TABLE OF CONTENTS

LIST OF TABLES

9. ACTIVITY FACTORS

9.1 INTRODUCTION

As a consequence of a child's immaturity and small stature, certain activities and behaviors specific to children place them at higher risk to certain environmental agents (Chance and Harmsen, 1998). Individual or group activities are important determinants of potential exposure, because toxic chemicals introduced into the environment may not cause harm to a child until an activity is performed that subjects the child to contact with those contaminants. An activity or time spent will vary on the basis of, for example, culture, hobbies, location, gender, age, and personal preferences. It is difficult to accurately collect/record data for a child's activity patterns (Hubal et al., 2000). Children engage in more contact activities than adults; therefore, a much wider distribution of activities need to be considered when assessing children's exposure (Hubal et al., 2000). Behavioral patterns, preferred activities, and developmental stages result in different exposures for children than for adults (Chance and Harmsen, 1998).

This section summarizes data on how much time children spend participating in various activities in various microenvironments and on the frequency of performing various activities. These data cover a wide scope of activities and populations, which are arranged by age group when such data are available.

One of the objectives of this Handbook is to provide recommended exposure factor values using a consistent set of age groups. In this chapter, several studies are used as sources for activity pattern data. In some cases, the source data could be retrieved and analyzed using the standard age groupings introduced in Chapter 1 of this Handbook. In other cases, the original source data were not available, and the study results are presented here using the same age groups as the original study, whether or not they conform to the standard age groupings.

9.2 ACTIVITY PATTERNS

This section briefly describes published time-use studies that provide information on time-activity patterns of children in the U.S. For a detailed description of the studies, the reader is referred to the *Exposure Factors Handbook* (U.S. EPA, 1997).

9.2.1 Timmer et al., 1985

Timmer et al. (1985) conducted a study using the data obtained on children's time use from a 1981-1982 panel study. A total of 922 children between the ages of 3 and 17 years participated in the survey, which used a time diary and a standardized interview. The time diary involved children reporting their activities beginning at 12.00 AM the previous night, the duration and location of each activity, the presence of another individual, and whether they were performing other activities at the same time. The standardized interview was administered to the children to gather information about their psychological, intellectual (using reading comprehension tests), and emotional well-being; their hopes and goals; their family environment; and their attitudes and beliefs.

The mean time spent performing major activities on weekdays and weekends by age, sex, and type of day is presented in Table 9-1. On weekdays, children spend about 40% of their time sleeping, 20% in school, and 10% eating, washing, dressing, and performing other personal activities (Timmer et al., 1985). The data in Table 9-1 indicate that girls spent more time than boys performing household work and personal care activities and less time playing sports. Also, the children spent most of their free time watching television.

Table 9-2 presents the mean time children spent during weekdays and weekends performing major activities by five different age groups. The significant effects of each variable (i.e., age and sex) are also shown. Older children spent more time performing household and market work, studying, and watching television and less time eating, sleeping, and playing. The authors estimate that, on average, boys spent 19.4 hours a week and girls spent 17.8 hours per week watching television.

A limitation associated with this study is that it was conducted in 1981. It is likely that activity patterns in children have changed from 1981 to the present. Thus, application of these data for current exposure assessment may bias exposure assessment results. Another limitation is that the data do not provide overall annual estimates of children’s time use since data were collected only during the time of the year when children attend school and not during school vacation.

EPA estimated the total time indoors and outdoors using the Timmer data. Activities performed indoors were assumed to include household work, personal care, eating, sleeping, attending school, studying, attending church, watching television, and engaging in household

conversations. The average times spent in these indoor activities and half the time spent in each activity which could have occurred indoors or outdoors (e.g., market work, sports, hobbies, art activities, playing, reading, and other passive leisure) were summed. Table 9-3 summarizes the results of this analysis by age groups and time of the week.

9.2.2 Robinson and Thomas, 1991

Robinson and Thomas (1991) reviewed and compared data from the 1987-88 California Air Resources Board (CARB) time-activity study for California residents and from a similar 1985 national study, *Americans' Use of Time*. Both studies used the diary approach to collect data. Time- use patterns were collected for individuals aged 12 years and older. Telephone interviews based on the random-digit-dialing procedure were conducted for approximately 1,762 and 2,762 respondents for the CARB study and the national study, respectively.

In addition, Robinson and Thomas (1991) defined a set of 16 microenvironments based on the activity and location codes employed in the two studies. The mean duration of time spent in three location categories is presented in Table 9-4. Respondents spent most of their time indoors: 1255 and 1279 min/day for the CARB study and the national study, respectively.

Table 9-5 presents the mean duration of time and standard mean error for the 16 microenvironments, grouped by total sample population and gender. Also included is the mean time spent for respondents who reported participating in each activity ("doers"). Table 9-5 shows that in both studies males spend more time in work locations, in automobiles and other vehicles, in autoplaces (garages), and engaging in physical outdoor activities at outdoor sites. In contrast, females spend more time cooking, engaging in other kitchen activities, performing other chores, and shopping. The same trends also occurred on a per-participant basis.

Table 9-6 shows the mean time spent in various microenvironments by time of week (weekday or weekend) in both studies. Generally, respondents spent most of their time during the weekends in restaurants/bars (CARB study), motor vehicles, outdoor activities, social-cultural settings, leisure/communication activities, and sleeping. Microenvironmental differences by age are presented in Table 9-7.

Limitations associated with the Robinson and Thomas (1991) study are that the CARB survey was performed in California only. Therefore, if applied to other populations, the data set may be biased. In addition, the studies were conducted in 1980s and may bias exposure

assessment results when used for current exposure assessments. Another limitation is that time distribution patterns were not provided for both studies and the data are based on short-term studies. The available data could not be re-analyzed to conform to the standardized age categories used in this Handbook.

