
 **Cost-Effective Symptom Management**


Lynn Williams, BSPHarm  
Clinical Pharmacist  
Hospice Pharmacy Solutions

 **Presentation Objectives**


Define	Determine	Review	Discuss
Define Hospice Care	Determine Common Hospice Diagnoses	Review symptoms and conditions commonly treated in hospice patient population	Discuss cost-effective pharmacological treatment options

**EVERYDAY HOSPICE**




 **HOSPICE .....**

*Affirms life, but never denies death. Recognizes dying as a normal process of life. Honors wishes. Offers choices. Brings commitment and compassion. Strengthens families. Is about faith, hope and caring*

 **Hospice Care**

- ▶ A model of care that focuses on:
  - ▶ relieving symptoms
  - ▶ supporting patients with a life expectancy of six months or less
  - ▶ interdisciplinary approach to provide medical care, pain management and emotional and spiritual support
  - ▶ emphasis is on comfort, not curing
  - ▶ provided in the patient's home as well as freestanding hospice facilities, hospitals, nursing homes and other long-term care facilities

 **Serious/Chronic Illnesses**

- ▶ Cancer
- ▶ Heart Disease (CHF)
- ▶ Lung Disease (COPD)
- ▶ Renal Failure
- ▶ Alzheimer's/dementia
- ▶ HIV/AIDS
- ▶ Amyotrophic lateral sclerosis (ALS)
- ▶ Parkinson's disease
- ▶ Cerebral Vascular Accident/Stroke or Coma
- ▶ Liver Disease
- ▶ Multiple Sclerosis
- ▶ Muscular Dystrophy

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### Most Prevalent Symptoms Encountered

- Pain
- Weakness
- Weight loss
- Anorexia/cachexia
- Terminal/Excessive Secretions
- Dehydration
- Dyspnea/Air Hunger
- Gastrointestinal irritation

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### Most Prevalent Symptoms Encountered

- Nausea/Vomiting
- Insomnia
- Agitation/Confusion/Delirium
- Anxiety
- Depression
- Constipation

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### Weakness



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### Weakness


- ▶ Determine Causes
  - ▶ Neurological deficit
  - ▶ Antihypertensives
  - ▶ Diuretics
  - ▶ Pain treatment options
  - ▶ Adrenal failure
  - ▶ Septicemia
  - ▶ Disease Progression



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### Weakness


- ▶ Discontinue "Possibly Contributive" Meds
  - ▶ Statins
    - ▶ Atorvastatin, Simvastatin, Pravastatin, Rosuvastatin
    - ▶ Prognosis shorter than time necessary to benefit from continued therapy
    - ▶ Liver complications
    - ▶ Kidney complications
    - ▶ Side Effects (dizziness, fainting, irregular heartbeat, muscle cramps, joint pain, weakness)



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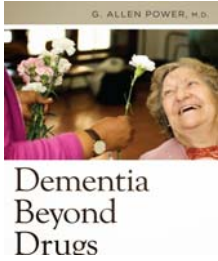
### Weakness

- ▶ Discontinue "Possibly Contributive" Meds
  - ▶ Vitamin supplementation
    - ▶ Will neither extend life expectancy nor improve quality of life
    - ▶ Decreased ability to eliminate
    - ▶ Size of tablet/capsule
    - ▶ Side effects (nausea/vomiting, constipation)




**Weakness**

- ▶ Discontinue "Possibly Contributive" Meds
  - ▶ Cholinesterase Inhibitors
    - ▶ Donepezil, Rivastigmine, Razadyne
    - ▶ No meaningful therapeutic benefit in endstage dementia
    - ▶ Side Effects (nausea, vomiting, weight loss, bradycardia, syncope)




**Weakness**

- ▶ Discontinue "Possibly Contributive" Meds
  - ▶ Hypoglycemics
    - ▶ High Risk of Occult hypoglycemia
      - ▶ Cognitive impairment
      - ▶ Delirium
      - ▶ Weakness
      - ▶ Dizziness
      - ▶ Increased risk stroke/myocardial infarction
    - ▶ HgA1C goal increased (8% to 9% in frail, elderly)
    - ▶ Fasting glucose goals increased (180-200 mg/dl)



**Weakness**

- ▶ Discontinue "Possibly Contributive" Meds
  - ▶ Antihypertensives
    - ▶ Orthostasis and fatigue
    - ▶ Higher risk of falls (broken bones)
    - ▶ Higher blood pressure acceptable
      - ▶ Systolic blood pressure goal of 160mmHg



