

A National Survey of Institutional Guidelines for the Use of Ketamine, Lidocaine, and Dexmedetomidine for Analgesia

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BACKGROUND

- Lidocaine, ketamine, and dexmedetomidine are beneficial in the management of intractable pain
- Current literature supports their opioid-sharing effects and use as an adjunct to opioid therapy
- The increase in use, limited large-scale, methodologically treatment recommendation and standards strongly heightens the need for universal guidelines to inform safe practice for these medications
- There is currently no literature to date that provides a clear consensus on universally evaluating these medication guidelines for refractory pain
- By comparing all available national guidelines for lidocaine, ketamine, and dexmedetomidine, we aim to propose a more concrete foundation for patients with refractory pain and provide management regimens that are trustworthy, effective, and optimal for their health care needs

OBJECTIVES

Primary	<ul style="list-style-type: none">To investigate and summarize national drug guidelines from inpatient institutions for lidocaine, ketamine, and dexmedetomidine for the treatment of refractory pain
Secondary	<ul style="list-style-type: none">To formulate a consensus recommendation for these off -label medications with support from trends identified in multi-institutional guidelines

METHODS

Study Design	<ul style="list-style-type: none">Questionnaire-based cross-sectional study
Sites	<ul style="list-style-type: none">Healthcare institutions in the United States
Data Collection	<ul style="list-style-type: none">Identified eligible institutions via organizational listserv, social media, and independent inquires between May 1, 2022, to August 1, 2022Collected analgesia guidelines for lidocaine, ketamine, and dexmedetomidine
Variables Collected	<ul style="list-style-type: none">Criteria of careLevel of care restrictionMinimum/maximum recommended dosingRoute of administrationContraindicationsAdverse effects/treatmentEfficacy using pain scoresMorphine equivalent daily dosing (MEDD)Monitoring
Software	<ul style="list-style-type: none">Descriptive statistics: Excel and REDcap

RESULTS

Figure 1. Number of national institutions with ketamine, lidocaine, and dexmedetomidine guidelines