9.2.3 Wiley et al., 1991

The California children's activity pattern survey design (Wiley et al., 1991) provided estimates of the time children spent in various activities and locations (microenvironments) on a typical day. A total of 1,200 children under the age of 12 years were included in the study. The average time spent participating in each of the 10 activity categories is presented in Table 9-8. Also included in this table are the detailed activity, including its code, with the highest mean duration of time; the percentage of respondents who reported participating in any activity (percent doing); and the mean, median, and maximum time duration for “doers.” The activity category with the highest time expenditure was personal care (794 min/day, or 13.2 hours/day), with night sleep being the detailed activity with the highest average minutes. The activity category “don't know” had a duration of about 2 min/day and only 4% of the respondents reported missing activity time.

Table 9-9 presents the mean time spent in the 10 activity categories by age and gender; because the original source data were available, the age categories used by Wiley have been replaced by the standardized age categories used in this Handbook. Differences in activity patterns for boys and girls tended to be small. Table 9-10 presents the mean time spent in the 10 activity categories grouped by season and by geographic region. There were seasonal differences for 5 activity categories: personal care, educational activities, social/entertainment, recreation, and communication/ passive leisure. Time expenditure differences in various regions of the state were minimal for childcare, work-related activities, shopping, personal care, education, social life, and recreation.

Table 9-11 presents the distribution of time across six location categories. The participation rates (percent) of respondents; the mean, median, and maximum time for "doers;" and the detailed location with the highest average time expenditure are shown. The largest amount of time spent was at home (1,078 min/day); 99 percent of respondents spent time at home (1,086 min/participant/day). Tables 9-12 and 9-13 show the average time spent in the six

locations grouped by age and gender, and season and region, respectively. Again, because the original source data were available, the age categories used by Wiley have been replaced in Table 9-12 by the standardized age categories used in this Handbook. There are age differences in time expenditure in educational settings (Table 9-12). There are no differences in time expenditure at the six locations by regions, and time spent in school decreased in the summer months compared to other seasons (Table 9-13).

Table 9-14 shows the average potential exposure time children spent in proximity to gasoline fumes and gas oven fumes. The sampled children spent more time closer to gas oven fumes (11 min/day) than to gasoline fumes (2 min/day). Age categories in Table 9-14 have been modified to conform to the standardized categories used in this Handbook.

EPA estimated the total time indoors and outdoors using the data from the Wiley et al. (1991) study. Activities performed indoors, were assumed to include household work, child care, personal needs and care, education, and communication and passive leisure. The average times spent in these indoor activities and half the time spent in each activity which could have occurred either indoors or outdoors (i.e., work-related, goods/services, organizational activities, entertainment/social, don't know/not coded) were summed. Table 9-15 summarizes the results of this analysis using the standard age groups.

9.2.4 U.S. EPA, 1992 and U.S. EPA, 2004

U.S. EPA (1992) addressed the variables of exposure time, frequency, and duration needed to calculate dermal exposure as related to water and soil contact activities . EPA published updated dermal guidance in 2004 (U.S. EPA, 2004). The reader is referred to these documents for detailed discussion of these variables. The default values for children as presented in U.S. EPA (2004) are summarized in Table 9-16. They were derived from earlier guidance and judgment. The default recommendations are presented as representing children aged 1 to 6 years and cannot be assigned to the standardized age groups (due to lack of more specific supporting data).

9.2.5 Tsang and Klepeis, 1996

Tsang and Klepeis (1996) analyzed the data collected under The National Human Activity Pattern Survey (NHAPS). This survey was conducted by EPA and is the largest and

most current human activity pattern survey available (Tsang and Klepeis, 1996). A total of 9,386 individuals of all ages participated in the study. NHAPS was conducted on a virtually daily basis from late September 1992 through September 1994 by the University of Maryland's Survey Research Center using a computer-assisted telephone interview instrument (CATI) to collect 24-hour retrospective diaries and answers to a number of personal and exposure related questions from each respondent. Data were collected on duration and frequency of selected activities and of the time spent in selected microenvironments. In addition, demographic information was collected for each respondent to allow for statistical summaries to be generated according to specific subgroups of the U.S. population (e.g., gender, age, race, employment status, census region, season). The participants' responses were weighted according to geographic, socioeconomic, time/season, and other demographic factors to ensure that results were representative of the U.S. population.

Tables 9-17 through 9-56 provide data from the NHAPS study. In most cases, the source data have been reviewed and the analysis done by Tsang and Klepeis has been recast to conform to the age categories used in this Handbook. Because no data were available on subjects' age in months, age groups less than 1 year old are consolidated into a single group. Tables 9-17 through 9-28 present data on the amount of time spent in selected activities and/or the corresponding distribution data, when available.

- **Table 9-17** presents number of showers per day by age of respondents. The data shows that the majority of respondents aged 11 years or older took a shower one or two times a day, while younger children showered less frequently.

- **Table 9-18** shows time spent taking a shower and time spent in the shower room immediately after showering. Most of the respondents spent 10-20 minutes taking a shower and in the shower room after showering.

- **Table 9-19** provides the percentile data for the same activity shown in Table 9-18. The 50th percentile value is 10 to 15 minutes for showering and 1 to 5 minutes for time spent after showering was complete. The 90th percentile values vary across age groups and range from 30-40 minutes and 10-29 minutes for time spent showering and in the bathroom after showering, respectively.

- **Table 9-20** presents total time (minutes) spent in the shower or bathtub and in the bathroom immediately after a shower or bath. The majority of respondents spent from 10-30 minutes in the shower or bathtub and approximately 10 minutes in the bathroom afterwards.

