COVID-19 and Pediatric Ingestions
Karima A. Lelak, MD, Varun Vohra, PharmD, Mark I. Neuman, MD, MPH, Ahmed Farooqi, PhD, Michael S. Toce, MD, MS, Usha Sethuraman, MD

On March 13, 2020, the United States declared the coronavirus disease 2019 outbreak a national emergency. Consequently, the abrupt shift in the school and home dynamics, combined with ensuing psychosocial and economic household stressors, placed children at increased risk of harm. In particular, early 2020 data indicated an increase in household cleaner and disinfectant exposures. However, the impact of the pandemic on overall pediatric ingestions is unclear. Our objective was to compare national trends in pediatric ingestions during the pandemic to a similar prepandemic period.

METHODS
All closed cases of ingestions involving children aged ≤19 years reported to US poison control centers from March 13 to December 31, 2020 (pandemic), were compared with an identical period from 2017 to 2019 (prepandemic). A closed case is either one in which the regional poison center determined no further follow-up or recommendations were required or no further information on the case was available. All US poison control center operations and reporting were consistent across the study period. Aggregate national data were abstracted from the American Association of Poison Control Centers National Poison Data System. Information requests and animal calls were excluded. Abstracted data included age group, sex, substance ingested, reason, exposure and management site, disposition, and medical outcome. Clinically significant outcomes were defined as a moderate or major effect or death. Descriptive statistics were used to describe the study cohorts, and categorical variables were compared by using the χ² test. The significance level was set to α < .05. The study was exempt from review by our institutional review board.

RESULTS
There were 861,626 pediatric ingestions during the pandemic, representing a 6.3% absolute decrease compared with the prepandemic years (Fig 1A). The pandemic period had an increase in proportion of teenagers and children aged ≤5 years compared with the prepandemic years (Table 1). There was a relative increase in intentional ingestions accounting for 10.8% of all ingestions during the pandemic period versus 10.3% during the prepandemic period (0.5% difference, 95% confidence interval: 0.4%–0.6%, P < .001) (Table 1). In addition, there was a relative increase in ingestions occurring at home during the pandemic period when compared with the prepandemic period (1.9% difference, 95% confidence interval: 1.8%–2.0%, P < .0001).

Ingestions of hand sanitizers increased by 43% (18,099 vs 12,653, P < .0001) and melatonin...
by 70% (44 957 vs 26 431, \( P < .0001 \)) during the pandemic period. Additionally, melatonin ingestions supplanted analgesics as the most frequently ingested substance during the pandemic period (Fig 1B). Clinically significant outcomes associated with ingestions increased during the pandemic period (4.2% vs 3.6%, \( P < .001 \)). The majority of ingestions occurred at the home, aligning with school and child care closures during the pandemic.

The increase in clinically significant ingestions observed in our study could be a consequence of misperceptions of health care facility safety during the pandemic. This may have subsequently contributed to delays in presentations and potentially worse outcomes.6

The increase in the proportions of adolescent and intentional ingestions may reflect heightened social, emotional, and psychological stressors on this age group. Initiatives focusing on implementing support systems for this vulnerable population are warranted. The heightened hand sanitizer and melatonin ingestions parallel the ubiquitous rise in the sale and use of such products during the pandemic and ease of accessibility among children.3,7 This demands continued attention, given reports of methanol-contaminated hand sanitizer ingestions with severe adverse outcomes.8

Limitations include voluntary reporting to poison control centers and reliance on secondhand narratives, which may include partially incomplete information. Additionally, drug concentrations are rarely obtained to confirm ingestions. Finally, incomplete coding of the poison control center data may have also skewed ingestion frequencies.

DISCUSSION

Ingestion-related calls to poison control centers and those subsequently managed at health care facilities decreased during the pandemic period. The latter is consistent with a report of an overall decrease in pediatric emergency department visits.5 This decline may be secondary to a combination of social restrictions, apprehensions in seeking care at a medical center, and increased parental supervision due to work-from-home advisories.5,6 The majority of ingestions occurred at the home, aligning with school and child care closures during the pandemic.

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FIGURE 1
Pediatric ingestion trends 2017–2020. A, Rate of ingestion by age group (≤5 years, 6–12 years, and 13–19 years). Population estimates are based on the US Census Bureau. B, Total yearly ingestions of the most common substances in 2020 (melatonin, ibuprofen, acetaminophen, foreign body, and hand sanitizer) compared with the previous 3 years.
CONCLUSIONS

Pediatric ingestion calls to poison control centers decreased during the pandemic. However, there were significant increases in intentional hand sanitizer and melatonin ingestions and those with clinically significant outcomes. Further studies are required to determine the long-term impact of the pandemic on pediatric ingestions to institute appropriate preventive measures and resource allocation.

REFERENCES


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