**Weakness**

- ▶ Discontinue High Risk Medications
  - ▶ Anti-coagulants
  - ▶ Anti-platelets
  - ▶ Concomitant use of multiple serotonin enhancing medications
  - ▶ Concomitant use of multiple CNS altering medications

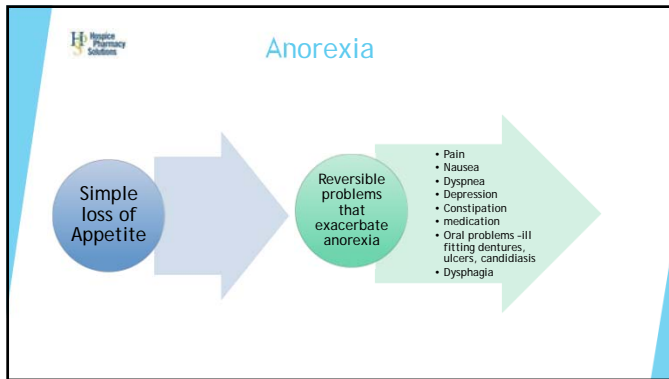


**Anorexia/Cachexia**

- ▶ Complex metabolic syndrome
  - ▶ Progressive, involuntary weight loss
    - ▶ Greater than 5% of baseline
      - ▶ Muscle atrophy
      - ▶ Fatigue
      - ▶ Weakness
      - ▶ Significant loss of appetite
      - ▶ Metabolic disturbances
  - ▶ Impaired function of immune system

**Anorexia/Cachexia**

- ▶ Causes
  - ▶ Body's inflammatory response and tumors produce proteins that decrease motility of the stomach and intestines and increase muscle breakdown
  - ▶ Cachexia is not a result of anorexia, anorexia is often a result of cachexia

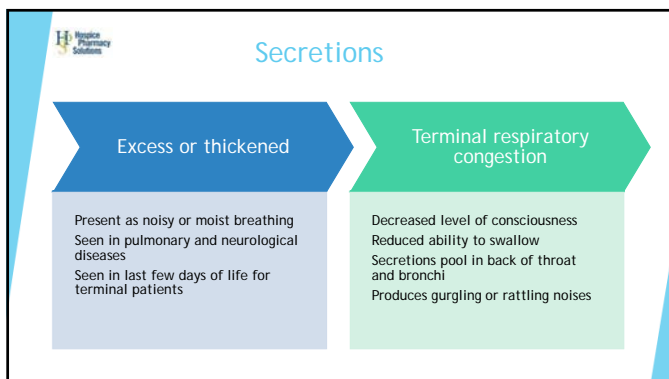


- Anorexia/Cachexia**
- ▶ Non-drug therapy
    - ▶ Educate pt/family about end-of-life anorexia/cachexia
      - ▶ Less active and less energy, less desire to eat
      - ▶ Food does not smell good or taste good
      - ▶ Decreased need for nutrition
      - ▶ Patient becomes full more quickly
      - ▶ Nutrition is not metabolized efficiently
      - ▶ Disease process itself precludes eating

**Anorexia/Cachexia Drug Therapy**

Generic	Brand	Route	Cost per unit
Cyproheptadine	Periactin	PO	\$0.93/tab
Dexamethasone	Decadron	PO	\$0.55/tab
Megestrol	Megace	PO	\$6.50/dose
Dronabinol	Marinol	PO	\$12.26/cap
Mirtazapine	Remeron	PO	\$1.25/tab

- Anorexia/Cachexia**
- ▶ Megace
    - ▶ Limited role as an appetite stimulant in hospice patients
    - ▶ Weight gain often due to water retention
    - ▶ Increased risk of death in elderly
    - ▶ Increased risk of DVT
    - ▶ At end of life, body recognizes that it does not need nourishment



**Secretions Treatment with Anti-cholinergics**

Generic	Brand	Route	Cost
Atropine ophth	Atropine ophth	Sublingual	\$14/5ml
Glycopyrrolate	Robinul	Oral	\$1.01/tab
Hyoscyamine	Levsin	Sublingual	\$0.85/tab
Hyoscyamine	Levbid	Oral	\$1.60/tab
Scopolamine patch	Transderm Scop	Transdermal	\$19/patch

## Terminal Dehydration

Clinical state in which dying patients are no longer able to consume adequate fluid volumes

Dehydration is not distressing

Artificial hydration should never become an end in itself (not recommended)

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## Terminal Dehydration

- ▶ Advantages
  - ▶ Gastrointestinal fluids decrease, limiting nausea and vomiting
  - ▶ Decreased pulmonary secretions alleviate breathlessness and cough
  - ▶ Decreased peripheral edema
  - ▶ Ketoacidosis seems to produce an analgesic effect that improves patient's sense of well being

