Pain has been defined as an unpleasant sensory and emotional experience associated with actual or potential tissue damage. Not all cancer patients experience pain, but it is one of the most common symptoms associated with cancer. Approximately one quarter of newly diagnosed cancer patients have some degree of pain, as do one third of patients undergoing cancer treatment and three quarters of patients with advanced disease.

Pain is a highly subjective experience. The same physical stimulus may cause greater or lesser amounts of pain in different people and even in the same person in different situations. Nonphysical stressors, such as emotional, financial, and spiritual difficulties, can influence the patient's experience of pain.

Cancer pain may be acute (relatively short-term) from tumor growth, injury, and certain treatments and procedures; or chronic (continuing over several weeks or months). Both types can be of varying severity. Breakthrough pain is a sudden temporary flare in pain intensity. Breakthrough pain can occur even when a patient takes the proper pain medication, and a doctor may prescribe a special dose or treatment to use when pain breaks through normal pain medication.

Cancer pain can be caused by injury to or compression of nerves or other components of the nervous system, in which case it is termed neuropathic. Pain may also be caused by an inflammatory response to ongoing nerve-tissue damage. This pain, called nociceptive, can be defined further by site of origin. Visceral pain is caused by injury to an internal organ such as the liver. Such pain is often hard to pinpoint and can be throbbing, aching, or sharp.

Another type of pain, one that is termed somatic, primarily involves bone. It can usually be pinpointed and can also be throbbing or aching. More often than not, somatic pain is a symptom that a cancer has spread (metastasized) to the bones. In order to effectively relieve symptoms associated with metastatic bone disease, various therapeutic options are often used in combination to achieve optimal results, including analgesics, radiotherapy, surgery, chemotherapy, hormonal therapy and bisphosphonates. Bisphosphonates are currently considered to be the standard of care for patients with metastatic bone disease. These medications work by binding preferentially to sites of active bone
remodeling and inhibiting the action of mature *osteoclasts* (cells that actively reabsorb or fatigued bones). Example of bisphosphonates is ibandronate.

Cancer pain can be directly related to tissue damage from tumors that destroy or press on tissues, bones, and nerves or block hollow structures such as parts of the digestive system, blood vessels, and lymph vessels. Pain can also result from cancer treatment, most typically after surgery but sometimes after chemotherapy, immunotherapy, or radiation therapy.

Pain can be managed in most patients with cancer or with a history of cancer. Although cancer-related pain cannot always be relieved completely, therapy can lessen pain for nearly all patients. Effective management of pain and other symptoms improves quality of life throughout all stages of the disease.

Surgery, radiation therapy, chemotherapy, and immune therapy all may provide substantial relief from pain as they rid the body of the underlying cancer. Surgery may also be used to prevent or control pain-causing complications of cancer such as bowel obstruction, compression of the spinal cord or peripheral nerves, or compression of organs. The chief purpose of most of these therapies is to treat the cancer, however, and not primarily to provide pain relief; also sometimes these therapies may themselves be a source of pain. For that reason, effective cancer treatment encompasses several other approaches primarily directed at relieving pain.

**Pharmacological approaches in treating cancer pain.** Pain-relieving medicines can be prescribed to meet various kinds of cancer-related pain. They can also be administered by different routes, depending on a patient's individual needs and preferences. Analgesics are given orally, rectally, transmucosally (for application to mucus membranes), intravenously (medication by vein), intrathecally (drugs are injected into the fluid surrounding the brain and spinal cord), epidurally (medication is put inside the spinal column), subcutaneously (just under the skin), or transdermally (for application to the skin). They may also be delivered by means of patient-controlled analgesia (PCA), in which patients help control the amount of pain medication by pressing a button on a computerized pump.

Non-opioid drugs and nonsteroidal anti-inflammatory drugs (NSAIDs) such as aspirin and ibuprofen provide relief for many types of mild to moderate pain, including muscle pain, bone pain, and the pain of some incisions. Non-opioid analgesics may be prescribed in combination with opioids and other therapies for greater pain relief.

Opioids such as morphine, fentanyl, codeine, oxycodone, and others are highly effective medicines for relieving cancer pain. Opioids may be combined with non-opioid drugs such as acetaminophen or NSAIDs for treatment of moderate pain, and used alone or in combination with other
drugs and therapies for severe pain. Patients rarely become addicted when powerful pain medications such as opioids are prescribed for cancer-related pain and taken appropriately. Depending on need, opioids may be prescribed at any stage of treatment.

Patients may receive increasing doses of opioids for years without becoming addicted, or psychologically dependent. When the need for pain relief subsides, physical dependence can usually be managed without withdrawal symptoms by tapering the opioid before discontinuing. Patients with cancer very rarely seek drugs beyond what is needed to control pain.

A doctor may prescribe a quick-acting potent analgesic called a "rescue medication" such as oral morphine to have available for times when pain "breaks through" normal pain control. These rescue doses act quickly and clear the body relatively soon, and are usually prescribed in addition to the dose taken regularly for persistent pain.

For acute and postoperative pain and some chronic pain problems, temporary nerve blocks (neural blockades) can provide temporary relief. In this procedure, a physician injects a local anesthetic into or around nerves or below the skin in the area where there is pain. The anesthetic interrupts transmission of pain signals to the brain and may provide relief for up to several hours. In a procedure, called a neurolysis, a physician injects ethyl alcohol or phenol, into a nerve or into the spinal fluid so that nerve tissue in the pain pathway is destroyed. This technique usually has a long-lasting or permanent effect.

**Neurosurgical approaches to cancer pain management.** Most cancer-related pain can be effectively managed with medication, but when drug therapy does not provide adequate relief or when the side effects of medications become a problem, nonpharmacologic approaches are often effective.

In some instances when pain is not controlled by more conservative means, pain pathways can be cut or interrupted (ablated) by neurosurgery. Neurosurgical techniques are also sometimes used to implant drug-delivery devices and to stimulate nerve fibers to inhibit pain.

**Psychological approaches in treating cancer pain.** Focused psychological interventions are an important component of effective pain management. Short-term psychotherapy, structured support, and cognitive-behavioral therapy can help provide useful coping skills to enhance the effectiveness of other treatments. Relaxation and imagery, cognitive distraction (focusing attention on stimuli other than pain), support groups, and pastoral counseling are now widely used to help patients manage pain.

During all phases of cancer treatment, complementary approaches to pain relief may be integrated into therapy. These complementary therapies include relaxation techniques, meditation, movement therapies, and massage to supplement medical pain-control methods. These techniques can
help relieve acute pain during some procedures, acute post procedural pain, and some forms of chronic pain.

All patients with cancer should be screened for the presence of pain each time they are seen, in both inpatient and outpatient settings. There is no need to “toughen up” when pain reaches a person’s threshold. Patients and their families should be directly involved with decision-making, especially in terms of what pain management options are available. They should not be afraid to ask their medical team questions concerning the appropriate medications recommended for the disease’s stage and the risks involved for cancer pain medications. Because patients vary in diagnosis, stage of disease, responses to pain and treatments, and personal likes and dislikes, management of cancer pain needs to be individualized if it is to be effective.