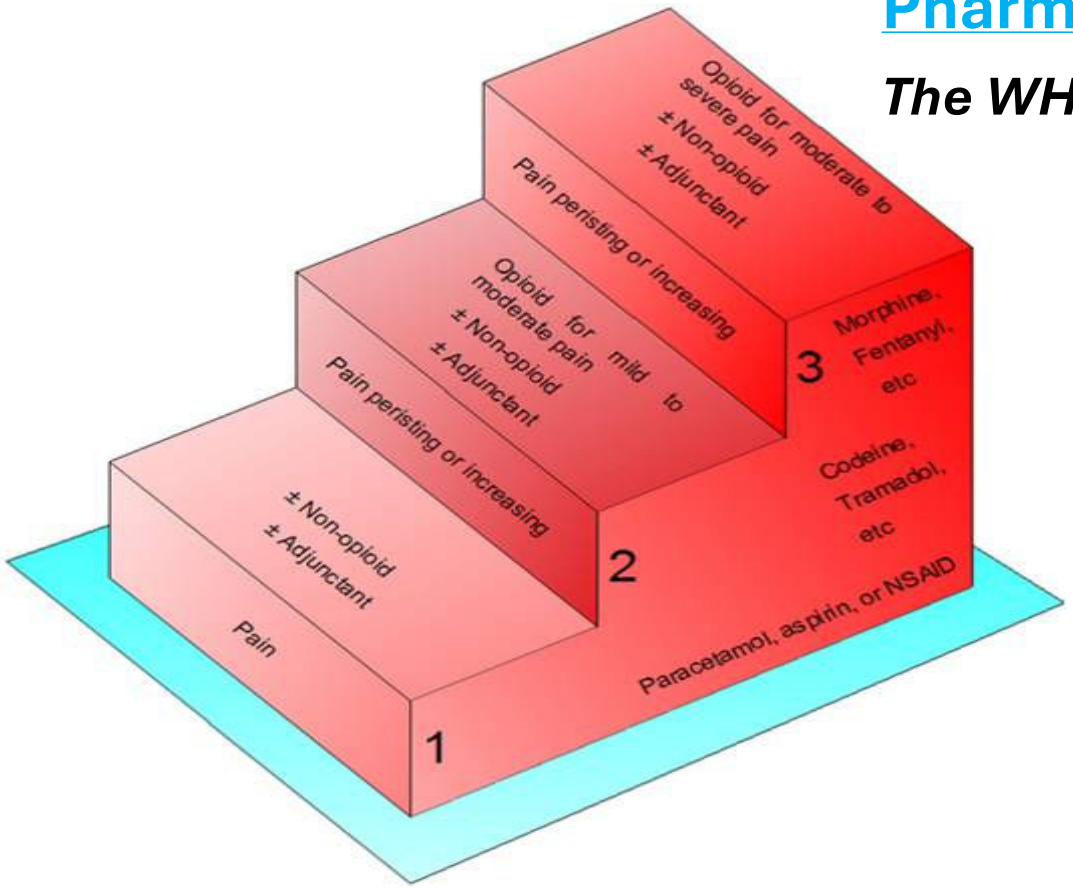
MANAGEMENT OF PAIN

Pharmacological Management of Pain

The WHO 3-Step Ladder for Pain Management



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PHARMACOLOGICAL MANAGEMENT OF PAIN

Types of analgesic medications

- Analgesic drugs can be divided into two groups:
- **Non-opioids**
  - also referred to as non-narcotic, peripheral, mild & antipyretic agents
- **Opioids**
  - also called narcotic, central, or strong agents

- **NSAIDs:**

Etodolac, Ibuprofen, Ketoprofen, Naprosyn

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PHARMACOLOGICAL EFFECTS

- **Analgesia:**
  Used to reduce mild to moderate pain.
- **Antipyretic:**
  Used to lower body temperature & treat fever by causing peripheral vasodilation and sweating.
- **Anti-inflammatory:**
  Reduces pain, redness & swelling of inflamed areas by inhibiting prostaglandin synthesis, vasodilation, and increasing capillary permeability.
- **Anticoagulation:**
  Reduces blood clotting by inhibition of prostaglandin synthesis. Small doses are used to prevent the recurrence of strokes and myocardial infarctions.

- **NSAIDs**

- **Pharmacokinetics:**
  NSAIDs are absorbed from the stomach & small intestine, and then widely distributed to most body tissues. Metabolized in the liver, then excreted by the kidneys.

- **Mechanism:**
  Works by blocking prostaglandin synthesis in the peripheral nerves & the hypothalamus portion of the brain.

NSAIDs

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ADVERSE EFFECTS

- **GI:**
  increased GI ulceration & bleeding
- **CNS:**
  increased drowsiness, sedation, confusion, headache, vertigo, strange dreams
- **Bleeding:**
  prolonged bleeding time due to NSAIDs binding to platelets, reducing platelet adhesiveness
- **Allergy:**
  symptoms ranging from mild rash to anaphylactic shock

ACETAMINOPHEN

PHARMACOLOGIC EFFECTS

- **Analgesia:**
  Used to reduce mild to moderate pain.
- **Antipyretic:**
  Used to lower body temperature & treat a fever by causing peripheral vasodilation and sweating.
- **Pharmacokinetics:**
  Absorbed from the stomach & small intestine, then distributed to body tissues. Metabolized in the liver, then excreted by the kidneys.
- **Mechanism:**
  The exact mechanism is not known, but believed to work in the CNS, not the peripheral nervous system.

