# Symptom Management Guidelines: CANCER RELATED NAUSEA AND VOMITING

## Definition

**Nausea:** A subjective phenomenon of an unpleasant, wavelike sensation experienced in the back of the throat and/or the epigastrium. Nausea may or may not result in vomiting- it is the patient's perception that vomiting may occur.

**Vomiting:** The forceful expulsion of the contents of the stomach, duodenum, or jejunum through the oral cavity.

## Contributing Factors

<table>
<thead>
<tr>
<th>Cancer Treatments</th>
<th>Medication</th>
<th>Cancer Related</th>
<th>Other</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chemotherapy:</td>
<td><strong>Antibiotics</strong></td>
<td><strong>Gastric cancer</strong></td>
<td><strong>Constipation</strong></td>
</tr>
<tr>
<td><em>For emetogenicity of chemotherapeutic agent, See Appendix A and Cancer Drug Manual in Resources Section</em></td>
<td><strong>Opioids &amp;/or Opioid withdrawal</strong></td>
<td><strong>Tumour growth in the GI tract or CNS</strong></td>
<td><strong>Vestibular dysfunction</strong></td>
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<tr>
<td><strong>NOTE:</strong> Protocols with highly emetogenic chemotherapy (HEC) and Moderately Emetogenic Chemotherapy with cyclophosphamide and an anthracycline combined (MEC-A) increase risk for nausea and vomiting</td>
<td><strong>NSAIDs</strong></td>
<td><strong>Brain metastases</strong></td>
<td><strong>Anxiety, anticipatory nausea</strong></td>
</tr>
<tr>
<td>Immunotherapy – Checkpoint inhibitors</td>
<td><strong>SSRI antidepressants</strong></td>
<td><strong>Reduced GI motility or Bowel Obstruction</strong></td>
<td><strong>Hypercalcemia, hyperglycemia, hyponatremia</strong></td>
</tr>
<tr>
<td>Biotherapy:</td>
<td><strong>Iron supplements</strong></td>
<td><strong>Gastroparesis, tumour or chemotherapy induced (e.g. vincristine)</strong></td>
<td><strong>Peptic ulcer disease</strong></td>
</tr>
<tr>
<td><em>High dose Interferon or Interleukin-2</em></td>
<td><strong>Anticonvulsants</strong></td>
<td></td>
<td><strong>Infections of the mouth, pharynx or esophagus</strong></td>
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<tr>
<td>Radiation Therapy:</td>
<td><strong>Antiarrhythmics</strong></td>
<td></td>
<td><strong>Uremia</strong></td>
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<tr>
<td><em>GI tract, liver, brain</em></td>
<td></td>
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<td><strong>More common in women than men</strong></td>
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<tr>
<td><strong>NOTE:</strong> The greater the amount of daily fractional doses, the increased likelihood of radiation induced nausea and vomiting</td>
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<td></td>
<td><strong>More common in younger patients (less than 50)</strong></td>
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<td><strong>Decreased risk for patients with a high chronic alcohol intake</strong></td>
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<td><strong>Motion sickness</strong></td>
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<td></td>
<td><strong>Conditions that may require the use of warfarin (e.g. venous thrombosis, cardiac surgeries)</strong></td>
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</tbody>
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## Consequences
- Dehydration
- Aspiration pneumonia
- Malnutrition
- Anorexia
- Wound dehiscence
- Esophageal tears
- Chemotherapy dose delays, reductions, discontinuations of treatment
- Quality of life – distress, compromised role function, decreased functional status, exacerbation of other symptoms (e.g. pain, fatigue, sleep-wake disturbance)
- Decreased nutritional intake from nausea and vomiting may lead to increased INR or increased risk of bleeding for patients on warfarin

## Focused Health Assessment

### GENERAL ASSESSMENT

**Contact and General Information**
- Physician name - oncologist, family physician
- Pharmacy
- Home health care
- Other healthcare providers
- Allergies

**Consider Contributing Factors**
- Cancer diagnosis and treatment(s) – note type and date of last treatment
- Medical history
- Medication profile (e.g. warfarin, antibiotics)
- Recent lab or diagnostic reports (if patient is on warfarin consider increasing frequency of INR monitoring)

### SYMPTOM ASSESSMENT

**Normal**
- Did you have nausea/vomiting prior to your treatment starting?
- Are you aware of any medications that you are taking that could cause nausea and vomiting (e.g. warfarin, antibiotics)

**Onset**
- When did the nausea and/or vomiting begin?
- How many episodes of vomiting in the last 24 hours?

**Provoking / Palliating**
- What brings on the nausea and/or vomiting?
- Is there anything that makes the nausea/vomiting better? Worse?

