



2022 PRODUCT TESTING EVENTS

A variety of products have been linked to childhood lead poisoning. Exposure to even a small amount of lead can cause serious health problems for children such as damage to the brain and slowed growth. Harm caused by lead can be permanent, which is why it is important to remove lead from our products and our homes.

GOALS

- Educate families on the dangers of lead in products and lead poisoning prevention,
- Promote blood lead testing for children at risk of lead exposure,
- Gather information on the types of products King County families use that contain lead.



19 **Product Testing Events**

326 **Participants served**

560 **Items tested**

61 **Items found with concerning amounts of lead**

Public Health—Seattle & King County (PHSKC) partnered with ten organizations to offer Product Testing Events in 2022.

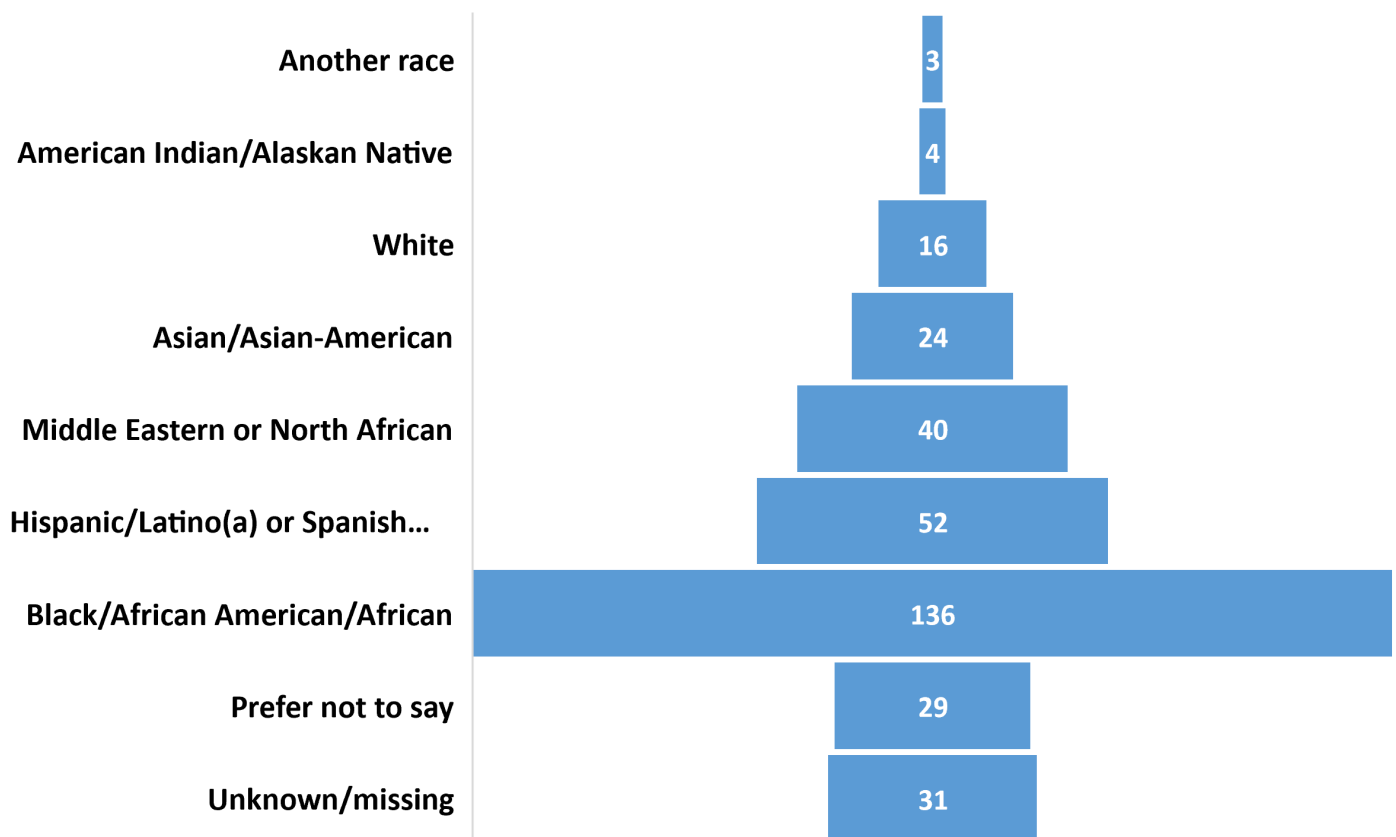
The events were held in community spaces such as at farmers markets, health fairs, and parenting classes. Community members were invited to bring household items to the events for lead testing.

