



Research Questions:

- What clinically meaningful information can we extract from the free-text EMS narrative that is not present in the rest of the patient record?
- What modifiable factors or determinants are associated with whether pediatric patients receive analgesics in the prehospital setting?

Methodology:

We developed a natural language process tool using the Tidytext R package and applied it to a sample dataset of EMS patient records from 2024 that met the following criteria (n=4,058): Patient Disposition fields consistent with "Treated and Transported by this EMS Unit", Patient Age < 15 years old, Pain Scale Score (eVitals.27) > 3, and Passed state validation.

What I learned:

- How to write code in R, SQL, and Tableau
- How to create a natural language processing tool
- Day to day for a paramedic and EM physician
- How data can be used to inform practice and policy

Acknowledgments:

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Results:

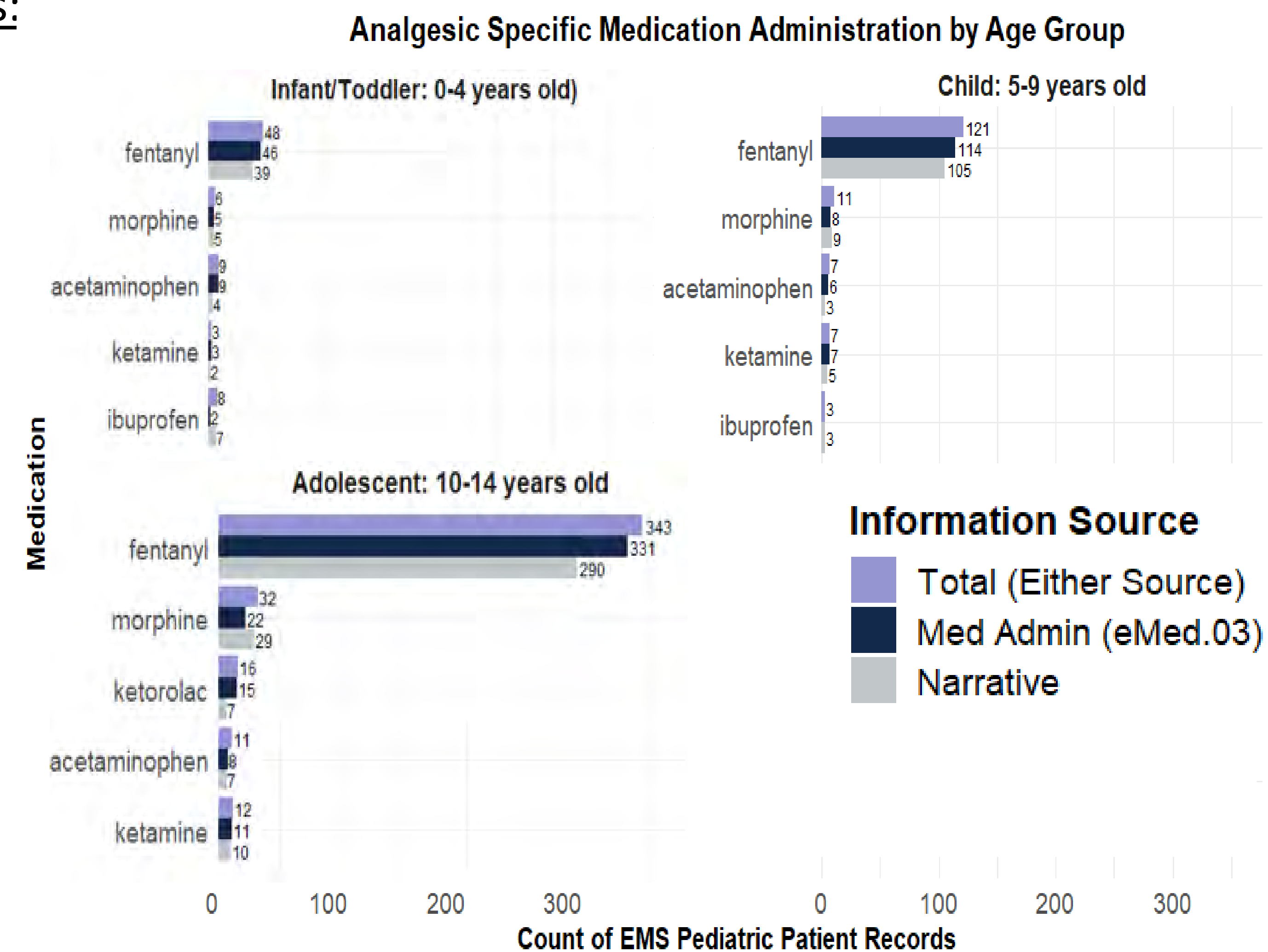


Figure 1: There were medication administrations described in the EMS Patient Narrative (enarrative.01) that were not documented in the structured drop-down field (Medication Administration emedication.03).

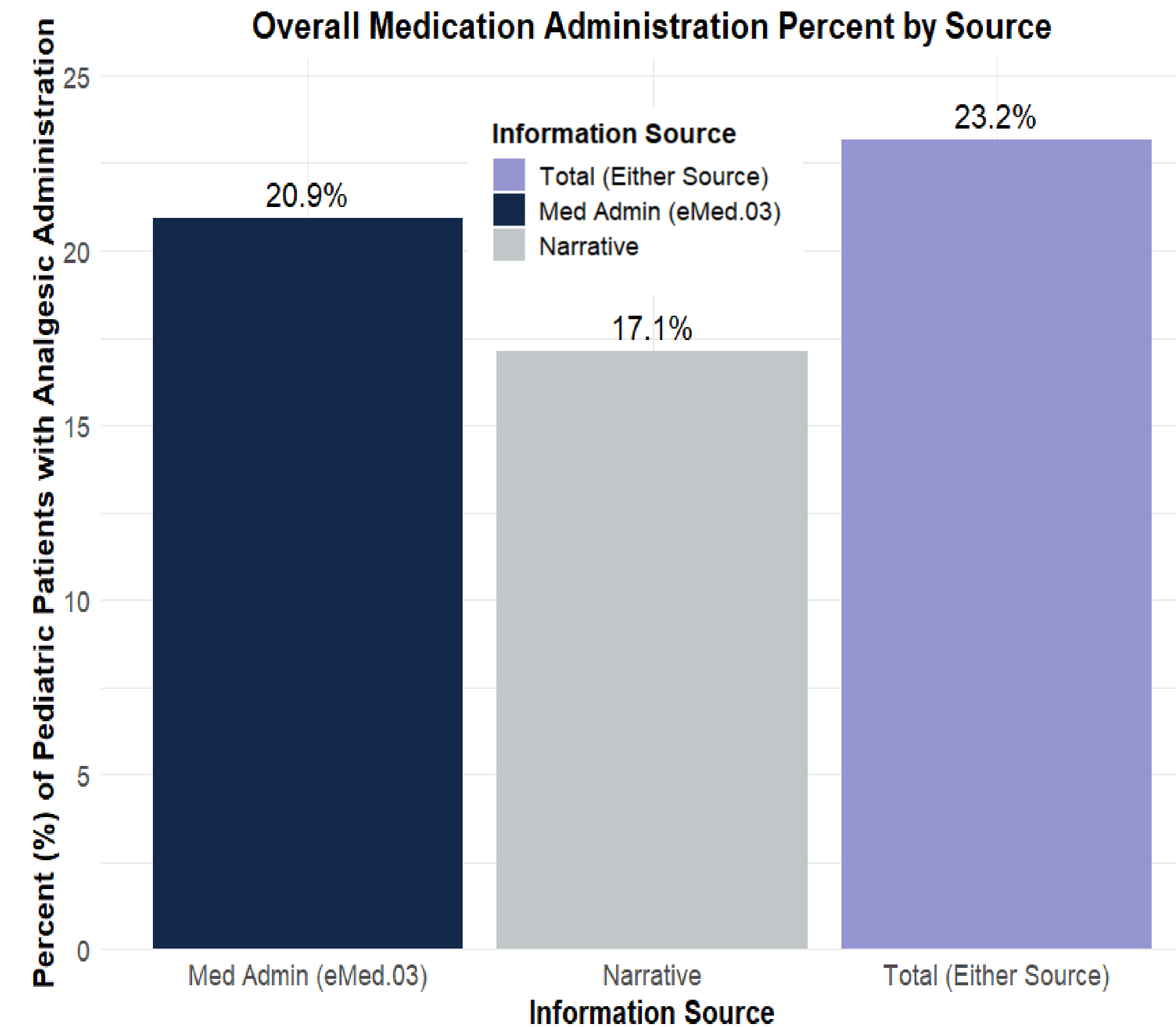


Figure 2: Overall proportions of medication administration increased with information obtained from the EMS narrative.