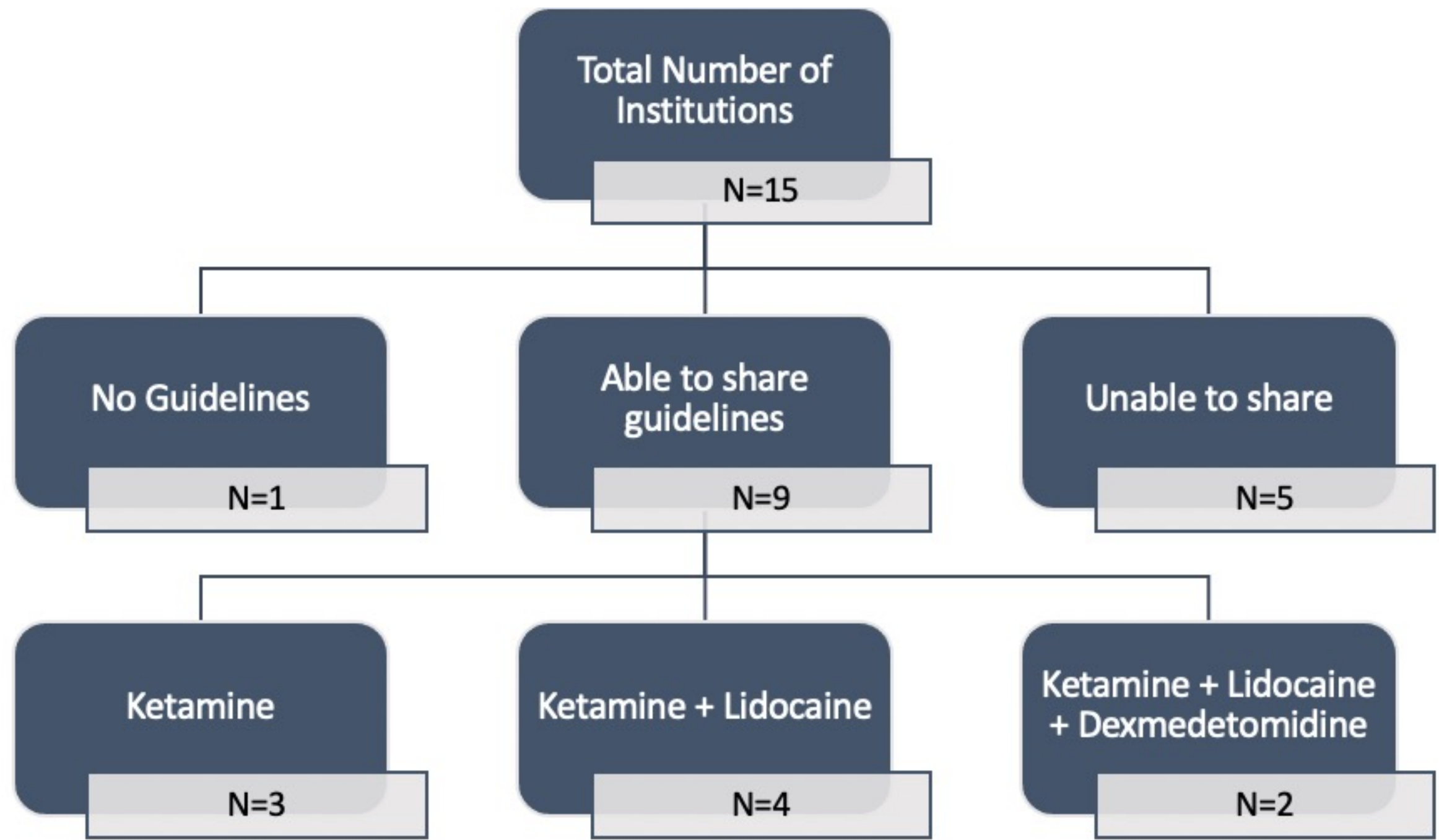


Figure 2. Variance in levels of care restriction for ketamine, lidocaine, and dexmedetomidine