**Quality**
- Describe the emesis? – Colour (visible blood, coffee ground emesis, bile)? Volume (large or small amounts)? Odour?
- Can you estimate the amount, large or small volume?

**Region / Radiation - NA**

**Severity / other Symptoms**
- How bothered are you by this symptom? (On a scale of 0 – 10, with 0 being not at all and 10 being the worse imaginable)
- What is the daily intake and output?
- Do you have nausea with or without vomiting?
- Have you had any other symptoms such as:
  - Abdominal cramping? Stomach pain? Gas pain?
  - Constipation? - When was your last bowel movement?
  - Fever? - possible infection
  - Dry mouth, thirst, dizziness, weakness, dark urine? – possible dehydration
  - Blood, mucous in stool

### PHYSICAL ASSESSMENT

**Vital Signs**
- Frequency – as clinically indicated

**Weight**
- Take current weight and compare to pre – treatment or last recorded weight

**Hydration Status**
- Assess skin turgor, capillary refill, mucous membranes
- Amount and character of urine

**Abdominal Assessment**
- Auscultate abdomen - assess presence and quality of bowel sounds
- Assess for abdominal pain, tenderness, distention

**Emesis Examination**
- Inspect emesis for colour, consistency, quantity, odour and blood
### Treatment
- What medications or treatments have you tried? Has this been effective?

### Understanding / Impact on You
- Are you able to keep fluids down? What are you drinking? How much?
- What do you believe is causing your nausea?

### Nausea and Vomiting Grading Scale

<table>
<thead>
<tr>
<th>Nausea</th>
<th>Grade 1 (Mild)</th>
<th>Grade 2 (Moderate)</th>
<th>Grade 3 (Severe)</th>
<th>Grade 4 (Life Threatening)</th>
<th>Grade 5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Loss of appetite without alteration in eating habits</td>
<td>Oral intake decreased without significant weight loss, dehydration or malnutrition</td>
<td>Inadequate oral caloric or fluid intake; tube feedings, TPN or hospitalization indicated</td>
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<td></td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Vomiting</th>
<th>Grade 1 (Mild)</th>
<th>Grade 2 (Moderate)</th>
<th>Grade 3 (Severe)</th>
<th>Grade 4 (Life Threatening)</th>
<th>Grade 5</th>
</tr>
</thead>
<tbody>
<tr>
<td>1-2 episodes (separated by 5 minutes) in 24 hours</td>
<td>3-5 episodes (separated by 5 minutes) in 24 hrs</td>
<td>&gt;= 6 episodes (separated by 5 minutes) in 24 hrs; tube feeding, TPN or hospitalization indicated</td>
<td>Life-threatening consequences; urgent intervention indicated</td>
<td>Death</td>
<td></td>
</tr>
</tbody>
</table>

*A semi-colon indicates 'or' within the description of the grade and a single dash (-) indicates a grade is not available*

*Step-Up Approach to Symptom Management: Interventions Should Be Based On Current Grade Level and Include Lower Level Grade Interventions As Appropriate*

### Grade 1

**Non – Urgent**
- Prevention, support, teaching, & follow-up as clinically indicated

**Patient Care and Assessment**
- Rule out other causes of nausea and vomiting
- Collaborate with physician if further investigation warranted or if patient is on immunotherapy
- Assess need for hospital admission
- Assess for nausea and vomiting prior to each chemotherapy, radiation treatment or clinic visit. If an inpatient, assess daily
- Lab tests that may be ordered: CBC and electrolyte profile
- If anticipatory nausea, consider distraction strategies such as relaxation, music, imagery or hypnosis (referral to patient and family counseling may be helpful for these interventions)
- Consider acupressure-patient administered

**Urgent:** Requires medical attention within 24 hours
### Dietary Management

**Encourage:**
- Frequent small meals in a relaxing environment
- Eating foods cold or at room temperature
- Appealing foods, even if not usual diet
- Increased fluids - aim for 8-10 cups per day: 2 to 2.5 litres a day (e.g. sports drinks, broth, popsicles, water)
- Assistance with food preparation
- Restricting fluids with meals
- Eating at least one hour before treatment
- Continue dietary recommendations until symptoms resolve

