

# **Coleman Supportive Oncology Initiative**

## **Palliative Training Module**

### **Topic: Nausea/Vomiting**

**Presenter:** Kathleen Derov RN and Lauren Wiebe MD

Updated by Christine B. Weldon, MBA and Betty Roggenkamp, BA

Version: 08282018

# Learning Objectives

**By the end of this module you should be able to:**

- 1. Identify common etiologies of nausea and vomiting in oncology patients**
- 2. Discuss how to prevent nausea and vomiting in patients prior to receiving high risk emetic chemotherapy**
- 3. Describe and evaluate etiology of nausea and vomiting**
- 4. Use pharmacologic and non-pharmacologic methods for managing nausea and vomiting**

- **Nausea is a sensation of unease and discomfort in the upper stomach**
- **It occasionally precedes vomiting**
- **A person can suffer nausea without vomiting which can be a significant detriment to quality of life**

## Types of Nausea and/or Vomiting

- **Chemotherapy induced nausea and vomiting is commonly classified as:**
  - **Acute**
    - Usually occurs within a few minutes, but can occur several hours after drug administration
    - Frequently resolves within the first 24 hours
  - **Delayed nausea > 24 hours**
  - **Anticipatory**
  - **Breakthrough**
  - **Refractory**

**The risk of nausea or vomiting is the highest in the first 2-4 days, though it can occur anytime within the first week**

## Prevention of Nausea and/or Vomiting

**“More than 90% of patients receiving highly emetogenic chemotherapy will have episodes of vomiting. However, only about 30% of these patients will vomit if they receive prophylactic (preventive) antiemetic regimens before treatment with highly emetogenic chemotherapy.”**

**“Prevention of nausea/vomiting is the goal.”**

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**With this in mind, providers need to be aware there is overuse of prophylactic antiemetics for chemotherapy with low or minimal emetic risks. The patient may be exposed to adverse events from the antiemetics and an undue economic burden.**

# Prevention for High Emetic Risk IV Chemotherapy



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### HIGH EMETIC RISK INTRAVENOUS CHEMOTHERAPY — ACUTE AND DELAYED EMESIS PREVENTION<sup>f,g,h,i,j</sup>

DAY 1: Select option A, B, or C (order does not imply preference) All are category 1, start before chemotherapy: <sup>h</sup>	DAYS 2, 3, 4:
<b>A</b> <ul style="list-style-type: none"> <li>• NK-1RA (choose one): <ul style="list-style-type: none"> <li>▶ Aprepitant 125 mg PO once</li> <li>▶ Aprepitant injectable emulsion 130 mg IV once<sup>k</sup></li> <li>▶ Fosaprepitant 150 mg IV once</li> <li>▶ Netupitant 300 mg / palonosetron 0.5 mg (available as fixed combination product only) PO once<sup>l</sup></li> <li>▶ Fosnetupitant 235 mg / palonosetron 0.25 mg (available as fixed combination product only) IV once<sup>l</sup></li> <li>▶ Rolapitant 180 mg PO once<sup>m</sup></li> </ul> </li> <li>• 5-HT<sub>3</sub> RA (choose one):<sup>n,o</sup> <ul style="list-style-type: none"> <li>▶ Dolasetron 100 mg PO once</li> <li>▶ Granisetron 10 mg SQ once<sup>p</sup>, or 2 mg PO once, or 0.01 mg/kg (max 1 mg) IV once, or 3.1 mg/24-h transdermal patch applied 24–48 h prior to first dose of chemotherapy.</li> <li>▶ Ondansetron 16–24 mg PO once, or 8-16 mg IV once</li> <li>▶ Palonosetron 0.25 mg IV once</li> </ul> </li> <li>• Dexamethasone 12 mg PO/IV once<sup>q</sup></li> </ul>	<b>A</b> <ul style="list-style-type: none"> <li>• Aprepitant 80 mg PO daily on days 2, 3 (if aprepitant PO used on day 1)</li> <li>• Dexamethasone 8 mg<sup>q</sup> PO/IV daily on days 2, 3, 4</li> </ul>
<b>B</b> <ul style="list-style-type: none"> <li>• Olanzapine 10 mg PO once<sup>r</sup></li> <li>• Palonosetron 0.25 mg IV once</li> <li>• Dexamethasone 12 mg PO/IV once<sup>q</sup></li> </ul>	<b>B</b> <ul style="list-style-type: none"> <li>• Olanzapine 10 mg PO daily on days 2, 3, 4<sup>r</sup></li> </ul>
<b>C</b> <ul style="list-style-type: none"> <li>• Olanzapine 10 mg PO once<sup>r,s,t</sup></li> <li>• NK-1RA (choose one): <ul style="list-style-type: none"> <li>▶ Aprepitant 125 mg PO once</li> <li>▶ Aprepitant injectable emulsion 130 mg IV once<sup>k</sup></li> <li>▶ Fosaprepitant 150 mg IV once</li> <li>▶ Netupitant 300 mg / palonosetron 0.5 mg (available as fixed combination product only) PO once<sup>l</sup></li> <li>▶ Fosnetupitant 235 mg / palonosetron 0.25 mg (available as fixed combination product only) IV once<sup>l</sup></li> <li>▶ Rolapitant 180 mg PO once<sup>m</sup></li> </ul> </li> <li>• 5-HT<sub>3</sub> RA (choose one):<sup>n,o</sup> <ul style="list-style-type: none"> <li>▶ Dolasetron 100 mg PO once</li> <li>▶ Granisetron 10 mg SQ once<sup>p</sup>, or 2 mg PO once, or 0.01 mg/kg (max 1 mg) IV once, or 3.1 mg/24-h transdermal patch applied 24–48 h prior to first dose of chemotherapy.</li> <li>▶ Ondansetron 16–24 mg PO once, or 8-16 mg IV once</li> <li>▶ Palonosetron 0.25 mg IV once</li> </ul> </li> <li>• Dexamethasone 12 mg PO/IV once<sup>q</sup></li> </ul>	<b>C</b> <ul style="list-style-type: none"> <li>• Olanzapine 10 mg PO daily on days 2, 3, 4<sup>r</sup></li> <li>• Aprepitant 80 mg PO daily on days 2, 3 (if aprepitant PO used on day 1)</li> <li>• Dexamethasone 8 mg<sup>q</sup> PO/IV daily on days 2, 3, 4</li> </ul>

