# 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>• Antibiotics&lt;br&gt;• Opioids &amp;/or Opioid withdrawal&lt;br&gt;• NSAIDs&lt;br&gt;• SSRI antidepressants&lt;br&gt;• Iron supplements&lt;br&gt;• Anticonvulsants&lt;br&gt;• Antiarrhythmics</td>
<td>• Gastric cancer&lt;br&gt;• Tumour growth in the GI tract or CNS&lt;br&gt;• Brain metastases&lt;br&gt;• Reduced GI motility or Bowel Obstruction&lt;br&gt;• Gastroparesis, tumour or chemotherapy induced (e.g. vincristine)</td>
<td>• Constipation&lt;br&gt;• Vestibular dysfunction&lt;br&gt;• Anxiety, anticipatory nausea&lt;br&gt;• Hypercalcemia, hyperglycemia, hyponatremia&lt;br&gt;• Peptic ulcer disease&lt;br&gt;• Infections of the mouth, pharynx or esophagus&lt;br&gt;• Uremia&lt;br&gt;• More common in women than men&lt;br&gt;• More common in younger patients (less than 50)&lt;br&gt;• Decreased risk for patients with a high chronic alcohol intake&lt;br&gt;• Motion sickness&lt;br&gt;• Conditions that may require the use of warfarin (e.g. venous thrombosis, cardiac surgeries)</td>
</tr>
</tbody>
</table>

**For emetogenicity of chemotherapeutic agent, See Appendix A and Cancer Drug Manual in Resources Section**

**NOTE:** Protocols with highly emetogenic chemotherapy (HEC) and Moderately Emetogenic Chemotherapy with cyclophosphamide and an anthracycline combined (MEC-A) increase risk for nausea and vomiting.

**Immunotherapy – Checkpoint inhibitors**

**Biotherapy :**
- High dose Interferon or Interleukin-2

**Radiation Therapy:**
- GI tract, liver, brain

**NOTE:** The greater the amount of daily fractional doses, the increased likelihood of radiation induced nausea and vomiting.

- Surgery

**Cancer**

- Gastric cancer

- Tumour growth in the GI tract or CNS

- Brain metastases

- Reduced GI motility or Bowel Obstruction

- Gastroparesis, tumour or chemotherapy induced (e.g. vincristine)

**Other**

- Constipation

- Vestibular dysfunction

- Anxiety, anticipatory nausea

- Hypercalcemia, hyperglycemia, hyponatremia

- Peptic ulcer disease

- Infections of the mouth, pharynx or esophagus

- Uremia

- More common in women than men

- More common in younger patients (less than 50)

- Decreased risk for patients with a high chronic alcohol intake

- Motion sickness

- Conditions that may require the use of warfarin (e.g. venous thrombosis, cardiac surgeries)
### 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