- **Table 9-21** presents the percentile data for the same activity shown in Table 9-20. The 50th percentile values range from 15-30 minutes and from 2-10 minutes for taking a shower or bath and time spent in the bathroom after the bath, respectively.

- **Table 9-22** provides a range of number of times washing the hands in a day. Most respondents washed their hands 3-5 times a day.

- **Table 9-23** presents statistics data for the number of minutes per day spent working or being near excessive dust in the air. For older children and adolescents, the 50th percentile data indicates that 38 to 60 minutes/day are spent in air with excessive dust.

- **Table 9-24** provides data for the frequency of starting a motor vehicle in a garage or carport and started with the garage door closed.

- **Table 9-25** provides data for the range of minutes/day spent playing on dirt, grass, or sand/gravel.

- **Table 9-26** provides the percentile data for the same activity shown in Table 9-25.

- **Table 9-27** provides the number of times/month swimming in a freshwater swimming pool by number of respondents. The majority of respondents swim in freshwater pools 1 or 2 times/month. A few individuals reported swimming much more frequently (up to 30 or even 60 times per month.)

- **Table 9-28** provides percentile data for the same activity shown in Table 9-27.

Tables 9-29 through 9-56 provide statistics for 24-hour cumulative time (minimum, percentiles, and maximum) spent in or in the presence of selected locations or activities. For each location or activity, statistics are calculated for the entire survey population ("Whole Population" and for the subset of the survey population that reported being in or doing the location or activity in question ("Doers Only"). When the sample size was 10 persons or fewer, percentile values were not calculated. Also note that these activities are not necessarily mutually exclusive, e.g. time spent in active sports likely overlaps with exercise time.

- **Table 9-29** provides number of minutes spent sleeping/napping in a day.

- **Table 9-30** presents data for time spent attending full-time school.

- **Table 9-31** provides data for time spent in active sports.

- **Table 9-32** provides time spent on exercise.

- **Table 9-33** presents data for time spent in outdoor recreation.

- **Table 9-34** provides data for time spent walking.

- **Table 9-35** provides data for time spent bathing.

- **Table 9-36** presents statistics for minutes eating.

- **Table 9-37** provides data for time spent indoors at a restaurant.

- **Table 9-38** provides data for time spent indoors at school.

- **Table 9-39** provides information for time spent outdoors on school grounds/playgrounds, at parks or golf courses, and at pools/rivers/lakes.

- **Table 9-40** provides information on time spent at home in the kitchen.

- **Table 9-41** provides information on time spent at home in the living room, family room, or den.

- **Table 9-42** provides information on time spent at home in the dining room.

- **Table 9-43** provides information on time spent at home in the bathroom.

- **Table 9-44** provides information on time spent at home in the bedroom.

- **Table 9-45** provides information on time spent at home in the study or office.

- **Table 9-46** provides information on time spent at home in the garage.

- **Table 9-47** provides information on time spent at home in the utility room or laundry room.

- **Table 9-48** provides information on time spent in a car.

- **Table 9-49** provides information on time spent in a truck (pickup or van).

- **Table 9-50** provides information on time spent in a truck (not a pickup or van).

- **Table 9-51** provides information on time spent on a bus.

- **Table 9-52** provides information on time spent on a train.

- **Table 9-53** provides information on time spent on an airplane.

- **Table 9-54** provides information on time spent on a boat.

- **Table 9-55** provides information on the total time spent in vehicles.

- **Table 9-56** provides information on time spent in grocery/convenience stores, other stores, and malls.

- **Table 9-57** provides data on time spent in indoor and outdoor environments.

- **Table 9-58** provides information on time spent in the presence of smokers. For this data set, the authors' original age categories were used because the methodology used to generate the data could not be reproduced.

Advantages of the NHAPS data set are that it is representative of the U.S. population and it has been adjusted to be balanced geographically, seasonally, and for day/time. Also, it is inclusive of all ages, genders, and races. A disadvantage of the study is that for the standard age categories, "N" is small for the "doers" of many activities. In addition, means cannot be calculated for time spent over 60, 120, and 181 minutes in selected activities. Therefore, actual time spent at the high end of the distribution for these activities cannot be assessed with accuracy.

9.2.6 Funk et al., 1998

Funk et al. (1998) used the data from the California Air Resources Board (CARB) study to determine distributions of exposure time by tracking the time spent participating in daily at-home and at-school activities for male and female children and adolescents. CARB performed two studies from 1987 to 1990; the first was focused on adults (18 years and older) and adolescents (12-17 years old), and the second focused on children (6-11 years old) (Funk et al., 1998). The targeted groups were noninstitutionalized English speaking Californians with a telephone in their residence. Individuals were contacted by telephone and asked to account for every minute within the previous 24 hours, including the amount of time spent on an activity and the location of the activity. The surveys were conducted on different days of the week as well as different seasons of the year.

Using the location descriptors provided in the CARB study, Funk et al. (1998) categorized the activities into two groups, "at home" (any activity at principal residence) and "away." Each activity was assigned to one of three ventilation levels (low, moderate, or high) based on the level of exertion expected from the activity. Ambiguous activities were assigned to

moderate ventilation levels. Among the adolescents and children studied, means were determined for the aggregate age groups, as shown in Table 9-59.

Funk et al. used several statistical methods, such as Chi-square, Kolmogorov-Smirnov, and Anderson-Darling, to determine whether the time spent in an activity group had a known distribution. Most of the activities performed by children were assigned a low or moderate ventilation rate (Table 9-60).

