The role of therapies in managing cancer-related pain
– the role of physical and occupational therapies

Introduction

This module has been designed to improve understanding amongst healthcare professionals of the role of therapists in the identification, assessment and management of patients with cancer-related pain. Readers will be directed to literature which includes textbooks, journal articles, online and educational resources. Readers will be encouraged to take a critical approach to enquiry and to use reflective strategies to explore their own clinical practice.

This module should take approximately 16 hours to complete, comprising the learning activities and time for reading, thinking and reflection.

Learning objectives

The activities and content of this module are built around the following learning objectives:

- Outline the importance of addressing cancer-related pain and discuss this in light of recent policy and guidance
- Explore the impact of cancer-related pain on patients and their family/caregivers
- Identify possible causes of pain in the cancer patient
- Discuss the principles of therapy assessment in patients with cancer-related pain and critically review a range of outcome measures
- Discuss the main pharmacological and non-pharmacological approaches to management of cancer pain
- Implement and evaluate an evidence-based therapies approach (wherever possible) to the management of pain in patients with cancer
- Consider the services available to cancer patients and how these can be utilised to improve care.

Background

Worldwide incidence of cancer has increased and great advances in medicine and technology have resulted in significantly more patients living with their disease. Aligned with this are several UK government initiatives to improve the supportive and palliative care of patients with cancer (NICE, 2004; DH, 2007).

The management of pain problems associated with cancer and/or its treatment are gaining increasing recognition and significance. The prevalence of pain associated with cancer varies enormously and is dependant on many factors including stage of disease and treatments undergone. Pain from cancer tends to increase in severity as disease progresses and a recent systematic review concluded that '…pain was prevalent in cancer patients: 64% in patients with metastatic or advanced stage disease, 59% in patients on anticancer treatment and 33% in patients after curative treatment. More than one-third of the patients with pain in the reviewed articles graded their pain as moderate or severe' (van den Beuken-van Everdingen et al, 2007).

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As key members of the multi-professional team, Allied Health Professionals (AHPs) play an important role in the management of patients with cancer pain and may encounter these patients at various stages in the 'cancer journey'. Therapists make an important contribution to patient care through comprehensive assessment using a biopsychosocial approach, and implementation of treatment based on best available evidence.

The International Association for the Study of Pain (IASP) has declared that freedom from pain should be a basic human right (IASP, 2004). All healthcare professionals working with cancer patients have an important role in ensuring that pain is effectively managed and that quality of life is optimised.

Activity 1 (allow 2 hours)

Task 1: Explore the literature cited below to develop a greater understanding of why it is important to address the problem of cancer-related pain. Consider this in light of national drivers in the UK such as the National Cancer Survivorship Initiative, the NICE Guidance in Supportive and Palliative Care (2004) and the End of Life Care Strategy (2008).

Allow 2 hours

Resources required to complete this activity

Useful websites

International Association for the Study of Pain
http://www.iasp-pain.org

Scottish Intercollegiate Guidelines Network (SIGN)
http://www.sign.ac.uk/

National Institute for Health and Clinical Excellence (NICE)
www.nice.org.uk

National Cancer Survivorship Initiative
http://www.dh.gov.uk/en/Publicationsandstatistics/Publications/PublicationsPolicyAndGuidance/DH_088879

Background reading

Robb KA &; Ewer-Smith C (2008) Cancer Pain. In: Rehabilitation and Cancer Care. London, Wiley-Blackwell.

Scottish Intercollegiate Guidelines Network (SIGN) (2008) Control of pain in adults with cancer. A national clinical guideline. Scottish Intercollegiate Guidelines Network (SIGN). Edinburgh. http://www.sign.ac.uk/guidelines/fulltext/106/index.html

Department of Health (2008) End of Life Care Strategy – promoting high quality care for all adults at the end of life. Department of Health. London.
http://www.dh.gov.uk/en/Publicationsandstatistics/Publications/PublicationsPolicyAndGuidance/DH_086277

Krames ES (2004) Cancer pain demands an integrated approach. Supportive Oncology. 2(6): 504-505.

