

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

Collection of Urine Samples

Battelle
Columbus, OH 43201
Contract No. 68-D-99-011

Standard Operating Procedure

CTEPP-SOP-2.14

Title: Collection of Urine 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 URINE SAMPLES

Prepared by: _____ Date: _____

Reviewed by: _____ Date: _____

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1.0 Scope and Applicability

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

2.0 Summary of Method

Urine samples will be collected from each child and their primary adult caregiver (usually a parent or a classroom teacher). The samples will be approximate 48-hour collections, collected as spot urine samples accumulated over the 48-hr sampling period. If the household or day care center has applied a pesticide in the preceding seven days or during the 48-hr sampling period, the spot urine samples will be analyzed separately. Otherwise, the urine samples will be combined for each 48-hr period.

3.0 Definition

Not applicable.

4.0 Cautions

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 and documenting the samples.
- 5.2 Field staff will provide training to the study participants on the procedures for collecting the urine samples.
- 5.3 All the collection materials will be provided and delivered to the participants by the field staff.

6.0 Apparatus and Materials

6.1 Materials

6.1.1 Plastic urine bonnets

6.1.2 Plastic urine containers

The number of containers required is illustrated in the following table:

Group	Location	Urine Containers Per Participant	Remarks
Day Care Subject	Parent at Home	4	2 per day for 2 days
	Child at Home	4	2 per day for 2 days
	Child at Day Care	2	1 per day for 2 days
At Home Subject	Parent at Home	6	3 per day for 2 days
	Child at Home	6	3 per day for 2 days

6.1.3 Small cooler

6.1.4 Blue ice (ice packs)

6.1.5 Latex gloves

6.1.6 Instruction sheets (Attachments I, II, III)

6.1.7 Field Notebook

7.0 Procedures

7.1 When to Collect

Collect the urine sample during the 48-hr sampling period.

7.1.1 Follow this schedule for a child who does not attend a day care center. A reminder is also included in the Child Activity Diary. Please note that the schedule is different for a morning household (sampling starts before 12:00 noon) and an afternoon household (sampling starts after 12:00 noon). The two schedules will be printed in different color papers (blue and yellow).

Morning Household		
Day-1	1 st Sample	About 2 hours after lunch.
	2 nd Sample	2-3 hours after dinner or before going to bed.
Day-2	3 rd Sample	First thing in the morning, after the child wakes up.
	4 th Sample	About 2 hours after lunch.
	5 th Sample	2-3 hours after dinner or before going to bed.
Day-3	6 th Sample	First thing in the morning, after the child wakes up.

Afternoon Household		
Day-1	1 st Sample	2-3 hours after dinner or before going to bed.
Day-2	2 nd Sample	First thing in the morning, after the child wakes up.
	3 rd Sample	About 2 hours after lunch.
	4 th Sample	2-3 hours after dinner or before going to bed.
Day-3	5 th Sample	First thing in the morning, after the child wakes up.
	6 th Sample	About 2 hours after lunch.

7.1.2 For a child who attends a day care center, follow this schedule for sample collection at home. A reminder is also included in the Child Activity Diary.

Day-1	1 st Sample	2-3 hours after dinner or before going to bed.
Day-2	2 nd Sample	First thing in the morning, after the child wakes up.
	3 rd Sample	2-3 hours after dinner or before going to bed.
Day-3	4 th Sample	First thing in the morning, after the child wakes up.

7.1.3 For a child who attends a day care center, follow this schedule for the sample collection at the day care center. A reminder is also included in the Child Activity Diary.

Day-1	1 st Sample	About 2 hours after lunch
Day-2	2 nd Sample	About 2 hours after lunch

7.2 How to Collect the Urine Sample

7.2.1 For parents: When the child needs to go to the bathroom, follow these steps:

- 7.2.1.1 The adult puts on a clean pair of latex gloves (this is optional).
- 7.2.1.2 Use the urine collector (bonnet) with the child's name on it to catch the urine.
- 7.2.1.3 Immediately pour the urine into the urine container.
- 7.2.1.4 Close the cap of the urine container tightly.
- 7.2.1.5 Write down the date and time the urine sample was collected on the label of the urine container.
- 7.2.1.6 Rinse the bonnet with clean tap water only. DO NOT USE any soap or detergent to clean the bonnet or urine container. Doing so will cause problems in the sample analysis.
- 7.2.1.7 Discard the used gloves.
- 7.2.1.8 Follow steps 7.2.1.1-7.2.1.7 for adult urine collection after completing the child urine collection.