The aggregate time periods spent at home in each activity are shown in Table 9-61. Aggregate time spent at home performing different activities was compared between genders. There were no significant differences between adolescent male and females in any of the activity groups (Funk et al., 1998) (Table 9-62). In children ages 6-11 years there were differences found between gender and age at the low ventilation levels. In the moderate ventilation level there were significant differences between two age groups (6-8 years, and 9-11 years) and gender (Funk et al., 1998) (Table 9-63).

Large proportions of the respondents in the study did not participate in high-ventilation-level activities; discrete distributions were used to characterize high ventilation activity groups (Funk et al., 1998). Lognormal distribution best described the time spent by children at high ventilation levels.

9.2.7 Hubal et al., 2000

Hubal et al. (2000) reviewed available data, including activity pattern data, to characterize and assess environmental exposures to children. The EPA National Exposure Research Laboratory's Consolidated Human Activity Database (CHAD), which contained data from several studies on human activities, was reviewed. For children and adolescents younger than 18 years, CHAD contained 4,300 person-days of information and 3,009 person-days of macroactivity data for 2,640 children less than 12 years old (Hubal et al., 2000) (Table 9-64). Specific examples of the type of macroactivity data available in CHAD for children are shown in Tables 9-65 and 9-66. The number of hours spent in various microenvironments are shown in Table 9-65 and time spent in various activities indoors at home in Table 9-66.

The authors noted that CHAD contains approximately "140 activity codes and 110 location codes," but the data generally are not available for all activity locations for any single respondent. In fact, not all of the codes were used for most of the studies. Even though many

codes are used in macroactivity studies, many of the activity codes do not adequately capture the richness of what children actually do. They are much too broadly defined and ignore many child-oriented behaviors. Thus, there is a need for more and better-focused research into children's activities." CHAD is available on the EPA Internet at: http://www.epa.gov/chadnet1/.

EPA has performed an analysis of the source data used by Hubal et al. (2000) to recast the study's results using CHAD data downloaded in 2000 and the new standard age categories. The results are shown in Tables 9-67 and 9-68. In this analysis, individual study participants within CHAD whose behavior patterns were measured over multiple days were treated as multiple one-day activity patterns. This is a potential source of error or bias in the results because a single individual may contribute multiple data sets to the aggregate population being studied.

9.2.8 Wong et al., 2000

Wong et al. (2000) conducted telephone surveys to gather information on children's activity patterns as related to dermal contact with soil during outdoor play on bare dirt or mixed grass and dirt surfaces. This study, the second Soil Contact Survey (SCS-II), was a follow-up to the initial Soil Contact Survey (SCS-I), conducted in 1996, that primarily focused on assessing adult behavior related to dermal contact with soil and dust (Garlock et al., 1999). As part of SCS-I, information was gathered on the behavior of children under the age of 18 years, however, the questions were limited to clothing choices and the length of time after soil contact to hand washing. Questions were posed for SCS-II to further define children's outdoor activities and hand washing and bathing frequency. For both soil contact surveys households were randomly phoned in order to obtain nationally representative results. The adult respondents were questioned as surrogates for one randomly chosen child under the age of 18 residing within the household.

In the SCS-II, of 680 total adult respondents with a child in their household, 500 (73.5%) reported that their child played outdoors on bare dirt or mixed grass and dirt surfaces (identified as "players"). Those children that reportedly did not play outdoors ("non-players") were typically very young (#1 year) or relatively older ($14 years). Of the 500 children that played outdoors, 497 played outdoors in warm weather months (April through October) and 390 were

reported to play outdoors during cold weather months (November through March). These results are presented in Table 9-69. The frequency (days/week), duration (hours/day), and total hours per week spent playing outdoors was determined for those children identified as "players" (Table 9-70). The responses indicated that during the warmer months children spend a relatively high percentage of time outdoor and a lesser amount of time in cold weather. The median play frequency reported was 7 days/week in warm weather and 3 days/week in cold weather. Median play duration was 3 hours/day in warm weather and 1 hour/day during cold weather months.

Adult respondents were then questioned as to how many times per day their child washed his/her hands and how many times the child bathed or showered per week during both warm and cold weather months. This information provided an estimate of the time between skin contact with soil and removal of soil by washing (i.e., exposure time). Hand washing and bathing frequencies for child players are reported in Table 9-71. Based on these results, hand washing occurred a median of 4 times per day during both warm and cold weather months. The median frequency for baths and showers was estimated to be 7 times per week for both warm and cold weather.

Based on reported household incomes, the respondents sampled in SCS-II tended to have higher incomes than that of the general population. This may be explained by the fact that phone surveys cannot sample those households without telephones. Additional uncertainty or error in the study results may be presented by the use of surrogate respondents. Adult respondents were questioned regarding child activities that may have occurred in prior seasons, introducing the chance of recall error. In some instances, a respondent did not know the answer to a question or refused to answer. In Tables 9-72 and 9-73 information were extracted from the National Human Activity Pattern Survey (NHAPS) (U.S. EPA, 1996). Table 9-72 compares mean play duration data from SCS-II to similar activities identified in NHAPS. The number of times per day a child washed his or her hands was presented in both SCS-II and NHAPS follow-up survey B and are shown in Table 9-73. Corresponding information for bathing frequency data collected from SCS-II was not collected in NHAPS. As indicated in Tables 9-72 and 9-73, where comparison is possible, NHAPS and SCS-II results showed similarities in observed behaviors.