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National Institute for Health and Clinical Excellence (NICE) (2004) Improving Supportive and Palliative Care for Adults with Cancer. National Institute for Clinical Excellence, London, UK. http://www.nice.org.uk/nicemedia/pdf/csgspmanual.pdf

van den Beuken-van Everdingen MHJ, JM de Rijke, Kessels AG, Schouten HC, van Kleef M & Patijn J et al. 2007 Prevalence of pain in patients with cancer: a systematic review of the past 40 years. Annals of Oncology 18 (9): 1437-1449.

Exploring the impact of cancer-related pain

This section explores how cancer-related pain can impact on patients and care-givers in a multitude of ways. The experience of pain is multi-dimensional; impacting on the cognitive, emotional, physical, social, spiritual and behavioural components of a person. It affects concentration, the ability to problem solve and make decisions. Pain can cause reduced appetite, insomnia, irritability, low mood, feelings of despair and hopelessness, anger, low self esteem, and reduce a person's interest and pleasure in what is usually important to them.

Cancer patients with pain report significantly lower levels of performance status than those without pain (Lin et al, 2003). In a study investigating adaptation to pain, Turk et al (1998) demonstrated that pain due to cancer was associated with higher levels of perceived disability and a lower degree of activity. It is clear that pain may affect a person's ability to care for themselves, to work or to participate in fulfilling activities.

A common response to pain is the development of 'pain behaviour'. This includes maladaptive behaviours such as guarding the painful area, pain watching (hyper-vigilance), developing an overly sedentary lifestyle, and avoiding activities. This inactivity can result in further problems, such as deconditioning, increased muscular tension on movement and increased attention to pain.

It must not be forgotten that cancer-related pain may also impact on family members and/or or care-givers and this must be incorporated into any holistic pain assessment.

Activity 2: (allow $3^1/_2$ hours)

Task 1: Critically examine the literature cited below to gain a deeper understanding of the impact of cancer-related pain.

Allow 2 hours

Task 2: Review the video gallery on Breaking Barriers (see reference below) outlining the case of 'Mike' and summarise the different ways in which cancer pain impacts on this gentleman's life.

Allow 30 minutes

Task 3: Critically reflect on a patient with cancer-related pain you have been involved with in your clinical practice. Further explore the impact of pain on the individual (and family/caregivers) from a physical, psychosocial, emotional and spiritual viewpoint (you may find use of a spider diagram helpful here).

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Consider to what extent these different aspects were addressed in the overall management of the patient and what could have been done to improve care.

Allow 60 minutes

Resources required to complete this activity

Useful websites

National Cancer Institute (2000). Pain control: support for people with cancer. Retrieved14th Dec2009 from: http://www.cancer.gov/cancertopics/paincontrol/allpages

Background reading

Lin CC, Lai YL & Ward SE (2003) Effect of cancer pain on performance status, mood states, and level of hope among Taiwanese cancer patients. Journal of Pain and Symptom Management. 25(1): 29-37.

Turk DC, Sist TC, Okifuji A, Miner MF, Florio G, Harrison P, Massey J, Lema ML & Zevon MA (1998). Adaptation to metastatic cancer pain, regional/local cancer pain and non-cancer pain: role of psychological and behavioural factors. Pain. 74(2-3): 247-256.

The Institute of Cancer Research (2008) Breaking Barriers: management of cancer-related pain. CD ROM. Available free of charge from: ieu@icr.ac.uk.

Causes and mechanisms of cancer-related pain

Cancer-related pain describes all pains due to cancer and/or its treatment and can be considered in the following way:

1. Pain directly due to the cancer e.g. bony metastatic disease
2. Pain indirectly due to the cancer e.g. spinal nerve root compression by a tumour
3. Pain secondary to cancer treatment e.g. peripheral neuropathy secondary to chemotherapy
4. Pain not related to cancer or its treatment but which co-exists e.g. painful osteoarthritic joint.

Cancer pain has been described as “a nociceptive mosaic composed of acute pain, chronic pain, tumour-specific pain and treatment-related pain, cemented together by ongoing psychological responses of distress and suffering” (Goudas et al, 2001). This highlights that patients with cancer often have a complex clinical presentation which may involve multiple pains and multiple causes of pain and, importantly, pain can also co-exist with a wide range of other symptoms. Cancer-related pain can be nociceptive, neuropathic or a mixed clinical picture and it is important to identify the aetiology and pathophysiology of the pain when planning treatment.

