



**London Health Sciences Centre**  
Southwest Ontario Regional Base Hospital Program



# Primary Care Paramedic Dimenhydrinate Certification



# Objectives

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**Given a pre-recorded Webinar Presentation, and a self-study Learner Package, the Paramedic will be able to:**

- Explain the etiology and pathophysiology of nausea and vomiting in the adult,
- Describe the basic pharmacology of Dimenhydrinate,
- Calculate the appropriate dosage of Dimenhydrinate for patients suffering from nausea and vomiting,
- Describe and demonstrate the proper application of the *Auxillary Nausea & Vomiting Protocol (ACP & PCP)*,

As evaluated by a written evaluation (80% passing grade).





# Etiology & Pathophysiology of N/V

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## Nausea & Vomiting

- Defense mechanism
  - Toxins
  - Irritation
  - Over Distension



# Etiology & Pathophysiology of N/V

## Nausea

- Sensation in the back of the throat
- Diaphoresis
- Dizziness
- Chills
- Excess salivation
- Precedes vomiting





# Etiology & Pathophysiology of N/V

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## Vomiting

- Expulsion of stomach contents through the mouth
- ↑ intrathoracic pressure
- ↑ intra-abdominal pressure
- Contraction of rectus abdominis
- Contraction of external oblique
- Contraction of anterior abdominal muscles
- Relaxation of esophageal sphincter
- Reverse/anti-peristalsis



# Etiology & Pathophysiology of N/V

## Vomiting

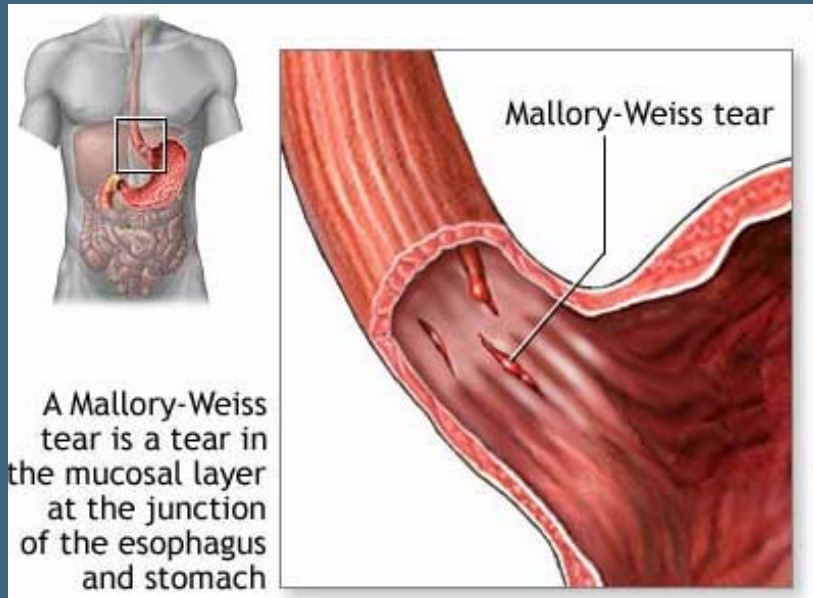
- When persistent, may lead to:
  - Dehydration
  - Electrolyte imbalance
  - Hypertension/Hypotension
  - Bleeding
  - Aspiration
  - Delayed discharge
  - Strain on sutures



# Etiology & Pathophysiology of N/V

## Vomiting

- May also lead to:
  - Mallory-Weiss Tear
  - Boerhaave's Syndrome





# Etiology & Pathophysiology of N/V

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## Physiological Trigger to Vomit

1. Vomiting Centre
2. Chemoreceptor Trigger Zone
3. GI Tract

### Stimulation of any of the above:

- Impulse sent to salivation centre
- Impulse sent to respiratory centre
- Impulse sent to pharyngeal, GI and abdominal muscles



# Etiology & Pathophysiology of N/V

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## Vomiting Centre

- In the Medulla
- Stimulated by:
  - Chemoreceptor Trigger Zone
  - Chemotherapy meds





# Etiology & Pathophysiology of N/V

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## Chemoreceptor Trigger Zone

- In the Medulla
- Stimulated by:
  - Meds
  - Infection
  - Toxins
  - Sights
  - Smells
  - Memories
  - Pain
  - Impulse from the Vestibular System



# Etiology & Pathophysiology of N/V

## Gastrointestinal Tract

- Stomach & Intestines
- Stimulated by:
  - Reflux
  - Virus
  - Food borne pathogen
  - Allergy
  - Over distension





# Pharmacology of Dimenhydrinate

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## Dimenhydrinate

- Antihistamine (H1)
- Anticholinergic
  
- Antihistamine + Anticholinergic = Antiemetic





# Pharmacology of Dimenhydrinate

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## Mechanism Of Action

- Acts in the Vestibular System
  - H1 Histamine receptors
  - Muscarinic Cholinergic receptors
  - Blocks/inhibits histamine/acetylcholine from binding to receptors
  - Prevents stimulation of the Vomiting Center





# Pharmacology of Dimenhydrinate

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## Pharmacology – Interactions

- Potentiation
- Synergism
- Addition



# Pharmacology of Dimenhydrinate

## Side Effects

- Drowsiness
- Dry Mouth
- Constipation
- Burning with IV administration





# Dimenhydrinate

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Remember to review your *Auxiliary Nausea & Vomiting Protocol (PCP & ACP)* for your current Medical Directives.





# References

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# Questions

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- Contact SWORBHP
  - 519-667-6718
  - ParamedicEducation@lhsc.on.ca