Opioids

- compound that affects the opioid receptors, thereby reducing pain sensation.
- preoperatively, to…
  - reduce anxiety
  - reduce the amount of general anesthesia used
  - produce analgesia
- in some cough preparations
- in some strong antidiarrheal treatments

CLASSIFICATION OF OPIOIDS

- **Opioids Agonist**
  Used to treat moderate to severe pain. Morphine is considered the prototype.
- **Mixed Opioids Agonists**
  Used to treat moderate to severe pain. Not commonly used in dentistry. Physical dependence on Buprenorphine is low and withdrawal is mild.
- **Opioids Antagonist**
  Used to counteract the pharmacologic and reverse reactions of opioid agonists and mixed agonists and in the management of overdoses.

OPIOID CLASS

Agonist:

- Codeine
- Hydrocodone
- Hydromorphone
- Meperidine
- Morphine
- Oxycodone

Mixed agonist:

- Buprenorphine

Antagonist:

- Nalbuphine
- Nalorphine
- Naloxone
- Pentazocine

Pharmacological effects of opioids

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Sedation:
produces sedation at therapeutic doses

Euphoria:
may decrease anxiety, increase relaxation, and a feeling of well-being

Dysphoria:
some patients experience feelings of irritability &/or anxiety

Cough Suppression:
can decrease coughing.

GI Effect:
causes a decrease in propulsive contractions & motility, which may lead to constipation

Respiration:
reduces the rate & depth of respiration, this effect is dose-dependent.

Opioids

- **Pharmacokinetics:**
  Opioids are absorbed when administered intramuscularly, orally, subcutaneously, intravenously, nasally, & transdermally. The onset of action is quick, with analgesic response occurring 30 to 40 minutes. Opioids are metabolized in the liver and excreted through the kidneys. They do cross the placental barrier.

- **Mechanism:**
  Bind to receptors along the pain-analgesia pathway of the central nervous system, inhibiting pain sensations

Side effects of opioids

- **Respiratory Depression and Sedation**
- **Nausea and Vomiting**
- **Constipation**
- **Inadequate Pain Relief**
- **Other Effects of Opioids**

❖ Allergies
❖ Pruritis
❖ Urinary retention
❖ Tolerance and addiction

Adjuvant pain medications

- ***Corticosteroids***
- ***Anticonvulsants*** (carbamazepine, valproate, clonazepam, phenytoin, and gabapentin)
- ***Tricyclic antidepressants*** (amitriptyline, desipramine, imipramine, nortriptyline)
- ***Bisphosphonates*** (pamidronate) and *calcitonin*
- ***Neuroleptic medications*** (haloperidol, chlorpromazine or risperidone)
- ***Anxiolytics*** (lorazepam)

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NON-PHARMACOLOGICAL MANAGEMENT OF PAIN

Heat	Cold application	Massage therapy	Physical therapy	Transcutaneous electrical nerve stimulation (TENS)
Spinal cord stimulation (SCS)	Aromatherapy	Guided imagery	Laughter	Music
	Biofeedback	Self-hypnosis	Acupuncture	

NURSES ROLE IN PAIN MANAGEMENT:

ASSESSMENT

NURSING DIAGNOSIS

- Pain acute
- Self-care deficit
- Anxiety
- Ineffective coping
- Fatigue
- Impaired physical mobility
- Imbalanced nutrition less than body requirements
- Ineffective role performance
- Disturbed sleep pattern
- Sexual dysfunction
- Impaired social interaction

NURSES ROLE IN PAIN MANAGEMENT:

PLANNING

- **Goals and outcomes**

  Ex: **goal-** "the client will achieve a satisfactory level of pain relief within 24 hours"; **possible outcomes-"** reporting that the pain is a 3 or less on the scale, using pain relief measures safely"

- **Setting priorities:**

  Ex: pain related to incisional pain can be reduced by analgesics, but pain related to early labor contractions will only reduced by relaxation exercises.

- **Continuity of care:**

  A comprehensive plan includes various pain control resources, including nurse specialists, doctors of pharmacology, physical therapists, and occupational therapists.

NURSES ROLE IN PAIN MANAGEMENT:

- **IMPLEMENTATION**
- **EVALUATION**

BARRIERS OF EFFECTIVE PAIN MANAGEMENT

Client Barriers:

- Fear of addiction, tolerance, injections, disease progression.
- Concern about not being a “good client”.
- Inadequate education
- Forget to take analgesics
- Reluctance to discuss pain
- Take too many pills already
- Worry about side effects

BARRIERS OF EFFECTIVE PAIN MANAGEMENT

Health Care Provider Barriers

- Inadequate pain assessment
- Concern with addiction
- Fear of opioids.
- Fear of legal repercussions
- No visible cause and not believing the client's report
- Reluctance to deal with the side effects of opioids.
- Fear of giving a dose that will kill the patient
- Physician time constraints

BARRIERS OF EFFECTIVE PAIN MANAGEMENT

Health Care System Barriers

- Concern with creating “addicts”
- Nurse practitioners and physician assistants not used efficiently
- Lack of money
- Inadequate access to pain clinics
- Extensive documentation requirements

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Thank you...