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## Dyspnea/air hunger

Most common symptom reported

78% prevalence

- Lung cancer
- COPD
- AIDS
- Cerebrovascular accident
- Amyotrophic lateral sclerosis
- Dementia
- Cardiopulmonary disease

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## Dyspnea/air hunger

- ▶ Feeling of breathlessness and/or a sense of smothering
- ▶ Subjective complaint
  - ▶ may be unrelated to the objective presence of tachypnea, hypoxia, or level of oxygen saturation.
- ▶ Becomes more common as death approaches

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## Dyspnea/air hunger

- ▶ Causes
  - ▶ Anxiety
  - ▶ Fear
  - ▶ Airway obstruction
  - ▶ Pneumonia
  - ▶ Thick pulmonary secretions
  - ▶ Fibrosis of lung tissue
  - ▶ Fluid overload



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## Dyspnea/air hunger

- ▶ Treatment
  - ▶ Patient/family education
  - ▶ Oxygen for hypoxia
  - ▶ Anti-anxiety medications (ativan)
  - ▶ Albuterol nebulization
  - ▶ Expectorants for lung condition
  - ▶ Steroids
  - ▶ Morphine

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### Dyspnea/air hunger (heart disease)


- ▶ Morphine Concentrate
  - ▶ Decreases oxygen consumption
  - ▶ Increases capacitance of veins in legs
  - ▶ Decreases preload
  - ▶ Stabilizes CHF
  - ▶ Suppresses midbrain which reduces sensation of breathlessness



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### Dyspnea/air hunger (lung disease)

- ▶ Morphine Concentrate
  - ▶ Decreases oxygen consumption
  - ▶ Decreases sensation of dyspnea
  - ▶ Reduces chemoreceptor sensitivity to CO<sub>2</sub>, which produces dyspnea



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### Dyspnea/air hunger

- ▶ Xopenex vs Albuterol
  - ▶ Beta-2 selective agonist bronchodilator
  - ▶ Isomer of albuterol
  - ▶ Albuterol demonstrated to be comparable efficacy and safety
  - ▶ Only indicated if patient exhibits
    - ▶ Increased heart rate
    - ▶ Elevated blood pressure
    - ▶ Intolerable tremors

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### Endstage Lung Disease


- ▶ Guidelines for Hospice Admission
  - ▶ Disabling dyspnea at rest
  - ▶ Poorly or unresponsive to bronchodilators
  - ▶ Decreased functional capacity
    - ▶ Bed to chair assistance
    - ▶ Fatigue
    - ▶ Cough
    - ▶ Predicted FEV<sub>1</sub> <30% (objective evidence of disabling dyspnea)
    - ▶ Hypoxemia at rest on room air
    - ▶ Oxygen saturation <88%

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### Endstage Lung Disease

- ▶ Oral Metered Dose Inhalers
  - ▶ Poor mechanics/coordination
  - ▶ Lack of understanding
  - ▶ Inspiratory volumes and pressures are low
  - ▶ Entire dose of medication cannot be inhaled
  - ▶ Deposited on posterior pharynx
  - ▶ Swallowed

*Unnecessary/Inappropriate at EOL*



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Discontinue oral non-nebulized inhalers

DuoNeb routinely and prn

Steroid therapy

### Endstage Lung Disease

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**Dyspepsia/ GI Bleeding**

- ▶ Presentation
  - ▶ Dyspepsia
    - ▶ Burning sensation
    - ▶ Heartburn
    - ▶ Gas
  - ▶ GI Bleeding
    - ▶ Symptoms of anemia
    - ▶ CNS symptoms
    - ▶ Shock
    - ▶ Upper GI bleed
    - ▶ Lower GI bleed

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**Dyspepsia/ GI Bleeding**

- ▶ Management
  - ▶ Treat underlying infectious processes
  - ▶ Discontinue/change causative medications
  - ▶ Treat hemorrhoids
  - ▶ Treat non-complicated dyspepsia
  - ▶ Aggressive Medication therapy not recommended unless primary diagnosis is:
    - ▶ metastatic gastric cancer
    - ▶ esophageal cancer
    - ▶ pancreatic cancer

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**Dyspepsia/ GI Bleeding**

Generic	Brand	Route	Cost
Antacids	Mylanta/Maalox	Oral	\$5 /btl
Famotidine	Pepcid	Po	\$2.53/tab
Ranitidine	Zantac	Po	\$2.19/tab
Omeprazole	Prilosec	Po	\$3.00/cap
Pantoprazole	Protonix	Po	\$3.87/tab
Lansoprazole	Prevacid	Po	\$7.00/cap
Esomeprazole	Nexium	Po	\$7.50/cap

