PATIENT PRESENTATION

Patient scheduled for surgery

Assess patient for risk factors:

- No risk factors
- One risk factor
- Two or more risk factors

PROPHYLAXIS

No risk factors

- No more than one drug prophylaxis

One risk factor

- At least one drug prophylaxis

Two or more risk factors

- At least two drug prophylaxis

Patient sent to PACU after surgery (see Page 2)

1 MDACC risk factors
- Patient specific risk factors:
  - Female gender
  - Non-smoking status
  - History of post-operative nausea/vomiting (PONV) or motion sickness
  - Age less than 50 years
- Anesthetic risk factors:
  - Use of volatile anesthetics
  - Post-operative opioids
- Surgical risk factors:
  - Duration of anesthesia greater than 3 hours
  - Type of surgery (abdominal, gynecologic, breast, head & neck surgery)

2 See Appendix A – Antiemetic Medication Options for Prophylaxis or Intraoperative Use

Disclaimer: This algorithm has been developed for MD Anderson using a multidisciplinary approach considering circumstances particular to MD Anderson’s specific patient population, services and structure, and clinical information. This is not intended to replace the independent medical or professional judgment of physicians or other healthcare providers in the context of individual clinical circumstances to determine a patient’s care. This algorithm should not be used to treat pregnant women.
**Nausea/Vomiting Associated with Surgery - Adult**

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**TREATMENT**

- **Patient in PACU after surgery**
  - **Patient experiences post-operative nausea/vomiting in PACU?**
    - Yes
      - **Assess pre- and intraoperative antiemetic treatment**
        - **Prophylaxis or intraoperative antiemetic received?**
          - Yes
            - **Do not repeat initial therapy**
            - **Use drug from different class (see Appendix B)**
            - **Nausea/vomiting resolved in less than 6 hours?**
              - Yes
                - Refer to patient’s post-op orders and discharge as indicated
              - No
                - Refer to Appendix B for additional treatment options
        - No
          - **Refer to Appendix B for treatment options**
    - No
      - Patient will be managed per Surgeon’s post-op orders

- **Notify Anesthesiology**

---

**Nausea/vomiting resolved with additional treatment?**

---

**Refer to patient’s post-op orders and discharge as indicated**

---

**Refer to Appendix B for additional treatment options**

---

**Notify Anesthesiology**
## APPENDIX A: Antiemetic Medication Options for Prophylaxis or Intraoperative Use

<table>
<thead>
<tr>
<th>Drug</th>
<th>Dosage</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Anticholinergics</strong></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
| Scopolamine Patch (Scop®) | 1.5 mg disc placed behind ear at least 2 - 4 hours before surgery | ● Caution in patients greater than 60 years old  
● Patch may be applied the night prior to surgery  
● If not discontinued prior to hospital discharge, patients should be instructed in the safe removal and disposal of the patch |
| **Benzodiazepines**       |                               |                                                                          |
| Midazolam (Versed®)       | 35 - 75 mcg/kg IV             | ● May be given pre-operatively or intra-operatively                       |
| **Butyrophenones**        |                               |                                                                          |
| Droperidol (Inapsine®)    | 0.625 mg IV                   | ● Most effective if given at the end of surgery  
● Requires 2 - 3 hours of EKG monitoring  
● Avoid in patients with prolonged QTc interval |
| Haloperidol (Haldol®)     | 1 mg IV                       | ● Risk of QTc prolongation precludes its use as a first-line agent  
● Alternative to droperidol |
| **Corticosteroids**       |                               |                                                                          |
| Dexamethasone             | 4 mg IV                       | ● Give shortly after induction  
● Avoid in labile diabetic patients |
| **Neurokinin-1 Receptor Antagonists** |                    |                                                                          |
| Aprepitant (Emend®)       | 40 mg PO                      | ● Give within 3 hours before the induction of anesthesia                   |
| **Phenothiazines**        |                               |                                                                          |
| Promethazine (Phenergan®) | 6.25 mg IV                    | ● Give shortly after induction  
● 6.25 mg dose may require a second dose after 15 minutes; may repeat up to 3 times for a maximum dose of 25 mg  
● Should not be used in children less than or equal to 2 years old  
● Risk of QTc prolongation |
| Prochlorperazine (Compazine®) | 5 - 10 mg IV               | ● Give at the end of surgery  
● Risk of QTc prolongation |
| **Serotonin Antagonists** |                               |                                                                          |
| Ondansetron (Zofran®)     | 4 mg IV                       | ● Give at the end of surgery  
● Risk of QTc prolongation increases with increasing dose  
● Give at the end of surgery  
● For patients with history of delayed (post-discharge) post-operative nausea and vomiting  
● Risk of QTc prolongation |
| Granisetron               | 0.35 - 3 mg IV                |                                                                          |

