

Module Three

Competency 3

Other Symptom Management

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Competency Three

Other Symptom Management

Objective:

1. Recognize and relieve symptoms commonly occurring at the end of life.
2. Evaluate the impact of all therapies in end-of-life care on the quality of life experienced by the dying person and by his/her family.
3. Recognize and prepare the patient and family for decline in physical condition and perhaps in emotional, cognitive and behavioral status.
4. Recognize and understand various symptom assessment tools.
5. Recognize symptoms in palliative care emergencies

Definitions

Angina	Chest pain characterized as a squeezing or crushing sensation
Anuria	No urinary output
Aphasia	Inability to understand or use language (or both) secondary to damage to the language control centers in brain lobes
Arrhythmia	Any variation of normal heart rhythm
Ascites	Effusion and accumulation of serous fluid in the abdominal cavity
Asthenia	Loss or lack of physical strength; weakness; debility
Ataxia	Unsteady gait and staggering
Bulbar	Cranial nerve which exits from medulla in brain stem. Difficulty swallowing, slurred or nasal speech, and impaired gag reflex are all bulbar symptoms
Cachexia	A general lack of nutrition, weight loss and muscle wasting occurring in the course of a chronic disease or emotional disturbance
Candida	Yeastlike fungi that is part of the normal flora of the skin, mouth, intestinal tract, and vagina, can cause a variety of infections including; candidiasis, onychomycosis, tinea corporis, tinea pedis, vaginitis and trush.
Chronic Obstructive Pulmonary disease (COPD)	Disease involving airway obstruction, such as asthma, chronic bronchitis, or emphysema
Cognitive	Higher skills of the cerebral cortex, such as judgment, reasoning, abstraction and intellect.
Comfort	Emphasizing physical and psychological support or relief throughout the patient's end of life
Confusion	Potentially reversible disorientation and disturbance of thought processes
Cortical	Pertaining to cerebral cortex
Delirium	A mental disturbance marked by illusions, hallucinations that usually reflects a toxic state.
Dementia	Progressive, irreversible deterioration in mental status and cognitive functioning

Disorientation	Inability to identify self, surroundings or time correctly
Dysesthesia	Unpleasant abnormal sensation of pain caused by stimuli that are not normally painful
Dysphasia	Impairment of speech
Dysphagia	Difficulty in swallowing
Dyspnea	Shortness of breath, a subjective difficulty or distress in breathing, usually associated with disease of the heart or lung
Edema	The presence of abnormal large amounts of fluid in the intercellular tissue spaces of the body
Extrapyramidal Symptoms	Any of a large group of conditions characterized by involuntary movement, changes in muscle tone, and abnormal posture, as in tardive dyskinesia, chorea, athetosis and Parkinson's disease or caused by drugs that block dopamine receptor sites
Fungating	Fungating skin lesions or tumor necrosis can be referred to as fungating wounds, ulcerating malignant wounds, or malignant cutaneous wounds that "grow rapidly like a fungus.
Hemoptysis	Coughing up blood
Mucositis	Inflammation of the mucous membranes and glands.
Myoclonus	Sudden, brief, unexpected non-rhythmic jerking and involuntary muscular contraction that occurs spontaneously, at rest, in response to a stimulus or following a voluntary movement that recurs at varying intervals.
Oliguria	Diminished urinary output compared to fluid intake, < 400cc per/day
Paresthesia	Disturbance of sensation characterized by tingling, prickling, or numbness.
Proprioception	Sense of position; the ability to know the position of a body part without having to look at it
Pruritus	Itching
Pyrexia	A fever or a febrile condition
Subcortical	Pertaining to regions beneath the cerebral cortex
Syncope	A temporary suspension of consciousness due to generalized cerebral ischemia.
Stomatitis	Canker sores- inflamed oral mucosa that can range from mild inflammation to ulceration that can bleed or become infected.
Xerostomia	Dry Mouth can predispose a patient to developing oral lesions due to the dryness of mucosa

Myths

1. Patients show their strength by not talking about pain or other symptoms.
2. Family members should avoid talking about symptoms because it makes them worse for the patient.
3. As the disease progresses, patients will feel better and have more strength if they continue to eat and drink.
4. Pain medicine causes nausea that is distressing and impossible to control.
5. Constipation is an expected complication of pain medicine and cannot be avoided.

6. Oxygen is an effective treatment for all types of dyspnea.
7. People who are not eating cannot be constipated.
8. All palliative care patients are depressed.
9. Depression is inevitable and therefore a normal end-of-life response that does not require intervention.

Management Plan for Common End-of-Life Symptoms

Physical symptoms other than pain can be distressing to the patient and family facing the end-of-life transition. Understanding the nature of the symptoms most frequently experienced by dying people and how to assess and treat them is critical for effective end-of-life care. The dying process is variable depending on individual and family characteristics but there are predictable physical, physiologic and emotional changes that occur. The nurse must be a consultant, collaborator, coach to assist the patient achieve symptom control.

Symptom Assessment Tools

A. PQRST: A method for obtaining a systematic and thorough assessment is easy with the mnemonic device PQRST. This tool is useful for initial assessment of a palliative care patient.

P	Q	R	S	T
Provocative(aggravating) or Palliative(alleviating)	Quality or Quantity	Region or Radiation	Severity Scale	Timing
What causes the symptom? What makes it better or worse?	How does the symptom feel, look or sound? How much of it are you experiencing now?	Where is the symptom located? Does it spread?	How does the symptom rate on a severity scale of 1 to 10, with 10 being the most extreme?	When did the symptom being? How often does it occur? Is it sudden or gradual?
First occurrence. What were you doing when you first experienced or noticed the symptoms? What seems to trigger it: stress, position, certain activities, arguments? For a <u>physical symptom</u> such as a discharge: what seems to cause it or make it worse? For a <u>psychological</u> symptoms: does the depression occur when you feel rejected? What relieves the symptom: changing diet, position, taking medication being active. Aggravation. What make the symptom worse?	Quality How would you describe the symptom – feels, looks, or sounds. Quantity How much are you experiencing now? Is it so much that it prevents you from performing any activities? Is it more or less than you experienced at any other time?	Region Where does the symptom occur? Radiation In the case of pain, does it travel down your arm, up your neck, or down your legs?	Severity How bad is the symptom at its worst? Does it force you to lie down, sit down, or slow down? Course Does the symptom seem to be getting better, getting worse, or staying about the same?	Onset On what date did the symptom first occur? What time did it being? Type of onset: How did the symptom start? Suddenly or gradually? Frequency How often do you experience the symptom: hourly? Daily? Weekly? Monthly? When do you usually experience it: during the day? At night? In the early morning? Does it awaken you? Does it occur before, during or after meals? Does it occur seasonally? Duration How long does an episode of the symptom last?

B. Edmonton Symptom Assessment Tool:



Winnipeg Regional Health Authority / Office régional de la santé de Winnipeg

**Edmonton Symptom Assessment System:
Numerical Scale**
Regional Palliative Care Program

Please circle the number that best describes:

- No pain 0 1 2 3 4 5 6 7 8 9 10 Worst possible pain
- Not tired 0 1 2 3 4 5 6 7 8 9 10 Worst possible tiredness
- Not nauseated 0 1 2 3 4 5 6 7 8 9 10 Worst possible nausea
- Not depressed 0 1 2 3 4 5 6 7 8 9 10 Worst possible depression
- Not anxious 0 1 2 3 4 5 6 7 8 9 10 Worst possible anxiety
- Not drowsy 0 1 2 3 4 5 6 7 8 9 10 Worst possible drowsiness
- Best appetite 0 1 2 3 4 5 6 7 8 9 10 Worst possible appetite
- Best feeling of wellbeing 0 1 2 3 4 5 6 7 8 9 10 Worst possible feeling of wellbeing
- No shortness of breath 0 1 2 3 4 5 6 7 8 9 10 Worst possible shortness of breath
- Other problem 0 1 2 3 4 5 6 7 8 9 10

Patient's Name _____

Date _____ Time _____

Complete by (*check one*)

- Patient
- Caregiver
- Caregiver assisted

BODY DIAGRAM ON REVERSE SIDE

This tool is excellent for ongoing assessment of symptoms. A brief presentation will be given at the December 17, 2003 study group meeting.

Palliative Performance Scale



Palliative Performance Scale (PPSv2) version 2

PPS Level	Ambulation	Activity & Evidence of Disease	Self-Care	Intake	Conscious Level
100%	Full	Normal activity & work No evidence of disease	Full	Normal	Full
90%	Full	Normal activity & work Some evidence of disease	Full	Normal	Full
80%	Full	Normal activity <i>with</i> Effort Some evidence of disease	Full	Normal or reduced	Full
70%	Reduced	Unable Normal Job/Work Significant disease	Full	Normal or reduced	Full
60%	Reduced	Unable hobby/house work Significant disease	Occasional assistance necessary	Normal or reduced	Full or Confusion
50%	Mainly Sit/Lie	Unable to do any work Extensive disease	Considerable assistance required	Normal or reduced	Full or Confusion
40%	Mainly in Bed	Unable to do most activity Extensive disease	Mainly assistance	Normal or reduced	Full or Drowsy +/- Confusion
30%	Totally Bed Bound	Unable to do any activity Extensive disease	Total Care	Normal or reduced	Full or Drowsy +/- Confusion
20%	Totally Bed Bound	Unable to do any activity Extensive disease	Total Care	Minimal to sips	Full or Drowsy +/- Confusion
10%	Totally Bed Bound	Unable to do any activity Extensive disease	Total Care	Mouth care only	Drowsy or Coma +/- Confusion
0%	Death	-	-	-	-

This tool has many uses and will be discussed at the December 17, 2003 meeting.

