

Cancer Association of South Africa (CANSA)



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Fact Sheet on Pain Control in Cancer

Introduction

Not everyone with cancer experiences cancer pain, but 1 out of 3 people undergoing cancer treatment does. If one has advanced cancer - cancer that has spread or recurred - the chance of experiencing cancer pain is higher. Cancer pain occurs in many ways. The pain may be dull, achy or sharp. It could be constant, intermittent, mild, moderate or severe.

[Picture Credit: Pain]



Cancer pain can result from the cancer itself. Cancer can cause pain by growing into or destroying tissue near the cancer. Cancer pain can come from the primary cancer itself - where the cancer started - or from other areas in the body where the cancer has spread (metastases). As a tumour grows, it may put pressure on nerves, bones or organs, causing pain.

Cancer pain may not just be from the physical effect of the cancer on a region of the body, but also due to chemicals that the cancer may release in the region of the tumour. Treatment of the cancer can help the pain in these situations.

Cancer treatments - such as chemotherapy, radiation and surgery - are another potential source of cancer pain. Surgery can be painful, and it may take time to recover. Radiation may leave behind a burning sensation or painful scars. And chemotherapy can cause many potentially painful side effects, including mouth sores, diarrhoea and nerve damage. (Mayo Clinic).

Cancer Pain

Pain is one of the most common symptoms cancer patients experience. It is defined as "an unpleasant multidimensional, sensory and emotional experience associated with actual or potential tissue damage or described in relation to such damage" by the International

Association for the Study of Pain. Cancer pain has many different causes, including advanced disease, neuropathy, bone weakness or invasion, infection, postoperative effects, growth factors, and chemotherapy. Pharmacists play a major role in oncologic pain management, whether it is advising inpatients during physicians' rounds, counselling patients at an infusion centre, or advising patients on OTC (over-the-counter) pain medications at a community pharmacy.

There is a substantial amount of evidence that links survival in oncology patients to pain control, and under-treatment of pain has been documented in various clinical settings. However, pain is a subjective phenomenon, which makes it difficult to assess patients accurately because it requires reliance on the patient's self-assessment using pain scales. If pain in cancer patients is not adequately controlled, it can lead to functional impairments such as decreased activity, sleep disturbances, loss of appetite, and an overall decrease in quality of life.

There are quite a few barriers to cancer pain management, which make it difficult to attain proper pain control. Healthcare professionals sometimes do not have adequate knowledge of pain management or, at times, do not perform a complete pain assessment. Sometimes, patients and family members are reluctant to report pain due to myths and misconceptions about opioids. Other times, there are barriers with the healthcare system regarding reimbursement. Because of poor pain management in cancer patients, it is evident that more pain management awareness is needed for healthcare professionals.
(US Pharmacist).

Assessing Cancer Pain

As with all pain syndromes, accurate, thorough, and systematic assessment of cancer pain is crucial to identifying the underlying aetiology and developing a treatment plan.

Principles of Cancer Pain Assessment

- Use tools valid for the patient's age and cognitive abilities, with additional attention to the language needs of the patient.
- Record medications currently taken as well as those used in the past, including efficacy and any adverse effect.
- Consider common cancer pain syndromes while conducting the history and physical examination.
- Assess for functional impairment and the need for safety measures.
- Incorporate a psychosocial evaluation into the assessment, including determination of the patient's/family's goals of care.
- Use a pain diary to track the effectiveness of therapies and evaluate changes in pain.
- Order a diagnostic evaluation (e.g., MRI, CT, laboratory testing) when warranted, and only if it will contribute to the treatment plan.
- Evaluate for the presence of other symptoms, as pain is highly correlated with fatigue, constipation, mood disturbances, and other symptoms.