1 Availability varies based on supply

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### APPENDIX B: Antiemetic Medication Options for Treatment or Rescue

<table>
<thead>
<tr>
<th>Drug</th>
<th>Dosage</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Serotonin Antagonists</strong>&lt;sup&gt;1&lt;/sup&gt;</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ondansetron (Zofran®)</td>
<td>First Line Agent</td>
<td>2 mg IV</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Risk of QTc prolongation increases with increasing dose</td>
</tr>
<tr>
<td><strong>Phenothiazines</strong>&lt;sup&gt;6&lt;/sup&gt;</td>
<td>Second Line Agents</td>
<td>6.25 mg IV</td>
</tr>
<tr>
<td>Promethazine (Phenergan®)</td>
<td></td>
<td>• 6.25 mg dose may require a second dose after 15 minutes; may repeat up to 3 times for a maximum dose of 25 mg</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Risk of QTc prolongation</td>
</tr>
<tr>
<td><strong>Butyrophenones</strong>&lt;sup&gt;1&lt;/sup&gt;</td>
<td>Third Line Agents</td>
<td>0.625 mg IV</td>
</tr>
<tr>
<td>Droperidol (Inapsine®)</td>
<td></td>
<td>• Requires 2 - 3 hours of EKG monitoring</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Avoid in patients with prolonged QTc interval</td>
</tr>
<tr>
<td>Haloperidol (Haldol®)</td>
<td></td>
<td>1 mg IV</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Risk of QTc prolongation precludes its use as a first-line agent</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Alternative to droperidol</td>
</tr>
<tr>
<td><strong>Prokinetic</strong>&lt;sup&gt;6&lt;/sup&gt;</td>
<td>Rescue</td>
<td>10 mg IV</td>
</tr>
<tr>
<td>Metoclopramide (Reglan®)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Notes:
- When nausea and vomiting occur post-operatively, treatment should be administered with an antiemetic from a DIFFERENT pharmacologic class than the drug given for prophylaxis initially.
- Re-dosing should only occur if greater than or equal to 6 hours has elapsed since the last dose from that class was given.

1 Availability varies based on supply
SUGGESTED READINGS


Eberhart, L. H., & Morin, A. M. (2011). Risk scores for predicting postoperative nausea and vomiting are clinically useful tools and should be used in every patient: Con – “life is really simple, but we insist on making it complicated.” European Journal of Anaesthesiology, 28(3), 155-159. https://doi.org/10.1097/EJA.0b013e3283427f4f


Pierre, S. (2011). Risk scores for predicting postoperative nausea and vomiting are clinically useful tools and should be used in every patient: Pro - “Don't throw the baby out with the bathwater.” European Journal of Anaesthesiology, 28(3), 160-163. https://doi.org/10.1097/EJA.0b013e328342fd86

This practice consensus statement is based on majority expert opinion of the Nausea and Vomiting experts at the University of Texas MD Anderson Cancer Center for the patient population. These experts included:

Katherine Cain, PharmD (Pharmacy Clinical Programs)
Wendy Garcia, BS*
Jacob Hall, PharmD (Pharmacy Clinical Programs)
Maria F. Ramirez Manotas (Anesthesiology & Peri-operative Medicine)*
Claire Marten, PharmD (Pharmacy Clinical Programs)
Laura Michaud, PhD, PharmD (Pharmacy Clinical Programs)
Sasha Ramirez, RN (Post Anesthesia Care Unit)
Joseph R. Ruiz, MD (Anesthesiology & Peri-operative Medicine)
Thoa Kazantsev, BSN, RN, OCN*

*Core Development Team
*Clinical Effectiveness Development Team