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*ABC of palliative care***Principles of palliative care and pain control**

Bill O'Neill, Marie Fallon

Principles of palliative care

The World Health Organisation defines palliative care as “the active total care of patients whose disease is not responsive to curative treatment. Control of pain, of other symptoms, and of psychological, social and spiritual problems, is paramount. The goal of palliative care is achievement of the best quality of life for patients and their families.”

Palliative care is necessarily multidisciplinary. It is unrealistic to expect one profession or individual to have the skills to make the necessary assessment, institute the necessary interventions, and provide ongoing monitoring.

Development of palliative care

Modern palliative care originated in the development of St Christopher's Hospice in London in 1967. Recognising the unmet needs of dying patients in hospital, Dame Cecily Saunders established the hospice and, with others, conceived of a comprehensive approach to dealing with the variety of symptoms and suffering often experienced by patients with progressive debilitating disease. Careful observation of the use and effects of morphine and similar drugs also originated at the hospice.

Traditionally, hospice care was reserved for those with incurable cancer. Increasingly, care is provided for other patients such as those with AIDS and neurological disorders, including motor neurone disease and multiple sclerosis. When palliative medicine was accorded specialist standing in the United Kingdom, in 1987, the agreed definition was “the study and management of patients with active, progressive, far-advanced disease, for whom the prognosis is limited and the focus of care is the quality of life.”

In the past hospices provided only inpatient care, and they were isolated from mainstream care. Most units now combine inpatient and home care services, and many independent home care teams also exist, working closely with general practitioners and other workers in primary care. Similarly, many acute hospital and teaching centres now have consultative, hospital based teams.

While hospices will always be needed to care for some patients, the philosophy of care and knowledge gained must be integrated into other specialties. After appropriate assessment, the various methods of symptom control described in this series can be applied at any stage of many illnesses. Symptoms can be relieved while awaiting a response to curative treatment.

Components of palliative care

The essential components of palliative care are effective control of symptoms and effective communication with patients, their families, and others involved in their care. Rehabilitation, with the aim of maximising independence, is also essential to good care. As a disease progresses, continuity of care becomes increasingly important—coordination between services is required, and information must be transferred promptly and efficiently between professionals in the community, in hospitals, and in hospices.

Role of specialists—Most palliative care is provided by general practitioners and by doctors in specialties other than palliative medicine. Specialists in palliative medicine aim to provide care

Palliative care

- Affirms life and regards dying as a normal process
- Neither hastens nor postpones death
- Provides relief from pain and other distressing symptoms
- Integrates the psychological and spiritual aspects of care
- Offers a support system to help patients live as actively as possible until death
- Offers a support system to help patients' families cope during the patient's illness and in their own bereavement



Dame Cecily Saunders, founder of St Christopher's Hospice. (Reproduced with permission)

Palliative care services in United Kingdom and Republic of Ireland*

<i>Service</i>	<i>No of units</i>
Inpatient units	223
Beds	3253
Day care centres	234
Home care teams	408
Hospital support teams	139
Hospital support nurses	176

*Data from St Christopher's Hospice Information Service

Essential components of palliative care

- Symptom control
- Effective communication
- Rehabilitation
- Continuity of care
- Terminal care
- Support in bereavement
- Education
- Research

for those who need inpatient care or with difficult symptoms, undergraduate and postgraduate education, and research. Education is the key to palliative care for all, and, without research, advances in the science of symptom control and quality of care will stagnate.

Funding—The funding of palliative care services differs from that of the rest of the health service. Only about a fifth of inpatient units in the United Kingdom are funded exclusively by the NHS. Most are funded by the voluntary sector with some financial support from the health service. Although there is a growing partnership between the government and the voluntary hospice sector, voluntary hospices still rely greatly on the goodwill and fundraising initiatives of local communities.

