



## Symptom Management Guidelines: CANCER RELATED NAUSEA AND VOMITING

Definition	
<p><b>Nausea:</b> 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.</p> <p><b>Vomiting:</b> The forceful expulsion of the contents of the stomach, duodenum, or jejunum through the oral cavity.</p>	
Contributing Factors	
<b>Cancer Treatments</b>	<p>Chemotherapy: <b>For emetogenicity of chemotherapeutic agent, See Appendix A and Cancer Drug Manual in Resources Section</b></p> <p><b>NOTE:</b> Protocols with highly emetogenic chemotherapy (HEC) and Moderately Emetogenic Chemotherapy with cyclophosphamide and an anthracycline combined (MEC-A) increase risk for nausea and vomiting</p> <p>Immunotherapy – Checkpoint inhibitors</p> <p>Biotherapy :</p> <ul style="list-style-type: none"> <li>• High dose Interferon or Interleukin-2</li> </ul> <p>Radiation Therapy:</p> <ul style="list-style-type: none"> <li>• GI tract, liver, brain</li> </ul> <p><b>NOTE:</b> The greater the amount of daily fractional doses, the increased likelihood of radiation induced nausea and vomiting</p> <ul style="list-style-type: none"> <li>• Surgery</li> </ul>
<b>Medication</b>	<ul style="list-style-type: none"> <li>• Antibiotics</li> <li>• Opioids &amp;/or Opioid withdrawal</li> <li>• NSAIDs</li> <li>• SSRI antidepressants</li> <li>• Iron supplements</li> <li>• Anticonvulsants</li> <li>• Antiarrhythmics</li> </ul>
<b>Cancer Related</b>	<ul style="list-style-type: none"> <li>• Gastric cancer</li> <li>• Tumour growth in the GI tract or CNS</li> <li>• Brain metastases</li> <li>• Reduced GI motility or Bowel Obstruction</li> <li>• Gastroparesis, tumour or chemotherapy induced (e.g. vincristine)</li> </ul>
<b>Other</b>	<ul style="list-style-type: none"> <li>• Constipation</li> <li>• Vestibular dysfunction</li> <li>• Anxiety, anticipatory nausea</li> <li>• Hypercalcemia, hyperglycemia, hyponatremia</li> <li>• Peptic ulcer disease</li> <li>• Infections of the mouth, pharynx or esophagus</li> <li>• Uremia</li> <li>• More common in women than men</li> <li>• More common in younger patients (less than 50)</li> <li>• Decreased risk for patients with a high chronic alcohol intake</li> <li>• Motion sickness</li> <li>• Conditions that may require the use of warfarin (e.g. venous thrombosis, cardiac surgeries)</li> </ul>

