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Environmental Protection Agency

Office of
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National Human Exposure Assessment Survey (NHEXAS)

Region 5 Study

Quality Systems and Implementation Plan for Human Exposure Assessment

Research Triangle Institute
Research Triangle Park, NC 27079

Cooperative Agreement CR 821902

Survey Operations Protocol **EOHSI-AP-209-300**

Title: NHEXAS Time/Activity Diary Collection Protocol

Source: Environmental and Occupational Health Sciences Institute

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

SURVEY OPERATIONS PROTOCOL	RESEARCH TRIANGLE INSTITUTE POST OFFICE BOX 12194 RESEARCH TRIANGLE PARK, NC 27709-2194	EOHSI-AP-209-300 Page 1 of 4

TITLE: NHEXAS TIME/ACTIVITY DIARY COLLECTION PROTOCOL

SOURCE: Environmental and Occupational Health Sciences Institute
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1. Scope and Application

Intended Study

The Time/activity Questionnaire is intended for use by target individuals in each household participating in the NHEXAS pilot study. The questionnaire consists of two parts. The first part is a one sheet record of the time and location of daily activities. The sheet records 8 24 hour periods and the general locations where an individual might spend time. These include inside the home, inside school or work place, inside other buildings, outside the home, outside at work or school, outside in other locations, and in transit.

The second part of the questionnaire consists of 35 questions related to specific activities. These are activities that may contribute to an individual's exposure to pollutants of interest in the NHEXAS pilot study. This questionnaire is used to record the occurrence of the activities on each of the days of the pilot study.

Intended Data Use

The data will be used to provide descriptive information for the NHEXAS participants, to characterize the distribution of 'exposure factors', and to aid in explaining variation in personal environmental samples and biological samples. The information will be used for classification of exposure based on self-reporting of activities.

2. Summary of Method

Overview description of the method

The target individual will be identified according to the RTI sampling model. This individual or their designated responder will be trained to fill out the time/location log and the activity questionnaire. The training samples of the questionnaire will be left with the participant as a model to be used for completion of the questionnaire each day during the study. Participants are encouraged to leave the questionnaire at home and to fill out the questionnaire at the same time each day. At the end of each day, the technician will review the questionnaire with the participant, and help them to complete the questionnaire if needed.

Designated responders will be used in situations were the target individual is less than 14 years old, or if the target individual is illiterate or visually impaired. The technician will record on the questionnaire who the designated responder is and the relationship to the target individual i.e, mother, sister, etc.

3. Sample Collection Materials and Systems

The following materials are needed for collection of questionnaire data:

a. instruction sheet and diary example
b. questionnaire
c. writing instrument

4. Preparation of Materials

As part of the development of the questionnaire, it will be field tested for comprehension, ease of administration, and ease of use. An evaluation form will be completed that will determine the time required to complete the form, the sources of errors and incompleteness, questions that were perceived to be redundant, ambiguous, or difficult to fill out. Final adjustments to the questionnaire will be made based on the developmental field testing. In addition, estimates of the time required to train participants, and for participants to fill out the questionnaire will be determined. In addition it will be field tested as part of the RTI/EOHSI pre-pilot study.

The structure of the questions has been evaluated using two computer programs, Right Writer 3.1 (1990), and Correct Grammar 2.0 (1990). Readability assessments based on Flesch, Flesch-Kincaid, and Gunning Fog readability indexes were 6th grade, 5.5 grade, and 5.0 grade respectively. This suggests that the form of the questions is within the range of greater than 90% of the adult population. For those questions that require a simple yes or no answer, we would therefore expect 30 of the 300 individuals sampled to require some assistance with the questions. Questions asking for time estimates will probably require assistance for another 10 % of the sample.

5. Sample Collection

Sample collection procedures

Initial training of the participants will be provided by the interviewer at the time the baseline questionnaire is administered. A copy of the practice questionnaire will be left with the participant for review and reference purposes. The training consists of the interviewer describing the two parts of the questionnaire to the participant, jointly working though a one day example, and answering questions as they arise. The target individual then fills out another daily questionnaire independently. This is jointly reviewed by the interviewer and participant and corrections made. The practice questionnaire is kept by the participant as an aid for filling out the questionnaire.

At the start of the week of sampling the field technician will review the questionnaire with the target individual. Efforts will be made to assure that time questions are answered with the appropriate time unit. The questionnaire is organized so that all questions requiring yes/no responses are in one section, questions requiring frequency of occurrence or estimates of mileage in another section, and responses based on temporal estimates in minutes or hours in another section.

The technician will note on the last page of the questionnaire the date and time of the start of the sampling period. On the first, fourth, and last day during the sampling period, the technician will review the questionnaire with the participant and help them fill out any unanswered questions. If a question can not be answered, the technician will write 'n.a.' next to the question along with his/her initials. At the end of the sampling period, the questionnaire will be collected, and the final date and time noted on the last page of the questionnaire.

Sample collection information and data forms

These consist of the practice forms and questionnaire.

Participant instructions and burden

Participant instructions are attached to both the practice forms, and the actual week long questionnaire. Participants are instructed to complete the entire set of questions for each day. They are advised to keep the questionnaire at home and to answer it at the same time each day. They are informed that the technician will help them if necessary. Participant burden can be characterized by the time necessary to fill out the questionnaire, the number of questions that require the participant to recall time units for a variety of activities, and the frustration level that may occur if the questions are not asked simply, or if the respondent can not formulate an appropriate response. All efforts to reduce participant burden will be made prior to start of the field project. Pre-project burden reduction activities include the field testing, readability assessment, cognitive analysis and redesign of questions and formatting.

6. Sample Storage and Shipment

Prior to shipment to EOHSI, a copy of each questionnaire will be made and archived at RTI.

7. QA/QC Procedures

Sample codes

Sample codes will be provided by RTI to be consistent with sample codes for other instruments and samples.

Data entry/tracking

The technician will review the questionnaire for completeness for the days preceding his house visit. If the questionnaire is incomplete, the technician will assist the participant in filling out the instrument. On the bottom of the last page of questions, the technician will mark whether the participant completed the questionnaire independently prior to the technician arriving at the house, required assistance with some questions, or required aid in filling out the questionnaire. This section will be filled out each day of the study.

The last page of the questionnaire is a technician log, where the id's of the respondent, the target individual, and the technician are filled out. This sheet will also be used to track the start and end time and dates, and the time and date of biological and food sample collection. The data will be used to provide descriptive information for the NHEXAS participants, to characterize the distribution of 'exposure factors', and to aid in explaining variation in personal environmental samples and biological samples. The information will be used for classification of exposure based on self-reporting of activities.