

Rowan University

Rowan Digital Works

Cooper Medical School of Rowan University
Capstone Projects

Cooper Medical School of Rowan University

2020

Do Patients Require Emergency Department Interventions After Prehospital Naloxone?

Prarthi Patel

Follow this and additional works at: https://rdw.rowan.edu/cmsru_capstones

Recommended Citation

Patel, Prarthi, "Do Patients Require Emergency Department Interventions After Prehospital Naloxone?" (2020). *Cooper Medical School of Rowan University Capstone Projects*. 43.
https://rdw.rowan.edu/cmsru_capstones/43

This Poster is brought to you for free and open access by the Cooper Medical School of Rowan University at Rowan Digital Works. It has been accepted for inclusion in Cooper Medical School of Rowan University Capstone Projects by an authorized administrator of Rowan Digital Works.

Do Patients Require Emergency Department Interventions After Prehospital Naloxone?

Prarthi Patel, BS, G. Anthony Fidacaro Jr, MD, Gerard Carroll, MD, Holly Bartimus, MD, Krystal Hunter, MBA, and Rick Hong, MD

Study Aims

Background: Patients receiving naloxone for suspected opioid over- dose in the prehospital setting are typically transported to the emergency department (ED) for further evaluation, regardless of Glasgow Coma Scale (GCS).

Objective: The objective of our study is to determine whether patients with GCS ≥ 14 after receiving prehospital naloxone received additional doses of naloxone and medical inter- ventions in the ED compared with those with GCS <14 after prehospital naloxone.

Methods

- A retrospective observational study of EMS and ED medical records was used to collect data. The Cooper University Hospital Institutional Review Board approved our study.
- Included patients ≥ 18 years old treated with naloxone and transported by an inner-city hospital-based Emergency Medical Services (EMS) to its affiliated ED from January 2, 2016 to December 31, 2016.
- Categorical data are presented as proportions and tested for significance using chi-square or Fisher exact tests.
- The main outcome measures were repeat doses of naloxone and ED interventions.

Results

- 473 patient encounters were reviewed.
- Most common route of prehospital naloxone administration was intranasal (68%).
- Nearly two-thirds ($n=473$) of patients had GCS ≥ 14 upon ED arrival.
- Repeat naloxone was administered to 3.5% ($n = 314$) of patients with GCS ≥ 14 versus 14.6% ($n=159$) of patients with GCS <14 .
- ED interventions, such as airway maneuvers, laboratory and radiology testing, and cardiac monitoring, were less common among patients who had improved GCS of 14 or higher ($n = 314$).
- There were 8 deaths among patients with GCS <14 ($n = 159$) and no deaths among patients with GCS ≥ 14 ($n = 314$).

Introduction

According to the Centers for Disease Control and Prevention the Opioid use disorder has been described as a national epidemic. Naloxone, an opioid antagonist, reverses opioid overdose when given in a timely manner. This study is to analyze whether varying levels of GCS has an impact on if a patient is administered additional doses and medical interventions in the ED.

TABLE 2. ED Interventions for Patients With GCS ≥ 14 and GCS <14

ED Intervention	GCS ≥ 14 (n = 314)	GCS (n = 159)	P
Positive pressure ventilation	5 (1.6%)	20 (12.6%)	<0.001
Negative pressure ventilation	14 (4.5%)	16 (10.1%)	0.019
Intravenous fluids	24 (7.6%)	56 (35.2%)	<0.001
Cardiac monitoring	14 (4.5%)	37 (23.3%)	<0.001
Electrocardiogram	35 (11.1%)	68 (42.8%)	<0.001
Continuous pulse oximetry	125 (39.8%)	58 (36.5%)	0.466
Point-of-care blood glucose measurement	174 (55.4%)	90 (56.6%)	0.834
Laboratory tests	97 (30.9%)	91 (57.2%)	<0.001
Radiology imaging	42 (13.4%)	62 (39.0%)	<0.001
Cardiopulmonary resuscitation	1 (0.3%)	10 (6.3%)	<0.001

ED, emergency department; GCS, Glasgow Coma Scale.

TABLE 3. Final ED Disposition and ED Length of Stay Patients With GCS ≥ 14 and GCS <14

ED Disposition	GCS ≥ 14 (n = 314)	GCS (n = 159)	P
Discharge	242 (77.3%)	91 (57.2%)	<0.001
Admission	13 (4.2%)	45 (28.3%)	<0.001
Left against medical advice	14 (4.5%)	6 (3.8%)	0.727
Eloped/LWBS	43 (13.7%)	5 (3.1%)	<0.001
Expired	0 (0.0%)	8 (5.0%)	<0.001
Transfer to another facility	1 (0.3%)	5 (3.1%)	0.018
Length of stay	189 min	355 min	<0.001

ED, emergency department; GCS, Glasgow Coma Scale.