9.2.9. Graham and McCurdy, 2004

This paper uses analyses of CHAD to evaluate how cohort definitions can affect statistics on activity patterns. Age and gender are typically used as the primary cohort-defining attributes, but more complex exposure models also use weather, day-of-the-week, and employment attributes for this purpose. All of these attributes and others were evaluated to determine if statistically significant differences exist among them to warrant their being used to define distinct cohort groups. The analysis focused mostly on the relationship between cohort attributes and the time spent outdoors, indoors, and in motor vehicles. The results indicate that besides age and gender, other important attributes for defining cohorts are the physical activity level of individuals, whether factors such as daily maximum temperature in combination with months of the year, and combined weekday/weekend with employment status. Less important are precipitation and ethnic data. While statistically significant, the collective set of attributes does not explain a large amount of variance in outdoor, indoor, or in-vehicle locational decisions. Based on other research, parameters such as lifestyle and life stages that are absent from CHAD might have reduced the amount of unexplained variance. The authors recommend that exposure modelers use age and gender as ‘‘first-order’’ attributes to define cohorts followed by physical activity level, daily maximum temperature or other suitable weather parameters, and day type possibly beyond a simple weekday/weekend classification.

9.3 RECOMMENDATIONS

Assessors are commonly interested in a number of specific types of time use data for children including times for bathing, showering, indoor activity, outdoor activity, swimming, and surface type during play. The studies used to develop recommendations for these factors are summarized in Tables 9-74 and 9-75. The recommended values for the factors are discussed below and summarized in Table 9-76. Only means or medians were provided because these are based on short term data and 95th percentiles would be potentially misleading for long term estimates. The confidence in the recommendations for activity patterns is presented in Table 9-77.

Time Spent Indoors and Outdoors - Assessors often require knowledge of time individuals spend indoors versus outdoors. Ideally, this issue would be addressed on a site-specific basis since the times are likely to vary considerably depending on the climate, residential setting (i.e., rural versus urban), personal traits (i.e., age, health) and personal habits.

Activities can vary significantly with differences in age. Table 9-75 summarizes the studies that present information on time indoors and outdoors. Of these studies, the Wiley et al. (1991) and Tsang and Kleipeis (1996) studies were most conducive to being recast to fit the standardized age categories in this Handbook. The recommended values are presented in Table 9-76 for the standardized age groups,. The recommendations for time spent indoors at a residence are based on the EPA re-analysis of the Tsang and Kleipeis (1996). The recommendations for total time spent indoors are based on the EPA re-analysis of the Tsang and Kleipeis (1996) and Wiley et al. (1991) data. The recommendations for total time spent outdoors are based on the EPA re-analysis of the Tsang and Kleipeis (1996) and Wiley et al. (1991) data.

Showering and Bathing - The recommended values for shower and bath duration are presented in Table 9-76 for the standardized age groups, based on the EPA re-analysis of the Tsang and Kleipeis (1996).

Swimming - The recommended values for swimming time are presented in Table 9-76 for the standardized age groups, based on the EPA re-analysis of the Tsang and Kleipeis (1996).

Playing on Sand or Gravel, on Grass, **and on Dirt** - The recommended values for time spent playing on sand, gravel, grass or dirt are presented in Table 9-76 based on the EPA re-analysis of the Tsang and Kleipeis (1996). .

9.4 REFERENCES FOR CHAPTER 9

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Table 9-1. Mean Time Spent (minutes) Performing Major Activities Grouped by Age, Sex and Type of Day

Activity	Age (3-11 years)				Age (12-17 years)			
	Duration of Time (mins/day)				Duration of Time (mins/day)			
	Weekdays		Weekends		Weekdays		Weekends	
	Boys (n=118)	Girls (n=111)	Boys (n=118)	Girls (n=111)	Boys (n=77)	Girls (n=83)	Boys (n=77)	Girls (n=83)
Market Work	16	0	7	4	23	21	58	25
Household Work	17	21	32	43	16	40	46	89
Personal Care	43	44	42	50	48	71	35	76
Eating	81	78	78	84	73	65	58	75
Sleeping	584	590	625	619	504	478	550	612
School	252	259	--	--	314	342	--	--
Studying	14	19	4	9	29	37	25	25
Church	7	4	53	61	3	7	40	36
Visiting	16	9	23	37	17	25	46	53
Sports	25	12	33	23	52	37	65	26
Outdoors	10	7	30	23	10	10	36	19
Hobbies	3	1	3	4	7	4	4	7
Art Activities	4	4	4	4	12	6	11	9
Playing	137	115	177	166	37	13	35	24
TV	117	128	181	122	143	108	187	140
Reading	9	7	12	10	10	13	12	19
Household Conversations	10	11	14	9	21	30	24	30
Other Passive Leisure	9	14	16	17	21	14	43	33
NA[a]	22	25	20	29	14	17	10	4
Percent of Time Accounted for by Activities Above	94%	92%	93%	89%	93%	92%	88%	89%

a NA = Unknown
Source: Timmer et al., 1985.

Table 9-2. Mean Time Spent (minutes) in Major Activities Grouped by Type of Day for Five Different Age Groups

Activity	Time Duration (mins)										Significant Effects[a]
	Weekday					Weekend					
	Age Groups					Age Groups					
	3-5	6-8	9-11	12-14	15-17	3-5	6-8	9-11	12-14	15-17	
Market Work	--	14	8	14	28	--	4	10	29	48	
Personal Care	41	49	40	56	60	47	45	44	60	51	A,S,AxS (F>M)
Household Work	14	15	18	27	34	17	27	51	72	60	A,S, AxS (F>M)
Eating	82	81	73	69	67	81	80	78	68	65	A
Sleeping	630	595	548	473	499	634	641	596	604	562	A
School	137	292	315	344	314	--	--	--	--	--	
Studying	2	8	29	33	33	1	2	12	15	30	A
Church	4	9	9	9	3	55	56	53	32	37	A
Visiting	14	15	10	21	20	10	8	13	22	56	A (Weekend only)
Sports	5	24	21	40	46	3	30	42	51	37	A,S (M>F)
Outdoor activities	4	9	8	7	11	8	23	39	25	26	
Hobbies	0	2	2	4	6	1	5	3	8	3	
Art Activities	5	4	3	3	12	4	4	4	7	10	
Other Passive Leisure	9	1	2	6	4	6	10	7	10	18	A
Playing	218	111	65	31	14	267	180	92	35	21	A,S (M>F)
TV	111	99	146	142	108	122	136	185	169	157	A,S, AxS (M>F)
Reading	5	5	9	10	12	4	9	10	10	18	A
Being read to	2	2	0	0	0	3	2	0	0	0	A
NA	30	14	23	25	7	52	7	14	4	9	A