Note: All recommendations are category 2A unless otherwise indicated.  
Clinical Trials: NCCN believes that the best management of any patient with cancer is in a clinical trial. Participation in clinical trials is especially encouraged.

#### Footnotes

# Prevention for Moderate Emetic Risk IV Chemotherapy



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### MODERATE EMETIC RISK INTRAVENOUS CHEMOTHERAPY — ACUTE AND DELAYED EMESIS PREVENTION<sup>f,g,h,i,j</sup>

<b>DAY 1:</b> Select option D, E, or F (order does not imply preference). <b>All are category 1, start before chemotherapy:<sup>h</sup></b>	<b>DAYS 2, 3:</b>
<b>D</b> <ul style="list-style-type: none"> <li>• 5-HT3 RA (choose one): <ul style="list-style-type: none"> <li>▶ Dolasetron 100 mg PO once</li> <li>▶ Granisetron 10 mg SQ once<sup>p</sup> (preferred), or 2 mg PO once, or 0.01 mg/kg (max 1 mg) IV once, or 3.1 mg/24-h transdermal patch applied 24–48 h prior to 1<sup>st</sup> dose of chemotherapy.</li> <li>▶ Ondansetron 16–24 mg PO once, or 8–16 mg IV once</li> <li>▶ Palonosetron 0.25 mg IV once (preferred)</li> </ul> </li> <li>• Dexamethasone 12 mg PO/IV once<sup>q</sup></li> </ul>	<b>D</b> <ul style="list-style-type: none"> <li>• Dexamethasone 8 mg<sup>q</sup> PO/IV daily on days 2, 3</li> </ul> <p>OR</p> <ul style="list-style-type: none"> <li>• 5-HT3 RA monotherapy<sup>u</sup>: <ul style="list-style-type: none"> <li>▶ Granisetron 1–2 mg (total dose) PO daily or 0.01 mg/kg (max 1 mg) IV daily on days 2 and 3</li> <li>▶ Ondansetron 8 mg PO twice daily or 16 mg PO daily or 8–16 mg IV daily on days 2, 3</li> <li>▶ Dolasetron 100 mg PO daily on days 2, 3</li> </ul> </li> </ul>
<b>E</b> <ul style="list-style-type: none"> <li>• Olanzapine 10 mg PO once<sup>r</sup></li> <li>• Palonosetron 0.25 mg IV once</li> <li>• Dexamethasone 12 mg PO/IV once<sup>q</sup></li> </ul>	<b>E</b> <ul style="list-style-type: none"> <li>• Olanzapine 10 mg PO daily on days 2, 3<sup>r</sup></li> </ul>
<b>F</b> <p>Note: an NK-1RA should be added (to dexamethasone and a 5-HT3 RA regimen) for select patients with additional risk factors or previous treatment failure with a steroid + 5HT3 RA alone. <a href="#">See AE-5</a></p> <ul style="list-style-type: none"> <li>• NK-1RA (choose one): <ul style="list-style-type: none"> <li>▶ Aprepitant 125 mg PO once</li> <li>▶ Aprepitant injectable emulsion 130 mg IV once<sup>k</sup></li> <li>▶ Fosaprepitant 150 mg IV once<sup>l</sup></li> <li>▶ Netupitant 300 mg / palonosetron 0.5 mg (available as 1:1 fixed combination product only) PO once<sup>l</sup></li> <li>▶ Fosnetupitant 235 mg / palonosetron 0.25 mg (available as 1:1 fixed combination product only) IV once<sup>l</sup></li> <li>▶ Rolapitant 180 mg PO once<sup>m</sup></li> </ul> </li> <li>• 5-HT3 RA (choose one):<sup>n,o</sup> <ul style="list-style-type: none"> <li>▶ Dolasetron 100 mg PO once</li> <li>▶ Granisetron 10 mg SQ once<sup>p</sup>, or 2 mg PO once, or 0.01 mg/kg (max 1 mg) IV once, or 3.1 mg/24-h transdermal patch applied 24–48 h prior to 1<sup>st</sup> dose of chemotherapy.</li> <li>▶ Ondansetron 16–24 mg PO once, or 8–16 mg IV once</li> <li>▶ Palonosetron 0.25 mg IV once</li> </ul> </li> <li>• Dexamethasone 12 mg PO/IV once<sup>q</sup></li> </ul>	<b>F</b> <ul style="list-style-type: none"> <li>• Aprepitant 80 mg PO daily on days 2, 3 (if aprepitant PO used on day 1)</li> <li>• ± Dexamethasone 8 mg<sup>q</sup> PO/IV daily on days 2, 3</li> </ul>

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Clinical Trials: NCCN believes that the best management of any patient with cancer is in a clinical trial. Participation in clinical trials is especially encouraged.

