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25. Pre-EMS naloxone administration is associated with a reduced likelihood of receiving EMS naloxone after opioid overdose

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Objective: With naloxone no longer requiring a prescription in the US, an increasing number of bystanders and non-medical first responders are administering naloxone prior to emergency medical services (EMS) arrival after apparent opioid overdose. Little is known about how this early naloxone administration impacts EMS response at the scene. The objective of this study is to determine if the naloxone dose administered prior to EMS arrival impacts the need for additional naloxone by EMS.

Methods: The Toxicology Investigators Consortium's (ToxIC) RENDOR (Real-world Examination of Naloxone for Drug Overdose) project is an ongoing study that collects naloxone data in the pre-hospital setting. RENDOR consists of data collection on pre-EMS (bystander, police/fire personnel, community health workers) naloxone administration, which is not systematically documented in EMS records. RENDOR collects data from five US sites: Denver, CO; Detroit, MI;Pittsburgh, PA; Portland, OR; and San Francisco, CA. Patients were included if they received pre-EMS intranasal (IN) naloxone, and the outcome was whether they required subsequent EMS naloxone doses. Statistically significant differences were assessed using bivariate statistical tests and multivariable logistic regression analysis.

Results: Among the 2995 cases, 1623 received pre-EMS naloxone, of which 1370 were documented to receive only IN naloxone and 335/1370 (24.5%) subsequently received additional naloxone by EMS. Patients received a mean of 5.5 mg (SD 4.0) of pre-EMS IN naloxone. Those who did not receive naloxone by EMS received a higher dose of pre-EMS naloxone (5.8 mg; SD 4.3) compared to those who received EMS naloxone (4.3 mg; SD 2.8; p < 0.001). Those who received a higher pre-EMS naloxone dose were less likely to receive naloxone by EMS (aOR: 0.39; 95% CI: 0.28, 0.53), adjusting for site, age, and sex. Patients who received naloxone by EMS were more likely to initially present with a depressed level of consciousness (91.1% versus 86.6%; p = 0.02) and respiratory depression (56.7 versus 43.4%; p < 0.001) compared to those who did not require EMS naloxone. There were no differences in cardiac

arrest (5.5 versus 4.7%, p = NS). Patients who received naloxone by EMS also varied by location, ranging from 14.7% in Denver to 33.3% in Portland.

Conclusion: Three-quarters of patients who received naloxone by bystanders or non-medical first responders prior to EMS arrival did not require additional naloxone by EMS. In addition, those who received more pre-EMS naloxone were less likely to receive naloxone by EMS. This demonstrates the importance of training initiatives for pre-EMS naloxone administration.