



NEW HAMPSHIRE
DHHS
DEPARTMENT OF
HEALTH & HUMAN SERVICES

Public Health Laboratory Testing of Environmental Contaminants in Food

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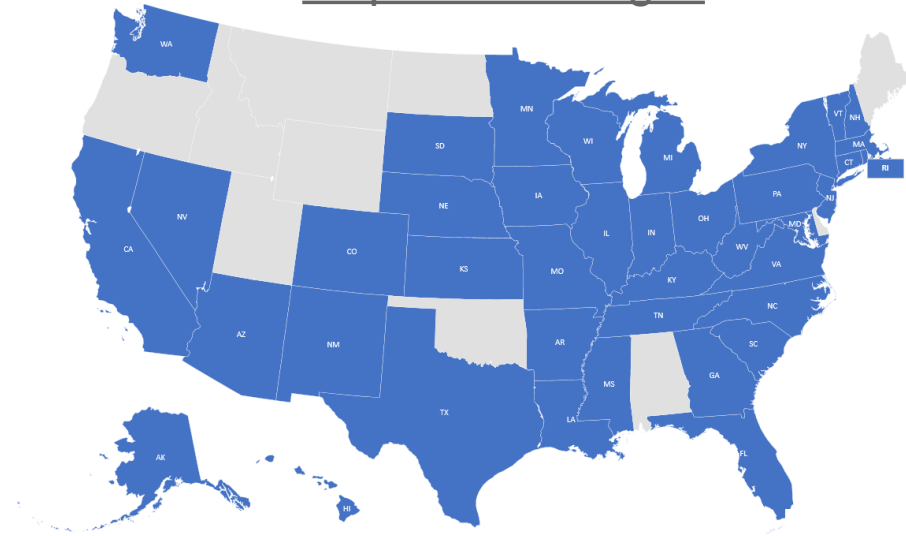
Food Surveillance of Environmental Chemicals

Focus on Toxic Elements (Lead, Mercury, Arsenic, etc.)

- The role of the NH Public Health Laboratories (NH PHL)
- Selection of food samples for chemical testing
- Testing of food for toxic metals
- How the data are used to protect public health

The Role of the NH Public Health Laboratories

Map from FDA.gov

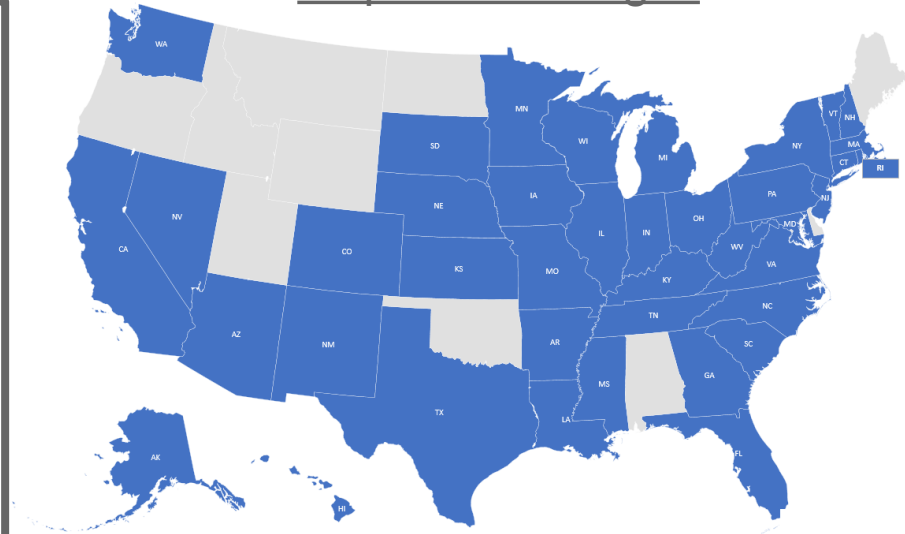


- The NH PHL is 100% funded by a cooperative agreement with the Food and Drug Administration (FDA) to **enhance the capacity and capabilities of state human food testing laboratories in support of an integrated food safety system.**

Human food surveillance to minimize foodborne exposures is a major goal of the cooperative agreement.

The Role of the NH Public Health Laboratories

Map from FDA.gov



Mutual Reliance: a seamless partnership that enables the FDA and states, as trusted partners, to rely on, coordinate with, and leverage one another's work, data, and actions to meet the public health goal of a safe national food supply.

The Role of the NH Public Health Laboratories

■ Regulatory Surveillance

- There are established limits for a specific chemical hazard in a specific food
- Example: the FDA guidance limit for **inorganic arsenic in apple juice is 10 parts per billion (ppb)**
- If a food is found to exceed the action level, the PHL works with regulatory partners at the State and at the FDA to pursue follow up actions

■ Signals Evaluation Surveillance

- Intended to gather information about a hazard in a food
- Example: there are **no** established limits for **toxic metals in dietary supplements**
- Regulatory action is not anticipated; however, **findings of significant public health concern can be escalated**

- **The NH PHL participates in both types of surveillance, with a focus on toxic metals in the human food supply.**

Selecting Food Samples for Chemical Testing

- On an annual basis, the NH PHL works with the FDA to propose a sample plan and determine the **hazard-commodity** pairs to investigate:

Hazard
the chemical that poses a health risk

Example:
Arsenic

Commodity
the food where the hazard is a concern

Example:
Rice Flour

- Hazard-commodity pairs can be **FDA-proposed** or **state-proposed**
- Past hazard commodity pairs:
 - Toxic metals (**As, Cd, Hg, Pb**) in **baby food, dietary supplements, juice, maple syrup, NH apple cider**, etc.