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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	SYMPTOM ASSESSMENT	PHYSICAL ASSESSMENT
<p><b>Contact and General Information</b></p> <ul style="list-style-type: none"> <li>• Physician name - oncologist, family physician</li> <li>• Pharmacy</li> <li>• Home health care</li> <li>• Other healthcare providers</li> <li>• Allergies</li> </ul> <p><b>Consider Contributing Factors</b></p> <ul style="list-style-type: none"> <li>• Cancer diagnosis and treatment(s) – note type and date of last treatment</li> <li>• Medical history</li> <li>• Medication profile (e.g. warfarin, antibiotics)</li> <li>• Recent lab or diagnostic reports (if patient is on warfarin consider increasing frequency of INR monitoring)</li> </ul>	<p><b>Normal</b></p> <ul style="list-style-type: none"> <li>• Did you have nausea/vomiting prior to your treatment starting?</li> <li>• Are you aware of any medications that you are taking that could cause nausea and vomiting (e.g. warfarin, antibiotics)</li> </ul> <p><b>Onset</b></p> <ul style="list-style-type: none"> <li>• When did the nausea and/or vomiting begin?</li> <li>• How many episodes of vomiting in the last 24 hours?</li> </ul> <p><b>Provoking / Palliating</b></p> <ul style="list-style-type: none"> <li>• What brings on the nausea and/or vomiting?</li> <li>• Is there anything that makes the nausea/vomiting better? Worse?</li> </ul> <p><b>Quality</b></p> <ul style="list-style-type: none"> <li>• Describe the emesis? – Colour (visible blood, coffee ground emesis, bile)? Volume (large or small amounts)? Odour?</li> <li>• Can you estimate the amount, large or small volume?</li> </ul> <p><b>Region / Radiation - NA</b></p> <p><b>Severity / other Symptoms</b></p> <ul style="list-style-type: none"> <li>• 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)</li> <li>• What is the daily intake and output?</li> <li>• Do you have nausea with or without vomiting?</li> <li>• Have you had any other symptoms such as: <ul style="list-style-type: none"> <li>– Abdominal cramping? Stomach pain? Gas pain?</li> <li>– Constipation? - When was your last bowel movement?</li> <li>– Fever? - possible infection</li> <li>– Dry mouth, thirst, dizziness, weakness, dark urine? – possible dehydration</li> <li>– Blood, mucous in stool</li> </ul> </li> </ul>	<p><b>Vital Signs</b></p> <ul style="list-style-type: none"> <li>• Frequency – as clinically indicated</li> </ul> <p><b>Weight</b></p> <ul style="list-style-type: none"> <li>• Take current weight and compare to pre – treatment or last recorded weight</li> </ul> <p><b>Hydration Status</b></p> <ul style="list-style-type: none"> <li>• Assess skin turgor, capillary refill, mucous membranes</li> <li>• Amount and character of urine</li> </ul> <p><b>Abdominal Assessment</b></p> <ul style="list-style-type: none"> <li>• Auscultate abdomen - assess presence and quality of bowel sounds</li> <li>• Assess for abdominal pain, tenderness, distention</li> </ul> <p><b>Emesis Examination</b></p> <ul style="list-style-type: none"> <li>• Inspect emesis for colour, consistency, quantity, odour and blood</li> </ul>

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	<p><b>Treatment</b></p> <ul style="list-style-type: none"> <li>• What medications or treatments have you tried? Has this been effective?</li> </ul> <p><b>Understanding / Impact on You</b></p> <ul style="list-style-type: none"> <li>• Are you able to keep fluids down? What are you drinking? How much?</li> <li>• What do you believe is causing your nausea?</li> </ul>	
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<b>NAUSEA AND VOMITING GRADING SCALES*</b>					
NCI Common Terminology Criteria for Adverse Events (Version 4.03)					
	<b>GRADE 1 (Mild)</b>	<b>GRADE 2 (Moderate)</b>	<b>GRADE 3 (Severe)</b>	<b>GRADE 4 (Life Threatening)</b>	<b>GRADE 5</b>
<b>Nausea</b>	Loss of appetite without alteration in eating habits	Oral intake decreased without significant weight loss, dehydration or malnutrition	Inadequate oral caloric or fluid intake; tube feedings, TPN or hospitalization indicated	—	—
<b>Vomiting</b>	1-2 episodes (separated by 5 minutes) in 24 hours	3-5 episodes (separated by 5 minutes) in 24 hrs	>= 6 episodes (separated by 5 minutes) in 24 hrs; tube feeding, TPN or hospitalization indicated	Life-threatening consequences; urgent intervention indicated	Death

\* 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**

<b>GRADE 1</b>	<b>GRADE 2 OR Nausea and Vomiting NOT resolving after 24 hours</b>
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<b>NON – URGENT</b> Prevention, support, teaching, & follow-up as clinically indicated	<b>URGENT:</b> Requires medical attention within 24 hours
<b>Patient Care and Assessment</b>	<ul style="list-style-type: none"> <li>• <b>Rule out other causes of nausea and vomiting</b></li> <li>• Collaborate with physician if further investigation warranted or if patient is on immunotherapy</li> <li>• Assess need for hospital admission</li> <li>• Assess for nausea and vomiting prior to each chemotherapy, radiation treatment or clinic visit. If an inpatient, assess daily</li> <li>• Lab tests that may be ordered: CBC and electrolyte profile</li> <li>• 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)</li> <li>• Consider acupuncture-patient administered</li> </ul>