#### Footnotes

# Prevention for Low Emetic Risk IV Chemotherapy

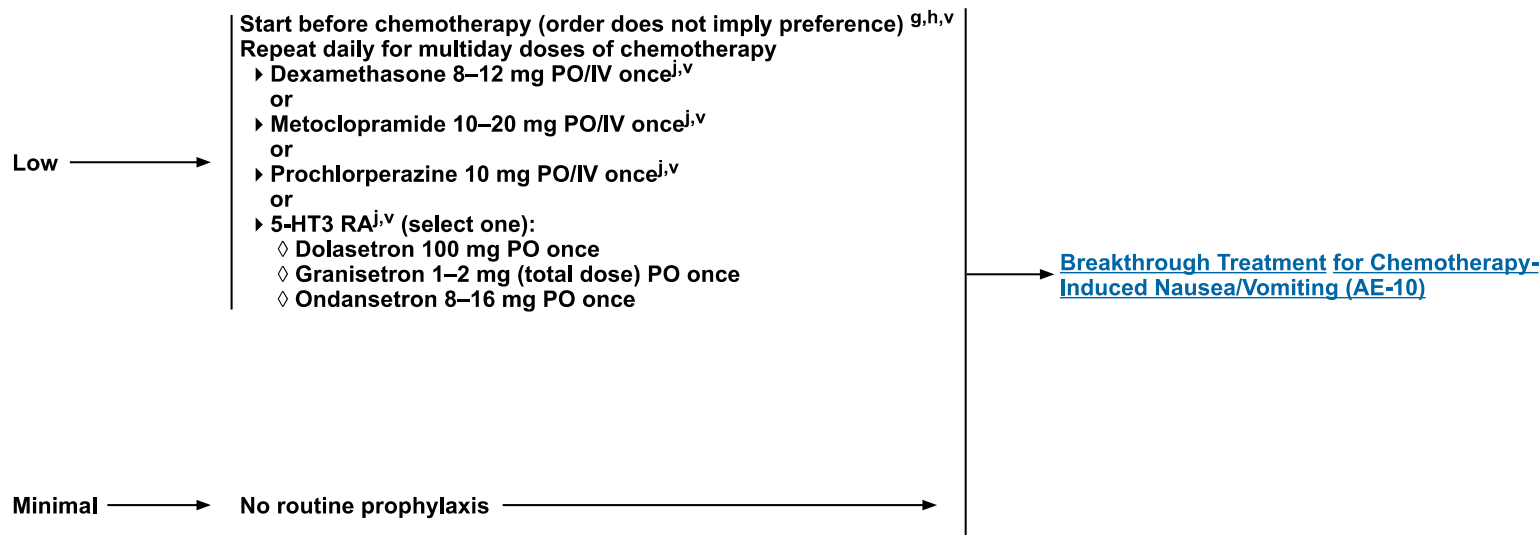


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### LOW AND MINIMAL EMETIC RISK INTRAVENOUS CHEMOTHERAPY - EMESIS PREVENTION<sup>f,g,h,j</sup>



<sup>f</sup>See [Emetogenic Potential of Intravenous Antineoplastic Agents \(AE-3\)](#).

<sup>g</sup>Antiemetic regimens should be chosen based on the drug with the highest emetic risk as well as patient-specific risk factors.

<sup>h</sup>See [Principles of Managing Multiday Emetogenic Chemotherapy Regimens \(AE-A\)](#).

<sup>j</sup>See [Pharmacologic Considerations for Antiemetic Prescribing \(AE-B\)](#).

<sup>v</sup>With or without lorazepam 0.5–2 mg PO or IV or sublingual every 6 hours as needed days 1–4. With or without H2 blocker or proton pump inhibitor. See [Principles of Emesis Control for the Cancer Patient \(AE-1\)](#).

**Note:** All recommendations are category 2A unless otherwise indicated.

**Clinical Trials:** NCCN believes that the best management of any patient with cancer is in a clinical trial. Participation in clinical trials is especially encouraged.



