

## Trends in the Occurrence of Opiate Exposure as Reported to the ToxIC Registry, 2010-2015

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### Background

Opioids contribute a major proportion of all agents in the Toxicology Investigators Consortium case registry. In 2015, opioids accounted for nearly 9% of all agent fields; however, the relative contribution of both the overall opioid class, as well as, individual agents has varied over time. The relative class contribution, which includes all natural, semisynthetic and synthetically derived opioid agonists/antagonists, appears to have declined.

### Research Question

What changes in toxic events involving individual opioids have occurred over the initial six-years of reporting to the ToxIC Registry?

### Methods

This descriptive analysis included all ToxIC Registry cases reported January 1, 2010 through December 15, 2015. Analysis based cases with at least one agent (N=37,558, 87.1% cases). Summary statistics included testing of the difference of proportions statistics (prtest) and modelled proportions for trend (ptrend) using 'case/total cases' metric (STATA/SE, Statacorp LP).

### Results

An average of 915 cases involved exposure to >1 opioid annually over the six-years (range 541 - 1,137), representing 12.5% to 21.1% (five-year average 14.6%). Linear tests for trend showed a consistent downward absolute value (4.2% AAPC). A positive versus negative trend was observed for single (+3.3% AAPC, 3.848 chi-squared p=0.05) versus multiple agent poisonings (-3.2% AAPC, 15.95 p<0.0001).

Heroin, methadone, oxycodone and tramadol were common in all years (four of top five opioids in single and multiple). Relative rank differences appeared including for heroin 31.6% single (rank #1) and 14.6% of multiple (rank #3) poisonings. Agent specific trends varied in direction, magnitude and significance. In single agent events, positive trends were observed for buprenorphine, morphine, heroin and opioids-unspecified, while negative trends appeared for methadone and fentanyl. Multiple agent poisonings had significant increases (p<0.0001) for heroin, hydrocodone, and oxycodone.

### Discussion

During this period, cases involving >1 opioid demonstrated variation in their relative contribution to the ToxIC registry by specific drug and single/multiple exposure. It is important to parse out the relative influence of polydrug exposures, as well as other factors that influence reporting over time.

### Conclusion

As the Registry continues to increase in size and accumulated years, the ability to identify stable estimates of trend will continue to improve.