One attempt to systematically describe cancer-related pain characteristics and syndromes involved a prospective, cross-sectional, multi-centre survey of 58 pain specialists and over 1000 patients (Caraceni & Portenoy, 1999). Results suggested that over 93% of patients had > 1 pain caused by cancer and 21% of patients had >1 pain caused by cancer treatments. A staggering

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67% of patients reported a worst pain > 7/10 which we know is representative of severe pain and likely to interfere with activities of daily living (Twycross et al, 1996; Cleeland & Ryan, 1994).

It has been hypothesized that cancer-related pain and non-cancer pain are fundamentally different (Turk et al, 1998). Cancer-related pain is often due to an identifiable pathology e.g. tumour infiltration, and as such patients can be seen as suffering from a 'real disease' (Turk et al, 1998). This is in contrast to many of the benign pain syndromes e.g. chronic low back pain, where the cause of pain is not readily identifiable and much of the cause can be placed upon psychological factors.

However, chronic cancer treatment related pain is becoming increasingly recognised as many more patients are surviving and living with the effects of treatment (Jung et al, 2003; Macrae, 2001). Some of these pain problems are similar in presentation to benign pain syndromes and for this reason it has been suggested that they are managed in a similar way.

Activity 3 (allow 3 hours)

Task 1: Consider the following two case-studies in light of the literature cited below. Outline how the mechanisms of pain differ in both cases and how this will impact on the management of each.

Case study A: Mrs A is a 58-year-old woman with a history of breast cancer. She underwent a left mastectomy with full axillary node dissection followed by postoperative radiotherapy and tamoxifen. Mrs A has no evidence of recurrent disease, lives with her partner and has given up work (as primary school teacher) and all social activities due to the development of chronic pain in her chest wall, shoulder and upper arm. Mrs A has a history of generalised anxiety, worries about her cancer returning and is fearful of therapy interventions in case they 'make her pain worse'. She is currently using regular paracetamol but does not feel that this helps her pain at all. The Breast Care Nurse has referred Mrs A to the Occupational Therapist (OT) and Physiotherapist (PT) for assessment and management.

Case study B: Mr B is a 70 year old man with prostate cancer and bony metastatic disease in his spine and left femur. He is married and lives at home with his wife and his 25 year old son. He has a comfortable lifestyle, a large house and a garden and his wife is his main carer. They have no community support. The nurse specialist referred Mr B to the community PT and OT with decreased mobility due to pain in his lumbar spine and left leg. Mr B is taking regular morphine (orally) for his pain but has no self-management strategies in place. Managing daily tasks are becoming increasingly difficult due to pain. The main findings on assessment of Mr B were:

- Localised low back pain with associated tissue tenderness: referred (neuropathic) pain in his left leg
- Generalised muscle weakness in lower limbs
- Difficulties with sitting, standing and getting in/out of the bath
- Reduced enjoyment of previously enjoyed activities
- Increasing anxiety and low mood as a result of the above

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Thinking Point:

In either of the two cases outlined above, do you think there is a need for a referral to any other healthcare professionals or support services? Justify your decision based on the literature.

Resources required to complete this activity

Background reading

Caraceni A & Portenoy RK (1999) An international survey of cancer pain characteristics and syndromes. Pain. 82: 263-274.

Cheville AL, Tchou J (2007) Barriers to rehabilitation following surgery for breast cancer. Journal of Surgical Oncology. 95: 409 - 418.

Cleeland CS & Ryan KM (1994) Pain assessment: Global use of the Brief Pain Inventory. Annals of Academy of Medicine Singapore. 23(2): 129-138.

Goudas L, Carr DB, Bloch R, Balk E, Ioannidis JPA, Terrin N, Gialeli-Goudas M, Chew P, Lau J (2001) Management of cancer pain Volume 1: Evidence report/technology assessment. Chapter 1, page 2 [online]. Available from http://www.ncbi.nlm.nih.gov/bookshelf/br.fcgi?book=hserta&part=A50578

Jung BF, Ahrendt GM, Oaklander AL & Dworkin RH (2003). Neuropathic pain following breast cancer surgery: proposed classification and research update. Pain. 104:1-13.