[a] Effects are significant for weekdays and weekends, unless otherwise specified A = age effect, $P<0.05$, for both weekdays and weekend activities; S = sex effect $P<0.05$, F>M, M>F = females spend more time than males, or vice versa; and AxS = age by sex interaction, $P<0.05$.

Source: Timmer et al., 1985.

Table 9-3. Mean Time Spent Indoors and Outdoors Grouped by Age and Day of the Week

Age Group (yrs)	Time Indoors Weekday (hrs/day)	Time Indoors Weekend (hrs/day)	Time Outdoors Weekday (hrs/day)	Time Outdoors Weekend (hrs/day)
3-5	19.4	18.9	2.5	3.1
6-8	20.7	18.6	1.8	2.5
9-11	20.8	18.6	1.3	2.3
12-14	20.7	18.5	1.6	1.9
15-17	19.9	17.9	1.4	2.3

Source: Adapted from Timmer et al. (1985).

Table 9-4. Mean Time Spent at Three Locations for both CARB and National Studies (ages 12 years and older)

Location Category	Mean duration (mins/day)			
	CARB (n = 1762)[b]	S.E.[a]	National (n = 2762)[b]	S.E.
Indoor	1255[c]	28	1279[c]	21
Outdoor	86[d]	5	74[d]	4
In-Vehicle	98[d]	4	87[d]	2
Total Time Spent	1440		1440	

[a] S.E. = Standard Error of Mean

[b] Weighted Number - National sample population was weighted to obtain a ratio of 46.5 males and 53.5 females, in equal proportion for each day of the week, and for each quarter of the year.

[c] Difference between the mean values for the CARB and national studies is not statistically significant.

[d] Difference between the mean values for the CARB and national studies is statistically significant at the 0.05 level.

Source: Robinson and Thomas, 1991.

Table 9-5. Mean Time Spent (minutes/day) in Various Microenvironments Grouped by Total Population and Gender (12 years and over) in the National and CARB Data

Microenvironment	National Data Mean Duration (mins/day) (standard error)[a]					
	N = 1284[b] Male	"Doer"[c] Male	N = 1478[b] Female	"Doer" Female	N = 2762[b] Total	"Doer" Total
Autoplaces	5 (1)	90	1 (0)	35	3 (0)	66
Restaurant/bar	22 (2)	73	20 (2)	79	21 (1)	77
In-vehicle	92 (3)	99	82 (3)	94	87 (2)	97
In-Vehicle/other	1 (1)	166	1 (0)	69	1 (0)	91
Physical/outdoors	24 (3)	139	11 (2)	101	17 (2)	135
Physical/indoors	11 (1)	84	6 (1)	57	8 (1)	74
Work/study-residence	17 (2)	153	15 (2)	150	16 (1)	142
Work/study-other	221 (10)	429	142 (7)	384	179 (6)	390
Cooking	14 (1)	35	52 (2)	67	34 (1)	57
Other activities/kitchen	54 (3)	69	90 (4)	102	73 (2)	88
Chores/child	88 (3)	89	153 (5)	154	123 93)	124
Shop/errand	23 (2)	56	38 (2)	74	31 (1)	67
Other/outdoors	70 (6)	131	43 (4)	97	56 (4)	120
Social/cultural	71 (4)	118	75 (4)	110	73 (3)	118
Leisure-eat/indoors	235 (8)	241	215 (7)	224	224 (5)	232
Sleep/indoors	491 (14)	492	496 (11)	497	494 (9)	495
Microenvironment	CARB Data Mean Duration (mins/day) (standard error)[a]					
	N = 867[b] Male	"Doer"[c] Male	N = 895[b] Female	"Doer" Female	N = 1762[b] Total	"Doer" Total
Autoplaces	31 (8)	142	9 (2)	50	20 (4)	108
Restaurant/bar	45 (4)	106	28 (3)	86	36 (3)	102
In-vehicle	105 (7)	119	85 (4)	100	95 (4)	111
In-Vehicle/other	4 (1)	79	3 (2)	106	3 (1)	94
Physical/outdoors	25 (3)	131	8 (1)	86	17 (2)	107
Physical/indoors	8 (1)	63	5 (1)	70	7 (1)	68
Work/study-residence	14 (3)	126	11 (2)	120	13 (2)	131
Work/study-other	213 (14)	398	156 (11)	383	184 (9)	450
Cooking	12 (1)	43	42 (2)	65	27 (1)	55
Other activities/kitchen	38 (3)	65	60 (4)	82	49 (2)	74
Chores/child	66 (4)	75	134 (6)	140	100 (4)	109
Shop/errand	21 (3)	61	41 (3)	78	31 (2)	70
Other/outdoors	95 (9)	153	44 (4)	82	69 (5)	117
Social/cultural	47 (4)	112	59 (5)	114	53 (3)	112
Leisure-eat/indoors	223 (10)	240	251 (10)	263	237 (7)	250
Sleep/indoors	492 (17)	499	504 (15)	506	498 (12)	501

[a] Standard error of the mean
[b] Weighted number
[c] Doer = Respondents who reported participating in each activity/location spent in microenvironments.

