

The Children's Total Exposure to Persistent Pesticides and Other Persistent Organic Pollutants (CTEPP) Study

Collection of Food and Drinking Water Samples

Battelle
Columbus, OH 43201
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Standard Operating Procedure

CTEPP-SOP-2.13

Title: Collection of Food and Drinking Water Samples

Source: Battelle

U.S. Environmental Protection Agency
Office of Research and Development
Human Exposure & Atmospheric Sciences Division
Exposure Measurements & Analysis Branch

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STANDARD OPERATING PROCEDURE (SOP) FOR THE COLLECTION
OF FOOD AND DRINKING WATER SAMPLES

Prepared by: _____ Date: _____

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1.0 Scope and Applicability

This standard operating procedure (SOP) describes the method for collecting food samples from the study participants.

2.0 Summary of Method

During the 48-hr sampling period, duplicate-servings of the foods that the child eats at day care centers and the duplicate-diet foods that child eats at home were collected. In the post-monitoring visit, the primary adult caregiver (usually a parent or day care teacher) will be asked to describe the food sample contents and confirm the food diary information. Solid food and liquid food will be collected separately for separate analysis. These food samples will be collected in glass containers to avoid phthalate ester contamination. Drinking water will be collected by the project staff using either glass or plastic containers because phthalate esters will not be analyzed in drinking water samples.

3.0 Definition

- 3.1 Duplicate-serving: Exact amounts of all foods are served to each child in day care centers.
- 3.2 Duplicate-diet foods: Exact amounts of all foods that the subjects eat or drink during the two-day sampling period.

4.0 Cautions

As described in CTEPP-SOP- 1.13, the subject will be asked if she/he needs some money for the preparation of additional food for the food sample before the field sampling begins. Pay the subject \$25 in advance if she/he needs the money for additional food. Field staff will place the cooler which contains sample containers out of the reach of children.

5.0 Responsibilities

- 5.1 Study participants (parents and the day care center staff) will be responsible for collecting the samples (except drinking water).
- 5.2 Field staff will provide training to the study participants on the procedures for collecting and documenting the food samples.
- 5.3 All the collection materials will be provided and delivered to the participants by the field staff.
- 5.4 Drinking water samples will be collected by the project staff.

6.0 Apparatus and Materials

6.1 Materials.

- 6.1.1 Food and water sample containers (food container: 1 gallon size for adult and 1/2 gallon size for child, drinking water container: 1/4 gallon size); the number of containers required is illustrated in the following table:

	Solid Food	Liquid Food	Drinking Water	Total
Parent At Home	1	1		2
Child At Home	1	1	1	3
Child At Day Care	1	1	1	3

- 6.1.2 Large coolers.

- 6.1.3 Blue ice packs.

- 6.1.4 Instruction sheets (Attachments I and II) distributed to the participants on Day-1 visit.

- 6.1.5 Field Notebook.

7.0 Procedures

7.1 When to Collect

Collect the food samples during the 48- hr sampling period.

7.2 What to Collect

- 7.2.1 At home: Collect any food and drink (except water) that are given to the subject child at home or away from home (e.g., restaurant) during the 48-hr sampling period. possible, the adult participant will remove the inedible part of the food sample (i.e., paper wraps, lollipop sticks, orange peel, chicken bones, etc.). In addition, collect any food and drink consumed by the primary caregiver during this time period.

- 7.2.2 At the day care center: Collect any food and drink (except water) that are given to the children in the selected classroom (where the air monitor is installed) during the above period of time. Whenever possible, the teacher will remove the inedible part of the food sample (i.e., paper wraps, lollipop sticks, orange peel, chicken bones, etc.).
- 7.3 How Much to Collect of Each Food Sample
- 7.3.1 At home: Collect the exact same amount of food and drink (except water) as the child consumes. For example, if the child eats a hamburger for lunch, collect one hamburger. If the child eats half a hamburger for lunch, collect half a hamburger. If the child drinks one glass of liquid (except water), collect the exact same amount of liquid for the sample. The same method applies to the parent's samples.
- 7.3.2 At the day care center: Collect one regular serving of the food, drink, and water served a child in the selected classroom.
- 7.3.3 Drinking water sample will be collected by the project staff. The field staff will ask the participant source of drinking water and collect water sample from the source identified by the participant. Questions about the amount of water consumption during the sampling period are asked in the Child Activity Diary.
- 7.4 Where to Store the Samples
- 7.4.1 At home: Prepare two glass jars for the child and two for the parent: one for the solid food and one for the liquid food. The adult participant will keep the solid foods (i.e., bread, meat, vegetables, etc.) separate from the liquid foods (i.e., milk, juice).
- Put solid food samples in the glass jar labeled "Solid Food."
 - Put liquid food samples in the glass jar labeled "Liquid Food."
- 7.4.2 At the day care center: Prepared two glass jars for the day care teacher: one for the solid foods and one for the liquid foods. The participating teacher will keep the solid foods (i.e., bread, meat, vegetables, etc.) separate from the liquid foods (i.e., as milk, juice).
- Put solid food samples in the glass jar labeled "Solid Food."
 - Put liquid food samples in the glass jar labeled "Liquid Food."
- 7.5 The adult participants will store the food samples in a refrigerator (or in the cooler provided by the sampling team). Adult participants can call the Field Team Leader (FTL), at 1-877-810-9530, ext. 506 with any questions about the food sample collection.
- 7.6 Food menu/food diary: Parents will record the food samples collected during the 48-hour period in the Child Activity Diary. Staff will collect the food menus from the day care center.