1. Neurological Symptoms

Palliative care nurses may encounter signs and symptoms of nervous system disorders in clients of any age. Degenerative neurological disorders such as ALS, produce progressive muscle weakness and wasting and increase production of secretions. A sudden, localized muscle weakness such as in one arm or leg suggests a CVA or peripheral nerve disease or injury. Also, compression of the spinal cord or spinal nerves can cause unilateral or bilateral weakness below the lesion level. Nervous system infections (meningitis, encephalitis, brain abscess) and cancer (brain and spinal tumors) can also affect patients. Some common signs and symptoms of neuralgic dysfunction include changes in level of consciousness, disorientation, inability to understand or use language, slurred speech, paralysis or paresis (weakness), unstable gait (in palliative care falls are common), dizziness or vertigo, numbness or tingling, blurred or double vision, and headache. Any of these warning signs warrants a nervous system assessment. As part of a neurological screening assessment, the nurse can use specific questions to help identify clients with disordered thought processes. An incorrect answer to any of these questions can indicate a need for a complete mental status examination:

Question	Function Screened
What is your name?	Orientation to person
What is today's date?	Orientation to time
What year is it?	Orientation to time
Where are you now?	Orientation to place
How old are you?	Memory
Where were you born?	Remote memory
What did you have for breakfast?	Recent memory
Who is the Prime Minister?	General Knowledge
Can you count backwards from 20 to 1?	Attention and calculation skills
Why are you here?	Judgment

When obtaining a health history to assess a palliative care patient's neurological status, current drug use is essential as many drugs can affect the nervous system:

Drug Class	Drug	Possible adverse reaction
Adrenergic	Albuterol sulfate, epinephrine, isoproterenol hydrochloride, terbutaline sulfate	Nervousness, tremors, dizziness, restlessness, insomnia
Adrenergic Blockers	Ergotamine tartrate, methysergide maleate	Lightheadness, vertigo, insomnia, euphoria, confusion, hallucinations, numbness and tingling of fingers and toes
Antianginals	Diltiazem Isosorbide dinitrate, nitroglycerin Nifedipine Verapamil	- Headache, fatigue - Throbbing headache dizziness weakness and orthostatic hypotension - headache, dizziness, lightheadness, flushing - headache, dizziness
Antiarrhythmics	Lidocaine	Lightheadness, dizziness, paresthesia, tremors, restlessness, confusion, hallucinations, headache
Antimicrobials	Aminoglycosides Isoniazid, nitrofurantoin	- neuromuscular blockage: ototoxicity causing vertigo, hearing impairment - peripheral neuropathy
Anticonvulsants	Carbamazepine Phenytoin Sodium	- dizziness, drowsiness, ataxia, confusion, speech disturbances, involuntary movements - Dose-related headaches, confusion, ataxia, slurred speech, lethargy, drowsiness, nervousness, insomnia, blurred vision, diplopia, nystagmus
Antidepressants	Amitriptyline Monoamine oxidase inhibitors	-Drowsiness, weakness, lethargy, fatigue, agitation, nightmares, restlessness, confusion, disorientation especially in elderly - restlessness, insomnia, drowsiness, headache, orthostatic hypotension, hypertension
Antihypertensives	Clonidine	-drowsiness, sedation, dizziness, headache, nightmares, depression, hallucinations

Antineoplastic	Hydralazine hydrochloride Methyldopa	- headaches - drowsiness, sedation, decreased mental acuity, vertigo, headache, psychic disturbances, nightmares, depression - fatigue, lethargy, vivid dreams, hallucinations, depression
Antiparkinsonian	Propranolol Procabazine, Vinblastine, Vincristine etc. Amantadine	- paresthesia, neuropathy, confusion, numbness, peripheral neuropathy, loss of deep tendon reflexes, Psychic disturbances, nervousness, irritability, fatigue, depression, insomnia, confusion, hallucinations, difficulty concentrating - Psychic disturbances, decreased attention span, memory loss, nervousness, vivid dreams, involuntary muscle movements - extrapyramidal reactions, tardive dyskinesia, headache, lethargy, confusion, agitation, hallucinations
Antipsychotics	Levodopa Haloperidol	blurred vision, headache, nervousness, drowsiness, weakness, dizziness, insomnia, disorientation Mood swings, euphoria, insomnia, headache, vertigo, psychotic behavior
Cholinergic Blockers	Atropine, benztropine, glycopyrrolate	
Corticosteroids	Dexamethasone, hydrocortisone, methylprednisone, prednisone Cimetidine	Confusion (especially in elderly) depression - restlessness, anxiety, drowsiness, lassitude, extrapyramidal reactions, tardive dyskinesia
Gastrointestinal Agents	Metoclopramide	Sedation, dizziness, visual disturbances, clouded sensorium headache, drowsiness, dizziness
Narcoctic Analgesics	Morphine, hydromorphone methadone, oxycodone Ibuprofen, indomethacin Barbiturates	Drowsiness, lethargy, vertigo, headache, depression, "hangover" paradoxical excitement in elderly clients, hyperactivity in children
Nonsteroidal anti-inflammatory Sedatives and Hypnotics	Benzodiazepines	- drowsiness, dizziness, ataxia, daytime sedation, headache, confusion Drowsiness -drowsiness, dizziness - drowsiness, dizziness, headache, - nervousness, confusion
Skeletal muscle relaxants	Baclofen Chlorzoxazone Cyclobenzaprine	Lethargy, tremors, headache, mental confusion, dizziness, seizures, difficulty concentrating

For a client with neurological signs and symptoms, various laboratory tests can provide valuable clues to the possible cause:

Test/ Significance	Normal Values	Abnormal Values	Neurologic Side Effects
Electrolytes	Sodium- 135-145	Above Normal Below normal <125	Neruomuscular excitability- seizures, confusion, diabetes insipidus Disorientation, restlessness- r/t SIADH

	Potassium- 3.8-5.5	Above normal	Muscle weakness, flaccid paralysis, EKG changes, ventricular fibrillation or asystole related to metabolic acidosis, renal insufficiency or failure, adrenal insufficiency
		Below normal	Muscle weakness, muscle twitching, hypotension, hypoventilation, EKG changes
	Calcium 4.5-5.5	Above normal	Emotional lability, delirium, confusion, psychosis, stupor, coma related to excess parathyroid hormone
		Below normal	Tingling (perioral) depression, dementia psychosis, encephalopathy, laryngospasm, tetany, seizures
	Magnesium 1.5-2.5	Above >10	Absent deep tendon reflexes, muscle weakness, lethargy, flushing diaphoresis, hypotension, respiratory depression, stupor, coma, weak bradycardia
		Below normal	Neuromuscular irritability, tremors, leg and foot cramps, hyperactive deep tendon reflexes, cardiac dysrhythmias, seizures

Neurological Palliative Care Emergencies

1. Myoclonus

Assessment

Myoclonus and spasms are frequently seen in the palliative care setting. It is defined as a sudden, brief, unexpected non-rhythmic jerking and involuntary muscular contraction that occurs spontaneously, at rest, in response to a stimulus or following a voluntary movement that recurs at varying intervals. Myoclonus may involve a group of muscles, a single muscle or only a number of muscle fibers. It can be exhausting and can progress to seizures. An analogy to help patients describe the symptoms is to compare the jerking to the feeling that often happens when one is close to falling asleep. The difference is that myoclonus is usually continuous.

A decrease in the intravascular volume and glomerular filtration rate can result in an accumulation of pharmaceutical metabolites, thereby increasing potential symptoms such as restlessness, myoclonus and seizures.

Causes of Myoclonus

- Drugs: opioids, tricyclic antidepressants, antidopaminergics
 - Remember Myoclonus occurs most often with chronic administration of high doses or with rapid dose escalation of opioids or people who develop

renal or liver failure. In palliative care settings Myoclonus is most often associated with opioids.

- transient ischemic attack -
- head trauma
- CNS lesions (cerebral and meningeal cancer)
- Degenerative brain disease (ALS)
- Infections
- Epilepsy
- Metabolic disorders (uremia, renal/hepatic failure)

Treatment

1. A simple decrease in opioid dose and/or administration interval or switching to an equivalent dose of a different opioid (and decrease the analgesic dose by 20-30%- this varies from center to center) may be sufficient to reduce or stop Myoclonus with or without hydration. Discontinuation of any co-analgesic should be considered or at least a reduction of same.
2. If the above does not work then clonazepam and valproic acid have been reported effective in the management of Myoclonus
 - a. Clonazepam (first choice) – start with a dose (0.5 mg po) and adjust gradually in 0.5 mg increments until response or adverse effect (whichever comes first);
 - b. Valproic acid- 15mg/kg/day in three divided doses with weekly increments of 5-10 mg/kg/day until response or adverse effect (whichever comes first) Maximum of 60 mg/kg/day. Remember: blood levels should be monitored.
 - c. Alternatives: diazepam, lorazepam, Baclofen, phenobarbital

2. Seizures

Seizures do not occur often in the palliative care setting however, when they do they are frightening to patients and their families. Seizures can also be exhausting for the patient eliminating their energy reserves. Seizures occur when a large number of neurons discharge abnormally. There are two types of seizures; primary (also called generalized) and focal (also called partial).