COMMUNITIES SERVED

326 community members had items tested at the events in 2022. Based on information shared by community members, the events:

- Reached **283 children under the age of six**,
- Provided resources to families who speak **17 different languages**,
- Served families living in **59 different King County zip codes**.

Figure 1. Participants by Race/Ethnicity



LANGUAGES SERVED

- Amharic
- Arabic
- Dari
- English
- French
- Hindi
- Maay Maay
- Oromo
- Pashto
- Punjabi
- Somali
- Spanish
- Swahili
- Tamil
- Tigrinya
- Vietnamese
- Yoruba



TESTING METHODS

PHSKC used two methods to test for lead at the events: X-ray fluorescence (XRF) analysis and lab testing.



XRF ANALYSIS

- A screening tool that gives real time results
- Screens items that cannot be destroyed (e.g. jewelry, cookware, household items)
- Not as accurate as lab testing

LAB ANALYSIS

- Gold-standard for identifying lead levels in products
- Used for items that can be sampled and destroyed (e.g. spices, makeup, medicine)
- Small samples dissolved in strong acid and analyzed using inductively coupled plasma mass spectrometry (ICP-MS)



NOTE

The test results in this report represent only the amount of lead present in the specific item tested at the event

The amount of lead in other similar products may vary.

UNDERSTANDING THE RESULTS

Government agencies have set limits on the amount of lead allowed in different product types. These limits are based on:

- How the products are used (e.g., eaten, applied to the skin, worn),
- Who is using them (e.g., children or adults),
- How often the ‘average’ person uses the product,
- The challenges of using lead-free or reduced lead materials.

The table below outlines the limits that PHSKC used to determine if a product contained a concerning amount of lead during the Product Testing Events.

PRODUCT TYPE	LEAD LIMIT	SUPPORTING LAWS and REGULATIONS
Candy	0.1 ppm	Food and Drug Administration (FDA) limit in sugar based on manufacturing controls.
Spices, food, traditional medicines	2 ppm	Health based limit defined by Public Health—Seattle & King County from modeling and sampling.
Cosmetics, religious powders	10 ppm	FDA’s draft guidance for industry on lead in cosmetic lip products and externally applied cosmetics.
Children’s products, jewelry, craft supplies, other household items	90 ppm	The 2008 Consumer Product Safety Improvement Act sets a limit for lead in paint and applies generally to consumer product coatings.
Dishware and cookware	90 ppm	The FDA has set a limit for the amount of lead that may leach from food contact surfaces; this type of lab analysis is not possible at testing events. Therefore, we used the lowest limit that the handheld XRF machine can reliably detect, 90 ppm .

PARTS PER MILLION

The amount of lead in an item is given in parts per million (ppm). We use ppm because even a very small amount of lead, such as 2 ppm or 0.0002% lead in a child’s food, can have serious health effects. [Watch this TED-Ed video to learn how to visualize one part per million.](#)

RESULTS

PHSKC tested 560 items at the 2022 Product Testing Events, 61 of those items contained concerning amounts of lead.