Pain History

Essential components of the pain history include:

- Location(s)
- Intensity
- Quality
 - Nociceptive - nociceptive pain is caused by damage to body tissue and usually described as a sharp, aching, or throbbing pain

- Visceral: squeezing, cramping
- Neuropathic: burning, tingling, electrical, painfully numb
- Temporal patterns
- Aggravating and alleviating factors
- Meaning of pain, presence of suffering or existential distress (hopelessness, believing to be a burden to others, loss of sense of dignity, desire for death)
- Cultural factors
- Medication history

Pain Intensity Scales

Unidimensional scales include the numeric rating scale (e.g., 0 to 10), a verbal descriptor scale (e.g., “no pain,” “mild pain,” “moderate pain,” “severe pain”) or a visual analogue scale (e.g., a 10-cm line with anchors such as “no pain” on the left and “severe pain” on the right; the patient indicates the place on the line that best represents the intensity of pain). A variety of scales use drawings of faces (from smiling to distressed) for patients who cannot easily use the above tools. Several paediatric tools are available.



[Picture Credit: Faces]

Multidimensional Instruments

The Brief Pain Inventory is a valid, clinically useful pain assessment tool that has been used extensively in people with cancer. It includes a diagram to note the location of pain, questions regarding pain intensity (current, average, and worst using a 0 to 10 rating scale), and items that evaluate impairment due to pain. (IASP-Pain.Org).

The Brief Pain Inventory - Short Form (BPI-sf) is a self-administered questionnaire used to evaluate the severity of a patient's pain and the impact of this pain on the patient's daily functioning. The patient is asked to rate their worst, least, average, and current pain intensity, list current treatments and their perceived effectiveness, and rate the degree that pain interferes with general activity, mood, walking ability, normal work, relations with other persons, sleep, and enjoyment of life on a 10 point scale.

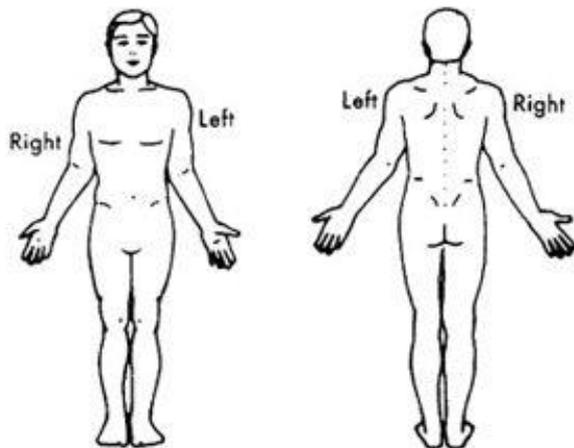
The brevity of the BPI-sf makes it suitable for settings in which pain is assessed on a daily basis (e.g. in a randomised control trial). The questionnaire exists within the biopsychosocial model of pain, as it addresses sensory, emotional, and functional aspects of the pain experience. The tool is responsive to changes in pain associated with pharmacological, physical, and psychological interventions.

FORM 3.2 **Brief Pain Inventory**

Date ___ / ___ / ___ Time: _____

Name: _____
Last First Middle Initial

- Throughout our lives, most of us have had pain from time to time (such as minor headaches, sprains, and toothaches). Have you had pain other than these everyday kinds of pain today?
 1. Yes 2. No
- On the diagram shade in the areas where you feel pain. Put an X on the area that hurts the most.



- Please rate your pain by circling the one number that best describes your pain at its **worst** in the past 24 hours.
 0 1 2 3 4 5 6 7 8 9 10
 No pain pain as bad as you can imagine
- Please rate your pain by circling the one number that best describes your pain at its **least** in the past 24 hours.
 0 1 2 3 4 5 6 7 8 9 10
 No pain pain as bad as you can imagine
- Please rate your pain by circling the one number that best describes your pain on the **average**
 0 1 2 3 4 5 6 7 8 9 10
 No pain pain as bad as you can imagine
- Please rate your pain by circling the one number that tells how much pain you have **right now**.
 0 1 2 3 4 5 6 7 8 9 10
 No pain pain as bad as you can imagine

7) What treatments or medications are you receiving for your pain?