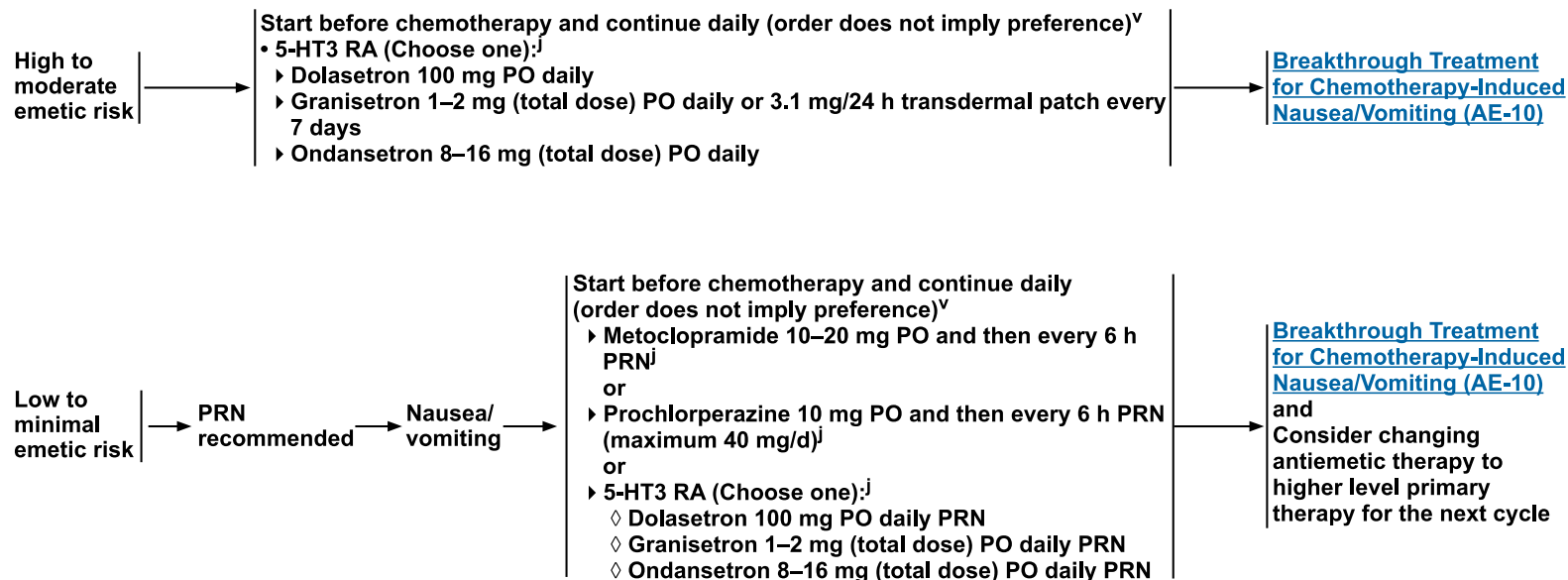
# Prevention for Oral Chemotherapy



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### ORAL CHEMOTHERAPY - EMESIS PREVENTION<sup>g,h,w,x</sup>



<sup>g</sup>Antiemetic regimens should be chosen based on the drug with the highest emetic risk as well as patient-specific risk factors.

<sup>h</sup>[See Principles of Managing Multiday Emetogenic Chemotherapy Regimens \(AE-A\).](#)

<sup>j</sup>[See Pharmacologic Considerations for Antiemetic Prescribing \(AE-B\).](#)

<sup>v</sup>With or without lorazepam 0.5–2 mg PO or IV or sublingual every 6 hours as needed days 1–4. With or without H2 blocker or proton pump inhibitor. [See Principles of Emesis Control for the Cancer Patient \(AE-1\).](#)

<sup>w</sup>[See Emetogenic Potential of Oral Antineoplastic Agents \(AE-4\).](#)

<sup>x</sup>These antiemetic recommendations apply to oral chemotherapy only. When combined with IV agents in a combination chemotherapy regimen, the antiemetic recommendations for the agent with the highest level of emetogenicity should be followed. If multiple oral agents are combined, emetic risk may increase and require prophylaxis.

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# Preventing/Treating Radiation-Induced Nausea and Vomiting

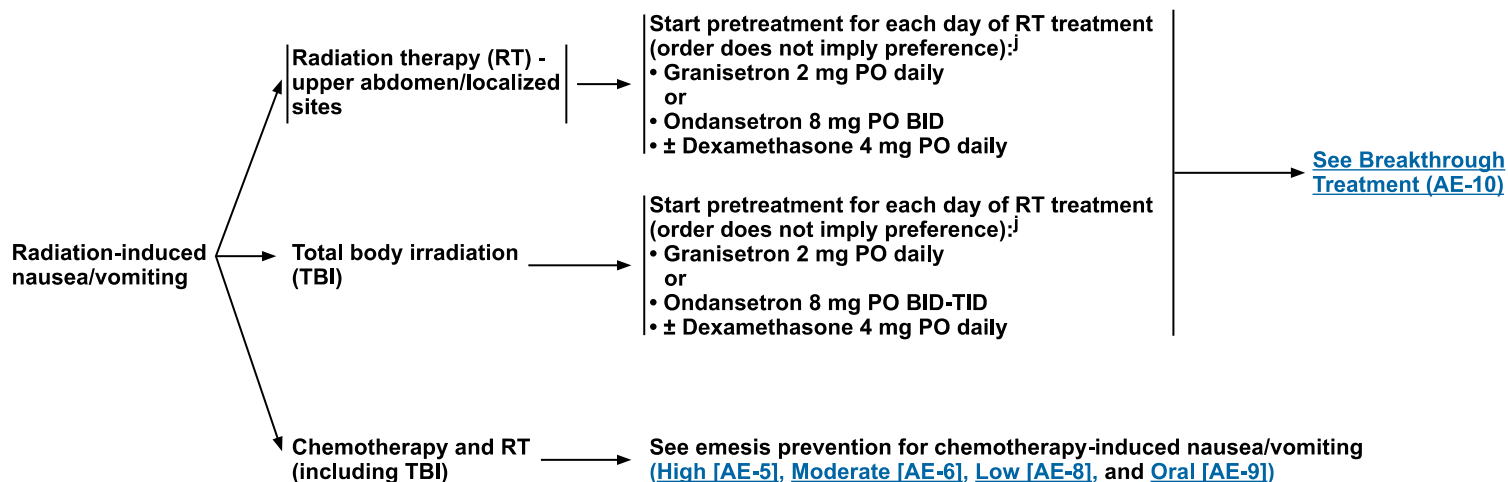


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### RADIATION-INDUCED EMESIS PREVENTION/TREATMENT

EMETOGENIC POTENTIAL	TYPE OF RADIATION THERAPY	BREAKTHROUGH TREATMENT
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<sup>j</sup>[See Pharmacologic Considerations for Antiemetic Prescribing \(AE-B\).](#)

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## Other Notes on Pharmacotherapy for Nausea and Vomiting

- **Breakthrough nausea and vomiting during chemotherapy**
  - Defined as an event that occurs despite preventative therapy
  - Principle of treatment is to add an agent from a different drug class to the current regimen
  - NCCN Clinical Practice Guidelines in Oncology (NCCN Guidelines®) Antiemesis, AE-10 (v3.2018) provides a list of agents
- **There is no evidence supporting the use of lorazepam as a sole agent to prevent nausea and vomiting**
  - Sedated patients are more prone to aspiration
  - Benzodiazepines are not recommended in the elderly
  - Lorazepam is a useful adjuvant because it decreases anxiety

