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017. First Dose Naloxone Characteristics When Given by Bystanders Versus EMS

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Background: Community naloxone administration is a key strategy for managing pre-hospital opioid overdose and reducing time to reversal. However, limited data exist on how initial naloxone administration differs when initiated by bystanders (family/friend/strangers) versus EMS providers. This analysis compared initial naloxone dosing, routes of administration, and clinical response by administration type.

Hypothesis or Research Question: What are the differences in first-dose naloxone administration characteristics when administered by bystanders versus EMS providers?

Methods: The ToxIC RENDOR project is an ongoing study whereby EMS providers take enhanced and standardized histories on patients suffering from opioid overdoses in the prehospital setting. These histories emphasize naloxone administration characteristics by bystanders, police/fire personnel, and community health workers, which are often absent in EMS documentation. Details on administration (dose, route, indication, response) and administrations (bystander, police/fire personnel, EMS) are collected from five U.S. sites: Denver, CO; Detroit, MI; Pittsburgh, PA; Portland, OR; and San Francisco, CA. Group differences (bystander vs. EMS) were analyzed using Independent Samples T-Tests and Chi-Square Tests using R (v.4.5.5).

Results: Of 2,392 completed cases, 648 patients (27.1%) received their first naloxone dose from other administrators (e.g., police/fire personnel) and were excluded from the analysis. The analytic sample (n=1744) compared those who received their initial naloxone dose from a bystander (n=641) with those who received their initial naloxone dose from an EMS provider (n=1103). Patients receiving bystander naloxone were less likely to experience respiratory depression (39.3% vs. 71.8%, $p < 0.001$) or depressed consciousness (81.7% vs. 90.4%, $p < 0.001$), while nares rates of cardiac arrest presentation were similar between groups (6.4% vs. 5.3%, NS). Routes of administration varied markedly: bystanders used naloxone intranasally in 95% (n=608/641) of administrations, compared with 45% (n=497/1103) by EMS. Parenteral routes (IV/IM/ IO) were used in 1% (n=8) of bystander cases versus 54% (n=596) by EMS. Median dose was higher among bystanders for all routes (IN: 4 mg vs. 2 mg, $p<0.001$; Parenteral: 4 mg vs. 2 mg, $p=0.006$). Response to the first dose differed significantly: a lack of

response was more often reported after bystander administration (49.8% vs. 30.9%; p<0.001), while respiratory improvement was more frequently reported following EMS administration (18.6% vs. 43.2%; p<0.001). Prehospital iatrogenic opioid withdrawal was uncommon and similar across groups (6.2% vs. 7.3%, NS). Conclusion: Naloxone administration first by bystanders significantly differed from EMS-first administered naloxone by dose, route, clinical presentation, and response. Further research is needed to determine how these variations affect clinical outcomes.

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