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12. Lower rates of pre-EMS naloxone administration in older patients following suspected opioid overdose

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Background: Pre-EMS naloxone administration following suspected opioid overdose has increased in the United States (US) with expanded community access; however, little is known about age-related differences in pre-EMS versus EMS-administered naloxone, particularly among older patients where substance use and overdose are often under identified. This study investigated differences in naloxone administration among patients aged <65 years old and patients aged ≥65 years old.

Methods: The RENDOR Project is an ongoing, prospectively collected, observational study that captures pre-hospital data on patients experiencing suspected opioid overdoses who receive naloxone across five participating sites (Denver, CO; Detroit, MI; Pittsburgh, PA; Portland, OR; San Francisco, CA). For this analysis, data collected between June 2024 and March 2026 were included. Patients treated in Portland, OR were excluded due to sample size limitations. RENDOR collects detailed information on naloxone use, including dose and routes of administration, and who administered it. Patients were categorized into 2 groups by age: < 65 years old (younger patients, YP) and ≥65 years old (older patients, OP). Pre-EMS naloxone administration included administration by bystanders (friends/family/strangers), fire department personnel, law enforcement, self, and social services (rehabilitation center staff/community health workers). Bivariate analyses considered differences in sociodemographic characteristics and naloxone administration patterns by age cohort, and multivariable logistic regression modeling investigated whether age cohort predicted who administered naloxone treatment (pre-EMS vs. EMS), after adjusting for the patient's study site, sex, race and ethnicity, and whether their overdose location was in a public (e.g., parks, sidewalks, parking garages, public buildings) or private area (e.g., residential, private vehicle).

Results: The analysis included 3,504 patients, of whom 519 (14.8%) were 65 years or older. OPs were mostly Non-Hispanic Black (n = 371; 71.5%) compared to YPs (n = 1,190; 39.9%), and less often Non-Hispanic White (n = 125; 24.1% vs. n = 1,413; 47.3%). This difference was statistically significant

($p < 0.001$). OPs were predominantly male (70.3%), consistent with the wider RENDOR population (72.5%; $p > 0.05$). OPs were less than half as likely to have naloxone administered prior to EMS arrival (n = 110, 21.2%), compared to YPs (n = 1,620, 54.3%; $p < 0.001$). When compared to YPs, OPs were less likely to get bystander (OP: 42.6%, YP: 53.5%) and law enforcement (OP: 6.1%, YP: 13.1%) administered naloxone, and more likely to have fire department administrations (OP: 43.9%, YP: 26.0%, all $p < 0.05$). In comparison to YPs, OPs had 0.4 reduced odds (95% CI: 0.3, 0.5) of pre-EMS naloxone administration over EMS administration, after adjusting for covariates.

Conclusions: These preliminary findings suggest age-related differences in naloxone administration following suspected opioid overdoses, with OPs more frequently receiving their first naloxone dose from EMS providers. This disparity may reflect biases in overdose recognition, bystander response, and community-level overdose response capacity, including access to naloxone among older populations. Future research should examine potential contributing factors, including bystander training and naloxone distribution, as well as failure to identify overdose early in OPs where symptoms may be attributed to other medical conditions.