

# Prescribing patterns of dexmedetomidine in the intensive care unit and the impact on supplemental pain and sedation medications

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## Background

- Recent changes to guidelines in 2013 recommend minimization of continuous infusions of benzodiazepines for sedation in the ICU<sup>1</sup>
- The guidelines suggest either propofol or dexmedetomidine as alternative agents to continuous benzodiazepine infusions.
- A recent review of pharmacy expenditures revealed a large increase in dexmedetomidine use and expense in the 2014 fiscal year

1. Barr J et al. Care Unit. *CCM*2013; 41:263-306.

## Objectives

- Primary objective:**
  - Describe the patient population and the indication for dexmedetomidine orders
- Secondary objectives:**
  - Describe the duration of dexmedetomidine use
  - Describe the impact on other sedative or pain medications for two most common subgroup of patients

## Methods

- Institutional Review Board approval was obtained
- Sentry7 screening tool was used to identify patients with dexmedetomidine orders in November 2014 from March to April 2015.
- Indication was ascertained at the time of the order through verbal discussion or through chart review.
- Pertinent medical history, ventilation status, triglyceride levels, and other sedative use were retrospectively abstracted from the medical record.

### Inclusion Criteria

- Age  $\geq 18$  years of age
- Admitted to the intensive care unit (ICU) with an order for dexmedetomidine

### Exclusion Criteria

- Dexmedetomidine ordered but never administered
- Patient was comfort measures only

## Results: Primary Objective

A total of 26 orders for dexmedetomidine were reviewed, representing a total of 23 patients

Table 1. Baseline Characteristics

Age (years)	57 $\pm$ 14
Male	15/23 (65%)
Average weight (kg)	84 $\pm$ 27.7
Average ICU stay (days)	11.7 $\pm$ 4.6
Average duration of ventilation (days)	4.1 $\pm$ 3.3
Median triglyceride levels [mg/dL] (Min, Max)	205.5 (79, 420)
<b>Past Medical History</b>	
Alcohol abuse	4/23 (17.4%)
Substance abuse	5/23 (21.7%)
Cardiac disease	3/23 (13.0%)