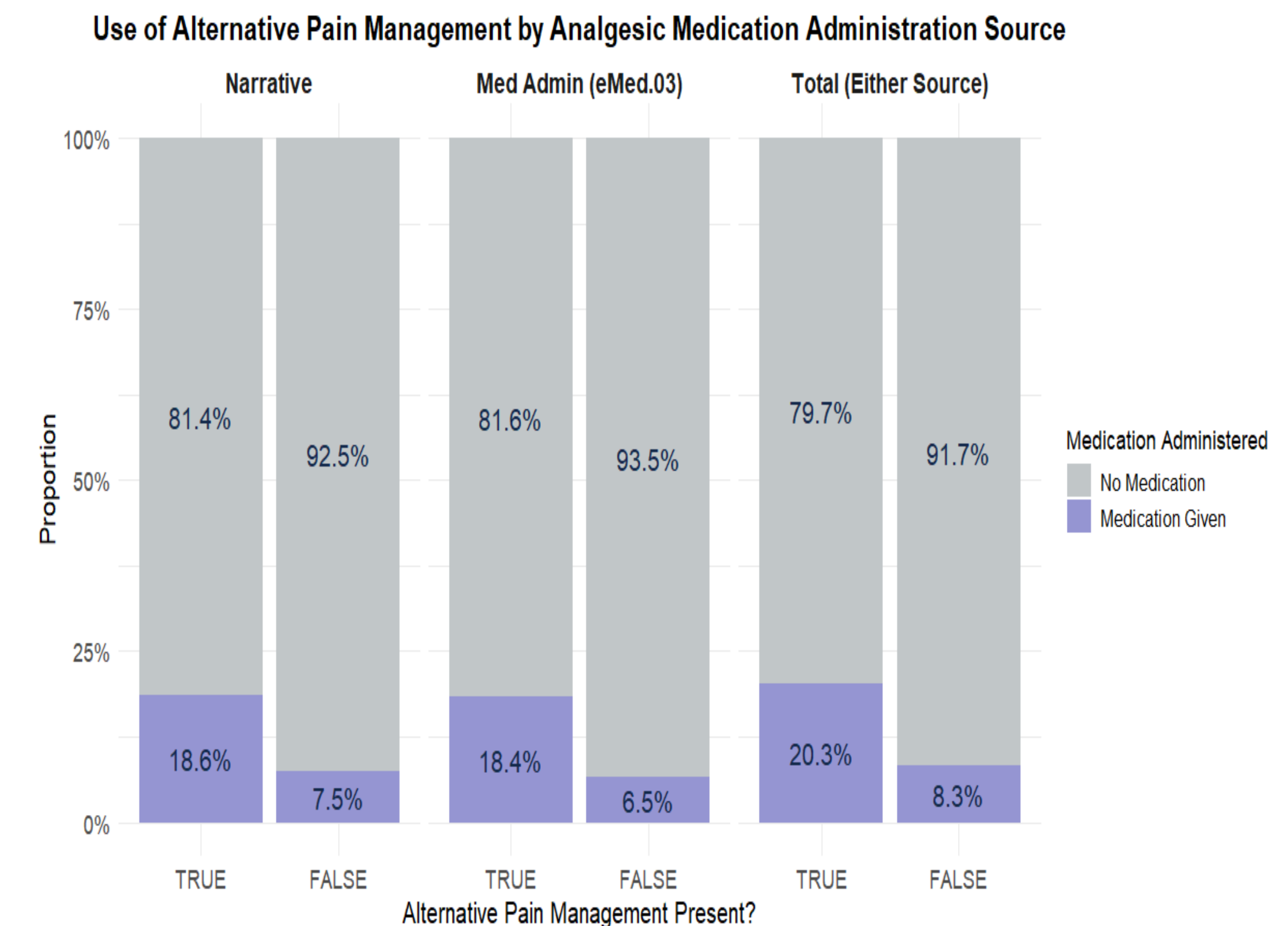


Figure 3: Prehospital pediatric patients that received alternate pain management were also more likely to receive pain medication.