Closer to Zero: Reducing Childhood Exposure to Contaminants from Foods | FDA

Selecting Food Samples for Chemical Testing

■ Sampling

- For retail sampling, the NH PHL collaborates with **DHHS Food Protection**
- The goal is to collect samples in a way that leads to data that are **representative and defensible**



Representative: the results from the sample are true for the whole (lot)
Defensible: the results are of sufficient quality to hold up to scrutiny

- Collect multiple replicates of every sample to be composited for testing
- Follow strict quality control & documentation guidelines for collection, tracking, and storage of samples

Chemical Testing of Food Samples

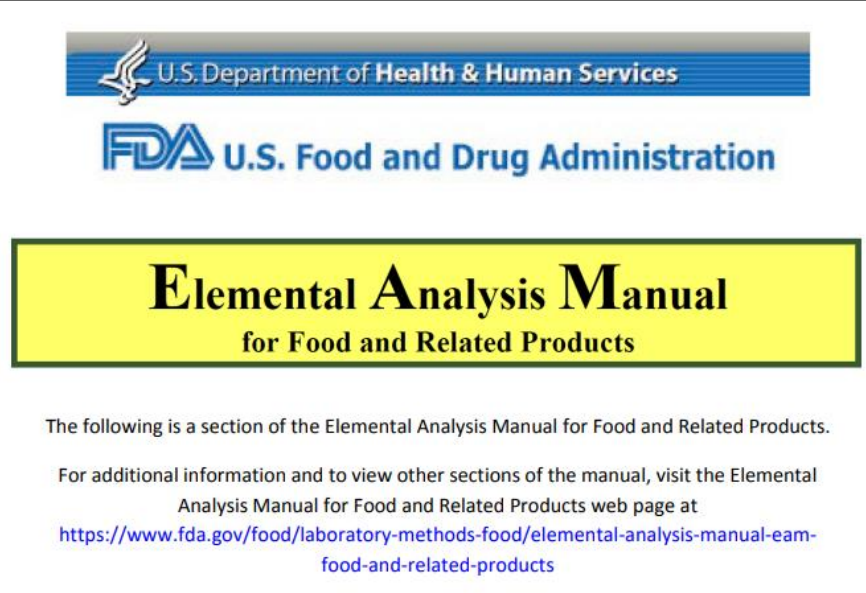
- **Analytical Considerations:**

- Food is highly **complex** and **variable**
- Testing must be robust down to **parts per billion (ppb)** levels to catch products above current and proposed FDA guidance levels for toxic metals in food
- Emphasis on **data defensibility:**
 - Must meet **technical quality standards**
 - Must be **fully documented/traceable**



Chemical Testing of Food Samples

- The NH PHL is **ISO 17025:2017** accredited to perform testing of food for toxic elements using FDA's Elemental Analysis methodology
 - Quantitatively measure concentrations of metals: Arsenic (including Inorganic Arsenic), Cadmium, Mercury, Lead, and others in food



The image shows the cover of the 'Elemental Analysis Manual for Food and Related Products'. At the top, there is a blue banner with the U.S. Department of Health & Human Services logo and text. Below that is the FDA logo and 'U.S. Food and Drug Administration'. The title 'Elemental Analysis Manual for Food and Related Products' is centered in a yellow box with a black border. Below the box, there is a paragraph of text providing information about the manual and a URL.

U.S. Department of Health & Human Services

FDA U.S. Food and Drug Administration

Elemental Analysis Manual
for Food and Related Products

The following is a section of the Elemental Analysis Manual for Food and Related Products.

For additional information and to view other sections of the manual, visit the Elemental Analysis Manual for Food and Related Products web page at <https://www.fda.gov/food/laboratory-methods-food/elemental-analysis-manual-eam-food-and-related-products>

How the Data Are Used

- If **Regulatory Surveillance**, results above the action limit are **immediately** reported to the FDA and NH Food Protection
 - The NH PHL submits the **analytical data package** to the FDA – this includes collection, processing, and analytical information, typically ~ **200 pages long!**
 - FDA reviews the data package to determine if they concur with the results
 - Follow up actions are determined on a case-by-case basis, but can include actions such as **recalls** or **import alerts** to remove the adulterated product from the food supply
- If **Signals Evaluation**, results are reported quarterly to the FDA
 - If any results pose a public health concern, FDA may request an analytical data package and recommend follow up actions on a case-by-case basis



Goals:

- What chemicals are in food, and at what levels?
- Use data-driven decision-making to reduce exposures.

Success Stories & Acknowledgements

- The NH PHL is part of FDA's network of 26 state laboratories that together test over **6,000** human food samples for chemical contaminants annually
- In 2022-2023, the NH PHL collected over **400** retail human food products for toxic metals surveillance testing
- Food surveillance testing at the NH PHL has identified baby foods contaminated with toxic metals and led to an **import alert** and **voluntary recalls**

Thank you to:

NH DHHS Food Protection
FDA ORA, ORS, CFSAN, and FCC
Association of Public Health
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