Macrae WA (2001) Chronic pain after surgery. British Journal of Anaesthesia. 87(1): 88-98.

Turk DC, Sist TC, Okifuji A, Miner MF, Florio G, Harrison P, Massey J, Lema ML & Zevon MA (1998). Adaptation to metastatic cancer pain, regional/local cancer pain and non-cancer pain: role of psychological and behavioural factors. Pain. 74(2-3): 247-256.

Twycross R, Harcourt J & Bergl S (1996) A survey of pain in patients with advanced cancer. Journal of Pain and Symptom Management. 12(5): 273-282.

The Institute of Cancer Research. (2008) Breaking Barriers: management of cancer-related pain. CD ROM. Available free of charge from: ieu@icr.ac.uk.

Assessment of cancer-related pain

This section examines the comprehensive and patient-centred approach to assessment of patients with cancer-related pain. Therapy assessments must include a subjective and an objective evaluation and must utilise all available information from medical notes, other members of the Multidisciplinary Team (MDT) and patients and carers themselves. Assessment is rarely possible over one interaction; it is an information gathering exercise and is a continual process which guides initial and ongoing treatment.

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Physiotherapy assessment
This will require detailed examination of the physical factors e.g. joint range of movement, with recognition of and appropriate management of psychological co-morbidities e.g. low mood. Assessment will focus on a patient's functional ability e.g. their ability to transfer or mobilise. There are three components of assessment which must be considered in all patients:

- A description of the pain (including site, severity, irritability, nature).
- Responses to the pain.
- The impact of pain on the person's life.

For many cancer patients (especially those with advanced disease) it will be more important to complete a task than to focus on correction of individual impairments.

Occupational Therapy assessment
OT assessment recognises it is usual for cancer patients to identify and focus on those tasks and occupational roles which they are no longer able to manage or enjoy due to their pain. The OT will listen to the patient's narrative and begin to identify:

- Aggravating and relieving factors
- The beliefs held regarding pain
- What the pain means to the patient and those around them and
- How the patient is currently managing valued activities in relation to their pain.

The OT will identify which activities the individual needs to do, wants to do and is expected to do by others.

It is important to utilise reliable and valid outcome measures to evaluate outcome of treatments. Outcome measures for use in clinical practice must be feasible (i.e. practical, inexpensive and easy to use), provide extra clinical information and be responsive to changes over time. A great variety of tools are now available but there are no clear guidelines for therapists to assist selection of measures.

Activity 4: (allow 3 1/2 hours)

Task 1: Using the references outlined below, critically examine the range of outcome measures which are available to assess cancer-related pain. Consider the advantages and disadvantages of each of these tools and whether they would be useful in your clinical practice

Allow 3 hours

Task 2: In light of this new information, return to the case study you explored in Activity 2: Task 3. On reflection, would using one or more of these outcome measures have been useful in the management of this patient? If appropriate, share what you have learned with the wider MDT and discuss whether any changes in practice need to be implemented.

Allow 30 minutes

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Resources required to complete this activity

Background reading

Baptiste S, Law M, Pollock N, Polatajko H, McColl MA & Carswell A (1993) The Canadian Occupational Performance Measure. World Federation of Occupational Therapy Bulletin. 28: 47-51.

Cleeland CS & Ryan KM (1994) Pain assessment: Global use of the Brief Pain Inventory. Annals of Academy of Medicine Singapore 23 (2): 129-138.

Jensen MP 2003. The validity and reliability of pain measures in adults with cancer. The Journal of Pain. 4(1): 2-21.

Melzack R & Katz J (1994) Pain measurement in persons with pain. In: Wall PD, Melzack R, eds. Textbook of Pain. 3rd ed. Churchill Livingstone, New York. pp 337-351.

The Institute of Cancer Research. (2008) Breaking Barriers: management of cancer-related pain. CD ROM. Available free of charge from: ieu@icr.ac.uk.

