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### **169. Pediatric opioid toxicity secondary to buprenorphine: a review of cases reported to the ToxIC Registry 2010–2021**

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**Background:** In adults, buprenorphine's opioid effect has a "ceiling" which limits toxicity in overdose. Conversely, significant toxicity in the pediatric population has been reported but extent of clinical occurrence has thus far been poorly characterized. We hypothesize that buprenorphine exposures make up a significant portion of pediatric opioid exposures reported to the ToxIC Registry and that naloxone administration is common.

**Methods:** The ToxIC Core Registry is a multi-center database of patients cared for by medical toxicologists and includes 35 US and 5 international sites. The Registry was queried from April 15, 2010 to November 11, 2021 for all opioid exposure cases in ages <12 years old. Descriptive statistics were used to further characterize single agent buprenorphine exposures (SABE) across different age groups.

**Results:** Of the 640 pediatric (age <12) opioid exposure cases reported to Toxic Core Registry 35% (223) of cases involved buprenorphine. SABE represented 77% (172) of Buprenorphine exposures reported. Most cases of SABE were in those age 0–23 months (n = 86, 50%), followed by age 2–6 years old (n = 82, 48%) and age 7–12 years (n = 4, 2%). Girls made up 51% (n = 88). Dose was reported in 33 SABE cases; average dose was 6 mg (range 2–8 mg). The most common reason for encounter was unintentional ingestion (n = 166, 97%). The most common clinical symptoms were central nervous system depression (n = 117, 68%) and respiratory depression (n = 48, 28%). Toxicologic treatment was reported in 100 cases (58%). Naloxone was administered in 89 (52%) cases. No deaths were reported.

**Conclusions:** Pediatric buprenorphine exposures reported to the ToxIC Core Registry represented more than 1/3 of all reported pediatric opioid exposures; most commonly in younger children. SABE made up the majority of cases and naloxone administration was common. This information suggests that isolated buprenorphine exposure should be considered in pediatric patients presenting with opioid toxicity, and inclusion of buprenorphine screening tests in addition to standard urine drug screens could detect additional pediatric opioid exposures.