<table>
<thead>
<tr>
<th>General Assessment</th>
<th>Symptom Assessment</th>
<th>Physical Assessment</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Contact and General Information</strong></td>
<td><strong>Normal</strong></td>
<td><strong>Vital Signs</strong></td>
</tr>
<tr>
<td>• Physician name - oncologist, family physician</td>
<td>• Did you have nausea/vomiting prior to your treatment starting?</td>
<td>• Frequency – as clinically indicated</td>
</tr>
<tr>
<td>• Pharmacy</td>
<td>• Are you aware of any medications that you are taking that could cause nausea and vomiting (e.g. warfarin, antibiotics)</td>
<td><strong>Weight</strong></td>
</tr>
<tr>
<td>• Home health care</td>
<td>• When did the nausea and/or vomiting begin?</td>
<td>• Take current weight and compare to pre – treatment or last recorded weight</td>
</tr>
<tr>
<td>• Other healthcare providers</td>
<td>• How many episodes of vomiting in the last 24 hours?</td>
<td><strong>Hydration Status</strong></td>
</tr>
<tr>
<td>• Allergies</td>
<td><strong>Provoking / Palliating</strong></td>
<td>• Assess skin turgor, capillary refill, mucous membranes</td>
</tr>
<tr>
<td><strong>Consider Contributing Factors</strong></td>
<td>• What brings on the nausea and/or vomiting?</td>
<td>• Amount and character of urine</td>
</tr>
<tr>
<td>• Cancer diagnosis and treatment(s) – note type and date of last treatment</td>
<td>• Is there anything that makes the nausea/vomiting better? Worse?</td>
<td><strong>Abdominal Assessment</strong></td>
</tr>
<tr>
<td>• Medical history</td>
<td><strong>Quality</strong></td>
<td>• Auscultate abdomen - assess presence and quality of bowel sounds</td>
</tr>
<tr>
<td>• Medication profile (e.g. warfarin, antibiotics)</td>
<td>• Describe the emesis? – Colour (visible blood, coffee ground emesis, bile)? Volume (large or small amounts)? Odour?</td>
<td>• Assess for abdominal pain, tenderness, distention</td>
</tr>
<tr>
<td>• Recent lab or diagnostic reports (if patient is on warfarin consider increasing frequency of INR monitoring)</td>
<td>• Can you estimate the amount, large or small volume?</td>
<td><strong>Emesis Examination</strong></td>
</tr>
<tr>
<td></td>
<td><strong>Region / Radiation - NA</strong></td>
<td>• Inspect emesis for colour, consistency, quantity, odour and blood</td>
</tr>
<tr>
<td></td>
<td><strong>Severity / other Symptoms</strong></td>
<td></td>
</tr>
<tr>
<td>• 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)</td>
<td></td>
<td>• Take current weight and compare to pre – treatment or last recorded weight</td>
</tr>
<tr>
<td>• What is the daily intake and output?</td>
<td></td>
<td><strong>Hydration Status</strong></td>
</tr>
<tr>
<td>• Do you have nausea with or without vomiting?</td>
<td>• Assess skin turgor, capillary refill, mucous membranes</td>
<td></td>
</tr>
<tr>
<td>• Have you had any other symptoms such as:</td>
<td>• Amount and character of urine</td>
<td></td>
</tr>
<tr>
<td>- Abdominal cramping? Stomach pain? Gas pain?</td>
<td>• Auscultate abdomen - assess presence and quality of bowel sounds</td>
<td>• Assess for abdominal pain, tenderness, distention</td>
</tr>
<tr>
<td>- Constipation? - When was your last bowel movement?</td>
<td></td>
<td><strong>Emesis Examination</strong></td>
</tr>
<tr>
<td>- Fever? - possible infection</td>
<td>• Inspect emesis for colour, consistency, quantity, odour and blood</td>
<td></td>
</tr>
<tr>
<td>- Dry mouth, thirst, dizziness, weakness, dark urine? – possible dehydration</td>
<td></td>
<td>• Did you have nausea/vomiting prior to your treatment starting?</td>
</tr>
<tr>
<td>- Blood, mucous in stool</td>
<td></td>
<td>• Are you aware of any medications that you are taking that could cause nausea and vomiting (e.g. warfarin, antibiotics)</td>
</tr>
</tbody>
</table>

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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
Adapted from NCI CTCAE (Version 4.03)

<table>
<thead>
<tr>
<th>Normal</th>
<th>GRADE 1 (Mild)</th>
<th>GRADE 2 (Moderate)</th>
<th>GRADE 3 (Severe)</th>
<th>GRADE 4 (Life Threatening)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nausea</td>
<td>Non-symptomatic</td>
<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 may be indicated</td>
</tr>
<tr>
<td>Vomiting</td>
<td>No emesis</td>
<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>≥ 6 episodes (separated by 5 minutes) in 24 hrs; tube feeding, TPN or hospitalization indicated</td>
</tr>
</tbody>
</table>

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

NORMAL – GRADE 1
GRADE 2 OR Nausea and Vomiting NOT resolving after 24 hours

NON – URGENT
Prevention, support, teaching, & follow-up as clinically indicated

URGENT:
Requires medical attention within 24 hours

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

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**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)

**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
GRADE 3 - GRADE 4

EMERGENT:
Requires IMMEDIATE medical attention

<table>
<thead>
<tr>
<th>Patient Assessment</th>
<th>Patients with Grade 3 or 4 nausea and vomiting generally require admission to hospital – notify physician of assessment, facilitate arrangements as necessary.</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>If patient is on Immunotherapy, remind them to present their Immunotherapy alert card.</td>
</tr>
</tbody>
</table>
|                    | 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                                                                 |

<table>
<thead>
<tr>
<th>Dietary Management</th>
<th>IV hydration to replace lost fluids and electrolytes</th>
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<tr>
<td></td>
<td>Enteral or parenteral nutrition (TPN) may be indicated for some patients</td>
</tr>
<tr>
<td></td>
<td><strong>For further Dietary Management See Oncology Nutrition Services in Resource Section</strong></td>
</tr>
</tbody>
</table>

| 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 & REFERRALS**

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

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

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Resources

- protocols/supportive-care

Immunotherapy

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

Patient Education Resources

- Increasing Fluid Intake: 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

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

Bibliography List

- 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)

<table>
<thead>
<tr>
<th>Emetic Risk of Antineoplastic Agents Administered Intravenously</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>High</strong></td>
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<tr>
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</tr>
<tr>
<td>Carmustine</td>
</tr>
<tr>
<td>Cisplatin</td>
</tr>
<tr>
<td>Cyclophosphamide—greater than or equal to 1500mg/m²</td>
</tr>
<tr>
<td>Dacarbazine</td>
</tr>
<tr>
<td>Daclarginomycin</td>
</tr>
<tr>
<td>Mechloethamine</td>
</tr>
<tr>
<td>Streptozotocin</td>
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* These anthracyclines when combined with cyclophosphamide, are now designated as high emetic risk

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