## Pathophysiology of Nausea and/or Vomiting

### ■ Chemoreceptor Trigger Zone (CTZ)

- Exposure to toxins in the bloodstream or cerebrospinal fluid stimulates the vomiting center.
- Caused by medications, chemotherapies

### ■ Cerebral Cortex

- Gains input from the senses, meningeal irritation, and increased intracranial pressure that activate vomiting center.
- Commonly seen in patients with intracranial metastases

### ■ Peripheral pathways

- Gastrointestinal and viscera mechanoreceptors and chemoreceptors transmit messages via the vagus and splanchnic nerves, sympathetic ganglia, and glossopharyngeal nerves.
- Often triggered by constipation, bowel obstruction, abdominal metastases, serotonin release from intestinal

### ■ Vestibular System

- Nausea and vomiting triggered by sensation of motion

# Assessment and Evaluation of Nausea and Vomiting

## Step 1 of 3

### ■ History of Present Illness

- Has patient had persistent nausea, vomiting or both?
- Does emesis (vomiting) occur without nausea?
- What is the severity of the nausea or vomiting?
- How long has the nausea or vomiting been present?
- What is the duration of the nausea or vomiting or both? How frequently does it occur?
- Is patient aware of any triggers?
- What has patient taken for the nausea and/or vomiting and has it worked?
- When was the patient's last bowel movement?

Rule out bowel obstruction prior to treating with a prokinetic or laxative.

# Assessment and Evaluation of Nausea and Vomiting

## Step 2 of 3

- **Complete medication history**
  - Chemotherapy, opioids, antidepressants and antibiotics
  
- **History of nonpharmacological therapies**
  - Radiation and surgery
  
- **Past medical history**
  - Ask about possible causes of gastroparesis, such as diabetes, amyloidosis, autoimmune diseases

# Assessment and Evaluation of Nausea and Vomiting

## Step 3 of 3

- **Physical examination**

- Abdominal, rectal, and neurological exams

- **Laboratory tests**

- Electrolyte abnormalities
- Renal and/or hepatic failure
- Drug levels (if indicated)

- **Radiology imaging**

- Abdominal plain films
- CT Scan if indicated by history or a high suspicion for bowel obstruction

## Another way to remember etiology...

### **V.O.M.I.T** (mechanisms 1-5)

- **V**estibular
- **O**bststruction of Bowel by Constipation
- Dys**M**otility of upper gut
- **I**nfection, **I**nflammation
- **T**oxins stimulating the chemoreceptor trigger-zone in the brain such as opioids



## Treating Nausea and Vomiting Based on Mechanism – 1 of 5

### Vestibular

- **Key notes on assessment:**
  - “The car ride to clinic is very difficult”
- **Useful type of medications: Anticholinergic, Antihistaminic**
  - Scopolamine patch, Promethazine
    - But be cautious in patients with delirium, agitation, constipation or severe dry mouth as these medications will worsen any of these conditions
    - Remember, scopolamine crosses the blood brain barrier which leads to delirium

## Treating Nausea and Vomiting Based on Mechanism – 2 of 5

### Obstruction of Bowel

- **Can be constipation or obstruction**
  - Key notes on assessment
  - Minimal bowel sounds, abdominal distension
  - Use history and imaging to determine which is the cause
  - Be sure to rule out bowel obstruction prior to treating
- **For constipation, review medications for either pro- or anti-motility effects**
  - Constipating: opioids, 5HT3-blockers, tricyclic antidepressants
  - Review current laxative regimen
- **Recommend medications that stimulate the bowel in an escalating approach**
  - Senna products
  - Osmotic laxatives
  - Enemas and/or suppositories, although used rarely when patient is receiving chemotherapy

## Treating Nausea and Vomiting Based on Mechanism – 3 of 5

### DysMotility of upper gut

- **Key notes on assessment**
  - Early satiety, lack of hunger, postprandial acidity or delayed reflux
- **Preferred medication class:**
  - Prokinetics to stimulate the D2 receptors (muscarinic)
    - Example: Metoclopramide

## Treating Nausea and Vomiting Based on Mechanism – 4 of 5

### Infection, Inflammation

- **Thought to be mediated by multiple receptor types:**
  - Cholinergic, Histaminic, and/or 5HT3
- **Useful approaches:**
  - Anticholinergic, Antihistaminic, or 5HT3 antagonist medications
    - Promethazine for labyrinthitis or gastroenteritis
    - Prochlorperazine

## Treating Nausea and Vomiting Based on Mechanism – 5 of 5

### Toxins stimulating the chemoreceptor trigger-zone in the brain

- **Common culprits: chemotherapy, opioids, other medications**
- **If chemotherapy, explore with oncologist whether additional antiemetic premedications can be added with subsequent cycles.**
  - Some are only covered for administration during infusion: Palonosetron, fosaprepitant, netupitant
  - is one of several options that may be added for prevention of breakthrough emesis
- **If opioids, patient may report initiation coinciding with initiation of opioid; or worsening with increasing doses**
  - Note that the nauseating effects of opioids are expected to *wear off* after 3-5 days on stable dosing
- **Useful medications:** Antidopaminergic, 5HT3 Antagonist
  - Prochlorperazine, haloperidol, ondansetron

# Non-pharmacologic Treatments for Nausea and Vomiting

## ■ Acupuncture or acupressure

- May be a useful adjunct strategy to manage acute chemotherapy-induced nausea or vomiting though there is limited evidence of efficacy

## ■ Dietary adjustments

- Small, frequent meals – “snacking”
- Control the amount of food consumed
- Choose healthful foods
- Eat foods at room temperature
- Pay attention to food, smell aversions and avoid
- Avoiding constipating foods
- Stop any additional dietary fiber (i.e., psyllium)
  - Though may continue in patients with opioid-induced constipation
- Dietary consult may also be useful