8) In the Past 24 hours, how much **relief** have pain treatments or medications provided? Please circle the one percentage that most shows how much relief you have received
 0% 10 20 30 40 50 60 70 80 90 100%
 No Complete relief
 relief relief

9) Circle the one number that describes how, during the past 24 hours, pain has **interfered** with your:
 A. General activity
 0 1 2 3 4 5 6 7 8 9 10
 Does not interfere Completely interferes

B. Mood
 0 1 2 3 4 5 6 7 8 9 10
 Does not interfere Completely interferes

C. Walking ability
 0 1 2 3 4 5 6 7 8 9 10
 Does not interfere Completely interferes

D. Normal work (includes both work outside the home and housework)
 0 1 2 3 4 5 6 7 8 9 10
 Does not interfere Completely interferes

E. Relations with other people
 0 1 2 3 4 5 6 7 8 9 10
 Does not interfere Completely interferes

F. Sleep
 0 1 2 3 4 5 6 7 8 9 10
 Does not interfere Completely interferes

G. Enjoyment of life
 0 1 2 3 4 5 6 7 8 9 10
 Does not interfere Completely interferes

(Medscape).

Some Possible Reasons for not Receiving Adequate Treatment for Cancer Pain

Unfortunately cancer pain is often undertreated. Many factors may contribute to that, some of which include:

Reluctance of doctors to ask about pain or offer treatments - some doctors and other health care professionals may not specifically ask about pain, which should be a normal part of every visit to a doctor.

People with cancer should be asked if they are having any pain. If they are, the doctor should stop there and deal with the issue.

Some doctors do not know enough about proper pain treatment. If this is the case, the doctor might refer the patient to a pain specialist.

Other doctors may be concerned about prescribing pain medications because these drugs can be abused. However, people in pain are very unlikely to abuse pain medications.

Reluctance of patients to speak up about pain - a second factor might be a person's own reluctance. Some people might not want to 'bother' their doctors with the information, or they may fear that the pain means that their cancer is getting worse.

Some are reluctant to report it or report it as thoroughly as they should because they are worried about what doctors or others might think of them if they complain. They might feel that because they have cancer, they are supposed to have pain and be able to deal with it. That simply is not true.

Fear of addiction - another factor might be the person's fear of becoming addicted to pain medications. This is something that does not typically happen if one takes medications for pain.

If one takes medications when not in pain or to get high, then, yes, one can get addicted. The risk of addiction for people who take pain medications in an appropriate fashion - for pain - is very low, so this should not be a concern.

Fear of side effects - some people fear the side effects of pain medications. Many are afraid of being sleepy, being unable to communicate with family and friends, acting strangely, or being seen as dependent on medications. People are also sometimes afraid that taking morphine may shorten their life. There is no evidence of any of these happening if the medication is dosed appropriately.

Recent evidence suggests that good control of symptoms, including pain, actually helps people to live longer.

And although strong pain medications can cause drowsiness when one first takes them, that side effect usually goes away with steady dosing.

Drug tolerance - the term 'drug tolerance' is often used. This means that over time one's body gets used to a particular drug and one requires more of it to get the same level of pain

control. Most people taking pain medicines for cancer do not develop this. But if a patient does, the doctor or Professional Nurse may adjust the dose of the painkiller slightly or change to a different kind of medicine.

Sometimes one may need to increase or decrease the painkiller dose as the pain gets better or worse.

Sometimes pain may increase due to a cancer growing and then the dose of painkiller may need to be increased. The patient should let the doctor or nurse know if they start to feel pain before they are due for the next dose of drugs. One may need to increase the dose of the painkillers or add other drugs to help relieve the pain. Increasing the dose of morphine type painkillers to help with increasing pain or drug tolerance will not lead to addiction.

If the pain lessens, for example because of cancer treatment shrinking a tumour, the doctor or nurse will gradually lower the dose of the painkillers over a few days.

Poor pain assessment - sometimes pain can go untreated if one feels one cannot mention it because the medical team have not asked about it. A patient may also think he/she should put up with the pain. Or that one is complaining too much if one talks about being in pain. The patient may worry that the pain means the cancer is getting worse. He/she may worry about saying anything or asking questions because they do not really want to hear the answers.

It is important for doctors, nurses and patients to talk about pain. If the pain is properly assessed, it is more likely to be well controlled. Patients should not feel as though they are complaining. If one lets the doctors and nurses know how one feels, they can help to control the pain.