Seizure Assessment

- assess for hypoglycemia
- is seizure is observed, patient in recovery position
- assess airway (does patient require jaw lift? Is suctioning needed?)
- If patient continues to seize without spontaneous termination, consider available routes of drug administration (intravenous, intramuscular, rectal)
- Are medications contributing to the seizure disorder? (oral hypoglycemic agents)
- Is an underlying medical condition causing the seizure or contributing to the seizure (hyponatremia, hypercalcemia, hypomagnesemia, hypotension, hypoxemia, withdrawal)
- Assess stage of disease using PPS (Palliative Performance Scale)
- Assess seizure history (is this a new onset, what is the frequency of seizures)

- Assess for injuries related to the seizure (intra-oral abrasions or lacerations, musculoskeletal trauma)
- Assess current anti-seizure medications (What is the dosing of the current anti-seizure medications? Is the patient compliant with the dosing regimen? Is there a recent drug level (e.g., phenytoin, Phenobarbital, valproate or tegretol)
- Does the patient have suspected cerebral lesions? Does patient have a headache? Visual changes? Tinnitus?
- Assess for focal neurologic findings. Is there a history of stroke?
- Having seizure precautions been implemented? (padding, pillows, armrails)

Treatment:

1. prophylactic management generally recommended in patients who have had a seizure.
2. for active seizure;
 - a. diazepam 10 mg (parenteral) per rectum or I.V.
 - b. lorazepam 2 mg sc
 - c. Prophylactic management:
 - i. 300-400 mg per day
 - ii. if patient unable to swallow give Phenobarb 30-120 mg sc tid (this is very sedating)
 - iii. Persistent seizures- continuous subcutaneous infusion of Midazolam (rarely required)

3. Spinal Cord Compression

Spinal cord compression is compression of the vasculature with engorgement and edema or direct compression due to vertebral metastases or a paraspinal mass. Time is of the essence- the risk of neurological damage is reduced by fast diagnosis and treatment. Delay reduces mobility thereby quality of life and life expectancy. Common cancers that can lead to a spinal cord compression are: prostate, breast, lung, myeloma and kidney. Approximately 80% of patients with early signs and symptoms of cord compression have evidence of vertebral metastases on plain x-ray.

Signs & Symptoms:

- increasing neck and back pain will have been the presenting feature in 90% of spinal cord compressions. Back pain which radiates to: bilateral thoracolumbar, groin or lower extremities. Back pain is one of the most common complaints. Normal back pain usually begins and is most often resolved within several weeks regardless of treatment however, malignant pain persists and progresses over time, despite bedrest and other conservative therapy.
- weakness of extremities
- sensory loss, light touch, pain and temperature
- sphincter dysfunction/ urinary retention

Assessment

Many patients have radicular pain that is either unilateral or bilateral (when the site of compression is thoracic) and is usually felt across the thighs. The pain is often aggravated by coughing or straining and sometimes worse at night while resting (many bone pains are relieved at rest).

- altered reflexes
- pain with straight leg raising
- tingling in arms with flexing neck (paresthesia or numbness are less common at first)
- weakness maybe unilateral at times
- lax sphincter tone
- reassess if suspicion high based on symptoms

This can progress to paraplegia

Investigate

- detailed history and physical exam
- MRI is the preferred if available
- CT myelogram –improves early detection

Treatment

- If suspicion is high should start immediately with Dexamethasone
- treat pain
- radiation single dose or more commonly over 5 sessions-radiotherapy will decrease pain, maintain bone structure and preserve neurological function.
- decompressive surgery

2. Cognitive Dysfunction

The Three D's

- Delirium- acute and reversible (complete or partial)
- Dementia – chronic and non-reversible
- Depression- acute and reversible (complete or partial)

A. Delirium

Delirium is referred to as an “acute confused state.” Some degree of cognitive function loss occurs in most patients in the week or two before death. Patients who have experienced a delirium have described it as being in the twilight zone and in a state of constant terror. Delirium is associated with a higher risk of complications such as urinary incontinence, falls, and pressure ulcers. Often a patient will experience an acute episode of confusion and more often than not the patient is ordered Ativan, this often worsens the confusion. Part of the problem stems from the fact that doctors feel more comfortable using minor tranquilizers than major tranquilizers.

Diagnosis

A diagnosis of delirium is a specific set of criteria (DSM IV) and include:

Four Cardinal Components of Delirium

1. Disturbance of consciousness (decrease levels of awareness/alertness)
2. Change in cognition (memory deficit, disorientation, language disturbance)
3. Acute onset and fluctuating course (acute- hours to days, fluctuate during the day)
4. Caused by consequences of a medical condition, substance intoxication, substance withdrawal, or multiple etiologies.

Assessment

There are three clinical subtypes of delirium:

- *hyperactive/agitated delirium*: confusion and agitation, hallucinations, myoclonus and hyperalgesia (agitation, increased psychomotor activity, non-purposeful, repetitive movements, verbal behaviors such as shouting and yelling)
- *hypoactive delirium*: confusion and somnolence and decreased alertness (quietly confused, some anxiety, lethargic, withdrawn and difficult to arouse, slow limited speech)
- *mixed delirium*: characterized by patient fluctuating unpredictably between hypoactive and hyperactive delirium.

Those who are most likely to recover fully are patients with drug induced confusion and those with medical conditions such as infections. Delirium if left untreated can be lethal.

Treatment

1. Look for the cause:
 - a. Accumulation of opioid metabolites; polypharmacy
 - b. Sepsis
 - c. Cardiovascular (CVA, CHF, COPD)
 - d. Dehydration
 - e. Metabolic- hyponatremia, hypercalcemia, renal/liver failure/ hepatic encephalopathy
 - f. CNS invasion/ hypoxia- brain metastases
2. Management options include identifying and treating the underlying cause, as well as symptomatic treatment through non-pharmacological and pharmacological interventions. Common reversible causes in advanced illness delirium include: drug toxicity, infection, hypotension, hypoxia, hypoglycemia, hyponatremia, hypercalcemia, elevated ammonia, alcohol-sedative drug withdrawal and sleep deprivation. **With the exception of treating delirium due to drug withdrawal or anticholinergic excess, neuroleptics are the first-line pharmacological agents for symptomatic management.**

The drug of choice in terminal care is a major tranquilizer- haloperidol, given in a dose escalation process similar to treating pain. They can be administered safely through oral and parenteral routes. Starting doses are 0.5 – 1.0 mg PO or IM/IV; titration can occur by 2.0-5.0 mg every 1 hour until a total daily requirement is established, which is then administered in 2-3 divided doses per day. Intravenous

haloperidol may cause less extrapyramidal symptoms than oral haloperidol. Chlorpromazine has been advocated for dying patients in whom sedation is desired, especially for terminal delirium. Newer atypical neuroleptics, olanzapine (Zyprexa), quetiapine (Seroquel), and risperidone (Risperdal) may be helpful in the management of confusional states but should not be used as first line treatment because of lack of evidence supporting them. However, these drugs are associated with fewer drug-induced movement disorders than Haldol. If switching to an atypical neuroleptic may be wise to taper off the typical agent slowly while titrating up the atypical agent. Atypical antipsychotics may not work as fast as conventional antipsychotics for acutely aggressive and agitated patients requiring onset of action within minutes.

Benzodiazepines should be avoided unless the source of delirium is alcohol-sedative drug withdrawal or when severe agitation is not controlled by the neuroleptic; these agents can cause “paradoxical” worsening of confusion states.

3. Family End-Of- Life Counseling

1. Communicate with family poor prognosis;
2. confusion and agitation are not expressions of physical or psychosocial suffering. They are an expression of brain malfunction. Misinterpretation of symptoms as pain can result in excessive use of opioids and agitation.
3. The aim of treatment is comfort rather than life prolongation. This is rationale for opioid rotation, hydration etc.

4. Terminal Sedation:

This process involves pharmacological interventions aimed to induce/maintain sedation, in order to palliative refractory symptoms in terminally ill:

Algorithm for the Identification of Refractoriness

Are further interventions capable of providing adequate relief?	
Yes	No
<ol style="list-style-type: none"> 1. Is the anticipated acute or chronic morbidity of intervention tolerable to the patient? 2. Are the interventions likely to provide relief within a tolerable timeframe? 3. “Difficult Symptom” amenable to further trials of standard therapies 	Probable “Refractory” Symptom warranting Consideration of Sedation

The purpose of sedation is to reduce patient awareness of distressing symptoms. Inducing sedation could conceivably shorten life by reducing airway protective mechanisms. Therefore the ethical principle of “double-effect” operates in this situation; primary intent – relief of distress from refractory symptoms outweighs a foreseen potentially negative outcome (potential shortening of life). This is why a thorough

assessment must be done prior to treating patient. Has the appropriate consultations been made with palliative care and other specialists (i.e., spiritual care, social work). Have non-pharmacological approaches been maximized e.g., distraction, relaxation techniques. Have other pharmacological treatments been maximized e.g., appropriate titration of opioids. Have the goals of sedation been explain to and discussed with the patient and/or family? Has a consensus been reached as a result of these discussions (conference). In situations where terminal sedation is being considered a palliative care physician should always be consulted.

B. Depression

Depression is characterized by feelings of sadness, despair and discouragement, it is the most common psychiatric illness from adolescence through to old age. If unrecognized and untreated it is associated with increased morbidity and mortality: Psychological and Cognitive symptoms may appear as pain not responding as expected to intervention, sad mood/flat affect, anxious, irritable, expressed feelings of worthlessness, hopelessness, helplessness, guilt, desire for death and despair.