Source: Robinson and Thomas, 1991.

Table 9-6. Mean Time Spent (minutes/day) in Various Microenvironments by Type of Day for the California and National Surveys (sample population ages 12 years and older)

Weekday Microenvironment	Mean Duration (standard error)[a] (mins/day)		Mean Duration for "Doer"[b] (mins/day)	
	CARB (n=1259)[c]	NAT (n=1973)[c]	CARB	NAT
1 Autoplaces	21 (5)	3 (1)	108	73
2 Restaurant/Bar	29 (3)	20 (2)	83	73
3 In-Vehicle/Internal Combustion	90 (5)	85 (2)	104	95
4 In-Vehicle/Other	3 (1)	1 (0)	71	116
5 Physical/Outdoors	14 (2)	15 (2)	106	118
6 Physical/Indoors	7 (1)	8 (1)	64	68
7 Work/Study-Residence	14 (2)	16 (2)	116	147
8 Work/Study-Other	228 (11)	225 (8)	401	415
9 Cooking	27 (2)	35 (2)	58	57
10 Other Activities/Kitchen	51 (3)	73 (3)	76	87
11 Chores/Child	99 (5)	124 (4)	108	125
12 Shop/Errand	30 (2)	30 (2)	67	63
13 Other/Outdoors	67 (6)	51 (4)	117	107
14 Social/Cultural	42 (3)	62 (3)	99	101
15 Leisure-Eat/Indoors	230 (9)	211 (6)	244	218
16 Sleep/Indoors	490 (14)	481 (10)	495	483

Weekend Microenvironment	Mean Duration (standard error)[a] (mins/day)		Mean Duration for "Doer"[b] (mins/day)	
	CARB (n=503)[c]	NAT (n=789)[c]	CARB	NAT
1 Autoplaces	19 (4)	3 (1)	82	62
2 Restaurant/Bar	55 (6)	23 (2)	127	84
3 In-Vehicle/Internal Combustion	108 (8)	91 (6)	125	100
4 In-Vehicle/Other	5 (3)	0 (0)	130	30
5 Physical/Outdoors	23 (3)	23 (4)	134	132
6 Physical/Indoors	7 (1)	9 (2)	72	80
7 Work/Study-Residence	10 (2)	15 (3)	155	165
8 Work/Study-Other	74 (11)	64 (6)	328	361
9 Cooking	27 (2)	34 (2)	60	55
10 Other Activities/Kitchen	44 (3)	73 (4)	71	90
11 Chores/Child	103 (7)	120 (5)	114	121
12 Shop/Errand	35 (4)	35 (3)	81	75
13 Other/Outdoors	74 (7)	67 (7)	126	132
14 Social/Cultural	79 (7)	99 (6)	140	141
15 Leisure-Eat/Indoors	256 (12)	257 (11)	273	268
16 Sleep/Indoors	520 (20)	525 (17)	521	525

[a] Standard Error of Mean
[b] Doer = Respondent who reported participating in each activity/location spent in microenvironments.
[c] Weighted Number
Source: Robinson and Thomas, 1991.

Table 9-7. Mean Time Spent (minutes/day) in Various Microenvironments by Age Groups for the National and California Surveys

Microenvironment	National Data Mean Duration (Standard Error)[a]			
	Age 12-17 years N=340[b]	"Doer"[c]	Age 18-24 years N=340	"Doer"
Autoplaces	2 (1)	73	7 (2)	137
Restaurant/bar	9 (2)	60	28 (3)	70
In-vehicle/internal combustion	79 (7)	88	103 (8)	109
In-vehicle/other	0 (0)	12	1 (1)	160
Physical/outdoors	32 (8)	130	17 (4)	110
Physical/indoors	15 (3)	87	8 (2)	76
Work/study-residence	22 (4)	82	19 (6)	185
Work/study-other	159 (14)	354	207 (20)	391
Cooking	11 (3)	40	18 (2)	39
Other activities/kitchen	53 (4)	64	42 (3)	55
Chores/child	91 (7)	92	124 (9)	125
Shop/errands	26 (4)	68	31 (4)	65
Other/outdoors	70 (13)	129	34 (4)	84
Social/cultural	87 (10)	120	100 (12)	141
Leisure-eat/indoors	237 (16)	242	181 (11)	189
Sleep/indoors	548 (31)	551	511 (26)	512
Microenvironment	CARB Data Mean Duration (Standard Error)[a]			
	Age 12-17 years N=183[b]	"Doer"[c]	Age 18-24 years N=250	"Doer"
Autoplaces	16 (8)	124	16 (4)	71
Restaurant/bar	16 (4)	44	40 (8)	98
In-vehicle/internal combustion	78 (11)	89	111 (13)	122
In-vehicle/other	1 (0)	19	3 (1)	60
Physical/outdoors	32 (7)	110	13 (3)	88
Physical/indoors	20 (4)	65	5 (2)	77
Work/study-residence	25 (5)	76	30 (11)	161
Work/study-other	196 (30)	339	201 (24)	344
Cooking	3 (1)	19	14 (2)	40
Other activities/kitchen	31 (4)	51	31 (5)	55
Chores/child	72 (11)	77	79 (8)	85
Shop/errands	14 (3)	50	35 (7)	71
Other/outdoors	58 (8)	78	80 (15)	130
Social/cultural	63 (14)	109	65 (10)	110
Leisure-eat/indoors	260 (27)	270	211 (19)	234
Sleep/indoors	557 (44)	560	506 (30)	510

[a] Standard error.
[b] All N's are weighted number.
[c] Doer = Respondents who reported participating in each activity/location spent in microenvironments.
Source: Robinson and Thomas, 1991.