If the pain is very difficult to control, a patient can be referred to a pain specialist doctor or nurse to help sort it out.
(Mayo Clinic; Cancer Research UK).

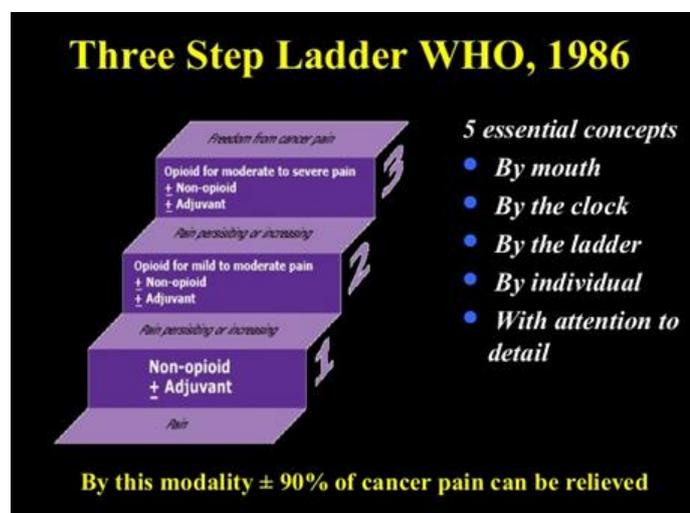
The World Health Organization Cancer Pain Ladder for Adults

The World Health Organization has developed a three-step 'ladder' for cancer pain relief in adults.

[Picture Credit: WHO 3-Step Ladder].

If pain occurs, there should be prompt oral administration of drugs in the following order: non-opioids (aspirin and paracetamol); then, as necessary, mild opioids (codeine); then strong opioids such as morphine, until the patient is free of pain. To calm fears and anxiety, additional drugs – “adjuvants” – should be used.

To maintain freedom from pain, drugs should be given 'by the clock', that is



every 3-6 hours, rather than 'on demand'. This three-step approach of administering the right drug in the right dose at the right time is inexpensive and 80-90% effective. Surgical intervention on appropriate nerves may provide further pain relief if drugs are not wholly effective.

The WHO Ladder is part of an overall pain treatment method that centres on five key principles:

- "By Mouth": use the oral route whenever possible, even for opioids
- "By the Clock": For persistent pain, provide medication at regular intervals (around the clock) rather than prn
- "By the Ladder":
 - Step 1: For mild to moderate pain, start with a non-opioid (e.g., acetaminophen, ibuprofen) and increase the dose, if necessary to the maximum recommended dose.
 - Use an adjuvant such as an anti-depressant or anticonvulsant, if indicated
 - If the patient presents with moderate or severe pain skip Step 1.
 - Step 2: If or when non-opioids do not adequately relieve pain, add an opioid intended for moderate pain such as hydrocodone (combined with acetaminophen).
Add or continue adjuvants, if appropriate
 - Step 3: If or when the non-opioid for mild to moderate pain no longer adequately relieves the pain, switch to an opioid that is not combined with another agent such as acetaminophen, and one that is effective for moderate to severe pain (e.g. morphine, oxycodone, hydromorphone).
Add or continue adjuvants, if appropriate
- "For the Individual":
individualise the treatment plan according to the patient's goals.
(Pain Community Centre; WHO.Int).

The World Health Organization Cancer Pain Ladder for Children

In the case of cancer pain in children, the World Health Organization recommends a two step ladder. All moderate and severe pain in children should always be addressed.

The Two Step Approach according to the child's level of pain severity is recommended:

- First step: paracetamol or ibuprofen (mild pain) – both to be made available
- Second step: morphine (moderate to severe pain)

Note: codeine is no longer recommended. Tramadol is also not recommended
(Pain Community Centre; WHO.Int).