Types of Depression

- *Major Depression*- associated with suicide risk, requires;
 - The presence of at least five of the following symptoms continuously for at least two weeks and symptoms # 1 and #2 must be present:
 - A depressed mood
 - Loss of interest/pleasure in activities
 - Change in appetite, usually weight loss
 - Insomnia or hypersomnia
 - Psychomotor retardation or agitation
 - Fatigue or loss of energy
 - Feelings of worthlessness; excessive or inappropriate guilt (close association with psychotic features and suicide)
 - Diminished ability to think or concentrate
 - Recurrent thoughts of death or suicide
- *Dysthymia* (Chronically Depressed Mood)
 - Less severe and more common type of depression in the elderly
 - According to DSM-IV the diagnosis of dysthymia is made when fewer than 5 of the 9 symptoms (required for a diagnosis of major depression) have been present for at least two years.
 - Persons who suffer from dysthymic disorder are more likely to develop a major depression
- *Adjustment Disorder with Depressed Mood (Reactive Depression)*
 - A depressed mood in response to an identifiable stress
 - Occurs within three months of onset of the stressor
 - Marked distress that is in excess of what would be expected
 - Significant impairment in overall functioning

Factors that influence Depression:

- life long experiences
- hereditary
- physical illness
- chemical imbalance

- medications
- social isolation and loneliness
- functional status
- social status
- loved ones
- health due to chronic and/or acute illness
- chronic social stress
- job or purposeful activity
- normal aging
- home (relocation)
- mobility

Diagnosing Depression

Depression is a complex, affective, neurologic-cognitive response to loss or deprivation, resulting in physical and psychological features (Lovejoy, Tabor, Matteis & Lilliles, 2000). Depression is distinguished by its intensity, duration, and the extent to which an individual's functioning is compromised. Numerous physiologic, treatment-related, and psychological factors have been identified as risk factors for occurrence of depression in patients with cancer.

Premorbid History	Type of Malignancy	Metabolic Abnormalities	Symptom Distress	Drugs
-Personal or family diagnosis of depression - Past suicide attempt - drug or alcohol abuse	- pancreas - brain -gynecologic -Oropharyngeal -Lung	-hypercalcemia -anemia -Vit B12 deficiency adrenal hyperactivity or insufficiency -Hypo-or hyperthyroidism Na or K imbalance	-uncontrolled pain - multiple symptom burden	-chemotherapy -barbituates -opioids -steroids -antihypertensives -hormonal -anticonvulsants -amphotercin -hypoglycemics -antiparkinsonian -psychotropics

If you care for a patient that expresses as death wish:

- inquire about thoughts and/or plans of suicide (Have you ever thought of harming yourself);
- inquire about a suicide plan (have you ever thought about how you would take your own life)

Anyone deemed an active suicide risk requires prompt intervention and close observation. If a palliative care patient is diagnosed with a major depression a consult to psychiatry should be initiated and social work and spiritual care should be involved.

Interventions for Depression

If you believe a person is depressed (whether the patient or family) it is best to involve an interdisciplinary team members such as psychiatry or social work. Psychotherapeutic interventions may include supportive counseling (listening, validate concerns, empathize). But also may require pharmacologic management.

C. Dementia

The DSM-IV Criteria for a Diagnosis of Dementia of the Alzheimer's Type is:

- 1) The development of multiple cognitive deficits evidenced by :

- a. Memory impairment in both learning and recall and
- b. One (or more of the following):
 - i. Aphasia (language disturbance)
 - ii. Apraxia (motor problems with intact motor function)
 - iii. Agnosia (recognition or identification problems with intact sensory function)
 - iv. Disturbance in executive functioning (planning, organizing, sequencing and abstracting)
- 2) The above cognitive deficits:
 - a. Significantly interfere with social or occupational functioning and
 - b. Show a significant decline from a previous level of functioning
- 3) Onset is gradual with continuing cognitive decline
- 4) The cognitive deficits are not due to:
 - a. Any other central nervous system conditions that cause progressive deficits in memory and cognition (e.g., Parkinson's disease, Huntington's disease, cerebrovascular disease)
 - b. Systemic conditions which cause dementia (e.g., Vitamin B12 deficiency, hypothyroidism, hypercalcemia, neurosyphilis or
 - c. Substance- induced conditions
- 5) The cognitive deficit do not occur only during the course of a delirium
- 6) The cognitive deficits are not accounted for by disorders such as Schizophrenia or Major Depressive Disorder.

Comparing and Contrasting the Three D's

Characteristic	Delirium	Depression	Dementia
Onset	Sudden, abrupt	Recent, may correspond with life changes	Insidious, slow and often unrecognized
Course over 24 hours	Fluctuating, usually with night time exacerbations	Fairly stable, may be worse in the morning	Fairly stable, may see changes due to Stresses
Alertness	Increased, decreased or variable	Clear	Clear
Psychomotor Activity	Increased, decreased, mixed	Variable, agitation or retardation	Normal but may have apraxia
Duration	Hours to weeks (rarely over a month)	Variable (at least six weeks but may be months to years)	Months to years
Attention	Globally disordered, rapid	Usually normal, may answer "don't know"	Often impaired (answer may be close to right)
Speech	Often incoherent, slow or rapid	May be slow	Difficulty work finding, preservation
Affect	Variable	Flat	Labile (unstable, fluctuating)

3. Cardiovascular

Assessment

The nurse's assessment of the cardiovascular system is important in palliative care because cardiovascular disease is the most prevalent health care problem in Canada and when a diagnosis of cancer is added to this the prognosis is poor. The major signs and symptoms of cardiac disease are chest pain, dyspnea (shortness of breath) with or without coughing, syncope (dizziness), edema (swelling), palpitations (sensation of pounding, racing or skipped heartbeats), fatigue and cyanosis (bluish discoloration of the skin and mucous membranes). When obtaining a cardiovascular health history, the nurse should adapt the terminology to the client's chronologic and mental age, educational level, and emotional state.

Risk Factors of Cardiac Disease

Unalterable risk factors:

- Heredity: the occurrence of cardiac disease or hyperlipidemia in blood relative before age 55 increases a client's risk of cardiac disease
- Sex: more men develop cardiac disease than women, and at a younger age. By age 75, women become as likely as men to develop cardiac disease
- Race: black women of all ages and black men under age 45 have a higher incidence of hypertension than Caucasian men.
- Age: The death rate from cardiac disease increases with age

Alterable risk factors:

- Hypertension: (consistently high blood pressure exceeding 140/90). It usually can be controlled with exercise, a low-sodium diet, stress reduction techniques, and antihypertensive agents.
- Cigarette smoking: People who smoke a pack of cigarettes daily run more than twice the risk of developing cardiac disease than nonsmoking person.
- Hyperlipidemia: refers to elevated lipid concentrations in plasma. Normally total cholesterol (a component of lipoproteins) levels range from 160-180 mg; a level above 180 doubles the risk of cardiac disease.
- Diabetes mellitus: at age 45 diabetic men run twice the risk of cardiac disease as nondiabetic men

Contributing Factors

- Obesity: doubles the risk of congestive heart failure and cerebrovascular accident
- Inactivity: lack of exercise seems to decrease HDL levels and promote atherosclerosis. Regular exercise increases HDL levels, lowers resting heart rate and improves myocardial oxygenation
- Stress: Clients with type A personalities run twice the risk of cardiac disease as their more relaxed type B personalities.
- Diet: a diet high in cholesterol and saturated fats may promote hypertension and hyperlipidemia. High caffeine intake (more than six cups of coffee a day) may contribute to hypertension and dysrhythmia.

1.Lymphedema

Lymphedema is a chronic swelling of an organ or tissue due to reduced lymphatic transport capacity rather than an increase in capillary filtration. Three stages of lymphedema have been described. Stage I is reversible lymphedema. Stage II spontaneous irreversible, is responsive to treatment but no longer decreases without assistance. Stage III elephantiasis is characterized by significantly increased size; local immunological changes resulting in proliferation of connective tissue; inflammation, scarring and fibrosis of dermal tissues; and often various troublesome skin conditions such as warts, papillomas, and deep folds.

Precipitating Factors:

- inactivity
- venous disease
- Direct Lymphatic damage:
 - o Radical mastectomy
 - o Extensive groin surgery
 - o Radiotherapy
 - o Recurrence of groin or pelvic neoplasia
 - o Postoperative infection

Signs and Symptoms

- swelling and decreased skin mobility
- tightness, tingling or bursting sensation
- decreased strength and mobility
- discomfort (ranging from aching to severe pain)
- changes in skin: color, texture, tone, temperature, and integrity

Treatment

- 1) Massage- massage gently (a vigorous massage may be harmful in case of obstruction) with the hands or with an electric device, without oil or talc.
- 2) Compression- compress the limb regularly with support stockings or an elastic bandage. These should be removed when the patient goes to bed.
- 3) Exercise- encourage the patient to move his limbs as often as possible, two to three times a day
- 4) Elevation
- 5) Diuretics- diuretics are useful only in the following clinical situations:
 - i. Onset or progression of Lymphoedema while using NSAIDs or corticosteroids
 - ii. Cardiovascular, renal or venous complications
- 6) Skin Care- avoid all possible types injury. Application of a moisturizing cream at bedtime will keep the skin soft and minimize hyperkeratosis secondary to edema and infection. Use lotions such as Keri Lotion or Aveeno
- 7) Treatment of Infection-Systemic antibiotics therapy covering the cultured bacteria is the best way to control symptoms. Infection is often recurrent and requires further treatment.

