Presented at the ACMT Annual Scientific Meeting 2016 – Huntington Beach, CA

Published in J Med Toxicol 2016,12:37

103. Improving Sentinel Reporting in a Medical Toxicology Surveillance System by Strengthening Data Entry Requirements

S Campleman[1], P Wax[1,2], J Brent[3], on Behalf of the Toxicology Investigator's Consortium (ToxIC)
[1] American College of Medical Toxicology, Phoenix, AZ, USA, [2] University of Texas, Southwestern Medical School, Dallas, TX, USA, [3] University of Colorado, School of Medicine, Denver, CO, USA

Background: Medical toxicology research and surveillance remains reliant on the content, quality, and completeness of the data reported by clinicians. Two sentinel areas of interest include emerging and novel toxic events (ENT), medication errors (ME), and adverse drug reactions (ADR). Concerns around potential under reporting to the American College of Medical Toxicology's Toxicology Investigators Consortium ("ToxIC") Registry led to 2015 Data Changes (effective January 1, 2015).

Research Question: Did adding mandatory reporting requirements for sentinel event questions increase their relative reporting in the ToxIC Registry?

Methods: This descriptive analysis included all ToxIC Registry cases reported by participating US sites 4 months prior to and after the initiation of new reporting requirements on January 1, 2015 (reference date). Relative frequencies and percent change were calculated and compared between two entry windows, period 1 (optional September 1 to December 31, 2014) and period 2 (mandatory January 1 to April 13, 2015), via significance testing of the difference between two proportions.

Results: ToxIC sites entered 5459 cases into the registry over this 8-month period. Prior to adoption at the reference date, 2.4 % of ToxIC cases were reported as ENT-related vs. 3.5 % afterwards (+44.8 % P = 0.018). Two primary drug classes demonstrated significant increases as ENTs, Psychoactives (40.7 to 46.7 %, P = 0.013), and Sympathomimetics (8.8 vs. 17.8 %, P = 0.006). Synthetic cannabinoids were the major agent reported (31.9 vs. 35.5 %, P = 0.039). Reporting of MEs and ADRs increased after the changes from 5.5 to 7.1 % (+28.9 %, P = 0.016), driven by a 40 % increase in the relative frequency of ADR only cases (3.5 to 4.9 %, P = 0.010).

Discussion: In addition to minimizing the risk of under reporting, the minimal changes in the required upper level mandatory questions enable improved tracking of data content for sentinel events. As with any voluntary surveillance system and particularly true with a clinical-based registry, ToxIC needs to balance the core registry data requirements with the ease of entering the data. This descriptive analysis should be regularly updated to track the ultimate influence of these changes over time.

Conclusion: Data to date suggest that the additional mandatory reporting rules for ToxIC sites improved identification for these select sentinel events.