## Indications for Dexmedetomidine Use

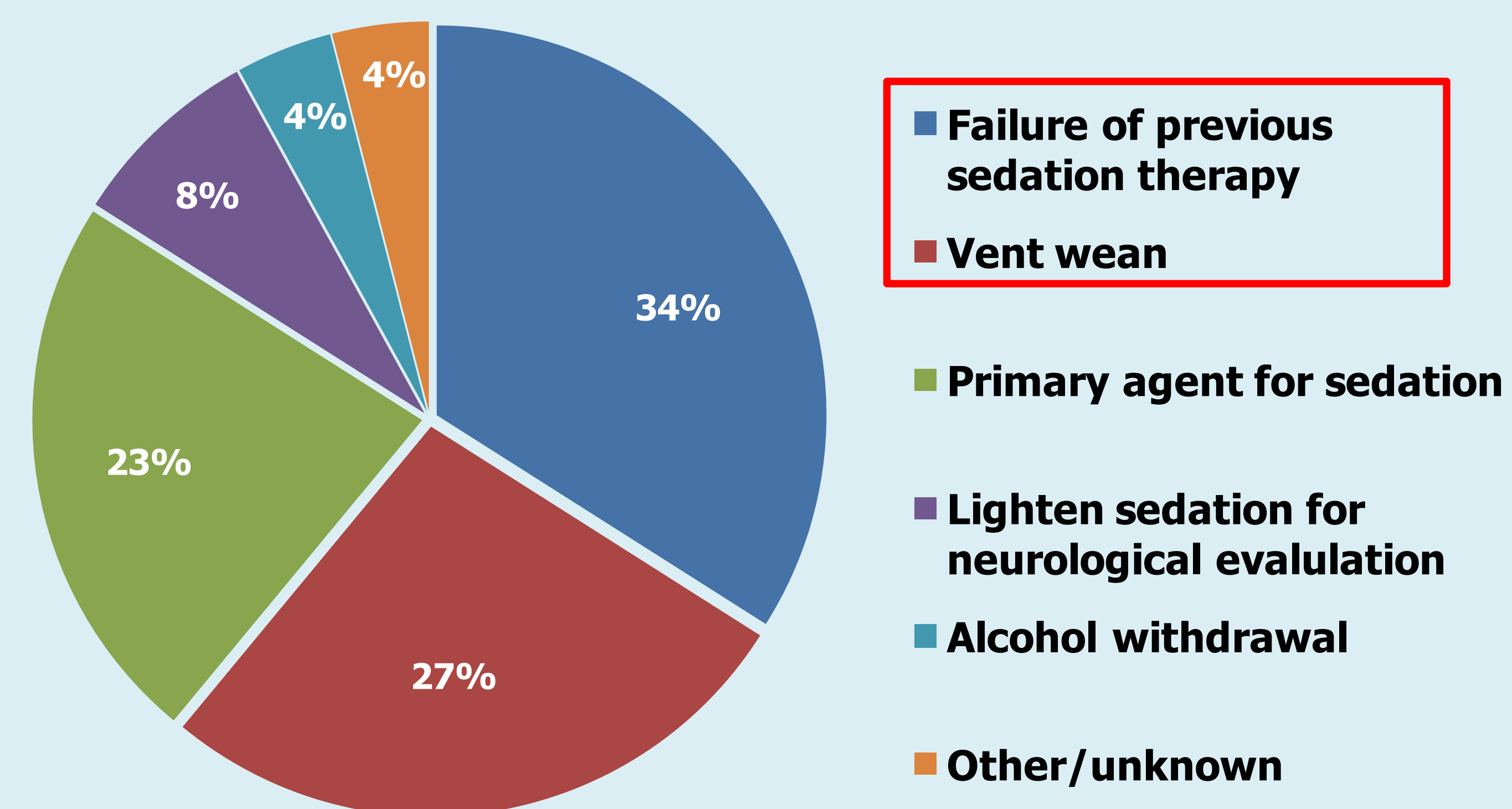


Table 2. Duration and Sedative/Pain Medication Use: All Indications

Average duration of use (days)	2.2 $\pm$ 1.4
Average duration of infusion (hrs)	23.8 $\pm$ 22.9
Average number opiate doses per day during dexmedetomidine use	4
Average number of benzodiazepine doses per day during dexmedetomidine use	2

## Conclusions

- Dexmedetomidine was most often used for primary sedation if previous sedation therapy was deemed ineffective or for assisting patients weaning off of mechanical ventilation
- When used for primary sedation it had longer durations of infusions (36.8hrs) and patients received more doses of opioid and benzodiazepine boluses.
- There was a 23% incidence of dexmedetomidine use as a primary sedative which may be an area of intervention to minimize use.

