



Treatment and Prevention of Cyclic Vomiting in Children



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Background

- Cyclic vomiting syndrome (CVS): recurrent, severe, self-limited vomiting episodes intermingled with periods of wellness
 - Episodes may be accompanied by nausea, headache, lethargy, abdominal pain, retching, and/or anorexia
 - Vomiting frequency varies from every 5 minutes to every hour, with episodes lasting up to 10 days
- Management: trigger avoidance, acute or prophylactic treatment with antiemetic, antimigraine, and acid suppression medications
- Limited evidence available about the treatment response of children over the course of CVS

Objectives

Primary Objective:

- To describe the pharmacotherapy over the course of CVS in children

Secondary Objective:

- To describe the safety of medications used for CVS

Methods

- Design:** Retrospective single-center cohort study
- C&W Research Ethics Board Approval received
- Population:** All children admitted to BC Children's Hospital between January 2010 to September 2016 with a diagnosis of CVS
- Adverse events (AE) were assessed using the Naranjo score. Scores ≥ 5 (probable or definite association with medication) were considered adverse drug events (ADE)
- Statistical Analysis:** Descriptive statistics

Results

Table 1: Patient Characteristics

	N=15
Age at diagnosis (median (IQR))	5.8 (4.3-10.7) years
Sex, female (number (%))	12 (80)
Positive family history (number (%))	9 (60)
Total admissions (number)	231
Admissions per patient (median (IQR))	11 (7-28)
Admissions per patient per year (median (IQR))	5 (2-8)
Episode length (median (IQR))	4 (2-10) days
Patient received prophylaxis prior to admission (median (IQR))	57 (38-100) %
Patient received abortive medications prior to admission (median (IQR))	33 (14-57) %

Results

Table 2: Home Prophylactic Medications for CVS

Medication	N=15 n (%)
Amitriptyline	2 (13)
Cyproheptadine	8 (53)
Co-enzyme Q10	7 (47)
Levocarnitine	2 (13)
Propranolol	2 (13)
Riboflavin	7 (47)
5-hydroxytryptophan	4 (27)
Proton pump inhibitors	9 (60)
H2-receptor antagonist	5 (33)

