United States Environmental Protection Agency

Office of Research and Development

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-209-301**

Title: NHEXAS Time/Activity Diary Processing and Analysis 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

TITLE: NHEXAS TIME/ACTIVITY DIARY PROCESSING AND ANALYSIS PROTOCOL

SOURCE: Environmental and Occupational Health Sciences Institute
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- FINAL VERSION: ☐

REVISIONS:

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1		7	
2		8	
3		9	
4		10	
5		11	

‡ Effective date of this version is the date of the last approval signature; revision 0 is the original version.

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

The primary objective of the time line is to help identify the participant's use of microenvironments. This information will be used to characterize temporal use of the environment.

The questions are designed to provide information about the occurrence of events, the frequency of events, and the temporal duration of events. These questions can be used to provide population based estimates. These estimates can be used to assess the relationship of activities to exposure or dose.

3. Interferences

Potential interferences

Complete data for the population based sample is necessary if one is to draw accurate inferences about the population. For this reason it is essential that no question be unanswered. Missing data is a major interference. Secondary interferences occur through the misinterpretation of questions.

Procedures for minimizing interferences

Review of the questionnaire by the technician should eliminate the problem of missing data. Training of the technician and the participant, and clear phrasing of the questions will aid in reducing misinterpretation.

4. Equipment and Supplies

Tabulation and evaluation of time/activity questionnaire data will be carried out with Macintosh computers using EXCEL 4.0 (1992), and Systat 5.2.1 (1991).

5. Sample Storage

Copies of the questionnaire will be archived at both EOHSI and RTI. The EOHSI copies will be stored in binders in the office of N. Freeman.

6. Quality Assurance and Quality Control Procedures

A notebook log will be maintained. This will log in each questionnaire that is received by EOHSI by hid, date of receipt, and dates of sampling. Each questionnaire will be sight edited to assure that it is acceptable for processing. It is expected that these efforts will be minor, if the technician in the field has reviewed each questionnaire. The notebook will document when data is put into the computer, any postcoding of variables that may be necessary. The notebook will contain a key defining the nomenclature used in the data base and relating the database names to the questionnaire items, and identifying the type of measure being recorded - ordinal, interval, or ratio scales and the specific character of the responses - yes/no, frequency, hours or minutes. The log will also contain definitions of dummy variables, recoding activities and justifications, and reports on each analysis carried out.

After the questionnaire data has been encoded, checks will be run to assure that responses are within the appropriate field ranges and are within the appropriate format. The data base will then be cleaned up to remove these errors. Three copies of the encoded, final data set will be stored at EOHSI, one on the computer, and two updated copies maintained on floppies.

8. Analysis Procedure

Initial analysis will consist of frequency distributions and descriptive statistics for each of the variables. Relationships between variables and environmental and biological samples will be assessed once the lab analyses are completed.

9. Data Management

<u>Processing of data output</u>
Data storage will be on the computer hard drive, with back up copies on floppies. There will be one data base consisting of questionnaire responses. This database will be known as Nx1ta. Introduction of dummy variables will be allowed only on secondary data bases, to be identified by the addition of final numbers such as Nx1ta<u>1</u>, Nx1ta<u>2</u>, etc.