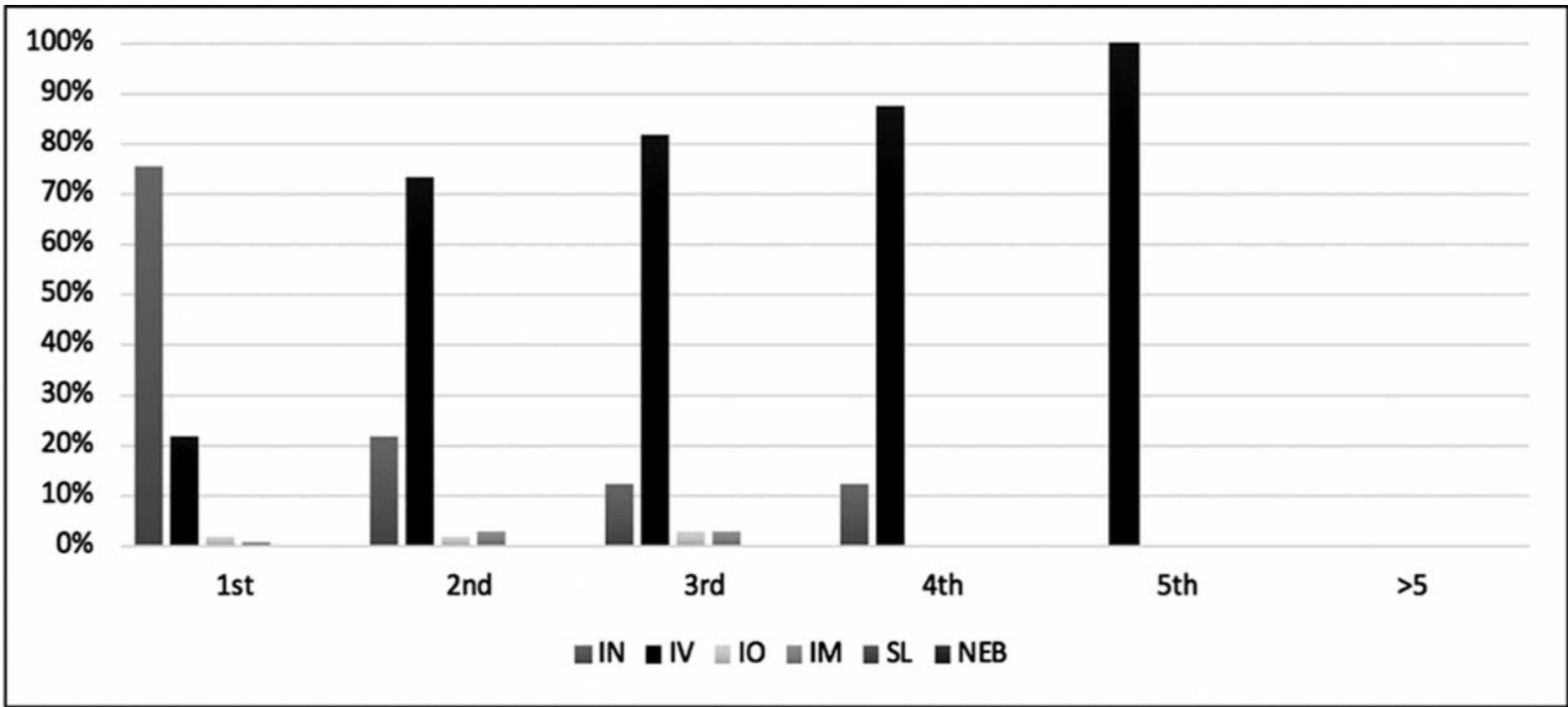


FIGURE 1. Ratios of naloxone route of administration relative to doses of naloxone provided. IM, intramuscular; IN, intranasal; IO, intraosseous; IV, intravenous; NEB, nebulized; SL, sublingual.

Discussion

- Over one-third of patients in both comparison groups were given multiple doses of naloxone, with a majority of the first dose being given IN and subsequent doses being given IV.
- A large proportion of patients who present to the ED with GCS ≥ 14 after receiving prehospital naloxone do not require repeat naloxone dosing throughout the ED evaluation.
- Patients with GCS ≥ 14 before ED evaluation are less likely to receive ED interventions when compared with patients with GCS <14 .
- The average LOS for patients with GCS ≥ 14 compared with GCS <14 was significantly shorter and the average LOS for patients with GCS <14 who were admitted versus who were not admitted was also significantly longer (664.5 vs 311 minutes).