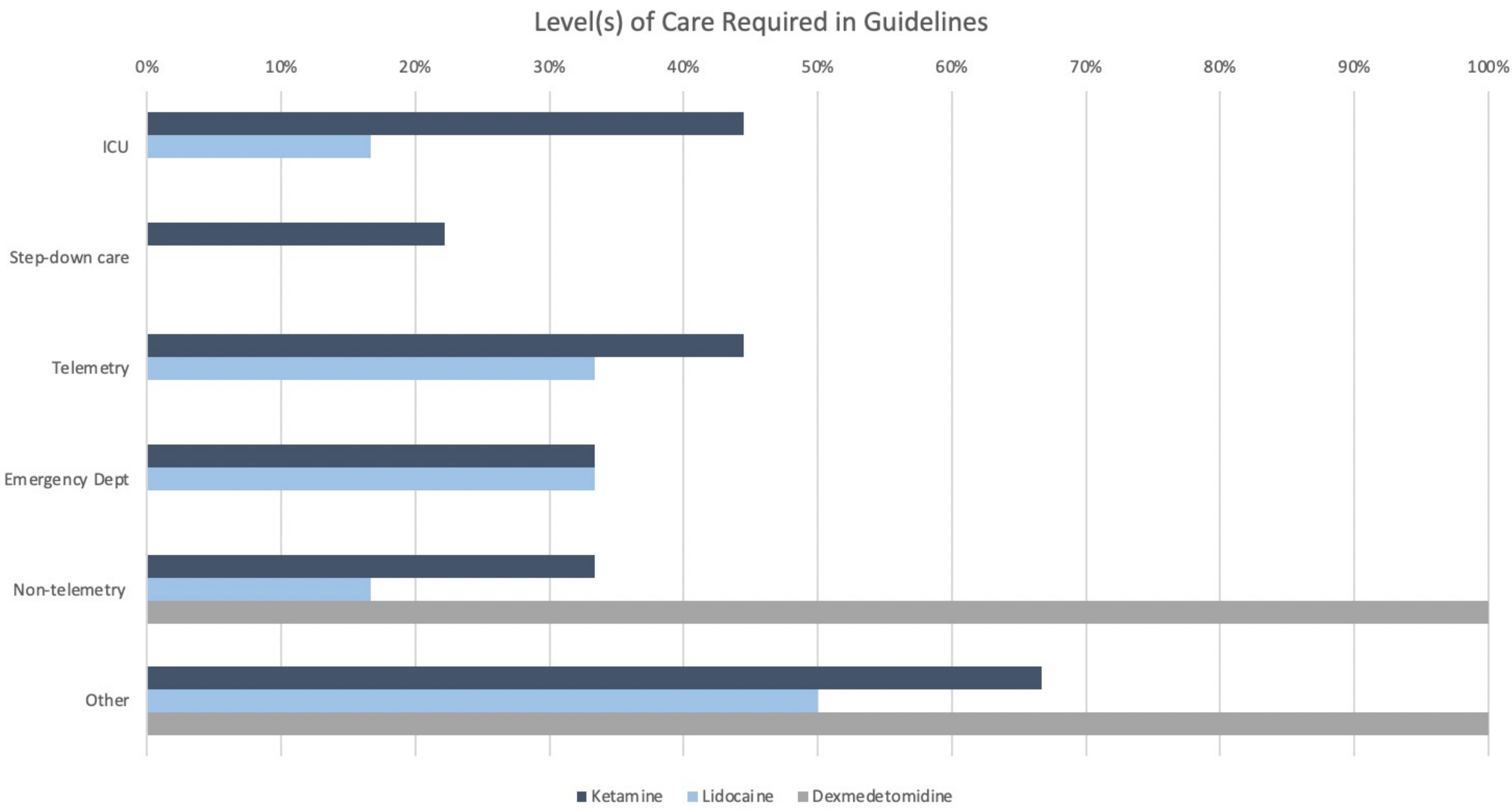


Figure 3. Variance in team prescribing authority for ketamine, lidocaine, and dexmedetomidine