## Results: Secondary Objectives

### Duration of Use

Figure 2. Average Duration of Use: Subgroups

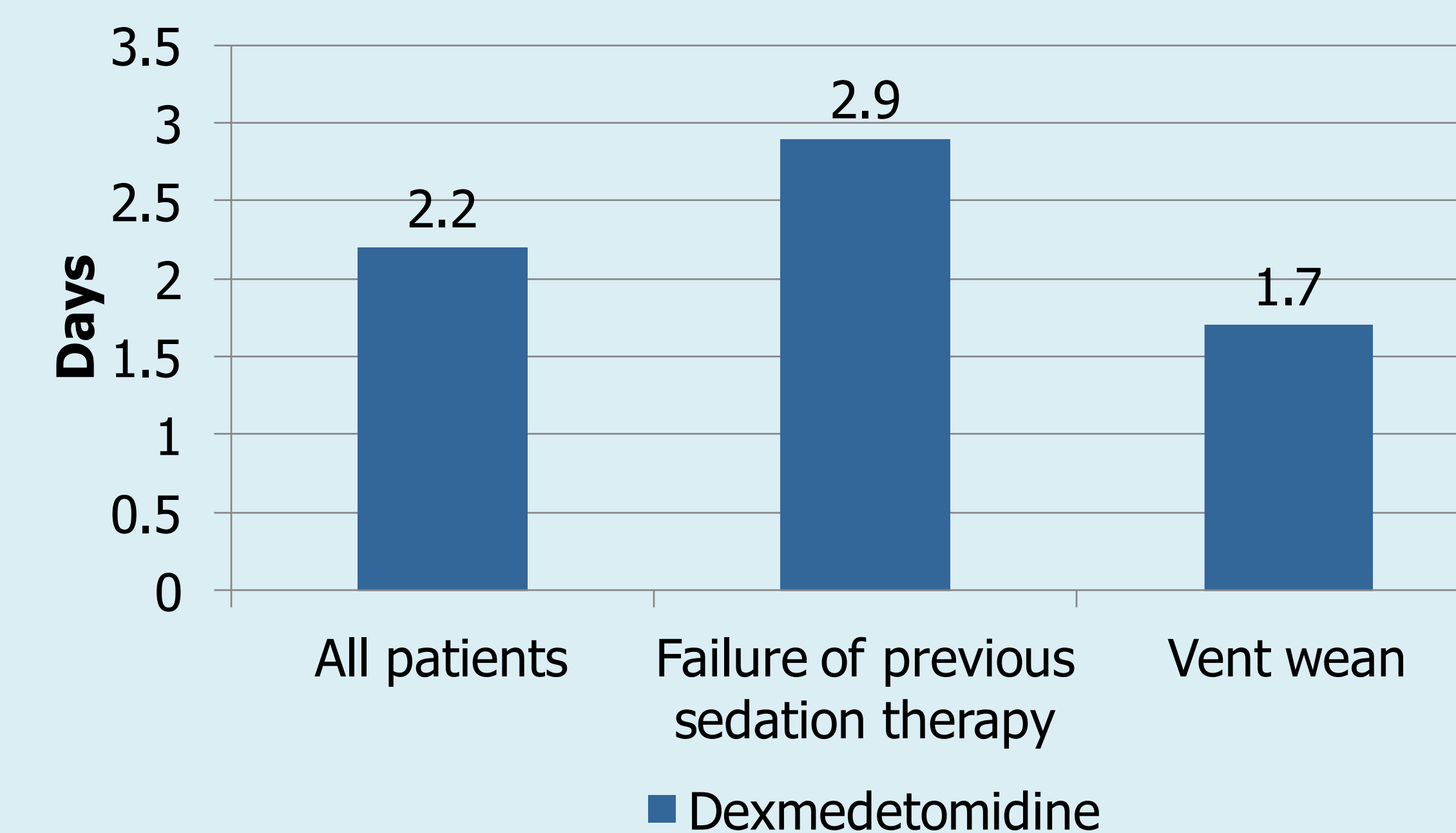
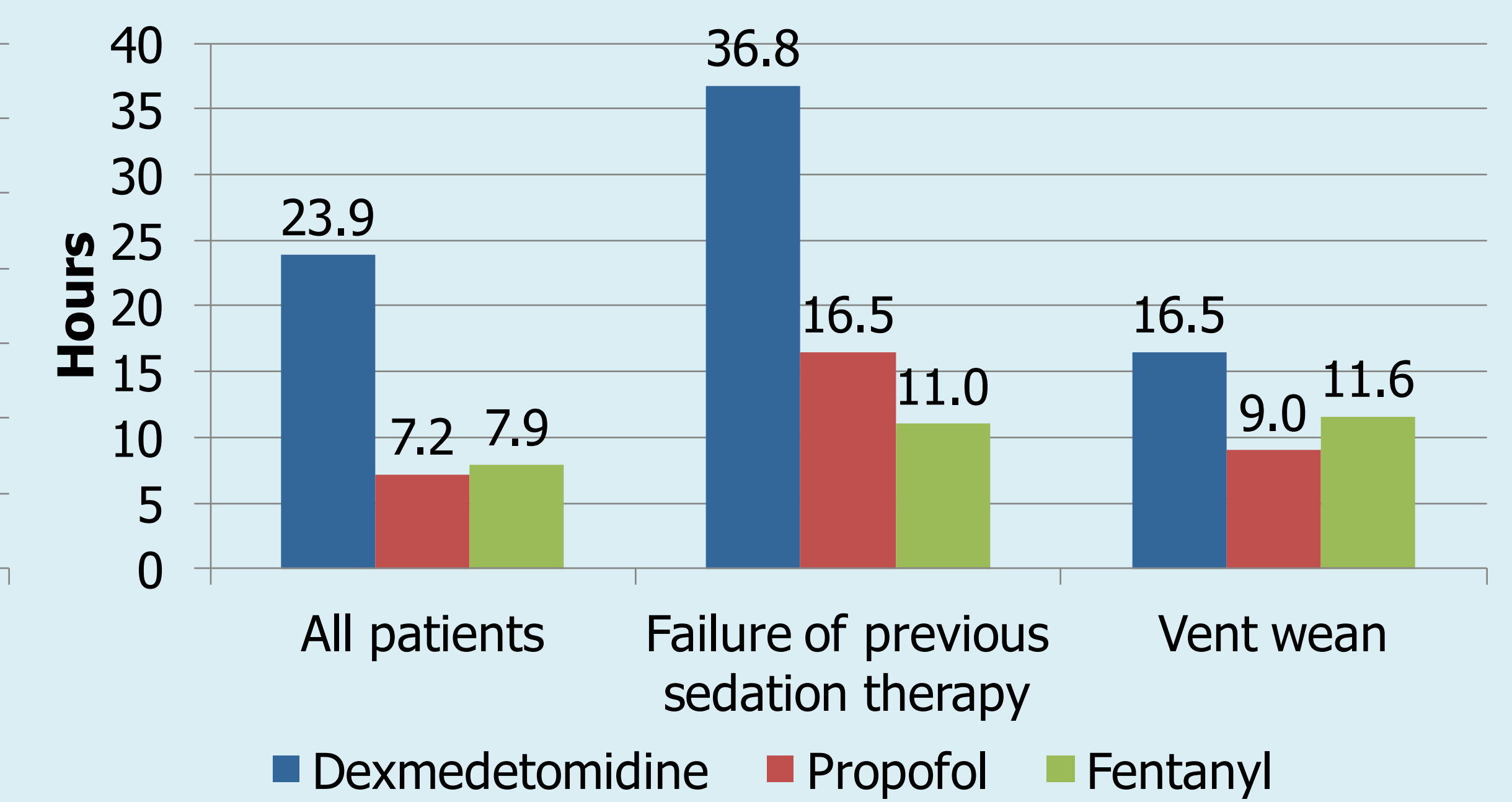
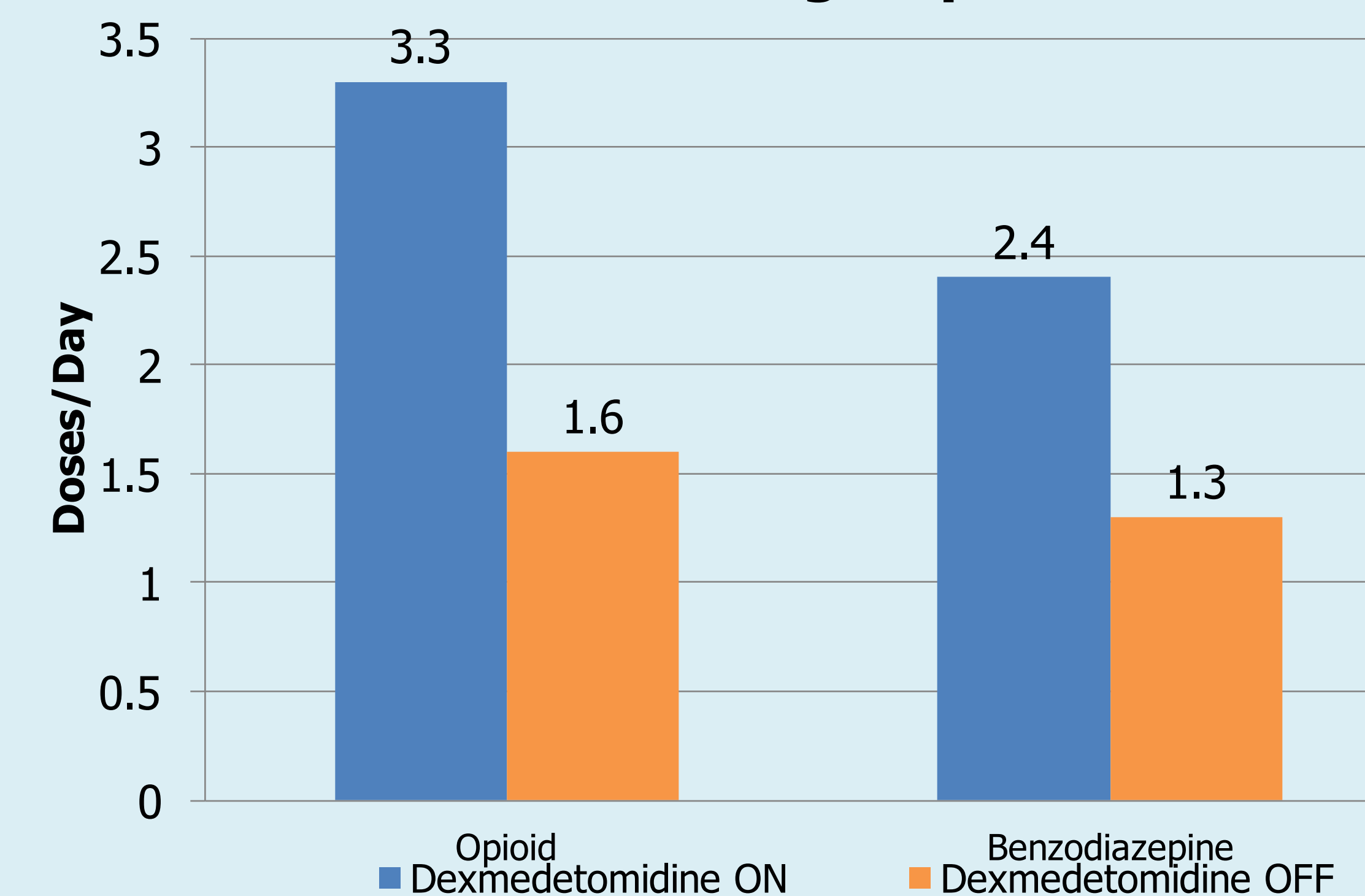


