

# EVALUATING THE USE OF DEXMEDETOMIDINE IN CRITICALLY ILL PATIENTS AT A COMMUNITY TEACHING HOSPITAL

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## BACKGROUND

- Dexmedetomidine is commonly utilized in the intensive care unit for sedation, although optimal dosing and duration of use are unknown
- Literature supports higher doses and longer duration than the FDA label of < 24 hours at a maximum infusion rate of 1 mcg/kg/hr
- Emerging studies suggest hepatic dysfunction and obesity may impact dexmedetomidine pharmacokinetics, but clinical application has yet to be established

## OBJECTIVE

- To evaluate the utilization of dexmedetomidine among critically ill patients

## METHODS

- Retrospective, single center chart review of adult patients who received dexmedetomidine in the medical or pulmonary intensive care unit at Northeast Georgia Medical Center, a 557- bed community teaching hospital from January 1, 2022, to July 31, 2022

Primary Outcome

To characterize dexmedetomidine prescribing practices

Secondary Outcome

To identify areas of improvement in dexmedetomidine utilization

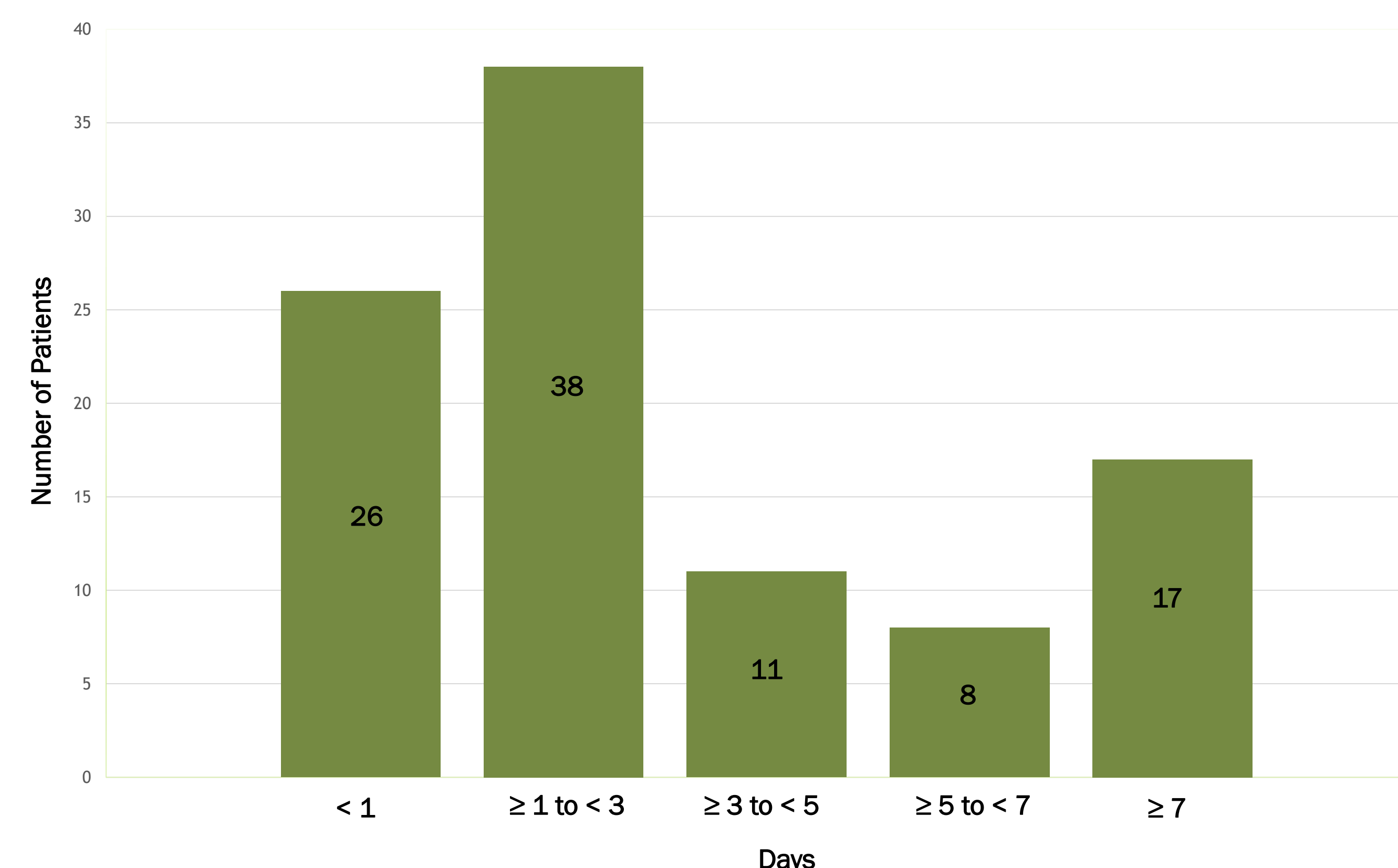
## RESULTS

Table 1. Baseline Characteristics

	N=100
Age (years)	63 (24)
Male	55 (55%)
Body Mass Index (kg/m <sup>2</sup> )	
Non-obese (< 30)	62 (62%)
Obesity Class I (≥ 30 to 34.9)	15 (15%)
Obesity Class II (≥ 35 to 39.9)	13 (13%)
Obesity Class III (≥ 40)	10 (10%)
Liver dysfunction	28 (28%)
Documented liver cirrhosis	9 (9%)
Total bilirubin ≥ 1	27 (27%)
Target Richmond Agitation Sedation Scale (RASS) goal	
-2 to +1	92 (92%)
-3 to -5	2 (2%)
Other	6 (6%)
Mechanical ventilation	56 (56%)
Use of concurrent sedation	58 (58%)
Propofol	31 (53%)
Fentanyl	57 (98%)
Benzodiazepine	16 (28%)
Ketamine	5 (9%)
Use of concurrent continuous paralytic	4 (4%)