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<p style="text-align: center;"><b>NON – URGENT</b></p> <p style="text-align: center;">Prevention, support, teaching, &amp; follow-up as clinically indicated</p>	<p style="text-align: center;"><b>URGENT:</b></p> <p style="text-align: center;">Requires medical attention within 24 hours</p>
<p><b>Dietary Management</b></p>	<p>Encourage:</p> <ul style="list-style-type: none"> <li>• Frequent small meals in a relaxing environment</li> <li>• Eating foods cold or at room temperature</li> <li>• Appealing foods, even if not usual diet</li> <li>• Increased fluids- aim for 8- 10 cups per day: 2 to 2.5 litres a day (e.g. sports drinks, broth, popsicles, water)</li> <li>• Assistance with food preparation</li> <li>• Restricting fluids with meals</li> <li>• Eating at least one hour before treatment</li> <li>• Continue dietary recommendations until symptoms resolve</li> </ul> <p>Avoid:</p> <ul style="list-style-type: none"> <li>• alcohol and tobacco</li> <li>• foods or fluids that are spicy, acidic, salty, hard or crunchy</li> <li>• lying down after eating</li> </ul> <p><b>NOTE: If patient unable to tolerate adequate daily fluid intake, IV hydration to replace lost fluid and electrolytes may be required</b></p> <ul style="list-style-type: none"> <li>• <b><i>For further Dietary Management See Oncology Nutrition Services in Resource Section</i></b></li> </ul>
<p><b>Pharmacological Management</b></p>	<ul style="list-style-type: none"> <li>• Avoid or discontinue any medications that may cause or exacerbate nausea and vomiting (in consultation with physician and pharmacist)</li> <li>• If patient is taking Warfarin, in collaboration with physician: <ul style="list-style-type: none"> <li>– Consider alternate anticoagulants such as dalteparin</li> <li>– Consider increasing frequency of INR monitoring</li> </ul> </li> <li>• Instruct patient to initiate or continue medications according to instructions given</li> <li>• Allow 30-60 minutes post antiemetic before eating</li> <li>• Antiemetic medications that may be prescribed: <ul style="list-style-type: none"> <li>– Ondansetron, dexamethasone, metoclopramide, prochlorperazine</li> <li>– Aprepitant for highly emetogenic chemotherapy</li> <li>– Haloperidol</li> <li>– Nozinan</li> <li>– Dimenhydrinate suppository if unable to take orally</li> <li>– Lorazepam may be prescribed for anticipatory nausea</li> </ul> </li> <li>• Refer to protocol specific algorithm if patient is on Immunotherapy</li> <li>• <b><i>For further Pharmacological Management See Cancer Management Guidelines (Health Professional) and Cancer Drug Manual in Resource Section</i></b></li> </ul>
<p><b>Patient Education</b></p>	<ul style="list-style-type: none"> <li>• <b>Reinforce importance of accurately recording and reporting the following information:</b> <ul style="list-style-type: none"> <li>- Onset and number of emesis occurrences per 24 hours</li> <li>- Fluid intake per 24 hours</li> </ul> </li> <li>• Reinforce with patients when to seek immediate medical attention: <ul style="list-style-type: none"> <li>- Temperature greater than or equal to 38° C</li> <li>- Blood (bright red or black) in emesis, coffee ground emesis</li> <li>- Severe cramping, acute abdominal pain (+/- nausea &amp; vomiting)</li> <li>- Dizziness, weakness, confusion, excessive thirst, dark urine</li> <li>- Projectile vomiting</li> <li>- Nausea and vomiting not improving with recommended strategies</li> </ul> </li> <li>• Inform patient that isolation precautions may be required if symptoms worsen or infection suspected, patient may need to be isolated as per <a href="#">Infection control</a> (available to internal PHSA staff)</li> </ul> <p><b>Review contact numbers and access to resources</b></p>
<p><b>Follow-Up</b></p>	<ul style="list-style-type: none"> <li>• Reassess in 24 hours, if symptoms not resolved provide further recommended strategies and repeat follow-up assessment within 24 hours.</li> </ul>