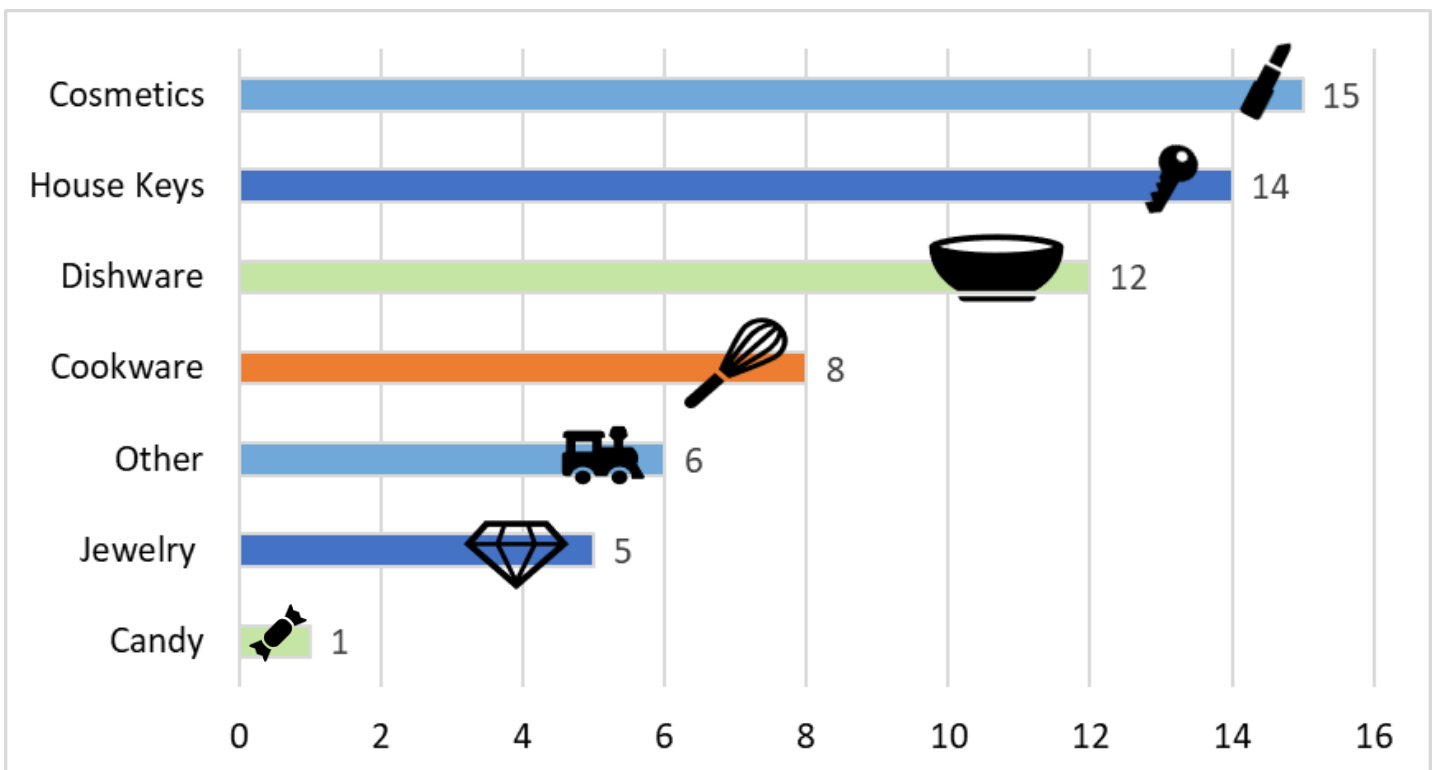
These test results confirm trends seen in other parts of the United States, including [high levels of lead in some imported ceramics](#) and [very high levels of lead in traditional eyeliner](#), like Kohl, Kajal, and Surma.

The highest lead levels detected at the events were in Kohl, Surma, and Kajal. One of the eyeliners contained 840,000 ppm of lead, which means it was 84% lead!