Figure 3. Average Duration of Infusion: Subgroups

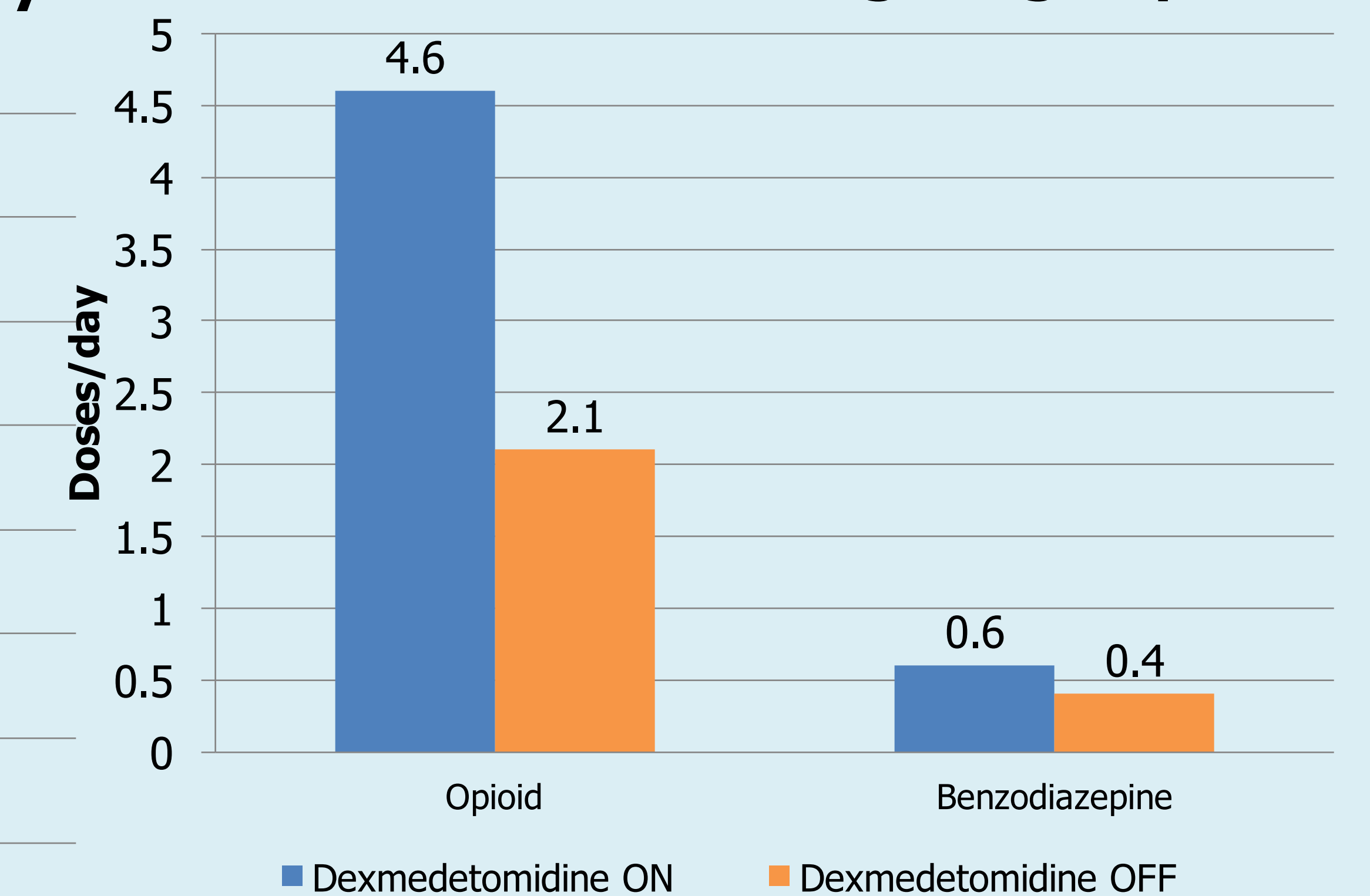


### Average Number of Pain & Sedation Bolus Doses Per Day

#### Failure of Previous Sedation Therapy Subgroup



#### Ventilator Weaning Subgroup



### Additional agents used during patient stay