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**Dyspepsia/ GI Bleeding**

- ▶ Proton Pump Inhibitors
  - ▶ With long term use, Increased risk of
    - ▶ hip, wrist, spine fractures
    - ▶ Clostridium difficile-associated diarrhea
    - ▶ Community acquired pneumonia
    - ▶ Vitamin B-12 deficiency
    - ▶ Hypomagnesemia
      - ▶ Muscle spasm, arrhythmias, seizures
  - ▶ Use lowest dose necessary shortest period of time

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**Nausea/Vomiting**

- ▶ Nausea
  - ▶ Unpleasant subjective sensation
  - ▶ Results from stimulation of four major areas
    - ▶ Gastrointestinal lining
    - ▶ Chemoreceptor trigger zone in the fourth ventricle of the brain
    - ▶ Vestibular apparatus
    - ▶ Cerebral cortex

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**Nausea/Vomiting**

- ▶ Vomiting
  - ▶ Neuromuscular reflex
  - ▶ stimulation of vomiting center

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**Nausea/Vomiting**

- ▶ Causes of Nausea
  - ▶ Gastrointestinal
    - ▶ Dysmotility
    - ▶ Bowel obstruction
    - ▶ Constipation
  - ▶ Treatment-induced
    - ▶ Medications
    - ▶ Chemotherapy
    - ▶ Radiation

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**Nausea/Vomiting**

- ▶ Causes of Nausea
  - ▶ Metabolic disturbances
    - ▶ Hypercalcemia
    - ▶ Uremia
    - ▶ Infection
  - ▶ CNS
    - ▶ Pain
    - ▶ Increased intracranial pressure

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**Nausea/Vomiting**

- ▶ Classes of anti-emetics
  - ▶ Pro-kinetics
    - ▶ increase motility
    - ▶ Metoclopramide
  - ▶ Serotonin 5-HT3 receptor antagonists
    - ▶ Block neurotransmitter associated w/treatment-induced nausea
    - ▶ Zofran
  - ▶ Benzodiazepines
    - ▶ Alter perception of nausea in CNS
    - ▶ Ativan

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**Nausea/Vomiting**

- ▶ Classes of anti-emetics
  - ▶ Phenothiazines
    - ▶ Dopamine antagonists at chemoreceptor trigger zone
    - ▶ Phenergan/Compazine
  - ▶ Butyrophenones
    - ▶ Dopamine antagonists at chemoreceptor trigger zone
    - ▶ Haldol
  - ▶ Corticosteroids
    - ▶ Reduce intracranial pressure
    - ▶ Reduce hypercalcemia
    - ▶ Reduce tumor size

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**Nausea/Vomiting**

Generic	Brand	Route	Cost
Dexamethasone	Decadron	Po	\$0.54/tab
Haloperidol	Haldol	Po	\$0.82/tab
Lorazepam	Ativan	Po	\$0.87/tab
Metoclopramide	Reglan	Po	\$0.28/tab
ABHR	ABHR	Supp	\$3.50/supp
Prochlorperazine	Compazine	Supp	\$9.61/sup
Prochlorperazine	Compazine	Po	\$0.66/tab
Promethazine	Phenergan	Supp	\$12.63/sup
Promethazine	Phenergan	Po	\$0.43/tab
Ondansetron	Zofran	Po/Sl	\$2-\$15


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**Nausea/Vomiting**

- ▶ ABH Gel
  - ▶ Limited efficacy
  - ▶ Not reliably absorbed
    - ▶ Body mass
    - ▶ Temperature
    - ▶ Disease state
  - ▶ Use individual ingredients orally or rectally
    - ▶ Ativan
    - ▶ Benadryl
    - ▶ Haldol

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# Insomnia

- Inadequate or poor quality of sleep
  - Difficulty falling asleep
  - Difficulty maintaining sleep
  - Waking up too early
  - Non-refreshing sleep
- contributes to fatigue
- Affects quality of life



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# Insomnia

- ▶ Causes
  - ▶ Pain
  - ▶ Depression
  - ▶ Anxiety
  - ▶ Drugs
    - ▶ Corticosteroids
    - ▶ Diuretics, stimulant antidepressants