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- 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

<b>Patient Assessment</b>	<ul style="list-style-type: none"> <li>• Patients with Grade 3 or 4 nausea and vomiting generally require admission to hospital – notify physician of assessment, facilitate arrangements as necessary</li> <li>• If patient is on Immunotherapy, remind them to present their Immunotherapy alert card.</li> <li>• Consult with physician           <ul style="list-style-type: none"> <li>- To rule out other causes or concomitant causes of nausea and vomiting</li> <li>- To hold chemotherapy until symptoms resolved.</li> </ul> </li> <li>• Lab tests that may be ordered:           <ul style="list-style-type: none"> <li>- Complete blood count (CBC), electrolyte profile</li> </ul> </li> <li>• Nursing Support           <ul style="list-style-type: none"> <li>- Monitor vital signs (as clinically indicated)</li> <li>- Physical assessment</li> <li>- Accurate intake and output record, include daily weight</li> <li>- Pain and symptom assessment and management as appropriate</li> </ul> </li> </ul>
<b>Dietary Management</b>	<ul style="list-style-type: none"> <li>• IV hydration to replace lost fluids and electrolytes</li> <li>• Enteral or parenteral nutrition (TPN) may be indicated for some patients</li> <li>• <b><i>For further Dietary Management See Oncology Nutrition Services in Resource Section</i></b></li> </ul>
<b>Pharmacological Management</b>	<ul style="list-style-type: none"> <li>• Avoid/discontinue any medications that may cause or exacerbate nausea and vomiting (in consultation with physician and pharmacist).</li> <li>• Medications that may be prescribed intravenously:           <ul style="list-style-type: none"> <li>- Ondansetron (Zofran)</li> <li>- Metoclopramide</li> <li>- Prochlorperazine (Stemetil)</li> <li>- Haloperidol</li> <li>- Nozinan</li> <li>- Dexamethasone</li> </ul> </li> <li>• Refer to protocol specific algorithm if patient is on Immunotherapy</li> <li>• <b><i>For further Pharmacological Management See Cancer Management Guidelines (Health Professional) and Cancer Drug Manual in Resource Section</i></b></li> </ul>
<b>Patient Education</b>	<ul style="list-style-type: none"> <li>• Provide support, reinforce to patients/family that nausea and vomiting can be effectively managed with prompt intervention.</li> <li>• Continue to reinforce self care, review medications, lab /diagnostic testing with patients/family as appropriate</li> <li>• Discharge teaching as early as possible with patient/family</li> </ul>