**Avoid:**
- Alcohol and tobacco
- Foods or fluids that are spicy, acidic, salty, hard or crunchy
- Lying down after eating

**NOTE:** If patient unable to tolerate adequate daily fluid intake, IV hydration to replace lost fluid and electrolytes may be required

*For further Dietary Management See Oncology Nutrition Services in Resource Section*

### Pharmacological Management

- Avoid or discontinue any medications that may cause or exacerbate nausea and vomiting (in consultation with physician and pharmacist)
- If patient is taking Warfarin, in collaboration with physician:
  - Consider alternate anticoagulants such as dalteparin
  - Consider increasing frequency of INR monitoring
- Instruct patient to initiate or continue medications according to instructions given
- Allow 30-60 minutes post antiemetic before eating
- Antiemetic medications that may be prescribed:
  - Ondansetron, dexamethasone, metoclopramide, prochlorperazine
  - Aprepitant for highly emetogenic chemotherapy
  - Haloperidol
  - Nozinan
  - Dimenhydrinate suppository if unable to take orally
  - Lorazepam may be prescribed for anticipatory nausea
- Refer to protocol specific algorithm if patient is on Immunotherapy

*For further Pharmacological Management See Cancer Management Guidelines (Health Professional) and Cancer Drug Manual in Resource Section*

### Patient Education

- Reinforce importance of accurately recording and reporting the following information:
  - Onset and number of emesis occurrences per 24 hours
  - Fluid intake per 24 hours
- Reinforce with patients when to seek immediate medical attention:
  - Temperature greater than or equal to 38°C
  - Blood (bright red or black) in emesis, coffee ground emesis
  - Severe cramping, acute abdominal pain (+/- nausea & vomiting)
  - Dizziness, weakness, confusion, excessive thirst, dark urine
  - Projectile vomiting
  - Nausea and vomiting not improving with recommended strategies
- Inform patient that isolation precautions may be required if symptoms worsen or infection suspected, patient may need to be isolated as per Infection control (available to internal PHSA staff)

*Review contact numbers and access to resources*

### Follow-Up

- Reassess in 24 hours, if symptoms not resolved provide further recommended strategies and repeat follow-up assessment within 24 hours.
Follow up options:
- Instruct patient/family to call back
- Arrange for nurse initiated telephone follow–up or physician follow-up

GRADE 3 - GRADE 4

EMERGENT:
Requires IMMEDIATE medical attention

Patient Assessment
- Patients with Grade 3 or 4 nausea and vomiting generally require admission to hospital – notify physician of assessment, facilitate arrangements as necessary
- If patient is on Immunotherapy, remind them to present their Immunotherapy alert card.
- Consult with physician
  - To rule out other causes or concomitant causes of nausea and vomiting
  - To hold chemotherapy until symptoms resolved.
- Lab tests that may be ordered:
  - Complete blood count (CBC), electrolyte profile

Nursing Support
- Monitor vital signs (as clinically indicated)
- Physical assessment
- Accurate intake and output record, include daily weight
- Pain and symptom assessment and management as appropriate

Dietary Management
- IV hydration to replace lost fluids and electrolytes
- Enteral or parenteral nutrition (TPN) may be indicated for some patients
- For further Dietary Management See Oncology Nutrition Services in Resource Section

Pharmacological Management
- Avoid/discontinue any medications that may cause or exacerbate nausea and vomiting (in consultation with physician and pharmacist).
- Medications that may be prescribed intravenously:
  - Ondansetron (Zofran)
  - Metoclopramide
  - Prochlorperazine (Stemetil)
  - Haloperidol
  - Nozinan
  - Dexamethasone
- Refer to protocol specific algorithm if patient is on Immunotherapy
- For further Pharmacological Management See Cancer Management Guidelines (Health Professional) and Cancer Drug Manual in Resource Section

Patient Education
- Provide support, reinforce to patients/family that nausea and vomiting can be effectively managed with prompt intervention.
- Continue to reinforce self care, review medications, lab /diagnostic testing with patients/family as appropriate
- Discharge teaching as early as possible with patient/family

RESOURCES & REFERALS

Referrals
- Oncology Nutrition Services
- BCCA Pharmacist
- Home Health Nursing
- Patient Support Centre
- Telephone Care for follow-up
- Pain and Symptom Management/Palliative Care (PSMPC)

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### Health Professional Resources
- Chemotherapy Induced Nausea and Vomiting in Adults - Scroll down to SC NAUSEA: [http://www.bccancer.bc.ca/health-professionals/professional-resources/chemotherapy-protocols/supportive-care](http://www.bccancer.bc.ca/health-professionals/professional-resources/chemotherapy-protocols/supportive-care)

### Immunotherapy
- Immunotherapy Alert Card
- Please refer to protocol specific algorithms to guide management of immune mediated side effects.

