

## Bleach Exposures During COVID-19

The Centers for Disease Control and Prevention (CDC) provides guidance on the cleaning and disinfection of households and businesses to limit the survival of the COVID-19 virus on frequently touched surfaces. These recommendations include the use of dilute bleach solutions. As a result of an increase in the use and misuse of household bleach by adults, and because these products are kept where small children have easy access to them, cases handled by U.S. poison centers have increased compared to before the pandemic. From January through March 2020, there were 28,158 exposures to cleaners, a 20% increase over the same three months in 2019 and 2018. Bleach accounted for more than 62% of the increase in cases with cleaners from 2019 to 2020 (*MMWR 2020;69:496-8*). The American Association of Poison Control Centers (AAPCC) reports that U.S. poison centers handled 13,769 cases involving bleach from March 1, 2020 through May 17, 2020, a 65% increase over the same time period in 2019 (<https://aapcc.org/page-1075510>; retrieved May 19, 2020).

Most household bleach products contain 3-5% sodium hypochlorite, an oxidizing agent, and have a pH of 10-12.5. Some may contain higher concentrations and higher pH. Unintentional exposures in children and adults result in oral and throat irritation, nausea, and vomiting, but rarely serious injury. Large intentional ingestions or ingestions of higher concentration products (i.e., >10% sodium hypochlorite) may produce caustic injury with esophageal and gastric burns and stricture formation. Hyperchloremia, hypernatremia and metabolic acidosis have also occurred with deliberate ingestions of large volumes of bleach. Ocular and dermal exposures usually cause minor irritation, but burns are possible in some cases. Inhalation of household bleach results in coughing, upper respiratory irritation, and dyspnea. Mixing hypochlorite-containing bleach with household products containing acids (e.g., toilet bowl cleaners) will liberate chlorine gas leading to mucous membrane irritation and wheezing, especially in those with COPD or asthma. Rarely upper airway edema, obstruction, and chemical pneumonitis occur. Similar respiratory effects are seen when bleach is mixed with ammonia, producing chloramine gas.

The vast majority of bleach ingestions do not require treatment beyond giving a small amount of water or milk to drink. Endoscopic evaluation to determine the extent of injury should be considered if the patient is exhibiting symptoms suggestive of caustic injury (e.g., dysphagia, drooling, pain), if the ingestion was intentional, or if the history is unreliable as to amount and concentration. Patients with eye exposures and dermal exposures should undergo immediate irrigation with water or saline and be evaluated for caustic injury if irritation does not resolve. Symptoms associated with inhalation of household bleach or mixtures of bleach with other household products usually resolve with fresh air. Treatment of inhalation exposures with severe or persistent symptoms may include 100% humidified oxygen and inhaled beta-2 adrenergic agonists for bronchospasm.

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### Did you know?

**Poison centers have also seen an increase in calls involving other household products during the COVID-19 pandemic.**

Like cleaners, the number of calls to U.S. poison centers each day for exposures to disinfectants increased sharply at the beginning of March 2020. According to the CDC, poison centers saw a 16% increase in exposure cases involving disinfectants January—March 2020 compared to the same months in 2019 (*MMWR 2020;69:496-8*). More recently, disinfectant cases handled by poison centers between March 1, 2020 and May 17, 2020 increased 97% over that same period of time in 2019. Exposures with hand sanitizers increased by 62% from March 1 through May 17 of this year compared to last year (<https://aapcc.org/page-1075510>; retrieved May 19, 2020).



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