11%
of items tested contained
concerning amounts of lead



Figure 2. Number of items with concerning amounts of lead by product type



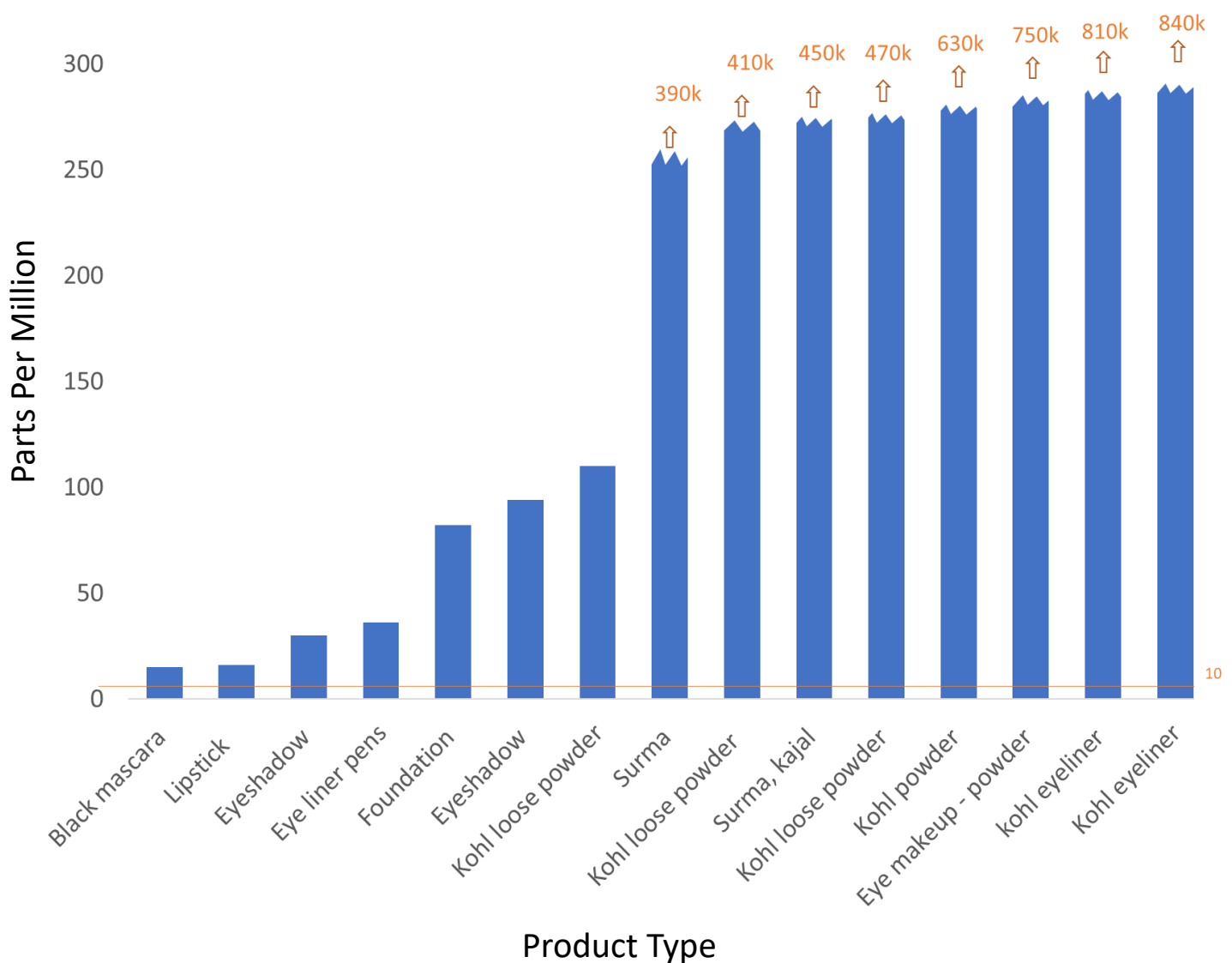
COSMETICS

109 cosmetic items were tested at the lab. 15 cosmetics were found to include concerning levels of lead.