Figure 1: Home Abortive Medications for CVS

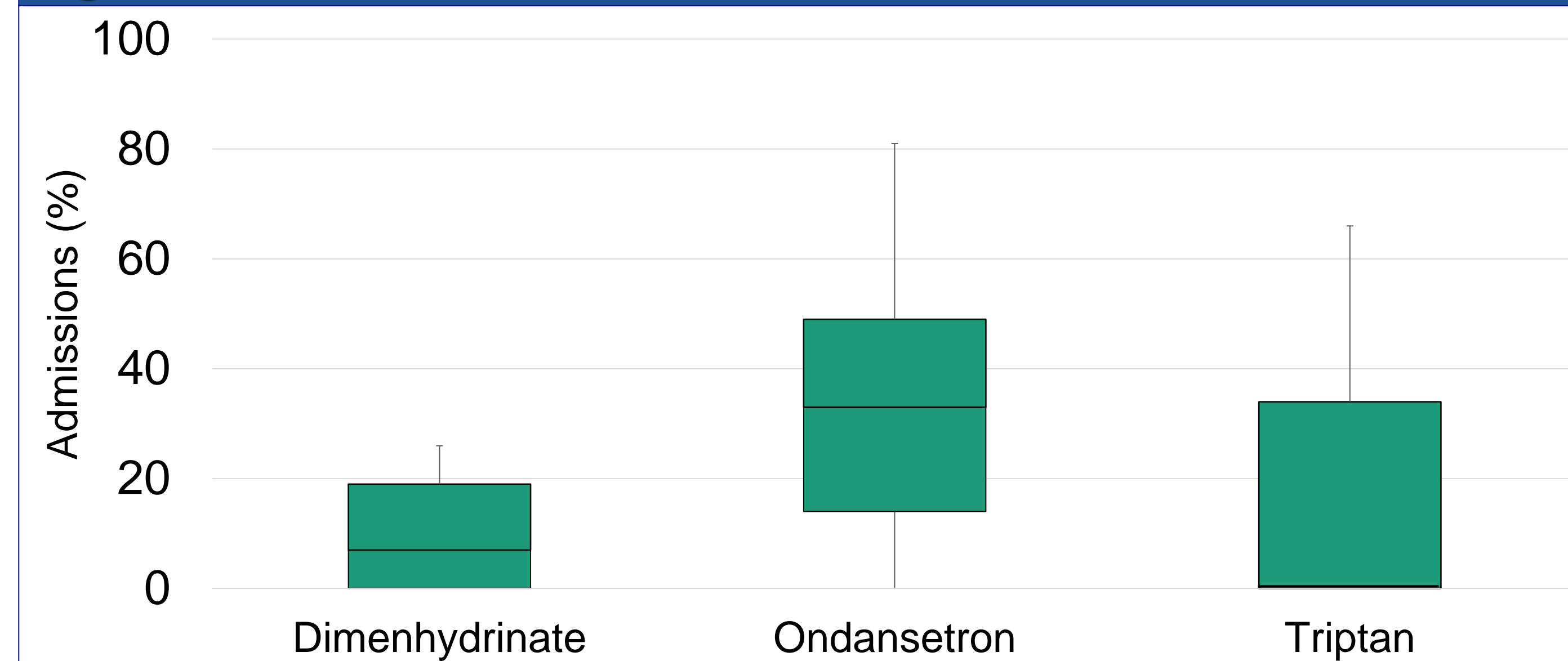
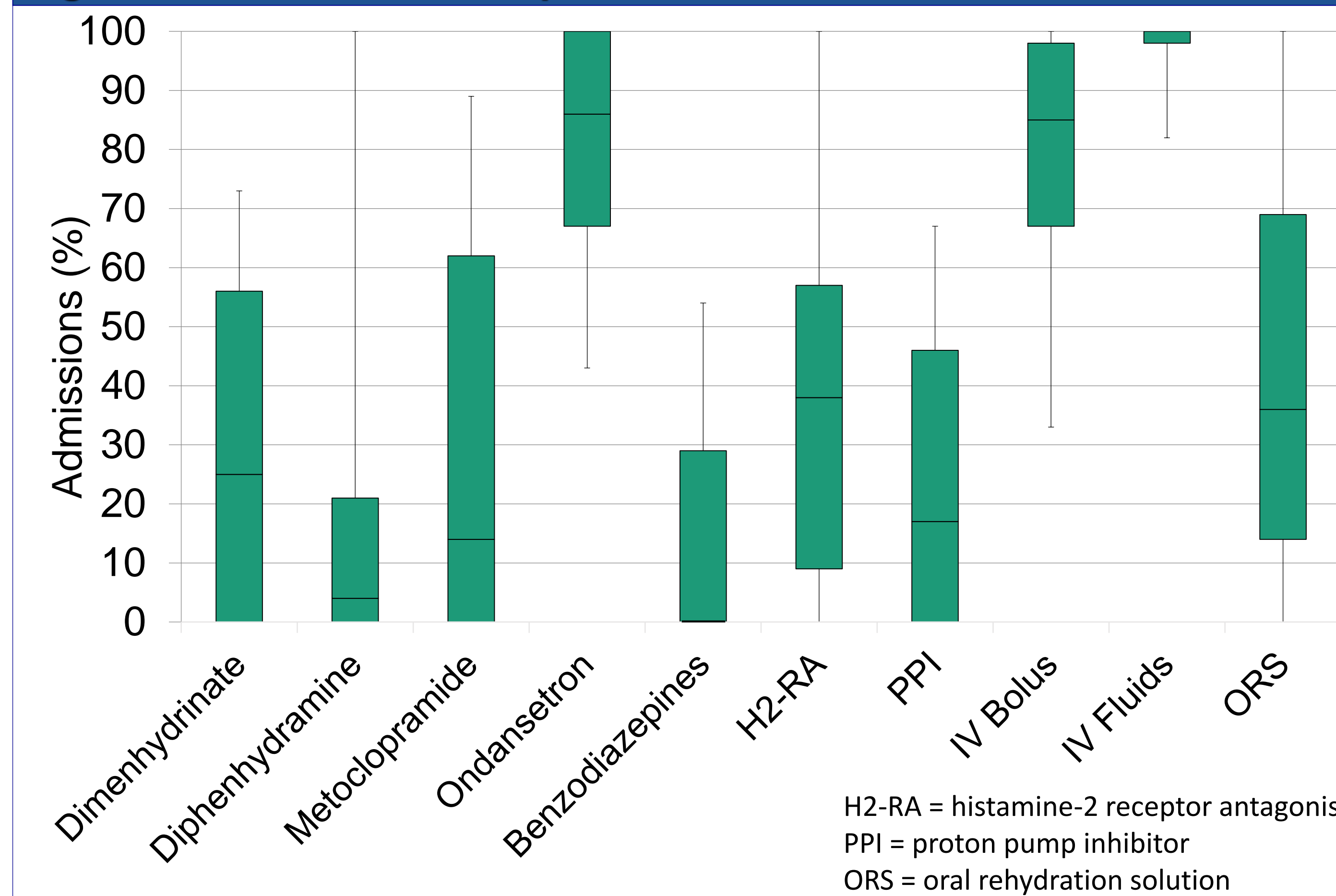