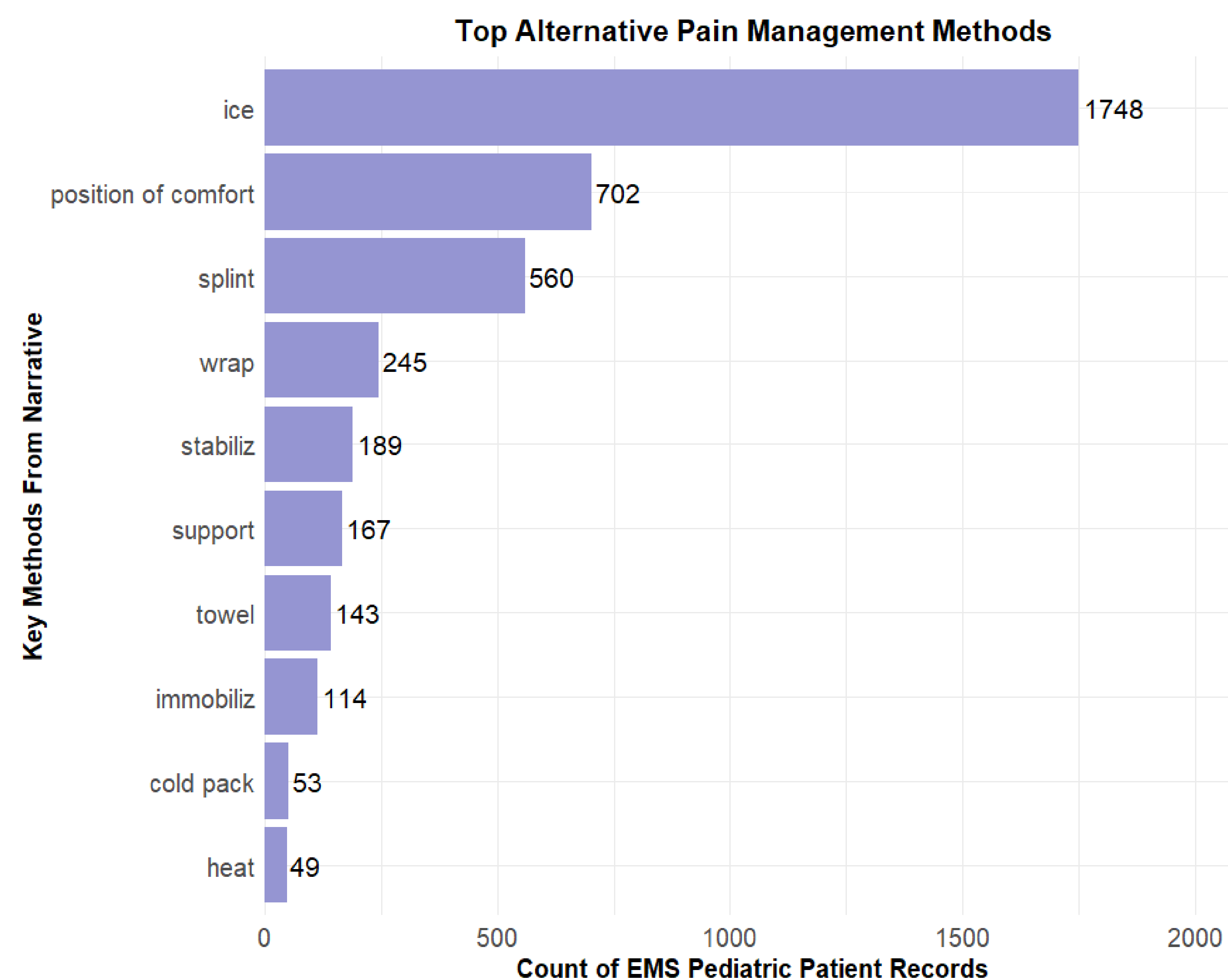


Figure 4: The natural language processing tool was able to extract helpful information on alternate pain medication methods, including ice, putting the patient in a position of comfort, and splinting.