2. Cardiac Palliative Care Emergency

1. Superior Vena Cava Syndrome (SVC)

SVC syndrome is a complication that can present slowly or in an emergent fashion. This syndrome can be caused by a direct invasion such as a tumor pressing on the superior vena cava in the mediastinum that cause venous congestion above the level of the partial obstruction or be a central line thrombosis that obstructs the flow of blood to the heart. Compression of the superior vena cava is possible because it has a thin wall that is easy to compress and a low intravascular pressure allows for the possibility of thrombus formation.

Patients at Risk for SVC Syndrome

- People with cancer diagnosis (lung, lymphoma, breast, esophagus, colorectal and germ cell (testicular))

Signs and Symptoms

Early Signs: (progressive pitting edema of the dorsum of the hands, extending up the arms and into the veins of the upper chest, neck and head. The veins on the chest wall often become dilated and prominent.

- shortness of breath
- distended veins in neck and chest
- swelling of neck and arms
- redness/edema in conjunctive and eyes
- non-productive cough, hoarseness

Late Signs:

- irritability, headache, dizziness
- visual disturbances
- changes in mental status
- in severe late stages eyes may bulge, skin color appears cyanotic and dusky in color.

Assess and Investigate

- Clinical Exam
- Chest Xray
- CT or MRI

Treatment

The treatment of SVC syndrome falls into one of three categories. Optimal intervention is dependent on several factors including severity of symptoms, speed of development and general stage of disease.

- Dexamethasone 10 mg IV/ sq STAT followed by 4 mg qid
- Radiation/Chemotherapy
- Stenting (per radiology)
- Supportive Care
 - a. Bed position (should not lie flat)
 - b. Pain Management
 - c. Oxygen
 - d. Diet changes (dysphagia)
 - e. Sedation

Radiation/Chemotherapy and or high dose steroids with diuretics are used because it is thought as the tumor regresses and pressure is removed from the SVC, the edema subsides and circulation improves. This is recommended in patients who are in early or late stages but who are ambulatory and would therefore benefit from improved breathing and reduced swelling.

2. Hemorrhage

A loss of a large amount of blood in a short period of time, either externally or internally is considered a hemorrhage. A hemorrhage can be frightening to patient, family and the professional caregiver. Erupted esophageal varices are very frightening because usually the blood goes everywhere.

Massive bleeding in palliative care patients can be caused by:

- direct tumor invasion; tumors of the head, neck and upper gastrointestinal tract are most fatal.
- Thrombocytopenia; because of decreased platelet counts that result from tumor infiltrating the bone marrow. Bone marrow suppression is also a side effect of chemotherapy or radiation especially if the spleen has been damaged due to these treatments. In addition patients who are elderly or have a diagnosis of HIV/AIDS are also immunosuppressed.
- coagulation deficiencies (by disease/drugs); can also cause a bleed and many palliative care patients have had several blood transfusions and have built up antibodies, or have had chemotherapy or radiation that disturbs the body's clotting mechanism. Also any disease of the liver such as cancer, cirrhosis or hepatitis can cause coagulation deficiencies. Drugs that are metabolized by the liver or cause immunosuppression can affect the coagulation mechanism and cause a hemorrhage.

Local hemorrhage can occur on the skin or from the nose or chest tube drainage. Large amounts of blood can be lost over days and these patients should be monitored for shock-like symptoms (unless they are near dying).

Treatment

Local hemorrhage: treatment for local hemorrhages may include local radiotherapy to multiple skin tears, abrasions that will not stop bleeding or bleeding wounds or to the lung area if patient continuously cough up blood (hemoptysis) or to the bowel for passing continuous melena stool. Remember this will depend on the patient's overall condition. Patients with low platelet counts who are still ambulating and may have continuous nose bleeds or patients who have bladder bleeds should be transfused with platelets and have cauterization to the affected area. Tranexamic Acid is an antifibrinolytic agent that inhibits the activation of plasminogen to plasmin. It is a good treatment for local hemorrhage. Watch for side effects: increased WBC, weight gain, most common SOB. If a patient is coughing up large amounts of blood remember to place them on their side and suction as needed. Make sure you cover the suction container and keep the patient warm at this point sedation may be needed. Try to have dark towels ready if you suspect a bleed.

Catastrophic Hemorrhage:

Occasionally tumors will infiltrate the large vessels and vascular structures resulting in catastrophic hemorrhaging. Head and Neck cancers are more prone to this or patients with liver cirrhosis (with portal hypertension and esophageal varices). Ensure emergency orders are on hand for sedation of the patient (midazolam). Ensure someone is always with the patient or family or frequent checks are kept. Patients who vomit large amounts of blood because of a severe GI bleed may require a NG tube to contain large amounts of blood.

Patients at risk for Catastrophic Bleed: fungating tumors around major blood vessels, pelvic tumors especially if fistulae into vagina or rectum, head and neck tumors, major bleeding disorders.

4. Respiratory

1. Dyspnea

Dyspnea is defined as difficult or labored breathing. Dyspnea can be observed to some extent, but it is a subjective experience like pain. Defined from the perspective of the patient, dyspnea is an unpleasant awareness of breathing, a sense of breathlessness or sensation of shortness of breath. In the dying person able to communicate, dyspnea can be measured, and treated as a subjective experience. In the dying patient not able to communicate dyspnea is likely to be observable, but it's the magnitude has not be measured with reliable results.

Prevalence of Dyspnea by Disease

Disease	Prevalence of Dyspnea
Chronic Obstructive Pulmonary Disease	95%
Congestive Heart Disease	61%
Stroke	37%
Amyotropic Lateral Sclerosis	47%
Dementia	70%
Cancer	70%
Lung Cancer	90%

Causes of Dyspnea

- pre-existing chronic obstructive lung disease
- primary lung cancers
- metastatic cancers to the lung (including lymphangitis carcinomatosa)
- pleural effusions
- infections
- pulmonary embolism
- Tumor related atelectases/airway obstruction
- Fibrosis secondary to radiation or chemotherapy
- Elevated diaphragm secondary to ascites, hepatomegaly or phrenic nerve lesion
- Anxiety
- Anemia

- Cardiac causes such as CHF, Pericardiac effusions or pericarditis
- In some patients with advanced cancer, particularly those with profound cachexia and asthenia, dyspnea may be a manifestation of profound muscle weakness.

Treatment of Dyspnea

- 1) Treat the Underlying Cause if appropriate:
 - a. Pleural effusion - drain if significant
 - b. Anemia - transfusion
 - c. Airway obstruction - radiotherapy is an option or Decadron
 - d. Lymphangitis carcinomatosa – Decadron
 - e. Pulmonary Emboli - anticoagulate
 - f. Radiation fibrosis - Decadron
 - g. Pneumonia - antibiotics
- 2) General Symptomatic Measures
 - a. Supplemental Oxygen- if hypoxic, try to maintain OS sats >90%. Be cautious when administering O2 in the setting of severe COPD.
 - b. If O2 sats < 90% on room air:
 - i. O2 by nasal cannula at 1-3 litre/min
 - ii. Recheck in 20-30 minutes
 - iii. Titrate up to 6 litre/min if necessary
- 3) Opioids
 - a. Opioids have been shown to decrease the perception dyspnea
 - b. If the patient is already on opioids for pain, breakthrough doses can be ordered for dyspnea as well.
 - c. If no opioids, morphine can be ordered at doses of 5-10 mg po (2.5 – 5 mg sc) q 4hrs ATC with breakthroughs of 3-6 mg po (1.5-3 mg sc) q1h prn for dyspnea
 - d. Bronchodilators, as needed with or without regular doses may be helpful if there is a significant obstructive component.
 - e. Distraction therapy relaxation exercises and breathing control techniques can be very helpful, especially if there is a significant anxiety component.
 - f. Sedation is very rarely necessary. Consult a palliative care physician if you see the possible need for it.
- 4) Diuretics
 - a. Occasionally patients present with episodes of severe pulmonary congestion and accompanying severe dyspnea. A stat dose of a small dose of lasix 20-40 mg sc can be helpful.
 - b. Diuretics should not be ordered routinely for patients with dyspnea or hypoalbuminemia-induced edema unless there is a concurrent heart condition requiring diuretics.

5. Gastrointestinal System

Assessment Question:

Do you have any pain in your mouth, throat, abdomen, or rectum? If so, how would you describe it?

Rationale: Pain is one of the most common GI symptoms: abdominal pain may signal a serious GI problem. GI pain is usually described as burning, squeezing, or dull, or as a sensation of the stomach being tied in knots.

Can you walk in an upright position?

Rationale: A client with an “acute abdomen,” as in appendicitis or bowel perforation, typically cannot stand upright and keeps the trunk flexed even when walking.

Were you drinking alcohol before the stomach pain began?

Rationale: Bouts of pancreatitis often occur or recur after weddings, holidays and other celebrations where the client may have consumed a large amount of alcohol. Alcohol will also exacerbate an ulcer.

What, if anything, reduces the pain?

Rationale: Ulcer pain is often relieved by ingestion of food or antacids.

Is the pain confined to one area, or does it affect other parts of the abdomen?

Rationale: Pain in an abdominal organ often radiates to other areas.

Organ	Referred Pain Area
Gallbladder	Right Upper Quadrant Right posterior infrascapular area
Diaphragm	Posterior neck Posterior shoulder area
Duodenum	Midline of the abdominal wall just above the umbilicus
Appendix	Umbilicus Parietal peritoneal involvement, right lower quadrant
Ureter	Inguinal region Either side of the spinal column above the hip zones

If you have abdominal pain, when does it occur in relation to eating?

Rationale: Peptic ulcer pain usually begins 2 hours after meals or when the stomach is empty. Insufficient blood flow to the bowel usually causes pain within 30 minutes after a meal.