The management of cancer-related pain

This section will present an overview of the approaches used by the multi-disciplinary team to effectively manage pain in the cancer patient. Priorities will have been identified at assessment and wherever possible management should begin with a clear explanation of the goals of treatment, the interventions to be utilised (including the healthcare professionals involved), the likely outcomes of treatment, with time-scales; and any possible adverse effects of treatment.

Pharmacological approaches

Healthcare professionals should be familiar with the World Health Organisation guidelines for the management of cancer-related pain. Central to these guidelines is the 3-step analgesic ladder (WHO 1986) which has been shown to adequately control cancer-related pain in approximately 80% of cases (Zech et al, 1995). The ladder allows flexibility of drug choices and should be utilised within a comprehensive strategy for pain management.

Healthcare professionals should develop a working knowledge of the opioid group of drugs as they are commonly prescribed to manage moderate to severe cancer-related pain.

A range of other options are also open to the medical team including:

- Nerve blocks
- Spinal (epidural or intrathecal) administration of opioids
- Radiotherapy
- Bisphosphonates

Non-pharmacological approaches

The therapeutic aim is for the patient to achieve full functional potential and become autonomous in managing the impact of pain on their daily life. When utilising these approaches therapists must pay special attention to patient comfort and position at all times.

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a) **Therapeutic exercise:** The main goal of exercise is to address the problems associated with inactivity/immobility and fear of movement. Detrimental effects of immobilisation are well documented. Exercise programmes must be individualised, build up gradually and be within patients' tolerance levels. There are several reviews of exercise in cancer patients available which conclude that exercise can lead to improvements in physical function (Stevinson et al, 2004; Schmitz et al, 2005). There are few studies available which specifically address exercise for cancer-related pain.

b) **Graded and purposeful activity:** Appropriately prescribed and graded activities can be used to increase activity tolerance, autonomy, social integration, self-esteem and competency, and decrease pain behaviours (Heck, 1988).

c) **Postural re-education:** This is an appropriate intervention for patients who have altered posture or kinematics secondary to pain. Correction of such postural abnormalities early in rehabilitation may avoid further dysfunctional movement patterns (McNeely et al, 2004).

d) **Massage and soft tissue mobilisation:** Soft tissue mobilisation is widely practised in the management of pain; including techniques such as scar mobilisation/massage, myofascial techniques and connective tissue massage (Cheville & Tchou, 2007)

e) **Transcutaneous Electrical Nerve Stimulation (TENS):** Although experts suggest that TENS has an important role there are currently no formal guidelines on the use of TENS in cancer patients. Only two RCTs evaluating TENS use in cancer-related pain have been identified and the effectiveness of TENS remains inconclusive (Robb et al, 2008)

f) **Heat and cold:** All standard contra-indications and precautions must be followed and choice of treatment will depend on pain presentation and the therapeutic effects needed.

g) **Lifestyle adjustment:** Analysis of activity tolerance levels and education in skills can enable functional restoration without provoking painful episodes. Techniques such as pacing, planning, prioritising, energy management, activity analysis, task simplification, time management, compensatory techniques, ergonomic principles, and the reorganisation of routines can be taught to provide the patient with skills to restructure their lifestyle, minimising painful episodes. Environmental adaptation, appropriate equipment, orthotic prescription and interventions regarding correct positioning and pressure relief during activity facilitate independence, minimise pain and enable valued activities to be continued (College of Occupational Therapists, 2004).

Activity 5: (allow 4 hours)

Task 1: Critically examine the evidence surrounding pharmacological and non-pharmacological interventions for the management of cancer-related pain. Discuss the limitations of only using pharmacological approaches.

Allow 2 hours

Task 2a: Reflect on your current practice having reviewed the evidence for therapeutic interventions.

Task 2b: Consider the services available to patients experiencing cancer pain within your locality. How could access to holistic pain management be improved?

Allow 2 hours

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Thinking Point:

- What would you need to discuss with the wider medical team when working with a patient requiring break-through pain relief when managing activities?
- How could you educate the wider multi-professional team of the need to consider referral for therapeutic interventions for patients experiencing cancer related pain?

Resources required to complete this activity

Useful websites

The British Association/College of Occupational Therapists
www.cot.org.uk

Background reading

Breitbart W, Payne D & Passik SD (2004). Psychological factors in pain experience. In: D. Doyle, G. Hanks, N. Cherny and K. Calman, eds. Oxford Textbook of Palliative Medicine. 3rd edition. Oxford Press, Oxford. pp 425-426.