Non-pharmacological Therapies that are Often Used to Help Control Pain

Non-pharmacological therapies are ways to decrease pain in addition to medicine. Each person may respond to these therapies differently. Therapies include:

Radiation therapy - radiation is also used to control pain by destroying a growing tumour that is invading or interfering with normal tissue, such as when a tumour presses on bones, nerves, or other organs. This may be done with radiation to part of the body or, in rare cases, with radiation to the whole body. Or one may be given an injection or infusion with a radioactive medicine

Heat - heat helps decrease pain and muscle spasms. Apply heat to the area for 20 to 30 minutes every 2 hours for as many days as directed

Ice - ice helps decrease swelling and pain. Ice may also help prevent tissue damage. Use an ice pack or put crushed ice in a plastic bag. Cover it with a towel and place it on the area for 15 to 20 minutes every hour as directed

Massage therapy - this may help relax tight muscles and decrease pain

Physical therapy - this teaches one exercises to help improve movement and strength, and to decrease pain

Transcutaneous electrical nerve stimulation (TENS) - this is a portable, pocket-sized, battery-powered device that attaches to the skin. It is usually placed over the area of pain. It uses mild, safe electrical signals to help control pain

Spinal cord stimulation (SCS) - an electrode is implanted near the spinal cord during a simple procedure. The electrode uses mild, safe electrical signals to relax the nerves that cause pain

Aromatherapy - this is a way of using scents to relax, relieve stress, and decrease pain. Aromatherapy uses oils, extracts, or fragrances from flowers, herbs, and trees. They may be inhaled or used during massages, facials, body wraps, and baths

Guided imagery - this teaches ways to put pictures in one's mind that will make pain less intense. It may help one learn how to change the way one's body senses and responds to pain

Laughter - laughter may help to let go of stress, anger, fear, depression, and hopelessness

Music - this may help increase energy levels and improve one's mood. It may help reduce pain by triggering the body to release endorphins. These are natural body chemicals that decrease pain

Biofeedback - this teaches the body to respond differently to the stress of being in pain. Caregivers may use a biofeedback machine to help one know when one's body is relaxed

Self-hypnosis - this is a way to direct one's attention to something other than pain. For example, one might repeat a positive statement about ignoring the pain or seeing the pain in a positive way

Acupuncture - this therapy uses very thin needles to balance energy channels in the body. This is thought to help reduce pain and other symptoms

Homeopathy

Homeopathy has not been found to help control cancer pain (Drugs.Com; WebMD; Mark Kantrowitz)

Pharmacological Management of Cancer Pain

Cancer pain involves different types of pain (tissue injury and inflammation, neuropathic pain, and visceral pain), and it is often aggravated by anxiety and depression. All components need to be considered in the management of cancer-related pain

Non-steroidal Anti-Inflammatory Drugs (NSAIDs)

- NSAIDs are effective in tissue injury and inflammation. They are particularly beneficial in pain due to bone cancer or metastasis because of their anti-inflammatory effect and because they may decrease tumour growth
- NSAIDs should be used either alone, or in combination with opioids if they are not effective enough on their own
- NSAIDs should not be used if the patient is allergic to them, and their use should be considered with great care if there is a risk for gastrointestinal irritation or bleeding, decreased kidney function, heart failure, or bleeding due to decreased platelet function. Elderly patients are particularly vulnerable to all adverse effects
- Gastric protection should be considered, particularly if the patient is receiving other drugs that may cause damage to the gastric mucosa (e.g., corticosteroids)
- Cyclooxygenase-2 (COX-2)-selective NSAIDs cause somewhat less gastric irritation, and they do not decrease platelet function. Other adverse effects are similar to those of non-selective NSAIDs. COX-2- selective NSAIDs are no more effective as analgesics compared with non-selective analgesics
- Paracetamol (acetaminophen) can be considered when NSAIDs are contraindicated. It is a less effective analgesic than NSAIDs

Opioids

- Opioids are usually added to NSAIDs or paracetamol (acetaminophen)
- Weak opioids (e.g., codeine, tramadol) can be used only if pain is moderate, because they have a maximum recommended dose after which the adverse effects increase more than the analgesic effect

