Emergency Department Visits Prior to Firearm Death: The NC LEADS Project

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To the Editor—Firearm deaths are increasing in North Carolina. Firearm-injury decedents who visited the emergency department (ED) more than once in the year prior to death present opportunities for providers to prevent future firearm deaths. NC LEADS, a part of the North Carolina Firearm Injury Surveillance Through Emergency Rooms (NC-FASTER) program, links records for firearm-injury decedents in the North Carolina Violent Death Reporting System (NC-VDRS) to ED visits in the North Carolina Disease Event Tracking and Epidemiologic Collection Tool (NC DETECT), North Carolina's syndromic surveillance system [1].

From January 1, 2019, to December 31, 2020, 4768 violent death records were obtained from the NC-VDRS and 5,086,654 ED visit records eligible for linkage were sourced from NC DETECT. NC-VDRS records were linked to the decedent's ED visits in the month prior to death using probabilistic linkage methods followed by manual review for validation. For decedents with linked records, NC DETECT tracking IDs were used to identify additional prior-year ED visits for a given medical facility [2].

Most NC-VDRS deaths in 2019–2020 were firearm deaths (66%, n = 3128), and most firearm deaths were due to suicide (54%, n = 1696). Of the 3128 NC-VDRS firearm deaths, 29% (n = 922) linked to at least one ED visit in the month prior to death. Most of these firearm deaths (86%, n = 790) linked to only one ED visit in the year prior to death, often the ED visit associated with the fatal event. Of the 132 firearm deaths with multiple ED visits identified in the year prior to death, 87% had two to five ED visits (n = 115). However, as many as 18 prior ED visits were observed for firearm decedents (Table 1). Firearm deaths linking to multiple ED visits in the year prior to death were demographically similar to those linking to one ED visit in the year prior to death; however, they were slightly more likely to be female, younger, and to die by suicide. Only 18% of firearm deaths with multiple ED visits (n = 24) had diagnosis codes indicative of self-harm, suicidal ideation, or both during their prior-year ED visits.

A better understanding of firearm decedents with multiple ED visits in the year prior to death and the circumstances of their ED visits can contribute to more effective targeted interventions. Future studies should investigate common diagnoses, ED dispositions, and narrative themes among linked NC-VDRS and ED visit data. NCMJ

TABLE 1.
Counts of Prior-Year Emergency Department Visits for Linked North Carolina Violent Death Reporting System Records by Prior-Year Visit Frequency: 2019–2020

	Total linked NC-VDRS & ED visit records	Single ED visit	Multiple ED visits
	Frequency (Percent)[a]	Frequency (Percent)[a]	Frequency (Percent)[a]
n	922	790	132
Prior-year ED visits			
1	790 (85.7)	790 (100.0)	--
2	69 (7.5)	--	69 (52.3)
3	26 (2.8)	--	26 (19.7)
4	12 (1.3)	--	12 (9.1)
5	8 (0.9)	--	8 (6.1)
6	7 (0.8)	--	7 (5.3)
7	3 (0.3)	--	3 (2.3)
8	2 (0.2)	--	2 (1.5)
10	1 (0.1)	--	1 (0.8)
11	2 (0.2)	--	2 (1.5)
12	1 (0.1)	--	1 (0.8)
18	1 (0.1)	--	1 (0.8)
Last ED visit[b]			
On date of death	694 (75.3)	598 (75.7)	96 (72.7)
Before date of death	228 (24.7)	192 (24.3)	36 (27.3)

Note. Prior-year ED visits are those occurring within 365 days of the decedent's date of death.
[a]Column totals sum to 100%.
[b]Indicates whether the decedent's date of death is the same as the date of their most recent (proximate) ED visit.

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