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# Insomnia

- ▶ Pharmacological Management
  - ▶ Hypnotics (Benzodiazepines)
    - ▶ Lorazepam
    - ▶ Temazepam
  - ▶ Sedating Drugs (presence of other symptoms)
    - ▶ Haloperidol (delirium)
    - ▶ Mirtazapine (depression)
    - ▶ Amitriptyline (pain)
    - ▶ Trazodone (depression)


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# Agitation/Confusion/Delirium

- Etiologically non-specific, global cerebral dysfunction
- Characterized by concurrent disturbances
  - Level of consciousness
  - Attention
  - Thinking
  - Perception
  - Memory
  - Psychomotor behavior
  - Emotion


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# Agitation/Confusion/Delirium

- ▶ Symptoms
  - ▶ Combativeness
  - ▶ Increased motor activity
  - ▶ Hallucinations/Delusions
  - ▶ Uncharacteristic speech
  - ▶ Striking out
  - ▶ Pulling out tubes and disconnecting monitors
  - ▶ Expressive tension

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Generic	Brand	Route	Cost
Haloperidol	Haldol	Oral	\$0.79/tab
Haloperidol	Haldol conc	Oral/SL	\$30/30ml
Risperidone	Risperdal	Oral	\$4.28/tab
Olanzapine	Zyprexa	Oral	\$6-\$49/tab
Quetiapine	Seroquel	Oral	\$4-\$25/tab

# Agitation/Confusion/Delirium

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**Anxiety**

- ▶ Symptoms
  - ▶ Apprehension, worry, tension, restlessness, irritability
  - ▶ Shortness of breath, palpitations, lightheadedness, dizziness, sweating, dry mouth, nausea, diarrhea, and urinary frequency
  - ▶ Insomnia, depression, gastrointestinal upset, dysphagia, fatigue

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**Anxiety**

- ▶ Benzodiazepines
  - ▶ Older adults (>65 yo)
    - ▶ Especially sensitive to effects
    - ▶ Short half-lives, low doses
      - ▶ Alprazolam <2mg/day
      - ▶ Lorazepam <3mg/day
    - ▶ Long half-lives should be avoided or used with caution
  - ▶ Paradoxical reactions may occur
    - ▶ Excessive movement
    - ▶ Excitement
    - ▶ Increased talkativeness

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Generic	Brand	Route	Cost
Clonazepam	Klonopin	Oral	\$0.92/tab
Diazepam	Valium	Oral	\$0.28/tab
Diazepam	Valium intensol	Oral	\$31/30 ml
Lorazepam	Ativan	Oral	\$0.87/tab
Lorazepam	Ativan conc	Oral	\$38/30 ml
Alprazolam	Xanax	Oral	\$0.81/tab

**Anxiety**

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**Depression**

- ▶ Symptoms
  - ▶ Depressed mood
  - ▶ Diminished interest or pleasure
  - ▶ Significant weight change
  - ▶ Insomnia or hypersomnia
  - ▶ Psychomotor agitation or retardation
  - ▶ Fatigue or loss of energy
  - ▶ Feelings of worthlessness



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**Depression**




Generic	Brand	Route	Cost
Bupropion XL	Wellbutrin	Oral	\$2/tab
Citalopram	Celexa	Oral	\$2.60/tab
Paroxetine	Paxil	Oral	\$2.27/tab
Escitalopram	Lexapro	Oral	\$3.41/tab
Sertraline	Zoloft	Oral	\$2.09/tab
Fluoxetine	Prozac	Oral	\$2.50/cap
Venlafaxine	Effexor	Oral	\$3.74-\$15/cap
Duloxetine	Cymbalta	Oral	\$6/cap
Desvenlafaxine	Pristiq	Oral	\$8/tab

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**Constipation**




INACTIVITY



POOR DIET




MEDICATIONS  
(PARTICULARLY  
OPIATES)



PRODUCES PAIN,  
ANXIETY, AGITATION


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## Constipation

- ▶ Treatment
  - ▶ Lubricant/emollient
    - ▶ Glycerin
  - ▶ Osmotic laxatives
    - ▶ MOM, mag citrate, Na phosphate, Miralax, lactulose
    - ▶ Avoid in patients who are dehydrated
    - ▶ Magnesium contraindicated in renal impairment

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## Constipation

- ▶ Stimulant laxatives
  - ▶ Senna, bisacodyl, cascara sagrada
- ▶ Bulk forming laxatives
  - ▶ Metamucil, citrucel, fibercon
  - ▶ Avoid use in patients on chronic opioid therapy
- ▶ Stool softeners
  - ▶ Docusate sodium, Docusate calcium

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Thank you!  
P. Lynn Williams, BS Pharm  
Hospice Pharmacy Solutions  
1-252-287-7414

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