Values reported as number (%) and median (interquartile range)

Figure 1. Duration of Dexmedetomidine Infusion



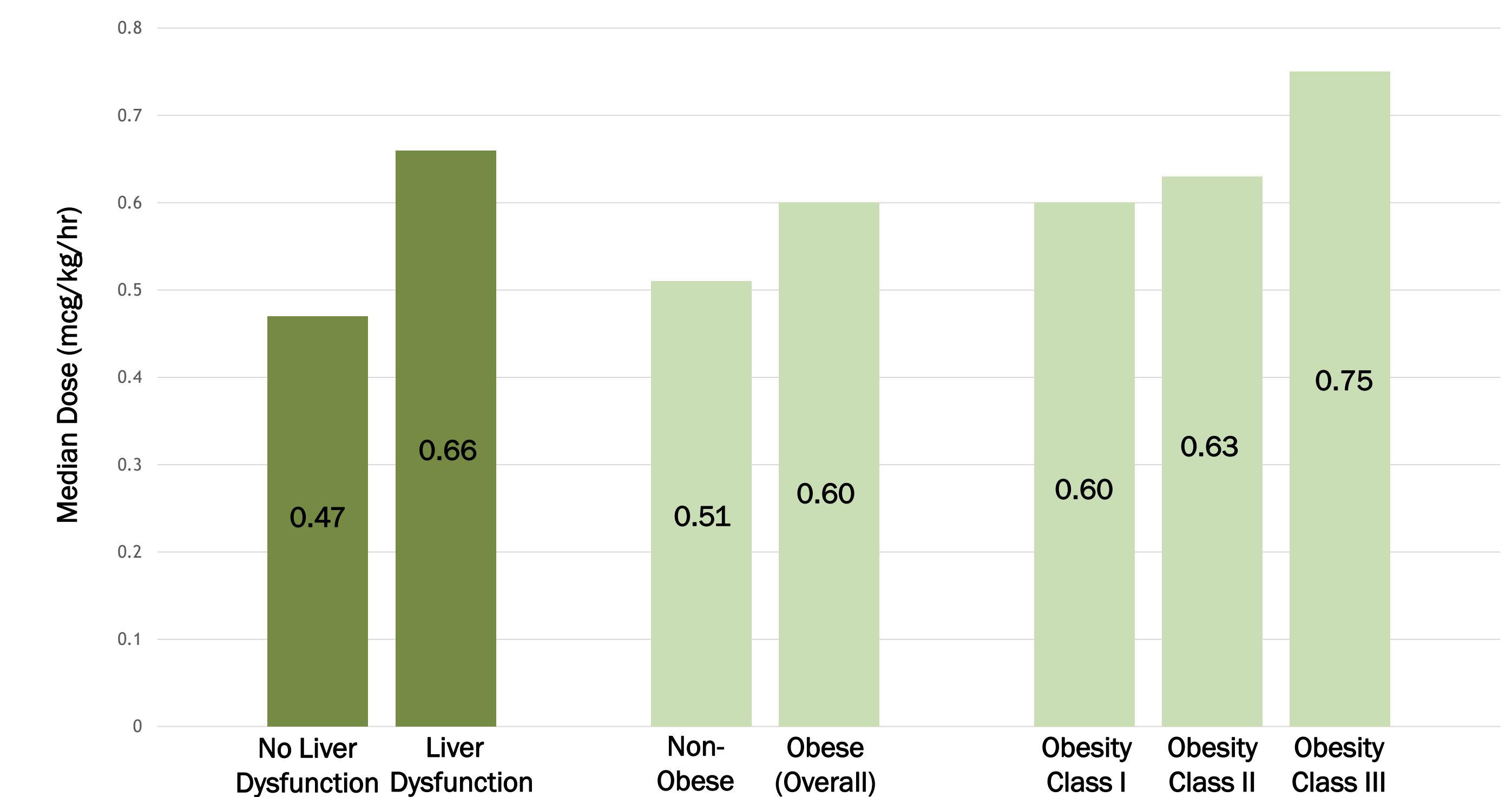
## RESULTS (continued)

Table 2. Dosing Characteristics

	N=100
Dose (mcg/kg/hr)	0.56 (0.62)
Initial dose (mcg/kg/hr)	0.20 (0.30)
Maximum dose (mcg/kg/hr)	1.50 (0.65)
Volume per day (mL)	247 (290)
Cumulative volume (mL)	599 (1150)

Values reported as median (interquartile range)

Figure 2. Dosing in Specific Patient Populations



## CONCLUSIONS

- Overall utilization of dexmedetomidine (dosing, indication, duration, target RASS goal) was appropriate
- Potential to educate providers regarding inability to achieve deep levels of sedation, inappropriate use with continuous paralytic therapy, and risks associated with prolonged infusions (> 7 days)
- Patients with liver dysfunction or BMI ≥ 30 required higher doses, but more studies are needed to determine clinical application of these findings

## REFERENCES

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The authors of this presentation have nothing to disclose concerning possible financial or personal relationships with commercial entities.