7.2.2 For day care center teachers: When the child needs to go to the bathroom, follow these steps:

- 7.2.2.1 The teacher puts on a clean pair of latex gloves.
- 7.2.2.2 Use the correct urine collector (bonnet) with the child's name on it.
- 7.2.2.3 Use the correct urine container with the child's name on it.
- 7.2.2.4 Use the urine collector to catch the urine.
- 7.2.2.5 Immediately pour the urine into the urine container.
- 7.2.2.6 Close the cap of the urine container tightly.
- 7.2.2.7 Write down the date and time the urine sample was collected on the label of the urine container.
- 7.2.2.8 Rinse the bonnet with clean water only. DO NOT USE any soap or detergent to clean the bonnet or urine container. Doing so will cause problems in the sample analysis.
- 7.2.2.9 Discard the used gloves.

7.3 Where to Put the Samples

Store the samples in a refrigerator or freezer (or in the cooler provided by us).

7.4 Missing Sample

If there is a missing sample (e.g., participant forgot to collect the urine sample or the child did not have to urinate), ask the parent (teacher) to collect a makeup sample, and to record the date and time of the makeup sample.

8.0 Records

Chain-of-Custody Records will be used to document the urine 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 urine sample 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 Field Team Leader, and the Task Order Leader through internal field audits and quality control audits.

10.0 References

- 10.1 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.
- 10.2 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 **Urine Samples**

Day Care Center

SOP 2.14

1. When to Collect

The sample collection schedule is provided in the following table. A reminder is also included in the Child Activity Diary.

1 st Sample	About 2 hours after lunch
2 nd Sample	About 2 hours after lunch

2. How to Do It

When the child needs to go to the bathroom, the teacher:

1. Puts on a clean pair of latex gloves.
2. Uses the right urine collector (bonnet) with the child's name on it.
3. Uses the right urine container with the child's name on it.
4. Uses the bonnet to catch the urine.
5. Immediately pours the urine into the urine container.
6. Closes the cap of the urine container tightly.
7. Writes down the **date and time** the urine sample was collected on the label of the urine container.
8. Rinse the bonnet with clean water only. **DO NOT USE** any soap or detergent to clean the bonnet or urine container. Doing so will cause problems in the sample analysis.
9. Discards the used gloves.
10. Stores the samples in a refrigerator or freezer (or in the cooler provided by us).

If you have any questions about the urine sample collection, please call Christopher Lyu, the Field Team Leader, 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 **Urine Samples**

Day Care Center Children at Home

SOP 2.14

1 When to Collect

The sample collection schedule is provided in the following table. A reminder is also included in the Child Activity Diary.

Day-1	1 st Sample	2-3 hours after dinner or before going to bed.
Day-2	2 nd Sample	First thing in the morning, after your child wakes up.
	3 rd Sample	2-3 hours after dinner or before going to bed.
Day-3	4 th Sample	First thing in the morning, after your child wakes up.

2 How to Do It

When your child needs to go to the bathroom, the parent:

1. Puts on a clean pair of latex gloves (optional).
2. Uses the urine collector (bonnet) to catch the urine.
3. Immediately pour the urine into the urine container.
4. Closes the cap of the urine container tightly.
5. Writes down the date and time the urine sample was collected on the label of the urine container.
6. Rinse the bonnet with clean water only. DO NOT USE any soap or detergent to clean the bonnet or urine container. Doing so will cause problems in the sample analysis.
7. Discards the used gloves.
8. Stores the samples in your refrigerator or freezer (or in the cooler provided by us).

Please follow steps 1-8 for yourself after you have completed them for your child.

If you have any questions about the urine sample collection, please call Christopher Lyu, the Field Team Leader, at 1-877-810-9530, ext. 506 (this is a free call).

Thank you very much for your assistance.

ATTACHMENT III

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

Household

SOP 2.14

1 When to collect

The sample collection schedule is provided in the following table. A reminder is also included in the Child Activity Diary.

Afternoon Household		
Day-1	1 st Sample	2-3 hours after dinner or before going to bed.
Day-2	2 nd Sample	First thing in the morning, after your child wakes up.
	3 rd Sample	About 2 hours after lunch.
	4 th Sample	2-3 hours after dinner or before going to bed.
Day-3	5 th Sample	First thing in the morning, after your child wakes up.
	6 th Sample	About 2 hours after lunch.

2 How to Do It

When the child needs to go to the bathroom, the parent:

1. Puts on a clean pair of latex gloves (optional).
2. Uses the urine collector (bonnet) to catch the urine.
3. Immediately pour the urine into the urine container.
4. Closes the cap of the urine container tightly.
5. Writes down the date and time the urine sample was collected on the label of the urine container.
6. Rinse the bonnet with clean water only. DO NOT USE any soap or detergent to clean the bonnet or urine container. Doing so will cause problems in the sample analysis.
7. Discards the used gloves.
8. Stores the samples in your refrigerator or freezer (or in the cooler provided by us).

Please follow steps 1-8 for yourself after you have completed them for your child.

If you have any questions about the urine sample collection, please call Christopher Lyu, the Field Team Leader, at 1-877-810-9530, ext. 506 (this is a free call).

Thank you very much for your assistance.