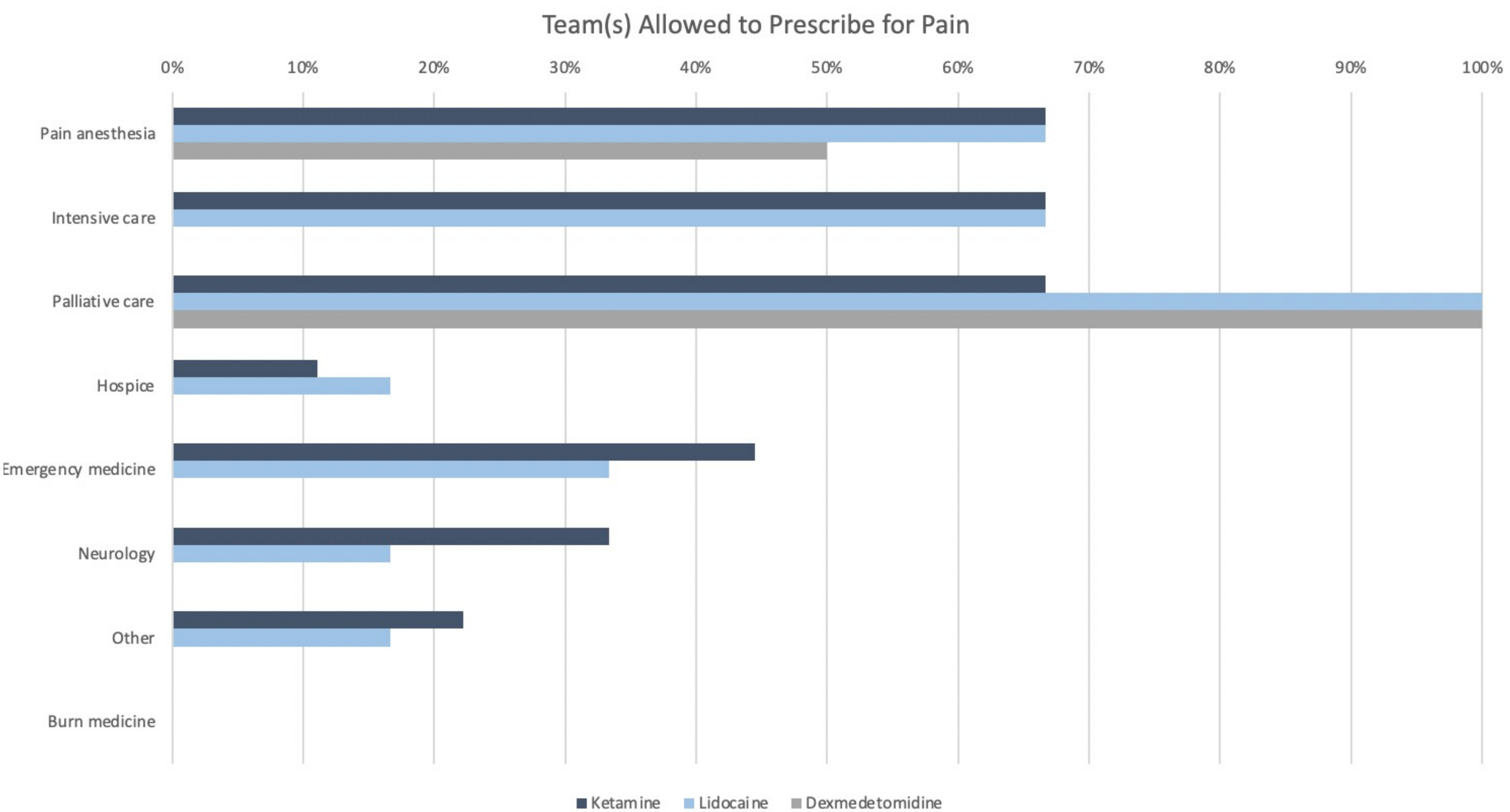


Table 1. Median dosing values of ketamine, lidocaine, and dexmedetomidine

Ketamine				
	n	Median	Mean	Standard Deviation
Loading Dose (mg)	7 (77.8%)	7	6.4	1.7
Minimum infusion Rate (mg/hr)	8 (88.9%)	5.6	5.5	2.15
Maximum infusion Rate (mg/hr)	7 (77.8%)	63	76.1	42
Oral Starting Dose (mg)	4 (44.4%)	12	10.8	4.3
Oral Maximum Dose (mg)	2 (22.2%)	220	220	28.3
Lidocaine				
Loading Dose (mg)	4 (66.7%)	87.5	87.5	20.2
Minimum infusion Rate (mg/hr)	4 (66.7%)	70	67.5	5
Maximum infusion Rate (mg/hr)	5 (83.3%)	200	374	358.8
Dexmedetomidine				
Loading Dose (mg)	1 (50%)	0.03	0.03	-
Minimum infusion Rate (mg/hr)	2 (100%)	0.007	0.007	0
Maximum infusion Rate (mg/hr)	2 (100%)	0.09	0.09	0.02

DISCUSSION

- Providers should weigh the risk (higher probability of respiratory depression) and benefit (bridge therapy due to quick onset before infusion) when considering ketamine bolus administration
- Ketamine infusion should be administered in ICU and telemetry units, where appropriate monitoring and protocols are readily available
- Continuous cardiac monitoring is recommended for lidocaine to avoid overdose toxicity
- Due to differences in criteria of lidocaine dosing; it is recommended to:
 - Use maximum infusion rate limit in mg/hr. regardless of body weight calculations
 - Use ideal body weight to avoid unwanted side effects caused by lidocaine infusion
- Dexmedetomidine loading doses are recommended when rapid onset of analgesia are desired; providers should use their clinical judgment
- Dexmedetomidine Infusions usually occur in the ICU unit due to risk of bradycardia and hypotension; this setting is less ideal for patients and family members due to strict visitation policies and conflicting goals of treatment

Limitations:

- Some institution policies prevent providers from sharing medication guidelines
- Several palliative care institutions had no guidelines to report, especially dexmedetomidine, despite Twitter analytics showing "5.2K" impressions
- Some guidelines did not specify types of pain, leading to different definitions that may cause variation in indication, care restriction, dosing, and monitoring

CONCLUSION

This is the first literature to nationally evaluate medication guidelines for the use of off-label medications like ketamine, lidocaine, and dexmedetomidine for the treatment of refractory pain in an inpatient palliative care setting. We developed a consensus summary based on the median dosing values and care restrictions from 15 submitted institutional guidelines.

REFERENCES

References available upon request.
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Scan for contact
information and poster



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