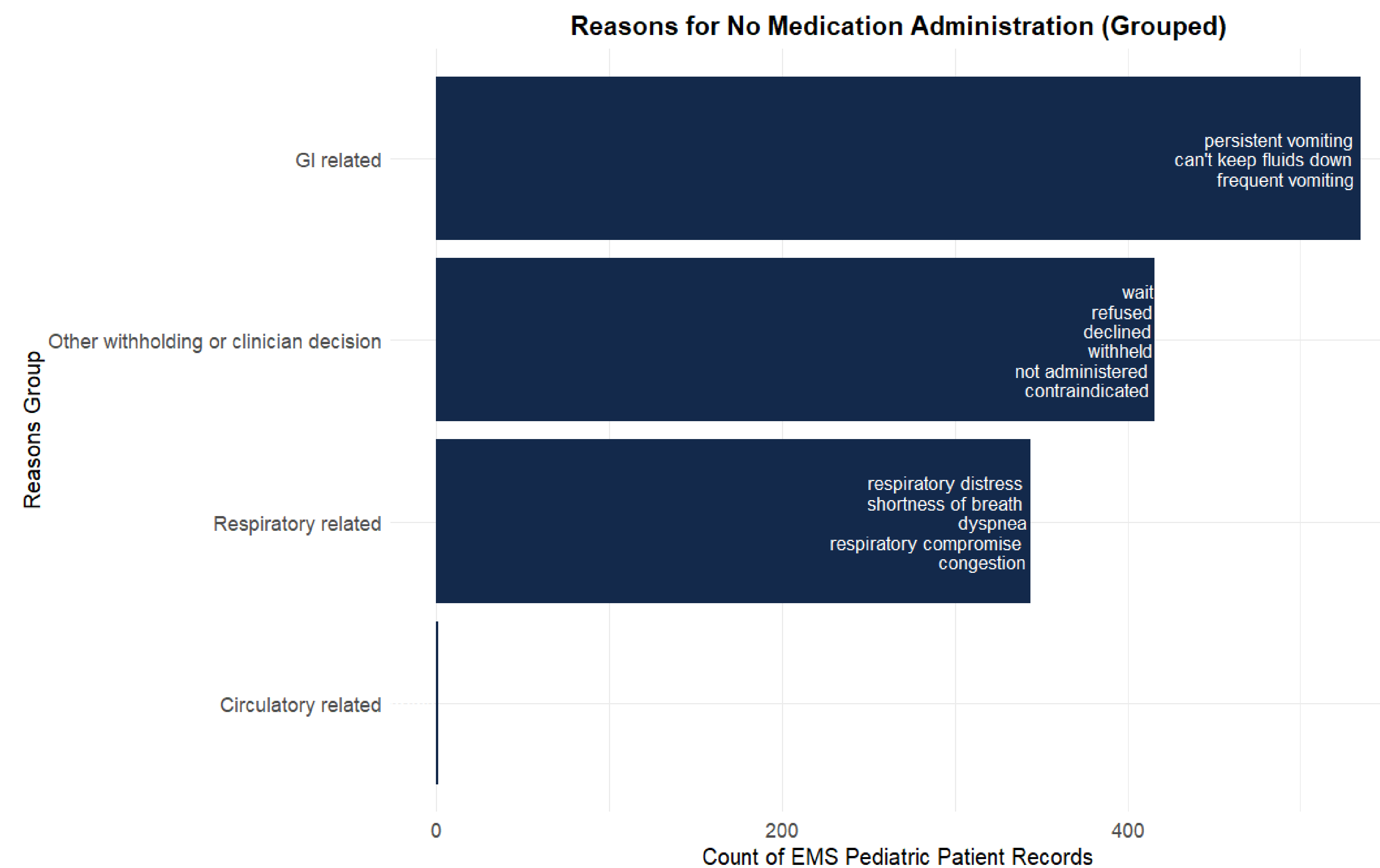
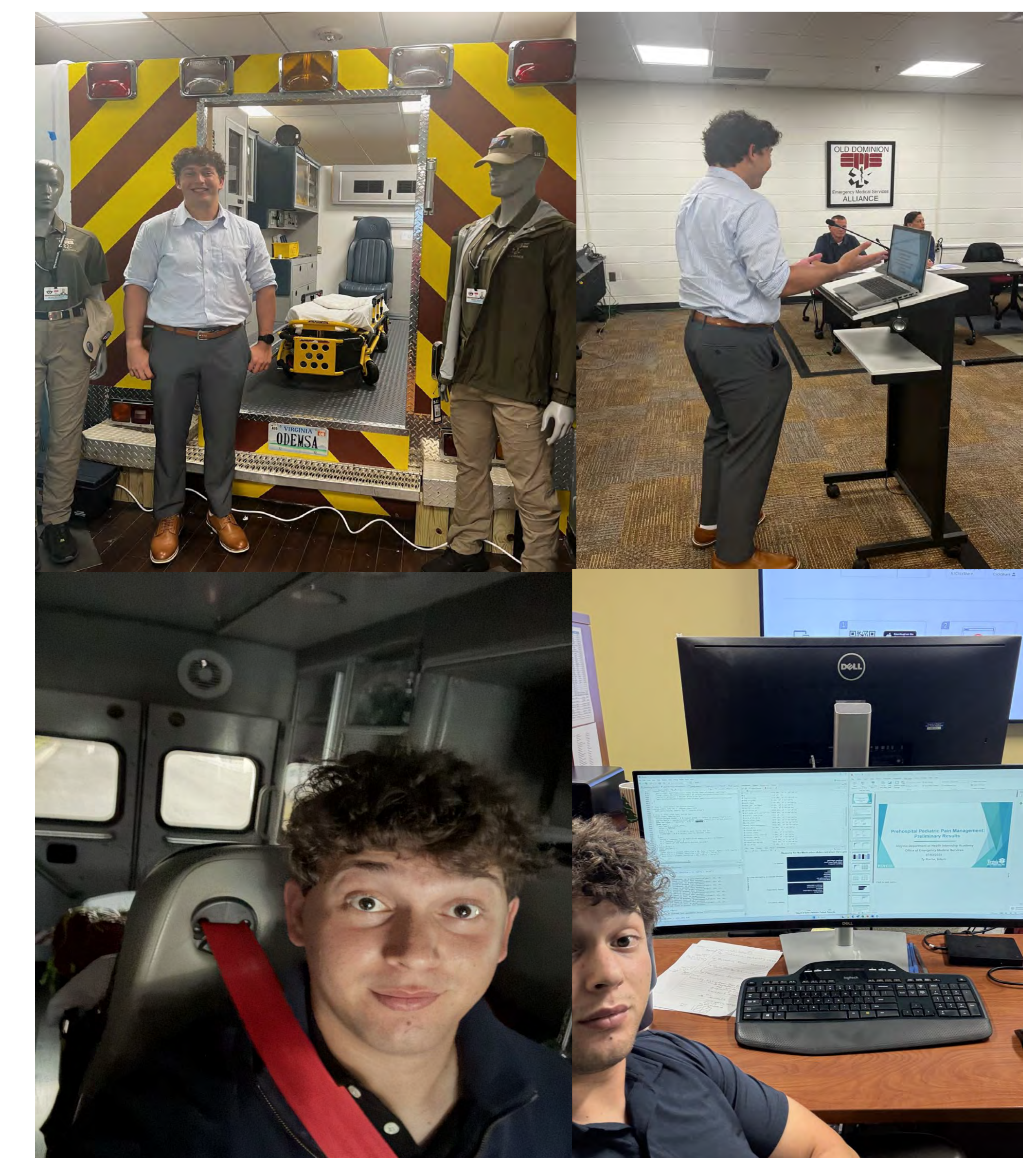


Figure 5: The natural language processing tool was able to extract helpful information on the reasons EMS clinicians did not administer pain medication, including because the patient was vomiting, refused or declined medication, or was experiencing respiratory distress.



Top left to bottom right: Training ambulance at Old Dominion EMS Alliance, Medical Direction Committee presentation, Richmond Ambulance Authority ride-along, and coding session at OEMS. Not pictured: upcoming EMS-Children Governor's Advisory Board committee presentation.