## ■ Guided imagery or meditation, Relaxation exercises, Cognitive Distraction

## ■ Yoga, if approved by physician

## ■ Maintenance of oral care or dry mouth

# Summary of Points Covered

**In this training module we addressed:**

**Causes, prophylactic treatment, assessment,  
and additional treatment of nausea and  
vomiting in patients with cancer**

## Next Steps

For more detailed training on this topic, you can go to the following resources:

### National Comprehensive Cancer Network®

- [NCCN Clinical Practice Guidelines in Oncology \(NCCN Guidelines®\) Antiemesis Version 3.2018](http://www.nccn.org/professionals/physician_gls/PDF/antiemesis.pdf)  
[http://www.nccn.org/professionals/physician\\_gls/PDF/antiemesis.pdf](http://www.nccn.org/professionals/physician_gls/PDF/antiemesis.pdf)

### National Cancer Institute at the National Institutes of Health

- [NIH, Patient Education Publications, “Eating Hints: Before, During, and After Cancer Treatment.”](http://www.cancer.gov/cancertopics/coping/eatinghints/page2#4)  
<http://www.cancer.gov/cancertopics/coping/eatinghints/page2#4>

### Education and Training for Health Professionals, EPEC-O

- [The EPEC™-O Self-Study, Module 3 – Symptoms](http://www.cancer.gov/resources-for/hp/education/epeco/self-study/module-3)  
<http://www.cancer.gov/resources-for/hp/education/epeco/self-study/module-3>

### Fast Facts

- [Palliative Care Network of Wisconsin, Fast Fact and Concepts](http://www.mypcnow.org/#!fast-facts/c6xb)  
<http://www.mypcnow.org/#!fast-facts/c6xb>
  - [Chemotherapy – Induces Nausea and Vomiting #285](#)
  - [The Causes of Nausea and Vomiting \(V.O.M.I.T.\) #5](#)
  - [Opioids and Nausea #25](#)



## **Faculty Bio for Kathleen Derov, RN, BSN, CHPN**

**Kathleen Derov, RN received her Bachelor's of Science in Nursing from the University of Pennsylvania School of Nursing. She has worked in both inpatient and home settings providing end of life care for patients at UCLA Medical Center in Santa Monica as well as for Northwestern Medicine, respectively. She is currently the nurse coordinator for the outpatient palliative care program at Northwestern Medicine. She has been a certified hospice and palliative care nurse (CHPN) since 2013.**

## **Faculty Bio for Lauren Wiebe, MD**

**Dr. Lauren Wiebe attended medical school at the Columbia University College of Physicians and Surgeons, then she completed an Internal Medicine residency and fellowship in Medical Oncology, both at the University of Chicago. She completed additional fellowship training in Clinical Medical Ethics at the MacLean Center, and Hospice and Palliative Medicine at Northwestern University.**

**Dr. Wiebe joined the faculty practice at NorthShore University HealthSystem in January 2017 with dual appointments in Palliative Medicine and Gastrointestinal Medical Oncology. She specializes in the treatment of gastrointestinal cancers with a focus on improving quality of life.**

**For additional information:**

**<https://www.northshore.org/apps/findadoctor/physicians/lauren-a.-wiebe?qqs=doctor%3dwiebe>**

**<https://www.linkedin.com/in/lauren-wiebe-7b5aba2/>**

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- Janelins MC, Tejani M, Kamen C, Peoples A, Mustian KM, Morrow GR. Current Pharmacotherapy for Chemotherapy-Induced Nausea and Vomiting in Cancer Patients. Expert opinion on pharmacotherapy. 2013;14(6):757-766. doi:10.1517/14656566.2013.776541.
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- [Management of Intractable Nausea and Vomiting in Patients at the End of Life](#), JAMA 2007;298(10):1196-1207 [jama.jamanetwork.com/article.aspx?articleid=208715](http://jama.jamanetwork.com/article.aspx?articleid=208715)
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- Albany C, Brames MJ, Fausel C, et al. Randomized, double-blind, placebo-controlled, phase III cross-over study evaluating the oral neurokinin-1 antagonist aprepitant in combination with a 5HT3 receptor antagonist and dexamethasone in patients with germ cell tumors receiving 5-day cisplatin combination chemotherapy regimens: a hoosier oncology group study. J Clin Oncol 2012;30:3998-4003. Available at: <http://www.ncbi.nlm.nih.gov/pubmed/22915652>

# **Coleman Supportive Oncology Initiative**

## **Palliative Training Module**

### **Topic: Constipation**

Presenter: Lauren Wiebe, MD and Kathleen Derov, RN

Version: 08282018

# Learning Objectives

**By the end of this module you should be able to:**

- 1. Assess constipation in cancer patients**
- 2. Initiate treatment of constipation in cancer patients**

## Constipation Defined

- **Defined as *infrequent bowel movements***
  - Typically 3 or fewer times per week
- **Difficulty during defecation**
  - Straining during more than 25% of bowel movements
  - Subjective sensation of hard stools
- **Sensation of incomplete bowel evacuation**

## Assess for Cause and Severity

- **Discontinue any non-essential constipating medication**
  - Iron supplements
  - Calcium supplements
- **Rule out impaction**
- **Rule out obstruction**
- **Treat other causes such as:**
  - Hypercalcemia
  - Hypokalemia
  - Hypothyroidism
  - Medication effects

## 4 Important Components of a BM

- **Stool volume**
- **Stool water content**
- **Motility**
- **Lubrication**



## **Components of a BM**

### **Stool volume**

- **Bulkier stools result in more gratifying bowel movements.**
- **Stool volume depends on diet and how much fiber is ingested.**
- **Bulking agents like psyllium or other fiber supplements may help the general population, but they are often a poor choice for patients with impaired motility or poor liquid intake.**
- **Fiber can bind to iron or other medications to prevent absorption. Be sure to check for interactions with oral chemotherapy.**