What other symptoms accompany this pain?

Rationale: Fever, malaise, nausea, vomiting, redness, and swelling (such as in the mouth) may indicate GI tract infection or inflammation.

Do you have any heartburn or indigestion?

Rationale: These conditions usually are associated with ingestion of spicy foods. Dyspepsia also may occur in hiatus hernia, GI cancer, or as an adverse reaction to certain medications.

Have you had nausea and vomiting along with the pain?

Rationale: This may indicate appendicitis.

If so, did you notice any blood in the vomit?

Rationale: Hematemesis (vomiting of bright red blood) may indicate bleeding ulcer or esophageal bleeding.

Did the vomited material have a fecal odor?

Rationale: This may indicate a small-bowel obstruction.

Is the pain related to constipation and swelling in the abdomen?

Rationale: Such findings may indicate intestinal obstruction.

Do any GI symptoms, such as cramping or pain, ever waken you?

Rationale: Ulcer pain often occurs in the predawn hours when the stomach is empty, disrupting normal sleep patterns.

Have you ever had other problems, such as fever, at the same time?

Rationale: Certain serious abdominal problems, such as appendicitis and pancreatitis, are often accompanied by a fever.

Do you have any difficulty swallowing?

Rationale: Dysphagia may indicate a partial obstruction or neurological disease causing loss of motor coordination.

When did you have a bowel movement or pass gas?

Rationale: Inability to pass feces or gas may indicate an obstruction. Diarrhea may indicate infection or inflammation.

How often do you have bowel movements? Have you noticed any change in your normal pattern of bowel movements?

Rationale: Normal bowel movements frequently range from three times a day to three times a week. A change in pattern needs to be explored; it could occur from bowel cancer, infection or many other disorders.

Are the stools formed or loose? If formed, are they soft or hard?

Rationale: Hard stools may indicate constipation, loose stools, diarrhea.

Do you have difficulty passing stools?

Rationale: An affirmative answer may indicate constipation, or hemorrhoids.

What color are your stools?

Rationale: Clay-colored or very light pigmented stools may indicate a liver or biliary tract problem. Black stools may indicate GI bleed or may result from the use of iron supplements. Green stools may result from eating green vegetables.

Have you recently had an unintentional weight loss, appetite loss, unexplained fatigue or recurrent fever?

Rationale: These symptoms may indicate malabsorption, GI cancer, infection or inflammation in the GI tract.

Have you been depressed or felt anxious recently?

Rationale: Emotional distress can cause symptoms such as GI distress, diarrhea, nausea and anorexia.

Do you have any difficulty breathing? Have you noticed a change in the size of your abdomen?

Rationale: Increased abdominal girth from ascities or tumor can reduce chest expansion.

1. Anorexia/Cachexia

Anorexia/Cachexia syndrome occurs in 80-90% of patients with advanced disease and is more prominent in patients with stomach, pancreas and lung cancers. Cachexia appears to be a consequence of both decreased food intake and metabolic abnormalities. With cachexia there is loss of fat and muscle as well as loss of bone mineral content. You will notice extreme weakness and fatigue, a decline in mental status and attention span, marked muscle wasting and increased generalized edema, serum albumin will drop often rapidly. Patients who have entered into the terminal phase of their disease process are cachexic. It is extremely important to explain to patients and family that weight loss is from cachexia and not because due to lack of nutritional intervention.

2. Fatigue and Weakness (Asthenia)

Fatigue is a common symptom experienced by people with life limiting illness. As illnesses progress, fatigue causes people to curtail first the pleasurable and leisure activities and then other activities of daily living. As the end of life approaches, the dying person may not have sufficient strength or energy to flush a toilet. This impacts greatly on their quality of life.

Prevalence of Fatigue by Disease:

Disease	Prevalence of Fatigue
Coronary Artery Disease	77%
Cancer	72%
Renal Hemodialysis	51%
General Palliative Care	50%
AIDS	50%
Children with Cancer	50%

Fatigue is conceptualized as a multifaceted symptom with physiological, sensory, affective, cognitive and behavioral components. Accumulation of lactate or cytokines,

anemia with depletion of red blood cells or neural mechanisms are thought to be some of the causes but there is not conclusive evidence to support this.

Characteristics of Fatigue:

- the subjective perception of fatigue;
- an alteration in neuromuscular and metabolic processes
- a decrease in physical performance
- a decrease in motivation
- a deterioration in mental and physical activity

Predisposing Factors in Developing Fatigue:

Personal Factors: age, marital status, menopausal status, psychosocial factors (depression, fear, anxiety, unfinished business, unresolved family/friend conflicts, unmet goals), culture/ethnicity, income, physical living situation, spiritual factors.

Disease-related Factors: anemia, state of disease/presence of metastases, pain, sleep patterns/interruptions, permanent changes in energy “new normal”, continency, cachexia, dyspnea.

Treatment-related Factors: medication side effects (nausea, vomiting, diarrhea, weight loss or gain, taste changes), permanent physiologic consequences (altered energy or sleep pattern),

Care Factors: number/cohesiveness of caregivers, commitment of doctor/nurse (involvement and availability).

Fatigue Assessment:

Location: Where on the body is the fatigue located. Upper/Lower extremities? All muscles of the body? Mental/Attentional fatigue? Total body Fatigue?

Intensity/Severity: Does the fatigue interfere with activities (work, role/responsibilities at home, social, things the patient enjoys?).

Duration: How long does the fatigue last (minutes, hours, days)? Has it become chronic (more than 6 months duration)? What is the pattern (wake up from a night’s sleep exhausted, evening fatigue, transient, unfading, are circadian rhythms affected)?

Aggravating Factors: What makes it worse (rest, activity, other symptoms, environmental heat, noise)?

Alleviating Factors: What relieves it (a good night’s rest, food, listening to music)?

Patient’s Knowledge of Fatigue: What meaning does the patient assign to the symptom of fatigue (getting worse, disease progression, dying)?

Medication: Is the patient taking any medications that could cause the fatigue (for pain or sleep)?

Physical Exam based on Subjective Symptom: Is there anything obvious on exam that could account for the fatigue (nerve damage, malnourished, dehydrated)?

Muscle strength: Tests to elicit muscle strength are available (consult PT)

General Appearance: Often, there is nothing in a patient’s general appearance to indicate how fatigued he or she is; however, some patients do exhibit signs such as appearing pale or having a monotone voice, slowed speech, short of breath, obvious weight loss, dull facial expression.

Vital signs: Anything out of the ordinary to explain their fatigue (fever, low blood pressure, weak pulse)?

Laboratory Results: Oxygenation status (blood gases, hemoglobin, hematocrit, electrolytes, other hormones such as thyroid)?

Level of Activity: Have usual activities changed?

Affect: What is the patient's mood (anxious, depressed, flat)?

Pharmacologic Management: Virtually no information is available regarding pharmacologic management of fatigue except in people with chronic renal failure or cancer in which epoetin was used to stimulate red blood cell production. In these two populations fatigue has been reduced by the epoetin.

Nonpharmacologic Management: Exercise, in most cases, is a neglected area of the treatment plan for people facing the end-of-life transition. Health care providers often fail to advise patients about exercise and the benefits that can be gained from it.

Inactivity may in fact be the trigger for marked fatigue and weakness experienced by patients. Balancing energy reserves with energy expenditures is the goal for the management of fatigue. Walking and other types of low-impact exercise should be maintained as long as possible. Distraction techniques may reduce fatigue. Taking care rides, listening to tapes or soft music, praying, mediating, engaging in hobbies, spending time with family and friends are examples of distraction activities that divert the person's attention.

3. Constipation

Constipation is a problem for almost all terminal patients given their history of analgesic medication usage. Constipation is one of the most distressing symptoms experienced by dying people and their families and its prevention is easier and more desirable to all involved than treatment after it occurs.

Constipation Assessment Scale

Directions: Circle the appropriate number to indicate whether during the past three days you have had NO PROBLEM, SOME PROBLEM or a SEVERE PROBLEM with each of the items listed:

Item	No Problem	Some Problem	Severe Problem
Abdominal distention or bloating	0	1	2
Change in amount of gas passed rectally	0	1	2
Less frequent bowel movements	0	1	2
Oozing liquid stool	0	1	2
Rectal fullness or pressure	0	1	2
Rectal fullness or pressure	0	1	2
Rectal pain with bowel movement	0	1	2
Smaller Stool Size	0	1	2
Urge but inability to pass stool	0	1	2

History and Physical Exam Data Needed to Supplement the Constipation Assessment Scale.

Patient History Data	Physical Exam Findings
Last bowel movement (when, how, much, appearance, odor)	Abdominal distension, bulges (ascities, gas, tumor or stool)
Abdominal tenderness, cramping, pressure, pain	Bowel Sounds <ul style="list-style-type: none"> absent for minimum of 5 minutes (paralytic ileus) Hyperactive (partial obstruction or diarrhea)
Unexplained nausea or early satiety	Tympany on percussion (partial obstruction)
Medications (opioids, calcium, channel blockers)	Hemorrhoids, ulcerations, rectal fissures, impaction
Dietary and fluid intake	Hypokalemia, hypercalcemia present
Activity status	Signs of spinal cord compression

Two Rules for Management of Constipation:

- a. Anticipate and prevent constipation.
- b. Reverse specific cause of constipation with specific therapy.

