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### **005. Medical Toxicology Consultations for Poisoned Children Managed in Pediatric Intensive Care Units**

Kim Aldy<sup>1,2</sup>, Rachel E Culbreth<sup>1</sup>, Christina Hantsch<sup>3</sup>, Theresa Mikhailov<sup>4</sup>, Nancy Brundage<sup>5</sup>, Jeffrey Brent<sup>6</sup>

<sup>1</sup>American College of Medical Toxicology, Phoenix, AZ. <sup>2</sup>Baylor University Medical Center, Dallas, TX. <sup>3</sup>.

<sup>4</sup>Medical College of Wisconsin, Milwaukee, WI. <sup>5</sup>Virtual Pediatric System (VPS, LLC), Los Angeles, CA.

<sup>6</sup>University of Colorado School of Medicine, Aurora, CO.

**Background:** Drug overdose and poisoning (“poisoning”) increased by 83.6% from 2019 to 2020 among children and adolescents, becoming the third leading cause of death in that age group. Medical toxicologists (MTs) are specially trained to treat children with poisoning, commonly managed in Pediatric Intensive Care Units (PICUs). MT consultation is not available in all PICUs.

**Research Question:** What is the association between MT consultation and outcomes for poisoned PICU patients?

**Methods:** Virtual Pediatric System (VPS) is a multi-institutional database supporting comparative analysis of PICU management and outcomes. Data from years 2019-2021 on poisonings were included in this analysis. MT consultations were operationalized as a binary variable (yes/no). The comparison group consisted of cases without MT access at their hospital. Multivariable logistic regression analyses were used to determine the association between MT consultations and mortality, adjusting for age, sex at birth, race/ethnicity, PRISM III scores, and trauma (yes or no). Log-linear regression analyses were used to examine the association between MT consultations and PICU length of stay (LOS). All analyses were conducted in R 4.1.2.

**Results:** The analytic sample included 1,792 (11.2%) poisoned patients who received MT consultations and 14,205 (88.8%) poisoned patients without MT access. Patients who received MT consultations had a slightly higher PRISM III probability of mortality (median=0.43) compared to patients without MT access (median=0.34) ( $p<0.001$ ). In the multivariable model, MT consultations were associated with a 66% lower odds of mortality compared to those without MT access (OR: 0.34; 95% CI: 0.15, 0.77), after adjusting for covariates. Additionally, MT consultations were associated with a 18% shorter PICU LOS compared to patients without MT access (Estimate: -0.20; 95% CI: -0.26, -0.14).

**Conclusion:** VPS data analyses determined that MT consultation for poisoned PICU patients is associated with a reduction in mortality and shorter LOS.