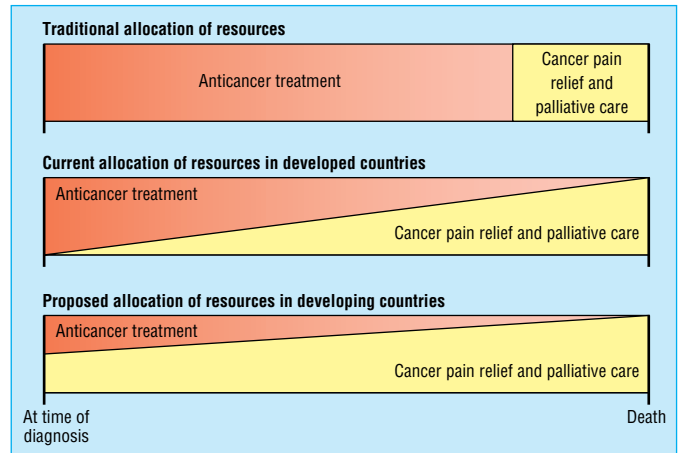
Allocating resources to palliative care

Traditionally, in cancer care resources were allocated to palliative care only after aggressive attempts to halt the cancer had failed. Palliative care is an integral part of the care of all patients: it does not equate with care at the end of life.

Worldwide, most cancer patients have no hope of cure, and this is particularly true of developing countries, many of which have no screening services for cancer, very limited access to diagnostic facilities, and few specialist cancer doctors. Because of this, the WHO has suggested that, in the developing world, a greater proportion of resources for cancer care should be allocated to palliative care.

While there are serious shortages of essential drugs for pain control, political and cultural attitudes against the use of opioids are major factors in poor control of symptoms worldwide. This highlights the need for national, economic, and political policies on cancer and palliative care.

Some of the national charities—in particular, Macmillan Cancer Relief, Marie Curie Cancer Care, and the Sue Ryder Foundation—are major providers of palliative care, while others such as Help the Hospices and the Scottish Partnership Agency do much to promote and support the work of hospices



Models of allocation of resources for care of cancer patients

Principles of managing cancer pain

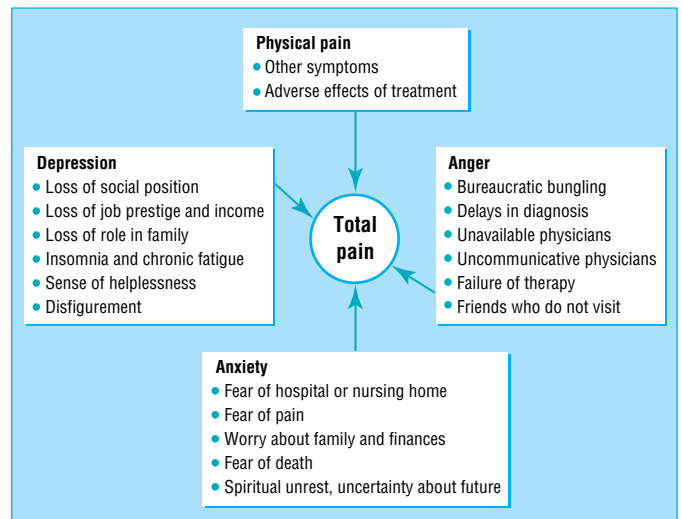
For most patients, physical pain is only one of several symptoms. Relief of pain should therefore be seen as part of a comprehensive pattern of care encompassing the physical, psychological, social, and spiritual aspects of suffering. Physical aspects of pain cannot be treated in isolation from other aspects, nor can patients' anxieties be effectively addressed when patients are suffering physically. The various components must be addressed simultaneously.

The first principle of managing cancer pain is an adequate and full assessment of the cause of the pain, bearing in mind that most patients have more than one pain and different pains have different causes. A comprehensive knowledge of the underlying pathophysiology of pain is essential for effective management. With effective assessment and a systematic approach to the choice of analgesics, over 80% of cancer pain can be controlled with the use of inexpensive drugs that can be self administered by mouth at regular intervals. Consideration must always be given to treating the underlying cause of the pain by means of surgery, radiotherapy, chemotherapy, or other appropriate measures.

Analgesic drugs

Analgesic drugs form the mainstay of managing cancer pain. The choice of drug should be based on the severity of the pain, not the stage of disease. Drugs should be administered in standard doses at regular intervals in a stepwise fashion. If a non-opioid or, in turn, a weak opioid is not sufficient, a strong opioid is used. Either a weak or a strong opioid should be used, not both.

Adjuvant analgesic drugs may be usefully added at any stage. An adjuvant analgesic is a drug whose primary indication is other than pain but which has an analgesic effect in some



Factors affecting patients' perception of pain

Analgesic drugs commonly recommended for cancer pain

Mild pain

- Aspirin 600 mg every 4 hours
- Paracetamol 1 g every 4 hours

Moderate pain

- Codeine 60 mg (plus non-opioid drug) every 4 hours
- Dextropropoxyphene 65 mg (plus non-opioid drug) every 4 hours

Severe pain

- Morphine 5-10 mg (starting dose) every 4 hours

painful conditions. Examples are corticosteroids, non-steroidal anti-inflammatory drugs, tricyclic antidepressants, anticonvulsants, and some antiarrhythmic drugs.