Eight traditional eyeliners (Surma, Kohl, and Kajal) had very high lead concentrations that ranged from 390,000 ppm to 840,000 ppm.

Seven other cosmetics (mascara, lipstick, eyeshadow, and non-traditional eyeliner) contained 15 ppm to 750,000 ppm lead.

Figure 3. Concentration of lead in cosmetics found to have over 10 ppm of lead



CANDY



5 candies were tested at the lab. **One candy imported from Mexico was found to contain 2.6 ppm of lead.**

SEASONING, SPICES, AND HERBS

122 herbs, spices, and seasonings were tested at the lab for lead.
None of the products contained a concerning amount of lead.



OTHER FOOD



16 food samples were tested at the lab.
None of the products contained a concerning amount of lead.

ART SUPPLIES

3 art supply products for children were tested at the lab.
None of the products contained a concerning amount of lead.



TRADITIONAL MEDICINES



8 traditional medicines were tested at the lab.
None of the products contained a concerning amount of lead.

INCENSE

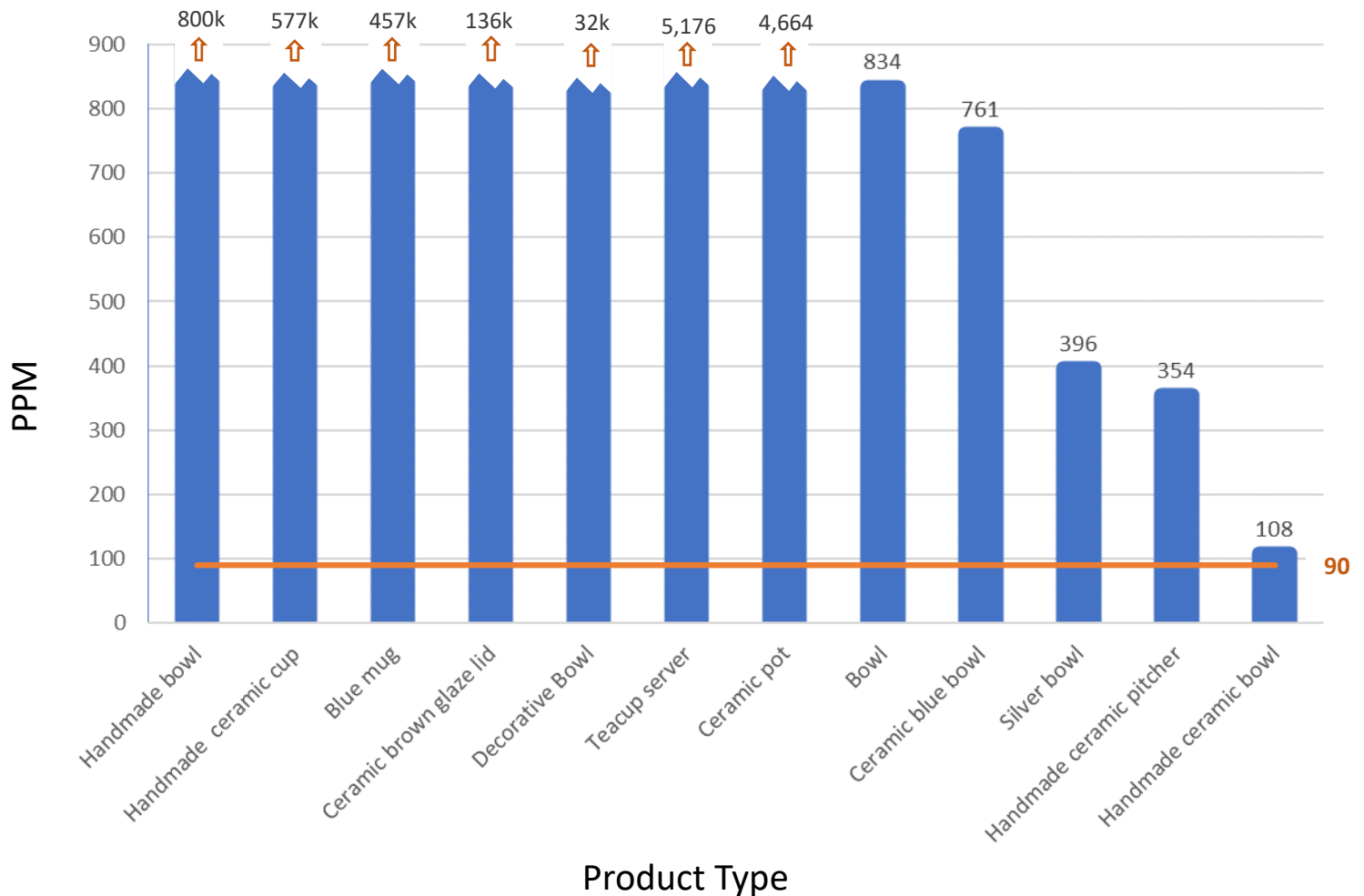
5 incense samples were tested at the lab and all 5 contained lead.
There is no established health limit for incense , however, inhaling lead is a primary source of exposure. Families who brought in incense were advised to no longer use the products.