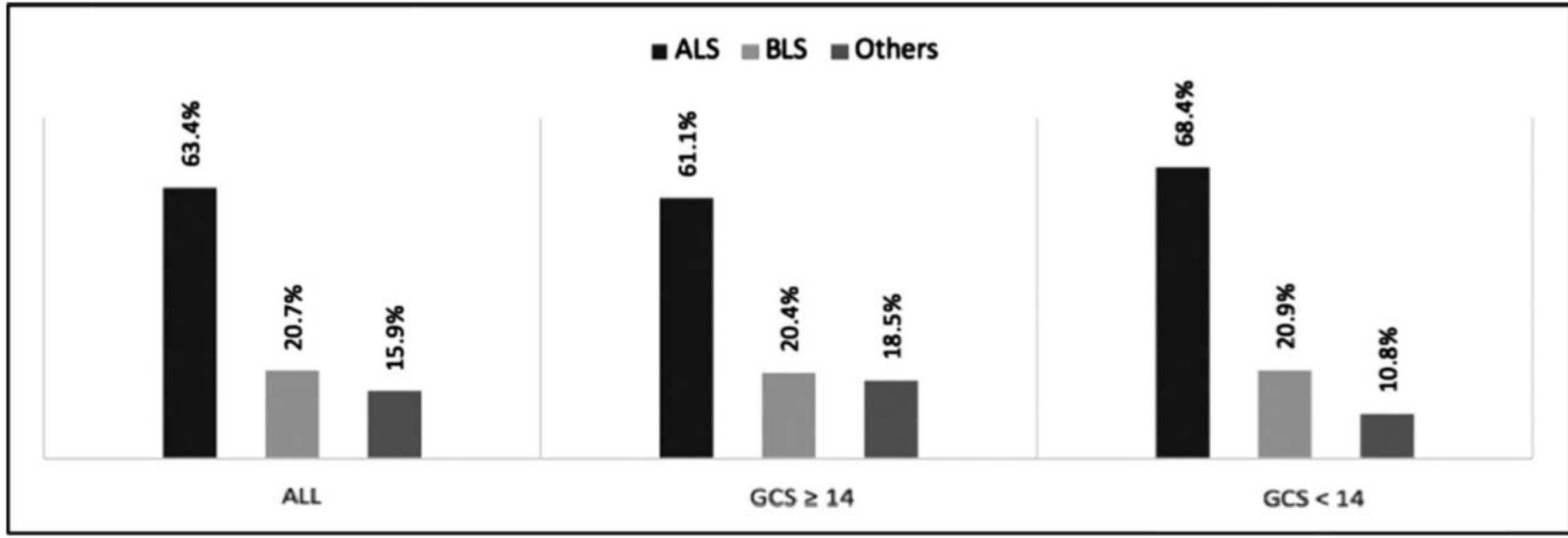


FIGURE 2. Comparison of neurological status at emergency department triage relative to treating prehospital provider. Data are presented as ratios. ALS, advanced life support; BLS, basic life support; others, police, bystander.

Conclusion

Patients with GCS score ≥ 14 after administration of prehospital naloxone are less likely to receive additional naloxone doses and medical interventions in the ED compared with those with a GCS score <14 after prehospital naloxone and may present an invaluable opportunity for the ED to initiate an addiction treatment program for patients with nonfatal overdose.

References:

- CDC. Centers for Disease Control and Prevention grand rounds: prescription drug overdoses-a US epidemic. MMWR Morb Mortal Wkly Rep 2012;61:10 – 13.
- Clemency BM, Eggleston W, Shaw EW, et al. Hospital Observation Upon Reversal (HOUR) with naloxone: a prospective clinical prediction rule validation study. Acad Emerg Med 2019;26:7–15.
- Davis CS, Ruiz S, Glynn P, et al. Expanded access to naloxone among fire fighters, police officers, and emergency medical technicians in Massachusetts. Am J Public Health 2014;104:e7–e9.
- D’Onofrio G, O’Connor PG, Pantalon MV, et al. Emergency department initiated buprenorphine/naloxone treatment for opioid dependence: a randomized clinical trial. JAMA 2015;313:1636–1644.
- Donroe JH, Holt SR, Tetrault JM. Caring for patients with opioid use disorder in the hospital. CMAJ 2016;188:1232–1239.