## Components of a BM

### Stool water content

- **More water in the stool means softer stools that are easier to eliminate.**
- **Depends on dietary intake, but transit time and the amount of water absorbed by the colon are key factors.**
- **Osmotic laxatives bring water into the stool:**
  - Polyethylene glycol
  - Magnesium citrate
    - Contraindicated in renal failure
    - Can cause significant acute cramping
  - Milk of magnesium
    - Good alternative if citrate exacerbates acid reflux
  - Lactulose
    - Often causes excessive gas and cramping

## Components of a BM

### Motility

- **Commonly impaired in cancer patients due to medications, direct tumor effects and limited mobility.**
  - Senna stimulates motility via the myenteric plexus.
  - Bisacodyl stimulates smooth muscle contraction.
  - Methylnatrexone is a subcutaneous peripheral mu-receptor blocker that reverses the opioid effect on the bowel temporarily.
    - Should be used with caution
    - Rule out bowel obstruction or recent bowel surgery prior
    - Expensive and cumbersome
    - Can cause severe acute cramping and, very rarely, the reversal of analgesia

## Components of a BM

### Lubrication

- **Naturally decreases stool surface tension and promotes easier passage**
  - Docusate
    - Not effective as a sole agent
  - Enemas
    - Use a saline enema if the patient has normal kidney function
    - Mineral oil enema
      - ❖ Avoid oral mineral oil, as aspiration can cause severe pneumonitis
    - Tap water (warm or cold)
    - Milk of magnesia (also helps via osmosis)
  - Suppositories, particularly glycerin

# Managing Opioid Constipation Side Effect

## Constipation Due to Use of Opioids

- Treat aggressively and prophylactically
- Remember, the body never adjusts to the constipating effect of opioids
- Educate patients/family: inform them that opioid constipation will never just “go away”
- Individualize each patient’s regimen and continue it for the duration of opioid therapy
- Maintain adequate fluid intake and exercise, if feasible

Category	Examples
Prophylactic medications	Senna (1-2 tab daily, maximum 8-12 tabs/day) Polyethylene glycol (17g/8 oz water BID)
As-needed “rescue” agents (usually prescribed if no BM in 48 hours)	Magnesium hydroxide (30-60 ml daily) Sorbitol (30 cc q8 until bowel movement) or Lactulose (15 cc to 30 cc daily) Polyethylene glycol (17g/8 oz water BID) Bisacodyl suppository or enema

## Summary of Points Covered

**In this training module we addressed:**

- **Evaluation and treatment of constipation**
- **Several characteristics that lead to constipation, which can be addressed to minimize symptoms:**
  - **Stool volume**
  - **Stool water content**
  - **Motility**
  - **Lubrication**

## Next Steps

For more detailed training on this topic, you can go to the following resources:

### National Comprehensive Cancer Network (NCCN®)

- [NCCN Guidelines® for Palliative Care – Version 1.2018](http://www.nccn.org/professionals/physician_gls/PDF/palliative.pdf)  
[http://www.nccn.org/professionals/physician\\_gls/PDF/palliative.pdf](http://www.nccn.org/professionals/physician_gls/PDF/palliative.pdf)
- [NCCN Guidelines® for Adult Cancer Pain – Version 1.2018](http://www.nccn.org/professionals/physician_gls/pdf/pain.pdf)  
[http://www.nccn.org/professionals/physician\\_gls/pdf/pain.pdf](http://www.nccn.org/professionals/physician_gls/pdf/pain.pdf)

### Education and Training for Health Professionals, EPEC-O

- [EPEC™-O-Self-Study, Module 3 - Symptoms](http://www.cancer.gov/resources-for/hp/education/epeco/self-study/module-3)  
<http://www.cancer.gov/resources-for/hp/education/epeco/self-study/module-3>

## **Faculty Bio for Dr. Lauren Wiebe**

**Dr. Lauren Wiebe attended medical school at the Columbia University College of Physicians and Surgeons, then she completed an Internal Medicine residency and fellowship in Medical Oncology, both at the University of Chicago. She completed additional fellowship training in Clinical Medical Ethics at the MacLean Center, and Hospice and Palliative Medicine at Northwestern University.**

**Dr. Wiebe joined the faculty practice at NorthShore University HealthSystem in January 2017 with dual appointments in Palliative Medicine and Gastrointestinal Medical Oncology. She specializes in the treatment of gastrointestinal cancers with a focus on improving quality of life.**

**For additional information:**

**<https://www.northshore.org/apps/findadoctor/physicians/lauren-a.-wiebe?qqs=doctor%3dwiebe>**

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## **Faculty Bio for Kathleen Derov, RN**

**Kathleen Derov, RN received her Bachelor's of Science in Nursing from the University of Pennsylvania School of Nursing. She has worked in both inpatient and home settings providing end of life care for patients at UCLA Medical Center in Santa Monica as well as for Northwestern Medicine, respectively. She is currently the nurse coordinator for the outpatient palliative care program at Northwestern Medicine. She has been a certified hospice and palliative care nurse (CHPN) since 2013.**

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# **Coleman Supportive Oncology Initiative**

## **Palliative Training Module**

### **Topic: Dyspnea/Shortness of Breath**

Presenter: Joanna Martin, MD

Version: 08282018

## Learning Objectives

**By the end of this module you should be able to:**

- 1. Describe the causes of dyspnea**
- 2. Discuss how to assess for dyspnea**
- 3. Restate pharmacologic and nonpharmacologic ways to manage dyspnea**
- 4. Explain how to educate the patient, family or caregivers about dyspnea**

## Dyspnea Defined

**Dyspnea is defined as difficult or labored breathing, shortness of breath or feelings associated with impaired breathing.**

## Causes of Dyspnea

- Many different illnesses can cause dyspnea.
- Common mechanisms of dyspnea include anxiety, airway obstruction, bronchospasm, hypoxemia, pleural effusion, pneumonia, pulmonary edema, pulmonary embolism, thick secretions, anemia, metabolic disorders and psychosocial issues.
- Dyspnea is a symptom, not a sign, and does not correlate with respiratory rate, oxygen saturation, blood gas levels, professional or family members' perceptions.

