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Update on High Blood Lead Levels in Children Consuming Recalled Cinnamon Applesauce Pouches and Potential Chromium Exposure

Lead Exposure

The Centers for Disease Control and Prevention (CDC), the Food and Drug Administration (FDA), as well as state and local officials are investigating a link between blood lead levels (BLLs) ≥ 3.5 $\mu\text{g}/\text{dL}$ and children consuming certain apple purée and applesauce products containing cinnamon. WanaBana, Schnucks, and Weis brands have voluntarily recalled certain lots of the following products that were tested and found to contain high levels of lead:

- WanaBana brand apple cinnamon fruit purée pouches
- Schnucks brand cinnamon-flavored applesauce pouches
- Weis brand cinnamon applesauce pouches

CDC's National Center for Environmental Health (NCEH) and FDA's Coordinated Outbreak Response & Evaluation (CORE) Network continue investigations to identify individuals across the United States who may have consumed these products with high levels of lead. Updates about the investigation can be found on the FDA's website, [Investigation of Elevated Lead Levels: Cinnamon Applesauce Pouches \(November 2023\) | FDA](#). More details about case identification are available on CDC's website, [Lead Poisoning Outbreak Linked to Cinnamon Applesauce Pouches](#). Additional information for clinicians can be found in the CDC Health Advisory published November 13, 2023, [Health Alert Network \(HAN\) -](#)

Chromium Exposure

FDA product testing has also identified high levels of chromium in cinnamon samples and recalled apple cinnamon puree pouches. Chromium is a naturally occurring element with trace levels normally found in the diet. The most common forms of chromium found in chromium compounds are trivalent chromium (chromium(III)) and hexavalent chromium (chromium(VI)). Chromium(III) is considered an essential nutrient and can be found in dietary supplements. Chromium(VI), however, is a known carcinogen. Chronic, prolonged inhalational and skin exposure to chromium(VI) has been associated with chronic lung disease and ulceration of skin and mucous membranes. Lead chromate, which contains chromium(VI), has been used to adulterate turmeric and other spices. While harm resulting from ingesting lead-contaminated food is relatively [well researched](#), the effects of eating food contaminated with chromium(VI), as a constituent of lead chromate, are not well understood. Chromium(VI) compounds may be converted to chromium(III) in acidic environments. Currently, FDA testing cannot identify whether the chromium in the cinnamon and recalled apple cinnamon puree pouches is chromium(III) or chromium(VI).

Recommendations for Clinicians:

For Possible Lead Exposure

- Counsel patients and/or their caregivers and guardians not to eat cinnamon-containing apple purée or applesauce products named in the FDA recall announcements.
- Educate patients and/or their caregivers and guardians about the health effects of lead exposure in children.
- Obtain a blood lead level in all patients who have consumed a recalled applesauce pouch product using either a capillary or venous blood sample. Laboratory testing for blood lead levels is available through most clinical laboratories.
- Refer to CDC's guidance on [testing children for lead exposure](#) and the American Academy of Pediatrics' [clinical guidance for managing lead exposure in children](#).

For Possible Chromium Exposure

- Acute ingestion of chromium exceeding dietary recommendations may result in abdominal pain, nausea, vomiting, diarrhea, anemia, and renal and hepatic dysfunction.
- Medical treatment for chromium exposure is supportive as indicated from the clinical presentation. There is no specific antidote to treat chromium exposure, and there is no evidence to support the use of chelation therapy.

- Consider obtaining a urinalysis and comprehensive metabolic panel (CMP) including electrolytes, liver enzymes, and BUN/creatinine to assess for hepatic and renal injury. A complete blood count (CBC) can be used to assess for anemia and iron deficiency. These tests may be indicated at the discretion of the treating physician.
 - Consider tests for any patients who consumed recalled applesauce products and have concerning or persistent symptoms that cannot be readily explained, such as vomiting and diarrhea or signs of anemia.
 - Give priority to patients with higher blood lead levels (e.g. 10 µg/dL or higher).
- Clinicians may consider testing urine, blood, or serum chromium levels but results may be difficult to interpret and do not guide clinical management.
 - Chromium levels in blood or urine reflect recent exposures and are not reflective of body burden. These lab tests are generally used to assess workers exposed to high levels in occupational settings via dermal or inhalational routes of exposure.
 - Mean chromium levels in the general U.S. population are below limits of detection (LOD) in whole blood (LOD=0.41 µg/L) and urine (LOD=0.19 µg/L), as reported in the CDC [National Report on Human Exposure to Environmental Chemicals](#). There is no international consensus on a normal or acceptable range of chromium levels, and no established threshold at which toxicity occurs.
 - Hair and nail samples are not reliable sample types to assess chromium exposure.
- Contact your local poison center (1-800-222-1222) for advice on diagnosing and managing lead and chromium toxicity.
- Consider consulting a [medical toxicology specialist](#) or a [Pediatric Environmental Health Specialty Unit \(PEHSU\)](#) expert for guidance regarding individual patients.
- Contact your local health authority to report cases of individuals with BLLs above the reference value of 3.5 µg/dL.
 - State health departments will coordinate each state's case-finding efforts and report data to the CDC National Center for Environmental Health (NCEH). Personnel at state health departments who need [more information about case-finding and reporting](#) can contact NCEH at ncehoutbreak@cdc.gov.

For more Information

FDA

- [Investigation of Elevated Lead Levels: Applesauce Pouches \(November 2023\)](#)
- [MedWatch Online Voluntary Reporting Form](#)
- [MedWatch Consumer Voluntary Reporting Form](#)

- [Consumer Complaint Coordinators](#)

CDC/ATSDR

- [Lead Poisoning Outbreak Linked to Cinnamon Applesauce Pouches](#)
- [Childhood Lead Poisoning Prevention Program](#)
- [Guidelines and Recommendations](#)
- [Testing Children for Lead Poisoning](#)
- [Blood Lead Levels in Children](#)
- [Toxicological Profile for Lead](#)
- [Lead ToxFAQs](#)
- [Toxicological Profile for Chromium](#)
- [ATSDR Chromium ToxFAQs \(cdc.gov\)](#)
- [CDC-INFO](#) or call CDC-INFO at 1-800-232-4636

America's Poison Centers

- [U.S. Poison Centers](#)

Pediatric Environmental Health Specialty Unit

- [About PEHSU / Find an Expert](#)
- [Recommendations on Management of Childhood Lead Exposure](#)

American College of Medical Toxicology

- [About ACMT](#)
- [Find a Toxicologist - ACMT](#)

Association of Occupational and Environmental Clinics

- [AOEC - Home](#)