Introduction: PACU nurses noticed that giving promethazine 6.25 mg to older and/or sedated patients rather than the standard dose of 12.5 mg appeared to produce the same antiemetic effect and cause less sedation. They questioned whether lower doses of promethazine could be given to adults, in general, and to older and sedated patients specifically.

Identification of the Problem:
Despite the availability of intra-operative anti-emetic medications, post operative nausea and vomiting (PONV) continues to be one of the most common adverse effects of anesthesia and opioid administration in surgical patients. Uncontrolled PONV requires additional nursing care, delays patient recovery time, extends the length of stay for ambulatory patients and increases patient dissatisfaction with services provided.

Purpose of the Study:
The purpose of this study was to determine whether or not a smaller dose of promethazine (6.25 mg) achieves levels of relief from post operative nausea and vomiting (PONV) comparable to the standard dose of 12.5 mg.

Study Hypotheses
H1: Subjects receiving low dose promethazine (6.25 mg) will achieve PONV relief comparable to subjects receiving standard dose levels of promethazine (12.5 mg).
H2: Levels of early post-surgery sedation will be lower for subjects receiving low dose promethazine (6.25 mg) than for subjects receiving standard dose levels of promethazine (12.5 mg).
H3: Time in Post Surgical Care is comparable for low dose (6.25mg) versus standard dose (12.5 mg) levels of promethazine for the management of PONV.

Research Question
Does the extent of dose effect differ according to subject characteristics (e.g., age, gender)?

Methodology:
A randomized, double blind clinical trial was undertaken to compare differences in promethazine dosage in ambulatory surgery patients.

Setting - The study was conducted in the Post Anesthesia Care Unit (PACU) and Ambulatory Surgical Center (ASC) of a 600 bed teaching hospital in the Northeast. The PACU is a 32 bed
Phase I recovery area staffed by 45 full-time equivalent (FTE) registered nurses (RNs). The ASC is a 39 bed Phase II recovery short-stay area staffed by 28 FTE RNs.

Subjects - Adult subjects who underwent elective surgery. Inclusion criteria: age between 18 and 75 years; undergoing elective urologic, neurologic, general surgery, thoracic, vascular, otolaryngology, orthopedic, oral maxillofacial, gynecologic, or colorectal surgery; English speaking; able to consent to participation. Exclusion criteria: pregnancy; known allergy to promethazine; and refusal or inability to sign study consent. Also excluded were enrolled participants with a sedation level greater than “3” on our internal sedation scale and any enrolled participant with limited IV access requiring IV placement in the lower extremities. A power analysis determined that 130 subjects (65 per group) were necessary to detect significant differences across groups.

Intervention - Promethazine dosage was determined by chance, with neither the nurse administering the medication or the patient knowing which dose was received. Extent of PONV and sedation were measured prior to medication administration and at 30 minute intervals thereafter until the patient was discharged from the setting. A rating scale of 0 to 10 was used to measure extent of PONV. Level of sedation was measured using a scale ranging from 0 (awake, alert and interactive) to 5 (unresponsive; unable to arouse).

Data Analysis – Data were analyzed using descriptive statistics, Chi Square and ANOVA.

Results:
A total of 120 subjects were enrolled in the study; 92% were female and 28%, male. No significant differences were found between the control group (51 subjects) and the experimental group (49 subjects). The mean age of the subjects was 44.9 years (control) and 42.8 years (experimental) with an age range of 18-75. The primary type of anesthesia used was General. No differences were seen between the groups for the level of sedation or PONV control. The sole differences between the groups were with the level of sedation in Surgical Center (ASC) 30 minutes after the administration of Promethazine and at time of discharge from ASC. The level of sedation was significantly less for the lower dose of Promethazine, (p=.01) and at the time of discharge from ASC (p=0.03). No differences were seen in the length of time spent in PACU or ASC.

Implications for perianesthesia nurses and future research
The study demonstrates that Promethazine 6.25 mg is equally effective for controlling PONV and sedation levels are less. As a result using this lower dose could become a standard practice in the PACU and ambulatory settings across the country. Future research may be done to substantiate our findings and/or determine if the Promethazine 6.25 mg dose also would reduce length of stay or prevent post discharge nausea and vomiting.