Commonly Effective Pharmacologic Agents for Constipation

Drug	Typical Dose	Onset of Effect	Comments
Senokot	Max 10 tab/od po	6-12 hours	Activated in large intestine by bacterial degradation, stimulates submucosal nerve plexus and reduces sodium and water absorption
Colace	1-4 tabs po daily	6-12 hours	
Dulcolax	10-15 mg po 10-15 mg po	6 hours 15-50 mins	Strong stimulation effects with cramping, urgency, incontinence
Lactulose	15-30 ml po	1- 3 hours	

Patients experience not just one symptom at end of life but many symptoms. Successful treatment of symptoms experienced by persons facing end-of-life transition requires collaboration of the patient, family, nurses, physicians, social workers, spiritual guide and other care providers. Symptom management is complex process requiring ongoing attention and diligence to promote comfort.

7. Genitourinary

Palliative Care Emergencies: Hypercalcemia of Malignancy

Suspect with certain cancers- multiple myeloma, lung, prostate, renal cell, breast

Assess and Investigate: presents with confusion and drowsiness, constipation, dehydration, non specific pain, lethargy, anorexia, nausea, vomiting, thirst, polydipsia, dehydration, cognitive difficulties, and coma may occur.

Treatment:

1. Review with patient and/or family to treat or not to treat, hydration or diuresis.
2. Re-hydrate with normal saline at 100cc/hr.
3. If very symptomatic or severely hypercalcemic give calcitonin and recheck next day.
4. Bisphosphonates- renal failure is a contraindication to use of Bisphosphonates therefore check electrolytes, urea and creatinine prior to administration.

8. Musculoskeletal

Palliative Care Emergency

1. Pathological fracture

- usually occurs from widespread bone metastasis a person will hear a crack and collapse if in the leg and will experience severe pain. If patient is at home he/she should be taken immediately to the emergency department and given something for quick pain control. Rapid dose escalation with careful monitoring of respiratory rate should be given until pain under control. Then arrange for investigation. If pain continues and you can not get it under control to investigate then sedate with Midazolam. Patient may need traction or surgery. If patient's condition rapidly deteriorates and intervention cannot ensue, focus on pain control.

9. Skin and Mucous Membranes

1. Wound Management:

Goals of Palliative Wound Management follows the same principles as general wound care:

- minimize all trauma to the wound bed;
- remove infection and necrotic tissue;
- support the body's tissue defenses;
- eliminate dead space
- prevent excess exudates in wound
- keep the wound moist and clean
- use non-toxic solutions

Once difference between normal wound care and palliative wound care is that healing the wound may not be the ultimate goal in the care plan and minimizing pain and odour may be handled more aggressively.

2. Oral Lesions

Xerostomia (dry mouth) is also a common symptom affecting palliative patients and can predispose a patient to developing oral lesions due to dryness of the mucosa. Once oral lesions present they can erode and predispose a patient to developing mucositis, stomatitis or oral candidiasis. When a person is immunosuppressed (which often happens at end-of-life thrush (fungal) can develop and cause devastating symptoms that infect the mucous membranes in the mouth, throat, vagina and anus. It can also infect the airways, lungs, esophagus, gastrointestinal tract and skin. On rare occasions *Candida* may enter the bloodstream and cause a systemic (entire) body infection. When it finds its way to the esophagus eating, swallowing and breathing can be difficult. Distinguishing features is the white patchy spots (cottage cheese) it produces. If a patient presents with a red beefy tongue question *Candida* and treat with Nystatin 5 ml QID 500,000 u/ml swish and swallow. If several oral Ketoconazole 200-400 mg od.

10. Symptom Management for Advanced, end-stage illnesses other than cancer

Symptoms associated with ALS

1. *Cramps*- from ALS may occur in unusual locations, such as abdominal or paraspinal muscles. Treatment: Quinine sulphate 200 mg bid or Carbamazepine 200 mg bid
2. *Spasticity*- from degeneration of upper motor neurons can be severe and cause pain. Treatment: Baclofen 5 mg tid to 20 mg qid or Tizanidine 4-8 mg od/tid
3. *Pathological laughing/crying*- (pseudobulbar effect) This occurs in up to 50% of patients. It is not a mood disorder, not a psychiatric disturbance, but a motor dysregulation of the emotional expression. As about it; patients may not volunteer it. Treatment: Amitriptyline 10-150 mg/day
4. *Drooling*- from weak facial muscles and difficulty swallowing is a common complaint. Medications to dry saliva may be used. Treatment: Glycopyrrolate 0.1-0.4 mg sc tid or Amitriptyline 10-150 mg/day or Transdermal Scopolamine patches 1 patch q3 days.
5. *Thick Secretions*- are another problem and one that there is not satisfactory treatment for. Guidelines recommend hydration and using juice with natural enzymes – dark grape juice, papaya or N-acetylcysteine 3-5 ml of 20% acetylcystein mask – Needs lots of fluid.
6. *Pain* – is common in ALS. Pain may be due to many things- from decubitus ulcers, muscles spasms, joint not being moved. It is imperative to analyze the cause and direct the treatment. “Why does this patient have this pain/discomfort at this time?” Pain must be treated accordingly. Opioids are effective.
7. *Gastroesophageal reflux disease (GERD)* is quite common due to diaphragm and lower esophageal sphincter weakness. Care/caution when starting g-tube feeds to prevent aspiration. Proton pump inhibitors agents and prokinetic medications (metocolopramide) are appropriate.
8. *Urinary Urgency and Frequency*- may occur. Once infection is eliminated, this symptom may be due to spasticity of the bladder and may respond to oxybutynin (5 mg od-qid)

9. *Laryngospasm*- a sudden closure of the vocal cords can bring on panic, as one can't breathe. This resolves in a few seconds but is frightening. Try to eliminate the stimulus-which might be emotion, strong smell, cold, GERD. Some suggest repeated swallowing while breathing through the nose can help settle the episode.
10. *Jaw quivering or clenching of the teeth* may occur when there is pseudobulbar involvement. Again, identify the stimulus. This may be calmed by benzodiazepines.

11. Complementary Symptom Management

A significant and growing trend in health care is the integration of complementary and alternative medicine approaches.

Types:

Guided Imagery/hypnosis
 Healing Touch/Therapeutic touch
 Reflexology
 Acupuncture
 Massage
 Acupressure
 Music therapy
 Art therapy
 Aromatherapy/essential oils
 Meditation/prayer
 Biofeedback
 Humor therapy
 Reiki

Importance of Complementary Therapies

1. Enables self-care
2. Control symptoms
3. Reduce treatment of side effects
4. Enhances well-being
5. Improves Quality of Life
6. Reduce fear and anxiety
7. Reduce pain

12. Enhanced Quality of Life Through Palliative Care Rehabilitation

Kastenbaum (1995) believed there is a significant difference between the person who cannot accept the reality of his/her jeopardy and the person who comprehends the reality but who has decided to fight for life as long as he/she can. The role of rehabilitation in palliative care greatly impacts the patient's physical and psychological well-being. Rehabilitation of a patient with a life limiting illness utilizes purposeful activities specific to the person and ranges from self-care activities to leisure activities. Rehabilitation in a palliative care environment requires excellent listening skills, as well as the flexibility

and preparedness to make frequent changes in patient goals and outcomes. The core base of palliative care rehabilitation is to be preserve each phase of the patient's independence as long as possible. Learning to transfer from the bed to a wheelchair, or from the wheelchair to the toilet, are difficult phases for the patient. With each phase, there may be intense psychological distress accompanied by a diminishing body image.

1. Bio-psycho-social approach to factors affecting rehabilitation potential:

Biology:

- underlying diagnosis
- estimated prognosis
- major symptoms
- other medical diagnosis

Psychology:

- mood
- financial status
- cognition

Social:

- family support
- home care availability
- community support
- availability of re-admission

Rehabilitation Goals and Interventions are directed by patients and their families.

Focus	Goal	Intervention
Decreased Function	Maintain or assist patient to obtain optimal level of independence	PT- assessment and treatment of joint ROM and strength; transfer, balance, gait training OT- self care assessment and training as required:adaptive equipment, cognitive/perceptual evaluation
Pain	To minimize pain and increase comfort	PT- Use modalities such as: - TENS, ultrasound, hot packs/ice packs, massage and relaxation prior to ROM, cervical collars and pillows, leg splints OT- provision of assistive equipment for positioning in bed or wheelchair e.g. slings, wedge cushions, splints, lap boards, hemi arm boards, wheelchair cushions
Discharge Planning	To help person return home with appropriate supports	Physio and OT usually work together on discharge planning: 1. Review safety and functional status with patient and family 2. practice transfers and make recommendations regarding adaptive equipment required: tub, toilet, bed, chair, stairs, mobility equipment (walkers, canes, wheelchairs) 3. provide patient and family with written instructions regarding recommendations plus a list of vendors and home exercises 4. Provide information regarding Lifeline, Handi-transit, accessing Parking permits etc 5. Home Visits- if required 6. Liaise with Home Care 7. Follow-up recommendations

2. Falls in Palliative Care

Why is it important to monitor falls in Palliative Care

1. Distressing for patient and family
2. Marker of decline
3. bony metastases may predispose to pathological fracture
4. detracts from quality of life

Fall Risk Factors

1. Previous Falls
2. Mental Status
3. Mobility Deficits
4. Sensory Deficits
5. Medications
6. Continence
7. Improper Footwear
8. Orthostatic Hypotension
9. Patients who are weaker on admission have a greater chance of having a fall.

Case Study One

This is an example of a comprehensive history, assessment, diagnosis and plan documented by an emergency physician.

Mr. T is an 84 year old man who presents to the emergency today with a four day history of gastrointestinal symptoms which include loose bowel movements twice daily, nausea vomiting and anorexia.

