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Title:	Poison center calls for intentional exposures to opioids are highly correlated with retail availability in the RADARS® System Poison Center Program.
Authors:	Winter EJ, Buchholtz C, Davis JM, Severtson SG, Dart RC RADARS® System Poison Center Group
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Abstract:

Background: Calls to poison centers (PCs) involving prescription opioids have increased in recent years. The strength of the relationship between PC intentional exposure call (IEC) volume and drugs with higher retail availability has not been measured. The purpose of the current study was to compare retail availability of prescription opioids to the number of IECs received by PCs for these drugs.

Methods: The RADARS System Poison Center Program captures acute drug exposures from participating US PCs. PCs use a standard electronic system to record spontaneous calls from the public; the coordinating PC performs quality control checks to verify product coding accuracy. IECs are coded as suspected suicide, misuse, abuse, intentional unknown, or withdrawal exposures. Total calls by quarter from 2003-2010 involving at least one target opioid mention (hydrocodone, oxycodone, fentanyl, hydromorphone, morphine, buprenorphine, methadone) were included in the analysis (N=166,180). Retail availability is represented by Unique Recipients of Dispensed Drug (URDD) within the reporting PC coverage area for each quarter. Mixed effects modeling correcting for autocorrelation was used to determine the relationship of retail availability and overall PC IEC volume.

Results: RADARS System Poison Center US population coverage ranged from 21.2% in 1Q2003 to 75.6% in 4Q2010. Individual opioid class IECs ranged from 2,765 (hydromorphone) to 84,582 (hydrocodone). The expected call volumes to PCs per 100,000 URDD are: hydrocodone 12.2 (95% CI: 5.4-27.9), oxycodone 26.6 (15.5-45.6), fentanyl 36.0 (28.7-45.2), hydromorphone 42.2 (37.7-47.1), morphine 83.1 (68.1-101.5), buprenorphine 98.1 (88.2-109.1), and methadone 168.6 (141.8-200.4). Inclusion of an interaction term suggests that across all drug classes there is some variability in the association between IEC calls and URDD, but higher quarterly URDD are a strong predictor of greater quarterly IECs across all drug classes ($p<.001$).

Conclusion: Retail availability is a strong predictor of PC IEC volume when considering drugs of varying levels of availability. Overall PC IEC volumes are sensitive to changes in retail availability, and in light of increasing retail availability of all opioid products, PCs will continue to provide a valuable public health service.