## RESOURCES & REFERRALS

<b>Referrals</b>	<ul style="list-style-type: none"> <li>• Oncology Nutrition Services</li> <li>• BCCA Pharmacist</li> <li>• Home Health Nursing</li> <li>• Patient Support Centre</li> <li>• Telephone Care for follow-up</li> <li>• Pain and Symptom Management/Palliative Care (PSMPC)</li> </ul>
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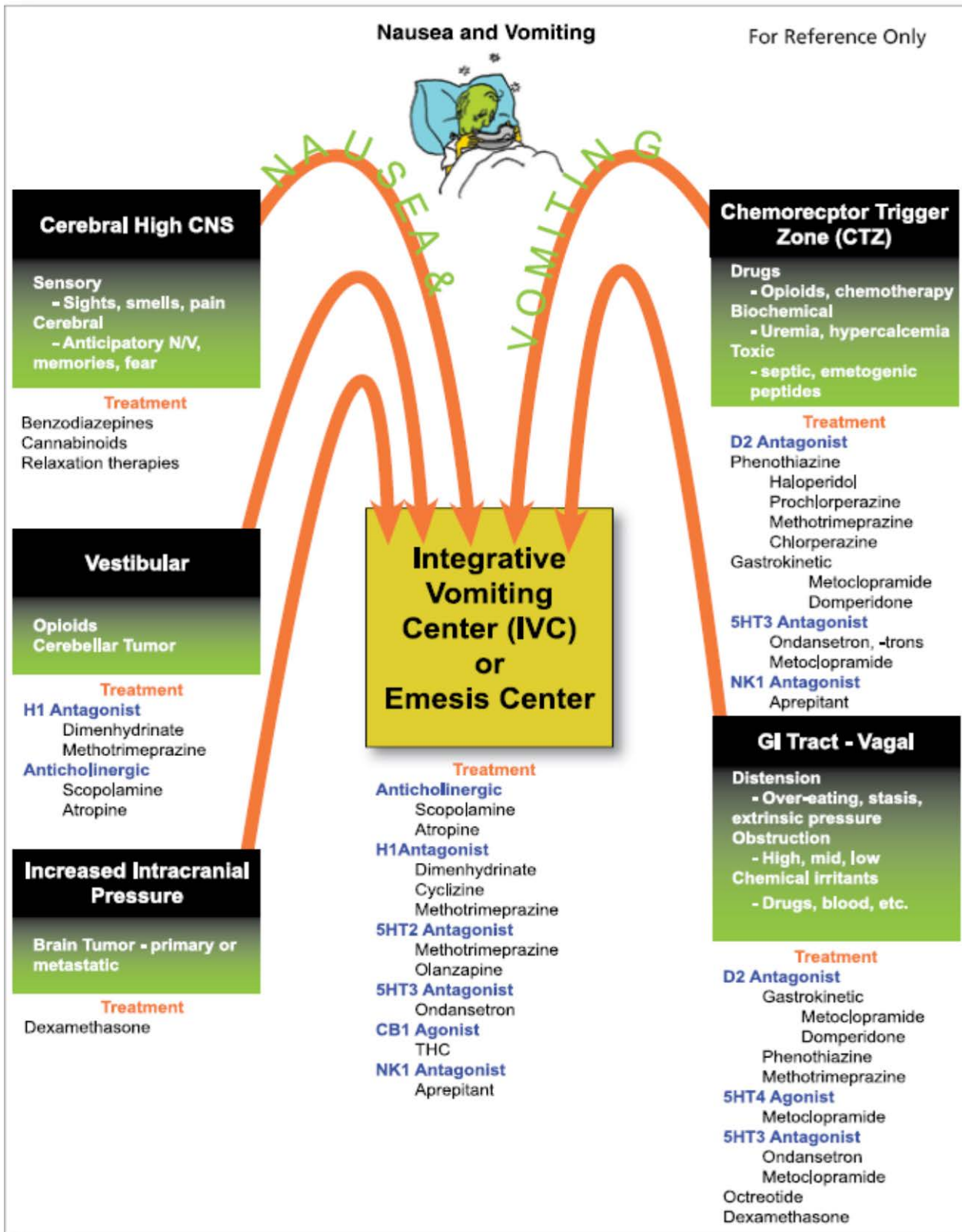
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<b>Health Professional Resources</b>	<ul style="list-style-type: none"> <li>Chemotherapy Induced Nausea and Vomiting in Adults- Scroll down to SC NAUSEA: <a href="http://www.bccancer.bc.ca/health-professionals/professional-resources/chemotherapy-protocols/supportive-care">http://www.bccancer.bc.ca/health-professionals/professional-resources/chemotherapy-protocols/supportive-care</a></li> </ul>
<b>Immunotherapy</b>	<ul style="list-style-type: none"> <li><a href="#">Immunotherapy Alert Card</a></li> <li>Please refer to protocol specific algorithms to guide management of immune mediated side effects.</li> </ul>
<b>Patient Education Resources</b>	<ul style="list-style-type: none"> <li>Nutritional Guidelines for Symptom Management: <a href="http://www.bccancer.bc.ca/nutrition-site/Documents/Nausea.pdf">http://www.bccancer.bc.ca/nutrition-site/Documents/Nausea.pdf</a></li> <li>Nausea management: <a href="http://www.bccancer.bc.ca/health-info/coping-with-cancer/managing-symptoms-side-effects/nausea">http://www.bccancer.bc.ca/health-info/coping-with-cancer/managing-symptoms-side-effects/nausea</a></li> <li>Food choice to help control nausea: <a href="http://www.bccancer.bc.ca/health-professionals/professional-resources/nutrition/nutrition-handouts">http://www.bccancer.bc.ca/health-professionals/professional-resources/nutrition/nutrition-handouts</a></li> <li>Increasing Fluid Intake: <a href="http://www.bccancer.bc.ca/health-professionals/professional-resources/nutrition/nutrition-handouts">http://www.bccancer.bc.ca/health-professionals/professional-resources/nutrition/nutrition-handouts</a></li> <li>Resources about managing anxiety, progressive muscle relaxation, positive thinking, etc <a href="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</a></li> </ul>
<b>Related Online Resources</b>	<ul style="list-style-type: none"> <li>E.g. Fair Pharmacare; BC Palliative Benefits. Can be found in "Other Sources of Drug Funding Section" <a href="http://www.bccancer.bc.ca/health-professionals/professional-resources/pharmacy/drug-funding">http://www.bccancer.bc.ca/health-professionals/professional-resources/pharmacy/drug-funding</a></li> </ul>
<b>Bibliography List</b>	<ul style="list-style-type: none"> <li><a href="http://www.bccancer.bc.ca/health-professionals/professional-resources/nursing/symptom-management">http://www.bccancer.bc.ca/health-professionals/professional-resources/nursing/symptom-management</a></li> </ul>

