

National Human Exposure Assessment Survey (NHEXAS)

Arizona Study

Quality Systems and Implementation Plan for Human Exposure Assessment

The University of Arizona
Tucson, Arizona 85721

Cooperative Agreement CR 821560

Standard Operating Procedure

SOP-IIT-A-12.0

Title: Time Activity Calculation

Source: The University of Arizona

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

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**STANDARD OPERATING PROCEDURE
FOR
TIME ACTIVITY CALCUALTION**

This Standard Operating Procedure (SOP) uses data that have been properly coded and certified with appropriate QA/QC procedures by the University of Arizona NHEXAS team.

Objective

Calculate the time activity pattern of the NHEXAS samples.

Approaches

There are 7 microenvironments that each subject can be present during a day: transit, indoor at home, outdoor at home, indoor at work, outdoor at work, indoor at other microenvironments, and outdoor at other microenvironments. Each subject checks the appropriate box (or boxes) representing the microenvironments in the questionnaire for each hour of the day. The number of days each subject participates ranges from 1 - 8 days.

Each subject can be present in more than one microenvironment in an hour. If a subject is present in n microenvironments in an hour, the time spent in each microenvironment in that hour will be equal to $1/n$ hours.

Total hours of each subject spent in each microenvironment will be calculated by summing the hours spent in the microenvironment over all participation days. The average time, in hr/day, of each subject spent in each microenvironment will be calculated by the total hours divided by the number of participation days.

Variable List

Variable	Description
<i>HHID</i>	household I.D.
<i>TR_TOTAL</i>	Total hours of each subject spent in transit microenvironment, hrs
<i>IH_TOTAL</i>	Total hours of each subject spent indoor at home microenvironment, hrs
<i>IW_TOTAL</i>	Total hours of each subject spent indoor at work or school microenvironment, hrs
<i>IO_TOTAL</i>	Total hours of each subject spent indoor at other microenvironment, hrs

Variable	Description
OH_TOTAL	Total hours of each subject spent outdoor at home microenvironment, hrs
OW_TOTAL	Total hours of each subject spent outdoor at work or school microenvironment, hrs
OO_TOTAL	Total hours of each subject spent outdoor at other microenvironment, hrs
TR_PAR	Number of days each subject participated in transit microenvironment, days
IH_PAR	Number of days each subject participated indoor at home microenvironment, days
IW_PAR	Number of days each subject participated indoor at work or school microenvironment, days
IO_PAR	Number of days each subject participated indoor at other microenvironment, days
OH_PAR	Number of days each subject participated outdoor at home microenvironment, days
OW_PAR	Number of days each subject participated outdoor at work or school microenvironment, days
OO_PAR	Number of days each subject participated outdoor at other microenvironment, days
TR_AVG	Average hours of each subject spent in transit microenvironment, hrs/day
IH_AVG	Average hours of each subject spent indoor at home microenvironment, hrs/day
IW_AVG	Average hours of each subject spent indoor at work or school microenvironment, hrs/day
IO_AVG	Average hours of each subject spent indoor at other microenvironment, hrs/day
OH_AVG	Average hours of each subject spent outdoor at home microenvironment, hrs/day
OW_AVG	Average hours of each subject spent outdoor at work or school microenvironment, hrs/day
OO_AVG	Average hours of each subject spent outdoor at other microenvironment, hrs/day

Procedure

1. **Tadday.por**, SPSS file, will be converted to **Time Activity.xls**, Excel 97 file. Raw data will be in sheet **First**.
2. For each hour of a day, find the number of microenvironments that each subject is present. The results will be stored in sheet **total** in **Time Activity.xls** file.
3. Create sheet **Average**. Copy the raw data to this sheet and then divide each value by number of microenvironments obtained from sheet **total**.

4. Sum the total hours spent in each microenvironment and stored the results in sheet **Final**.
5. In sheet **Final**, sum the respondent's participation days. The average time, in hr/day, of each subject spent in each microenvironment will be the total hours divided by number of participation days.

Spreatsheet Format

Column	Variable
1	HHID
2	TR_TOTAL
3	IH_TOTAL
4	IW_TOTAL
5	IO_TOTAL
6	OH_TOTAL
7	OW_TOTAL
8	OO_TOTAL
9	TR_PAR
10	IH_PAR
11	IW_PAR
12	IO_PAR
13	OH_PAR
14	OW_PAR
15	OO_PAR
16	TR_AVG , calculated from TR_TOTAL / TR_PAR
17	IH_AVG , calculated from IH_TOTAL / IH_PAR
18	IW_AVG , calculated from IW_TOTAL / IW_PAR
19	IO_AVG , calculated from IO_TOTAL / IO_PAR
20	OH_AVG , calculated from OH_TOTAL / OH_PAR
21	OW_AVG , calculated from OW_TOTAL / OW_PAR
22	OO_AVG , calculated from OO_TOTAL / OO_PAR