When a non-opioid drug is used together with a weak opioid, many patients find combination formulations more convenient to use. Care must be taken with the dose of each drug in the formulation; some combinations of codeine or dihydrocodeine with aspirin or paracetamol (including co-codamol and co-dydramol) contain subtherapeutic doses of the weak opioid. If these are used and are not effective, more appropriate doses of codeine or dihydrocodeine should be used before moving to strong opioids. The decision to use a strong opioid should be based on severity of pain and not on prognosis.

Strong opioid analgesics

Morphine is the most commonly used strong opioid analgesic. When possible, it should be given by mouth, the dose tailored to each patient, and doses repeated at regular intervals so that the pain is prevented from returning. There is no arbitrary upper limit, but negative attitudes to using morphine still exist; the skilled use of morphine will confer benefit rather than harm, but many patients express fears, which should be discussed.

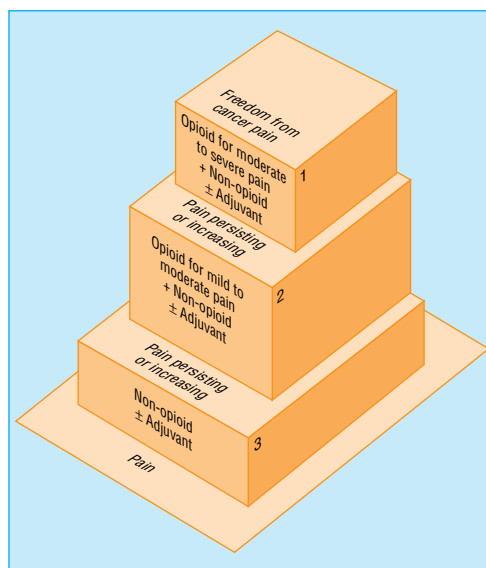
Dose titration—A quick release formulation of morphine (either elixir or tablet), with a rapid onset and short duration of action, is preferred for dose titration. The simplest method is to prescribe a regular, four hourly dose but allow extra doses of the same size for “breakthrough pain” as often as necessary. After 24 or 48 hours, the daily requirements may be reassessed and the regular dose adjusted as necessary. This process is continued until pain relief is satisfactory. By this method, the many factors that contribute to the variability in dose are taken into account. These include the severity of the pain, the type of pain, the affective component of pain, and variation in pharmacokinetic parameters. The regular dose used may range from 5-10 mg to 2500 mg or more (or the equivalent in controlled release tablets). The dose is titrated against effect, and very few patients need high doses—most require less than 200 mg a day.

Maintenance dose—Patients with advancing disease and increasing pain may require continual adjustment of dose. For many patients, however, there is a period of stability during which the dose required remains unchanged or needs only small adjustments, and this may last for weeks or months or sometimes longer. Once pain is relieved, maintenance will be with a controlled release morphine preparation. Controlled release morphine is available as a once daily preparation that remains effective for 24 hours or a twice daily preparation with effects that last 12 hours.

Alternative routes of administration

The rectal bioavailability of morphine is similar to its oral bioavailability, and it is widely available in suppository form. The rectal route may be appropriate in patients unable to take drugs by mouth, and the same dose as that taken orally should be given four hourly.

For many patients, however, it may be more convenient to convert directly to a subcutaneous infusion of opioid via an infusion device such as a portable, pocket sized, syringe driver. This simple technique allows continuous infusion of opioid analgesics in patients unable to take drugs by mouth. The relative potency of opioids is increased when they are given parenterally: the oral dose of morphine should be divided by two to get the equianalgesic dose of subcutaneous morphine and by three when converting to subcutaneous diamorphine.



WHO's three step ladder to use of analgesic drugs

Opioid alternatives to morphine

Hydromorphone—Has recently become available in Britain. Titration is usually with hydromorphone quick release capsules; when pain is controlled, patients may convert to controlled release preparation. As it is about seven times as potent as morphine, care is needed with patients with no prior exposure to opioids.

Fentanyl—Self adhesive patches provide transcutaneous delivery of strong opioid. The patch is changed once every 72 hours. It is used with quick release morphine for breakthrough pain. It is suitable only for patients whose pain is stable because of the time required to titrate the dose upwards. It takes up to 24-48 hours before peak plasma concentrations are achieved.