Cheville AL & Tchou J (2007). Barriers to rehabilitation following surgery for breast cancer. Journal of Surgical Oncology. 95: 409 - 418.

College of Occupational Therapists (COT) (2004) HOPE The Specialist Section of Occupational Therapists in HIV/AIDS, Oncology, Palliative Care and Education. Occupational therapy intervention in cancer. Guidance for professionals, managers and decision makers. COT. London. http://www.cot.org.uk/MainWebSite/Resources/Document/intervention_report.pdf

Courneya & Friedenreich (1999) Physical exercise and quality of life following cancer diagnosis: a literature review. Annals of Behavioral Medicine. 21 (2): 171-179.

Heck SA (1988) The effect of purposeful activity on pain tolerance. The American Journal of Occupational Therapy. 42(9): 577-581.

Kennett CE (2000) Participation in a creative arts project can foster hope in a hospice day centre. Palliative Medicine 14(5): 419-425.

McNeely ML, Parliament M, Courneya KS, Seikaly H, Jha N, Scrimger R & Hansom J (2004) A p study of a randomised controlled trial to evaluate the effects of progressive resistance exercise training on shoulder dysfunction caused by spinal accessory neurapraxia/neurectomy in head an neck cancer survivors. Head and Neck. 26(6): 518-530.

Robb KA, Bennett MI, Johnson MI, Simpson KJ & Oxberry SG. (2008) Transcutaneous electric nerve stimulation (TENS) for cancer pain in adults. Cochrane Database of Systematic Reviews. Issue 3. Art. No.: CD006276. DOI: 10.1002/14651858.CD006276.pub2.

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Robb KA & Ewer-Smith C (2008) Cancer Pain. In: Rehabilitation and Cancer Care. Wiley-Blackwell, London.

Schmitz KH, Holtzman J, Courneya KS, Masse LC, Duval S & and Kane R (2005) Controlled physical activity trials in cancer survivors: a systematic review and meta-analysis. Cancer Epidemiology, Biomarkers and Prevention. 14(7): 1588-1595.

Stevinson C, Lawlor DA & Fox KR (2004) Exercise interventions for cancer patients: systematic review of controlled trials. Cancer Causes and Control. 15: 1035-1056.

World Health Organisation 1986. Cancer pain relief. WHO, Geneva.

Zech DF, Grond S, Lynch J, Hertel D & Lehmann KA (1995) Validation of WHO Guidelines for cancer pain relief: A 10 year prospective study. Pain. 63: 65-76.

The Institute of Cancer Research. (2008) Breaking Barriers: management of cancer-related pain. CD ROM. Available free of charge from: ieu@icr.ac.uk

Discussion Board

The discussion board is a forum in which you can exchange ideas with other participants. This activity relates to the work you will have completed in earlier tasks and provides an opportunity for you to explore the difference in perspectives between the participants.

Discussion Board

When will it take place

For a 3 month period from date of publication of this article.

Which discussion thread

The role of therapies in managing cancer-related pain

What is expected of you as a participant

This module has examined the role of allied health therapists in the identification, assessment and management of patients with cancer-related pain. By sharing your experience and questions regarding this practice we can build on the current body of knowledge.

Summary of this module

In this module you have learned that cancer-related pain is complex and multidimensional and requires a multi-disciplinary team approach to address the many different dimensions of the pain experience. Allied Health Professionals have an important role in patient management and have specific skills which enable them to be patient-focused and holistic. AHPs utilise strategies which aim to improve patient functioning and quality of life but the challenge remains to practice in an evidence-based way.

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On completion of this module you will have had the opportunity to:

- Understand the importance of addressing cancer-related pain
- Identify relevant policy and guidance
- Understand the impact of cancer-related pain on patients and their family/caregivers
- Identify possible causes of pain in the cancer patient
- Understand the importance of assessment in patients with cancer-related pain
- Consider the main pharmacological and non-pharmacological approaches to management of cancer pain
- Identify a range of outcome measures
- Identify the services available to cancer patients relating to the management of cancer pain

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