### Patient Education Resources
- Food choice to help control nausea: [http://www.bccancer.bc.ca/health-professionals/professional-resources/nutrition/nutrition-handouts](http://www.bccancer.bc.ca/health-professionals/professional-resources/nutrition/nutrition-handouts)
- Increasing Fluid Intake: [http://www.bccancer.bc.ca/health-professionals/professional-resources/nutrition/nutrition-handouts](http://www.bccancer.bc.ca/health-professionals/professional-resources/nutrition/nutrition-handouts)
- Resources about managing anxiety, progressive muscle relaxation, positive thinking, etc: [http://www.bccancer.bc.ca/health-info/coping-with-cancer/emotional-support/resources](http://www.bccancer.bc.ca/health-info/coping-with-cancer/emotional-support/resources)

### Related Online Resources
- E.g. Fair Pharmacare; BC Palliative Benefits. Can be found in "Other Sources of Drug Funding Section" [http://www.bccancer.bc.ca/health-professionals/professional-resources/pharmacy/drug-funding](http://www.bccancer.bc.ca/health-professionals/professional-resources/pharmacy/drug-funding)

### Bibliography List
- [http://www.bccancer.bc.ca/health-professionals/professional-resources/nursing/symptom-management](http://www.bccancer.bc.ca/health-professionals/professional-resources/nursing/symptom-management)

### Appendix A: Emetic Risk of Intravenous Antineoplastic Agents
Adapted from ASCO Guidelines (2011)

#### Emetic Risk of Antineoplastic Agents Administered Intravenously

<table>
<thead>
<tr>
<th>High</th>
<th>Moderate</th>
<th>Low</th>
<th>Minimal</th>
</tr>
</thead>
<tbody>
<tr>
<td>Carmustine</td>
<td>Azacitidine</td>
<td>Fluorouracil</td>
<td>Cladribine</td>
</tr>
<tr>
<td>Cisplatin</td>
<td>Atemzumab</td>
<td>Panitumumab</td>
<td>Bevacizumab</td>
</tr>
<tr>
<td>Cyclophosphamide-greater than or equal to 1500mg/m2</td>
<td>Bendamustine</td>
<td>Bortezomib</td>
<td>Bleomycin</td>
</tr>
<tr>
<td>Dacarbazine</td>
<td>Carboplatin</td>
<td>Pemetrexed</td>
<td>Busulfan</td>
</tr>
<tr>
<td>Dactinomycin</td>
<td>Clofarabine</td>
<td>Cabazitaxel</td>
<td>Cetuximab</td>
</tr>
<tr>
<td>Mechlorethamine</td>
<td>Cyclophosphamide less than 1500mg/m2</td>
<td>Temsirolimus</td>
<td>Fludarabine</td>
</tr>
<tr>
<td>Streptozotocin</td>
<td>Cyclophosphamide greater than 1000mg/m2</td>
<td>Cytarabine greater than or equal to 1000mg/m2</td>
<td>Pralatrexate</td>
</tr>
<tr>
<td></td>
<td>Daunorubicin*</td>
<td>Topotecan</td>
<td>Rituximab</td>
</tr>
<tr>
<td></td>
<td>Doxorubicin*</td>
<td>Docetaxel</td>
<td>Vinblastine</td>
</tr>
<tr>
<td></td>
<td>Epirubicin*</td>
<td>Docorubicin HCL</td>
<td>Vincristine</td>
</tr>
<tr>
<td></td>
<td>Idarubicin*</td>
<td>Liposome injection</td>
<td>Vinorelbine</td>
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<tr>
<td></td>
<td>Ifosfamide</td>
<td>Etoposide</td>
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<tr>
<td></td>
<td>Irinotecan</td>
<td>Gemcitabine</td>
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* These anthracyclines when combined with cyclophosphamide, are now designated as high emetic risk*
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