8.0 Records

Chain-of-Custody Records will be used to document the food sample collection and shipping. All records will be retained in a locked office until the conclusion of the study and will be archived in a secure room for three years after completion of the study.

9.0 Quality Control and Quality Assurance

Field staff will examine the food samples at the sampling site and ask the participants about any potential problems during the sample collection. The Field Notebooks will be reviewed and verified by the Field QA Officer or designee, the FTL, and the Task Order Leader through internal field audits and quality control audits.

10.0 References

- 10.1 K. W. Thomas, L. S. Sheldon, E. D. Pellizzari, R. W. Handy, J. M.. Roberds, and M. R. Berry, "Testing Duplicate Diet Sample Collection Methods for Measuring Personal Dietary Exposures to Chemical Contaminants." *J. Expos. Anal. Environ. Epidem.*, **7**, 17-36 (1997).
- 10.2 J. C. Chuang, P. J. Callahan, C. W. Lyu, Y.-L. Chou, and R. G. Menton, "Characterization of Polycyclic Aromatic Hydrocarbons Exposure Among Children of Low-Income Families from Inner Cities and Rural Areas." EPA/600/R-98/163a (Volume I) and EPA/600/R-98/163b (Volume II), 1999.
- 10.3 J. C. Chuang, C. Lyu, Y-L Chou, P. J. Callahan, M. Nishioka, K. Andrews, M. A. Pollard, L. Brackney, C. Hines, D. B. Davis, and R. Menton, "Evaluation and Application of Methods for Estimating Children's Exposure to Persistent Organic Pollutants in Multiple Media." EPA/600/R-98/164a (Volume I) and EPA/600/R-98/164b (Volume II), 1999.

ATTACHMENT I

CTEPP-Children's Environmental Study Instructions for Collecting **Food Samples**

Day care Center

SOP 2.13

1. When to collect

The samples should be collected during the following period of time:

From: _____

To: _____

2. What to collect:

Any food and drink (except water) that are given to the children in the selected classroom (where the air monitor is installed) during the above period of time. Whenever possible, please remove the inedible part of the food sample (such as paper wraps, lollipop sticks, orange peel, chicken bones, etc.).

3. How much to collect of the food sample:

Collect the food and drink of one regular serving for a child.

4. Where to put the samples:

We have prepared 2 glass jars for you: one for the solid foods and one for the liquid foods. Please keep the solid foods (such as bread, meat, vegetables, etc.) separate from the liquid foods (such as milk, juice).

- ☐ Put solid food samples in the glass jar labeled "Solid Food."
- ☐ Put liquid food samples in the glass jar labeled "Liquid Food."

5. Please store the food samples in a refrigerator (or in the cooler provided by us). If you have any questions about the food sample collection, please call us at 1-877-810-9530, ext. 506 (this is a free call).

Thank you very much for your assistance.

ATTACHMENT II

CTEPP-Children's Environmental Study Instructions for Collecting **Food Samples**

Household

SOP 2.13

1. **When to Collect**

The samples should be collected during the following period of time:

From: _____

To: _____

2. **What to Collect**

Any food and drink (except water) that are given to your child at home during the above period of time. Whenever possible, please remove the inedible part of the food samples (such as paper wraps, lollipop sticks, orange peel, chicken bones, etc.).

3. **How Much to Collect of the Food Sample**

We need the exact same amount of food and drink (including water) as the child consumes. For example, if the child eats a hamburger for lunch, we need one hamburger. If the child eats half a hamburger for lunch, we need half a hamburger. If the child drinks one glass of liquid (except water) we need to have the exact same amount of liquid for the sample.

4. **Where to Put the Samples**

We have prepared 2 glass jars for your child and 2 for you: one for the solid foods and one for the liquid foods. Please keep the solid foods (such as bread, meat, vegetables, etc.) separate from the liquid foods (such as milk, juice).

- ☐ Put solid food samples in the glass jar labeled "Solid Food."
- ☐ Put liquid food samples in the glass jar labeled "Liquid Food."

5. **Please store the food samples in a refrigerator (or in the cooler provided by us). If you have any questions about the food sample collection, please call us at 1-877-810-9530, ext. 506 (this is a free call).**

Thank you very much for your assistance.