DISHWARE

66 dishware items were tested using XRF analysis. 12 dishware items were found to include concerning levels of lead. Dishware includes any items used to serve, eat, or store food that is not regularly used for the cooking food. 9 of the dishware items with high lead were ceramics. 4 of the 9 ceramic dishware items were either handmade or artisan made.

Figure 4. Concentration of lead in dishware found to contain over 90 ppm



KEYS



15 keys were tested using XRF analysis.

14 keys were found to contain concerning amounts of lead.

COOKWARE

19 cookware items were tested using XRF analysis.

8 cookware items contained a concerning amount of lead.



JEWELRY



11 pieces of jewelry were tested using XRF analysis.

5 pieces of jewelry contained a concerning amount of lead.

OTHER ITEMS

6 other products were found to have concerning levels of lead.
These items include a Kajal container, a homemade decorative purse strap, a Chinese urn, a key fob, a hat and a key chain



NEXT STEPS

Data collected at these events and feedback from community partners will be used to improve PHSKC's programming and future product testing events. It will also be shared locally, nationally, and internationally to help improve policies and spread awareness of lead in products.

CONTINUED PRODUCT TESTING

- Increase funding to community based organizations to facilitate increased collaboration
- Collect information on where products were purchased and primary material of consumer products
- Improve our data management system to streamline data collection and analysis

OTHER PHSKC PROGRAMMING

- Use data and results to inform resources and outreach materials for Lead Prevention Awareness Campaigns and Community Education Events in 2023
- Prioritize research and education on high risk items like traditional eyeliners and metal cookware

POLICIES AND COLLABORATION

- Data was used to testify in support of two Washington State bills that aimed to set limits on chemicals in cosmetics and lead in cookware
- Data shared with PHSKC partners locally and internationally to support efforts to change policies, manufacturing practices, and inform communities more broadly about lead in products

ACKNOWLEDGEMENTS

The Product Testing Events were a collaborative effort that could not have happened without the hard work of many individuals and organizations.

The Lead and Toxics Program would like to thank the ten community-based organizations who hosted and organized events, and provided effective community outreach and education in multiple languages:

- Cultivate South Park
- First Five Years and Beyond
- Horn of Africa Services
- Immigrant Women Community Center
- Indian American Community Services
- King County Medical Society
- Mother Africa
- Muslimahs Against Abuse Center
- Somali Health Board
- Teniel Sabin Training and Consulting

We would also like to thank three King County Hazardous Waste Management Program teams: the Research Team for their guidance on testing methods and data analysis expertise; the Residential Services Program for assisting at events, providing funding for lab testing, and sharing safer cleaning resources; and the Policy & Planning Team for connecting our findings with policy change opportunities in Washington State.

Finally, thank you to Toxic Free Future, Joel Gregory, and the University of Washington's EH Lab for staffing and supporting events.