- About 10% of patients are unable to metabolise either codeine or tramadol to the active opioid metabolite (morphine or M1). In these patients, these drugs have poor efficacy or none at all
- Strong opioids (e.g., morphine, oxycodone, hydromorphone, fentanyl, and methadone) differ from weak opioids in having a much broader dose range. If the pain is opioid sensitive (it can be relieved by an opioid), a greater effect can be achieved by increasing the dose
- Long-acting opioids (controlled-release or slow-release) are used for stable or baseline pain. They are usually administered twice daily by mouth
- Fast- and short-acting opioids are used for breakthrough or incident pain when needed (via oral, trans-mucosal, or inhaled routes of administration)
- Respiratory depression is rarely a problem because pain stimulates the respiratory centre, and tolerance develops to this adverse effect
- Nausea and vomiting may be a problem, particularly at the beginning of treatment. Nausea is treated with haloperidol, with metoclopramide (if there is also gastric stasis), or with 5-HT₃-antagonists (if opioids have also caused severe constipation)
- Constipation is a common and persistent adverse effect because opioids regulate bowel function. Increased absorption of water causes hard stools, which can be treated with osmotic stool softeners. Opioids also cause spasm of the bowel, necessitating treatment with stimulant laxatives
- Sedation, dysphoria (a state of feeling unwell or unhappy), hallucinations, and nightmares, as well as sweating and itching, are other opioid-related adverse effects
- Addiction is rarely a problem because the context protects against it when opioids are used to control pain from cancer, which is potentially a life-threatening condition
- Development of physical dependence is typical for opioids, which should never be abruptly discontinued, so as to avoid withdrawal symptoms
- Development of tolerance is typical for opioids. Pain itself may decrease the development of tolerance, but increasing pain will also necessitate dose escalation. Tolerance can be dealt with by increasing the dose; by changing the opioid (cross-tolerance is not complete); by changing the route (spinal administration); or by adding other drugs, such as ketamine, an N-methyl-D-aspartate (NMDA) receptor antagonist, or clonidine, an α_2 -adrenergic agonist. Methadone can be particularly effective when tolerance has developed to other opioids, perhaps because of its non-opioid effects (e.g., it has a weak NMDA antagonistic effect). Because of its difficult pharmacokinetics, methadone is not a first-line opioid
- All commonly used opioids are mu-opioid receptor agonists, but they have different pharmacokinetic profiles (bioavailability, metabolism, passage through the blood-brain-barrier, and excretion)
- The preferred route of administration is by mouth. Transdermal fentanyl can be considered if pain is stable, if the required opioid doses are moderate, and if blood circulation to the skin is normal (e.g., the patient is not cachectic). Subcutaneous

administration by continuous infusion can be considered if the patient cannot take medications by mouth. Other drugs (e.g., anti-emetics) can be added to subcutaneous infusions of morphine, oxycodone, or hydromorphone

- Spinal (epidural or subarachnoid) opioid administration can be considered when less invasive methods are not effective. Local anaesthetic agents and clonidine will increase the efficacy of opioids

Other Drugs

- Antidepressants can be used to treat both depression and neuropathic pain. Antidepressants have been specifically studied in cancer-related pain only in post-mastectomy syndrome (tricyclics were effective) and in chemotherapy-induced neuropathic pain (tricyclics were not effective). If the patient has both neuropathic pain and depression, a drug should be selected that can relieve both (e.g., dual-action antidepressants that inhibit the uptake of both norepinephrine and serotonin)
- Anticonvulsants can be used to alleviate neuropathic pain. Gabapentin and pregabalin have been studied in cancer-related neuropathic pain (the drugs were effective) and in chemotherapy-induced neuropathic pain (the drugs had no effect), and they are currently being studied in bone cancer pain. Gabapentin and pregabalin have anxiolytic effects that may be useful in cancer pain
- Corticosteroids reduce oedema and inflammation and stabilise nerve membranes. They can be useful in pain due to oedema (e.g., in the brain, spinal cord, or liver). They also alleviate nausea and increase mood and appetite
- Ketamine is an NMDA-receptor antagonist that has been used in subcutaneous or intravenous infusions to alleviate opioid-induced hyperalgesia (increased sensitivity to pain or enhanced intensity of pain sensation) and tolerance. It can be given by mouth, but its oral bioavailability is low and variable

(IASP-Pain.Org).

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