Diamorphine, available only in Britain and Canada, is a semisynthetic derivative and a prodrug of morphine. Use of oral diamorphine is an inefficient way of delivering morphine to the body, but, for parenteral administration, its greater solubility confers an advantage over morphine.

Buprenorphine has the advantage of sublingual administration, but it is not recommended except for patients requiring only small doses of opioid.

Dextromoramide and **pethidine** are short acting opioids and not appropriate for the management of chronic pain.



Portable syringe driver for automatic drug infusion

Rarely, patients may require intravenous administration, and this route may be particularly appropriate for those with an indwelling central line, particularly children.

The indications for administration of strong opioids by intrathecal or epidural routes remain somewhat controversial. There is agreement that patients with pain that is sensitive to opioids who experience intolerable adverse effects with systemic administration may be able to tolerate epidural or intrathecal administration, since much smaller doses of opioid are required to get the same analgesic effect. The more widespread use of these routes is, in general, not justified.

Tolerance and addiction

Tolerance to opioids is rarely seen in the clinical practice of managing cancer pain. Requirements for increasing doses of morphine can usually be explained by progressive disease rather than pharmacological tolerance. Psychological dependence or addiction is not a problem except in patients with pre-existing addiction. If alternative methods of pain control are used (such as nerve blocks) it is usually possible to reduce the dose of the analgesic or even withdraw it without adverse psychological effects.

Opioid toxicity

There is wide variation, both between individuals and over time, in the dose of opioid that is toxic. The ability to tolerate a particular dose depends on the degree of responsiveness of the pain to opioid, prior exposure to opioids, rate of titration of the dose, concomitant medication, and renal function. Toxicity can be a frightening and life threatening experience, but it is usually reversible.

Opioid toxicity may present as subtle agitation, seeing shadows at the periphery of the visual field, vivid dreams, visual and auditory hallucinations, confusion, and myoclonic jerks. Agitated confusion may be interpreted as uncontrolled pain and further opioids given. A vicious cycle then follows, in which the patient is given sedation and may become dehydrated, resulting in the accumulation of opioid metabolites and further toxicity.

Management includes reducing the dose of opioid, ensuring adequate hydration, and treating the agitation with haloperidol (1.5-3 mg orally or subcutaneously, repeated hourly as needed). Subsequent increases in opioid dose may be tolerated.

Opioid responsiveness

Some pains do not respond well to opioids. Although no pain can be assessed as unresponsive to opioids before a careful therapeutic trial of the drug, some pains are more commonly poorly responsive to opioids. These include bone, neuropathic, and visceral pain. Adjuvant drugs, radiotherapy, and anaesthetic block techniques may be helpful in such cases. Radiotherapy provides effective relief of pain from bone metastases—a single fraction is often sufficient, thus avoiding frequent trips to hospital. Problems with difficult pain will be addressed in the next article in this series.

Common adverse effects of opioids

Sedation—Some sedation is common at the start of treatment, but in most patients it resolves within a few days

Nausea and vomiting—Nausea is common in patients taking oral morphine, vomiting rather less so. These are initial side effects and usually resolve over a few days, but they can easily be controlled—metoclopramide (10 mg every eight hours) or haloperidol (1.5 mg at night or twice daily) is effective for most patients

Constipation develops in almost all patients and should be treated prophylactically with laxatives

Dry mouth is often the most troublesome adverse effect for patients.

Patients should be advised on simple measures to combat this, such as frequent sips of cool drinks or sucking boiled sweets, ice cubes, or frozen segments of fruit such as pineapple or melon

Common adjuvant analgesics for cancer pain

Drug	Indications
Non-steroidal anti-inflammatory drugs	Bone pain Soft tissue infiltration Hepatomegaly
Corticosteroids	Raised intracranial pressure Soft tissue infiltration Nerve compression
Antidepressants Anticonvulsants Antiarrhythmics	Nerve compression or infiltration Paraneoplastic neuropathies
Bisphosphonates	Bone pain

The drawings of resource allocation for cancer care, the WHO three step analgesic ladder, and factors affecting perception of pain are redrawn, with permission, from the WHO's *Cancer pain relief and palliative care* (technical report series 804). Geneva: WHO, 1990.

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The ABC of palliative care is edited by Marie Fallon and Bill O'Neill and will be published as a book in June 1998.