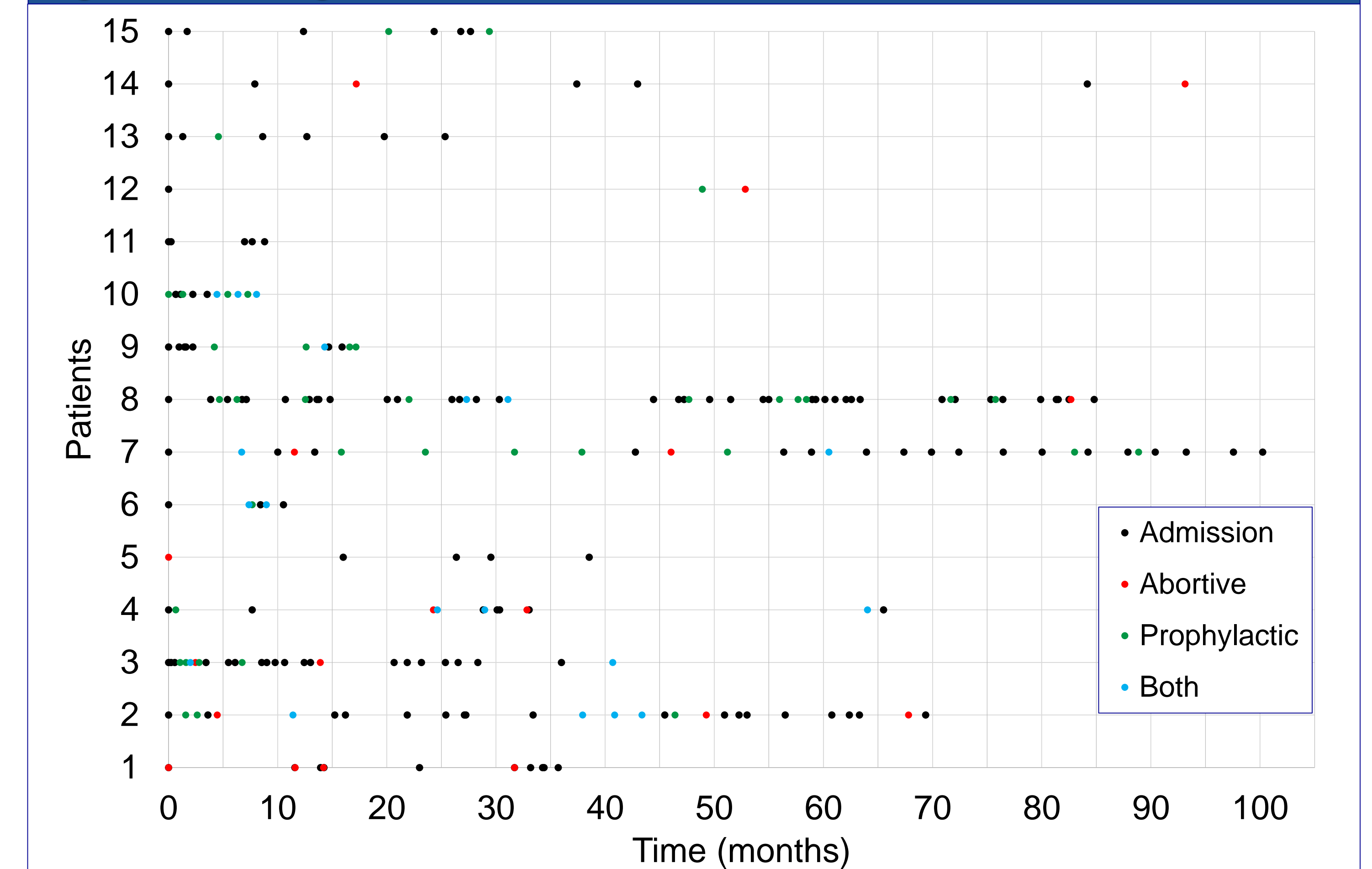
Figure 2: Treatment in Hospital



*90% of dosages were within standard dosing guidelines

Results

Figure 3: Changes to Home Medications Over the Course of CVS



- Prophylactic medications changed at a median of 23% (9-33) of discharges
- Abortive medications changed at a median of 17% (6-29) of discharges

Table 3: Adverse Drug Events (ADE)

Total ADE	8
Admissions with an ADE (number (%)) (N=231)	8 (3)
Patients with an ADE (number (%)) (N=15)	5 (33)

Table 4: Adverse Drug Events (ADE) Description (N=8)

	Benzodiazepines	Metoclopramide	Ondansetron
Desaturation	1		
Hyperactive/restless	1	2	
Drowsy/lethargic			2
Hypokalemia			1
QT Prolongation		1	

Limitations

- Unable to assess effectiveness of medications
- Potential underreporting of AE
- Data for hospital admission at BCCH only
- Information on episodes managed at home not captured

Conclusions

- Wide variability in treatment regimens
- Ondansetron was commonly used and appears well tolerated, while benzodiazepines were infrequently used and associated with more ADE