## How to Assess for Dyspnea

- **Gold standard: patient self-report**
- **Assess chronicity**
  - Constant
  - Precipitated by certain activities
- **Assess intensity**
  - Have the patient rate intensity on a scale of 1 to 10
  - If the patient cannot verbalize the intensity, attempt to assess it by bedside observation

## Pharmacologic Management

- Opioids help relieve dyspnea that is refractory to the treatment of the underlying cause.
- In opioid-naïve patients, low doses (5-10 mg of oral morphine or 2-4 mg of IV morphine) usually provide relief.
  - With frail, thin and/or elderly opioid-naïve patients, morphine can start at 3 mg by mouth or 1 mg intravenously.
- It is usually best to try an opioid first and add an anxiolytic if the patient still remains anxious.
- Anxiolytics, such as lorazepam (0.5 mg by mouth or intravenous), can reduce the anxiety component of dyspnea.



## Non-Pharmacologic Management

- Therapeutic trials of oxygen may be useful, but oxygen does not always help.
- The availability of oxygen is often comforting to patients and their families.
- Nasal cannula oxygen is often preferred by patients near end of life, because a mask can cause agitation.
- Dyspnea often improves with a fan due to stimulation of the V2 branch of the 5<sup>th</sup> cranial nerve.
- Relaxation exercises and psychosocial support can improve dyspnea symptoms in some patients.

## **Dyspnea and BiPAP, Noninvasive Positive Pressure Ventilation**

- **Bilevel Positive Airway Pressure (BiPAP) is a non-invasive mechanical support ventilation system delivering separate inhale and exhale pressures.**
- **Often used for patients with respiratory failure, especially those patients that are DNI (Do Not Intubate).**
- **May be useful for a select group of patients; goals of care should be revisited for patients nearing end of life.**
- **Evaluate whether BiPAP would meet both the patient's medical needs, and their goals of care.**
- **May be a barrier to patient's communication with family**
- **The patient may find BiPAP uncomfortable which needs to be addressed by the medical team**

## Dyspnea and Intravenous Fluid Therapy

- **Dyspnea can sometimes be worsened by intravenous fluid therapy (IVF)**
- **When evaluating a patient with dyspnea, always remember to assess whether or not patient is receiving IVF and may be experiencing fluid overload**
- **Patients at end of life in the hospital setting are often receiving IVF which can contribute to dyspnea**

## **Understanding How to Educate the Patient and/or Family About Dyspnea**

- **There is no evidence that proper symptom management of dyspnea hastens death.**
- **Goals of care and prognosis should be discussed with the patient and/or family because there are many fears regarding the use of opioids with dyspnea. Furthermore, among physicians there are also many misconceptions about opioid use.**
- **Dyspnea can usually be well-managed with proper pharmacologic and non-pharmacologic support.**
- **Dyspnea is also a common symptom at the end of life and can be distressing to families. Education and psychosocial support are key.**

## Summary of Points Covered

- **Dyspnea is often multifactorial, and it is a symptom, not a sign.**
- **Patient report of dyspnea is the gold standard.**
- **Patients often benefit from pharmacologic and non-pharmacologic treatment of their dyspnea.**
- **Patient and family education surrounding dyspnea is very important. Misunderstanding of this symptom can often be a barrier to optimal care.**

## Next Steps

For more detailed training on this topic, you can go to the following resource:

### National Comprehensive Cancer Network

➤ [NCCN Guidelines for Palliative Care, Version 1.2018](http://www.nccn.org/professionals/physician_gls/PDF/palliative.pdf)

[http://www.nccn.org/professionals/physician\\_gls/PDF/palliative.pdf](http://www.nccn.org/professionals/physician_gls/PDF/palliative.pdf)

### Education and Training for Health Professionals, EPEC-O

➤ [Education in Palliative and End-of-Life Care for Oncology, Dyspnea](http://www.cancer.gov/resources-for/hp/education/epeco/self-study/module-3/module-3j.pdf)

<http://www.cancer.gov/resources-for/hp/education/epeco/self-study/module-3/module-3j.pdf>

## **Faculty Bio for Joanna Martin, MD**

**Joanna Martin MD is board certified in Internal Medicine, Geriatrics, and Hospice and Palliative Medicine. She is a palliative care physician at the Jesse Brown VA and a Health Systems Clinician at Northwestern Memorial Hospital. Dr. Martin was previously employed by Horizon Hospice and Palliative Care and Presence St. Joseph Hospital in Lincoln Park from 2006 through 2015. She was medical director of Horizon Hospice and Palliative Care and the Director of Palliative Care at Presence St. Joseph Hospital from 2007 through 2015.**

**As a clinician educator, Dr. Martin has experience educating all levels of learners in geriatrics and palliative care in the home and hospital setting. She is currently serving as a Design Team Leader for the Coleman Supportive Oncology Initiative, a multi-hospital initiative to improve access to supportive oncology services. Dr. Martin attended medical school at the University of Minnesota Medical School in Minneapolis and completed an Internal Medicine residency and two year Geriatrics Fellowship at the University of Chicago.**

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