The patient has a background history which includes:

1. Congestive heart failure.
2. Chronic obstructive lung disease.
3. Chronic renal failure.
4. Chronic type B thoracic aortic dissection.
5. A 4cm aneurysm of the descending thoracic aorta.
6. Abdominal aortic aneurysm repair in 1971.
7. Atrial flutter.
8. Hypertension.
9. Diet controlled maturity onset diabetes.
10. Treated hyperlipidemia.
11. Ischemic heart disease with a myocardial infarction in 1991.
12. Cardiac pacemaker in 1996.
13. Complete left vocal cord paralysis related to thyroid surgery in 1997.
14. Colon carcinoma treated in 1976.
15. History of gout.
16. Prostatism with a TURP in February, 2000, October, 1999, and 1993 and a CT scan of the abdomen in August, 2001 which documented a thickened bladder

consistent with bladder outlet obstruction as well as prominent nodule on the right superolateral margin of the prostate gland.

17. Renal Mass on the left side had been suspected in January 2000. This was associated with abnormal urine cytology. The patient was not anxious to pursue further investigation or treatment of this condition.
18. Anxiety Disorder (palpitations).
19. Wound Care Issues – both legs had weeping areas due to edema

Allergies: None noted.

Medication:

1. Lasix 40 mg. o.d.
2. Metolazone 2.5 mg o.d.
3. Combivent inhaler two puffs q.i.d. prn
4. Coumadin 2 mg alternating with 1 mg every other day.
5. Zoloft 50 mg o.d.
6. Lorazepam 1 mg. q.hs.
7. Monopril 20 mg. o.d.
8. Zocor 10 mg o.d.
9. Allopurinol 300 mg o.d.
10. Thyroxine 0.1 mg. od.

Social History:

The patient quite smoking in 1975 and quit drinking in 1970. He is a retired sales manager for a trucking company.

Family History:

The patient is married. His wife is demented and lives in a nursing home. He has no children. He had two sisters, one died from ischemic heart disease and one from a cerebral aneurysm. One brother is alive and well. His mother died of old age and his father died in an accident.

Review of Systems:

Respiratory: No cough or hemoptysis is noted. Chest xray normal. Cardiovascular: No chest pain, palpitations or syncope is noted. GI: see above. Genitourinary: No dysuria or hematuria is noted. The patient has nocturia x 3 to 4. CNS: No headache, paresthesia, weakness or seizures are noted. Musculoskeletal: No joint or back pains are noted. No skin rashes and no Raynaud's phenomenon are noted.

Physical Examination:

Blood pressure 126/84. O2 sat on room air 95%. Temperature 36.1. Heart rate was 70. Respiratory rate 18. Chest Exam: Chest clear to auscultation. Cardiovascular Exam: Heart Sounds are normal with no murmurs, no extra sounds and no rubs. Jugular venous pressure is normal. Abdominal Exam: The patient has a large ventral hernia. The abdomen is soft, nontender with no masses, no organomegaly. Extremity Exam: No peripheral edema is noted.

Laboratory Investigations:

WBC 13, hemoglobin 123, platelet count 177, urinalysis demonstrates 6-10 red cells and greater than 100 white cells with greater than 5 grams per liter of proteinuria. The INR was 5.1 and the PTT was 40.3. Sodium was 143, potassium 2.5, chloride 102, CO₂ was 23, glucose 8, BUN 36.8 and creatinine was 5.1. The chest x-ray showed no acute infiltrates and no congestive heart failure. The chronic thoracic dissecting aneurysm and the chronic aneurysm of the distal descending aorta was noted on the lateral view of the chest. An EKG was normal.

Impression:

1. Dehydration secondary to gastrointestinal upset.
2. Acute on chronic renal failure.
3. Hypokalemia.
4. Possible urinary tract infection.
5. Possible bladder outlet obstruction.
6. History of congested heart failure.
7. History of chronic obstructive lung disease.
8. Chronic atrial flutter.
9. Permanent pacemaker.
10. History of prostatism.
11. History of possible left renal mass.
12. Remote history of colon cancer.
13. Diet controlled diabetes.
14. Treated hypothyroidism.(complete left vocal cord paralysis r/t thyroid surgery)
15. Ischemic heart disease.
16. Chronic thoracic dissection and distal thoracic aortic aneurysm.

Plan:

1. Hold diuretics and ACE inhibitors.
2. Rehydration.
3. Renal ultrasound to rule out obstruction and reassess a possible left renal mass.
4. Consult nephrology in view of the patient's chronic renal failure.
5. Treat coagulopathy as INR was significantly elevated at 5.5.
6. Catheterize tonight in view of possible bladder outlet obstruction and documented pyuria.

If you were the nurse looking after this gentleman would you initiate a palliative care consult? Please come to study group meeting with your thoughts.

Case Study Two

An 84 year old man was diagnosed with cancer of unknown primary with metastasis to the liver four months prior to admission onto the palliative care unit at Riverview. He received no chemotherapy. His past medical history included: COPD, CHF, pneumonia,

total knee replacement, TURP, cholecystectomy, and appendectomy. He is married and lived with his wife in an apartment until she fractured her hip and now is currently in hospital. They have three children, all living in Calgary.

He is admitted to the palliative care unit for delirium, lower right abdomen pain, jaundice, malaise, nausea and vomiting, anorexia, depression, incontinence and dysuria, weakness, and dizzy spells. His medications on admission were Slow K 1 tab po od, Lasix 20 mg od, MS Contin 15 mg q12H, Sertaline 50 mg HS, Colace, Senekot, Maxeran 10mg q4h prn, and Morphine 5 mg prn. His laboratory tests on admission revealed increased liver function tests (LFT's) Alk Phos 1439, Ast 388, LDH 839, ALT 233, Total Bili 178. Other laboratory parameters (K+, NA+, CA2+, albumin, urea, creatinine) were normal. His vital signs were normal and his oxygen saturation on room air was 92%.

On examination, he was incoherent, restless, agitated and had a very short attention span. He was disoriented to name, place, and time. He thought he was in Grand Forks. He had paranoid ideations; that his wife had left him since she had not visited. His incoherent speech was rambling and irrelevant to the conversation subject. He experienced crying spells when asked questions. He was hallucinating and having a confused discussion about having missed an operation due to staff playing cards. He was very dependent with his activities of daily living. He could not concentrate on eating or bathing or recall any information given by the nurses. His sleep pattern had changed; he was awake overnight and slept periodically throughout the day. The MMSE score was 3/30. He complained of pain in lower right abdominal area where a large tender mass was felt. His skin was cool, dry and yellow. He had a productive cough with clear sputum and decreased air entry to lung bases, with slight fine crackles. His last bowel movement was one day earlier. He also complained of pain and urgency on voiding, and he was incontinent at times.

A CT scan of his brain was performed and brain metastases in left hemisphere was revealed. A urine for culture and sensitivity was positive for urinary tract infection. The sputum for C + S was negative for infection. Morphine was switched to the Fentanyl patch 25 mcg, and Sertaline was discontinued. Haldol 2 mg BID for agitation, Paxil 10 mg OD for depression, and Cirpo 500 mg BID for UTI was ordered. Psychiatry was then consulted for their recommendations on medications for depression.

A few days later, his orientation improved. He was oriented to person, place and time, but had a difficult time with recall (could not memorize three objects), attention and calculation (spelling WORLD backwards), writing a sentence, and visual construction. His MMSE score increased to 17/30. He stopped hallucinating and was able to recognize visitors and participate more actively in bathing and eating routines. He had good symptom control and enjoyed communication with his wife and family. He knew his wife was also in hospital, and she was able to visit with him. He began to remember what he was told and even started asking questions about his condition. His physician was able to have a discussion with patient regarding his poor prognosis, treatment considerations, and symptom management.

The consulting psychiatrist visited with the patient a week later. At this time, the patient's MMSE score improved to 23/30. He scored perfectly with attention and calculation but still had difficulty with recall, sentence writing and visual construction. He was alert and oriented to person, place and time. Psychiatry recommended discontinuing the Paxil as there was no evidence of clinical depression and decreasing the Haldol to 0.5 mg at bedtime.

One week later, his condition started to deteriorate. He became increasingly weak and confused. He had fluctuating periods of agitation, restlessness, and combative behavior. His level of consciousness decreased and he opened his eyes only to his name. His family requested terminal sedation. The Fentanyl patch was discontinued, and Dilaudid ordered 0.5 mg SQ, Ativan 1 mg sl prn and Haldol 2 mg SQ q 2h prn. His oral medications were withheld. He died five days later.

Key Questions:

1. What are the DSM IV criteria for the diagnosis of delirium?
2. What are some of the reversible causes of his delirium?
3. What behavioral manifestations did this patient exhibit?
4. What experiential factors may contribute to the patient's family's perception of the origin and seriousness of delirium?
5. What are some person and environment factors that may influence health outcomes in this case?
6. What was the most likely cause for the patient's delirium in the last few days of his life?
7. What nursing interventions are appropriate for delirious patients?

Study Questions;

1. Morphine is an effective treatment for which of the following symptoms?
 - a. Pain
 - b. Fatigue
 - c. Dyspnea
 - d. All of the above
 - e. a and c
 - f. b and c
 - g. none of the above
2. Oxygen is always an effective treatment for which of the following symptoms?
 - a. Pain
 - b. Fatigue
 - c. Dyspnea
 - d. All of the above
 - e. a and c
 - f. b and c
 - g. None of the above

Answers: 1. e 2. g

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