## Appendix A: Emetic Risk of Intravenous Antineoplastic Agents

Adapted from ASCO Guidelines (2011)

<b>Emetic Risk of Antineoplastic Agents Administered Intravenously</b>			
<b>High</b>	<b>Moderate</b>	<b>Low</b>	<b>Minimal</b>
<ul style="list-style-type: none"> <li>Carmustine</li> <li>Cisplatin</li> <li>Cyclophosphamide-greater than or equal to 1500mg/m<sup>2</sup></li> <li>Dacarbazine</li> <li>Dactinomycin</li> <li>Mechlorethamine</li> <li>Streptozotocin</li> </ul>	<ul style="list-style-type: none"> <li>Azacitidine</li> <li>Alemtuzumab</li> <li>Bendamustine</li> <li>Carboplatin</li> <li>Clofarabine</li> <li>Cyclophosphamide less than 1500mg/m<sup>2</sup></li> <li>Cytarabine greater than 1000mg/m<sup>2</sup></li> <li>Daunorubicin*</li> <li>Doxorubicin*</li> <li>Epirubicin*</li> <li>Idarubicin*</li> <li>Ifosfamide</li> <li>Irinotecan</li> </ul>	<ul style="list-style-type: none"> <li>Fluorouracil</li> <li>Panitumumab</li> <li>Bortezomib</li> <li>Pemetrexed</li> <li>Cabazitaxel</li> <li>Temsirolimus</li> <li>Cytarabine greater than or equal to 1000mg/m<sup>2</sup></li> <li>Topotecan</li> <li>Docetaxel</li> <li>Doxorubicin HCL</li> <li>Liposome injection</li> <li>Etoposide</li> <li>Gemcitabine</li> <li>Ixabepilone</li> <li>Methotrexate</li> <li>Mitomycin</li> <li>Mitoxantrone</li> </ul>	<ul style="list-style-type: none"> <li>Cladribine</li> <li>Bevacizumab</li> <li>Bleomycin</li> <li>Busulfan</li> <li>Cetuximab</li> <li>Fludarabine</li> <li>Pralatrexate</li> <li>Rituximab</li> <li>Vinblastine</li> <li>Vincristine</li> <li>Vinorelbine</li> </ul>
<p><b>* These anthracyclines when combined with cyclophosphamide, are now designated as high emetic risk</b></p>			



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