Table 9-8. Mean Time (minutes/day) Children Ages 12 Years and Under Spent in Ten Major Activity Categories for All Respondents

Activity Category	Mean Duration (mins/day)	% Doing	Mean Duration for Doers[b] (mins/day)	Median Duration for Doer (mins/day)	Maximum Duration for Doers (mins/day)	Detailed Activity with Highest Avg. Minutes (code)
Work-related[a]	10	25	39	30	405	Eating at work/school/daycare (06)
Household	53	86	61	40	602	Travel to household (199)
Childcare	< 1	< 1	83	30	290	Other child care (27)
Goods/Services	21	26	81	60	450	Errands (38)
Personal Needs and Care[c]	794	100	794	770	1440	Night sleep (45)
Education[d]	110	35	316	335	790	School classes (50)
Organizational Activities	4	4	111	105	435	Attend meetings (60)
Entertain/Social	15	17	87	60	490	Visiting with others (75)
Recreation	239	92	260	240	835	Games (87)
Communication/Passive Leisure	192	93	205	180	898	TV use (91)
Don't know/Not coded	2	4	41	15	600	--
All Activities[e]	1441					

[a] Includes eating at school or daycare, an activity not grouped under the "education activities" (codes 50-59, 549).
[b] "Doers" indicate the respondents who reported participating in each activity category.
[c] Personal care includes night sleep and daytime naps, eating, travel for personal care.
[d] Education includes student and other classes, homework, library, travel for education.
[e] Column total may not sum to 1440 due to rounding error

Source: Wiley et al., 1991.

Table 9-9. Mean Time Children Spent in Ten Major Activity Categories by Age and Gender

Activity Category	Mean Duration (minutes/day) - BOYS									
	birth to 1 month	1 to <3 months	3 to <6 months	6 to <12 months	1 to <2 years	2 to <3 years	3 to <6 years	6 to <11 years	11 years[d]	0-11 yrs
Work-related	0	0	0	1	8	9	10	12	13	11
Household	12	30	49	28	35	44	44	61	63	58
Childcare	0	0	0	0	0	0	0	0	3	2
Goods/Services	0	16	14	28	27	14	28	22	24	26
Personal Needs and Care[a]	910	1143	937	919	903	889	802	726	707	802
Education[b]	180[c]	0	75	70	33	69	67	120	120	100
Organizational Activities	0	0	0	0	7	0	5	11	16	6
Entertainment/Social	0	0	0	0	8	6	15	15	43	18
Recreation	0	0	26	104	314	304	294	265	227	228
Communication/Passive Leisure	338	250	339	292	106	103	175	208	226	226
Sample Sizes (Unweighted)	3	7	15	31	54	62	151	239	62	624

Activity Category	Mean Duration (minutes/day) - GIRLS									
	birth to 1 month	1 to <3 months	3 to <6 months	6 to <12 months	1 to <2 years	2 to <3 years	3 to <6 years	6 to <11 years	11 years[d]	0-11 yrs
Work-related	0	0	5	1	3	22	9	10	19	11
Household	28	29	23	25	45	65	49	67	78	58
Childcare	0	0	0	0	0	0	0	2	9	2
Goods/Services	0	18	14	24	24	34	31	26	15	26
Personal Needs and Care[a]	1123	1115	971	922	894	858	820	747	703	802
Education[b]	0	0	110	94	25	40	81	134	151	100
Organizational Activities	0	0	0	0	0	2	3	8	13	6
Entertainment/Social	0	0	0	1	13	6	16	17	52	18
Recreation	0	0	10	147	256	305	270	224	175	228
Communication/Passive Leisure	290	278	308	226	179	107	161	203	225	189
Sample Sizes (Unweighted)	4	10	11	23	43	50	151	225	59	576

[a] Personal needs and care includes night sleep and daytime naps, eating, travel for personal care.
[b] Education includes student and other classes, homework, library, travel for education.
[c]The data for this age group and category are two values of zero and one of 540.
[d]The source data end at 11 years of age, so the 11 to <16 year category is truncated and the 16 to <21 year category is not included.

Source: EPA Analysis of source data used by Wiley et al . (1991).

Table 9-10. Mean Time Children Ages 12 Years and Under Spent in Ten Major Activity Categories Grouped by Seasons and Regions

Activity Category	Mean Duration (minutes/day)								
	Season					Region of California			
	Winter (Jan-Mar)	Spring (Apr-June)	Summer (July-Sept)	Fall (Oct-Dec)	All Seasons	So. Coast	Bay Area	Rest of State	All Regions
Work-related	10	10	6	13	10	10	10	8	10
Household	47	58	53	52	53	45	62	55	53
Childcare	<1	1	<1	<1	<1	<1	<1	1	<1
Goods/Services	19	17	26	23	21	20	21	23	21
Personal Needs and Care[a]	799	774	815	789	794	799	785	794	794
Education[b]	124	137	49	131	110	109	115	109	110
Organizational Activities	3	5	5	3	4	2	6	6	4
Entertainment/Social	14	12	12	22	15	17	10	16	15
Recreation	221	243	282	211	239	230	241	249	239
Communication/Passive Leisure	203	180	189	195	192	206	190	175	192
Don't know/Not coded	<1	2	3	<1	2	1	1	3	2
All Activities[c]	1442	1439	1441	1441	1441	1440	1442	1439	1441
Sample Sizes (Unweighted)	318	204	407	271	1200	224	263	713	1200

[a] Personal needs and care includes night sleep and daytime naps, eating, travel for personal care.
[b] Education includes student and other classes, homework, library, travel for education.
[c] The column totals may not be equal to 1440 due to rounding error.

Source: Wiley et al., 1991.

Table 9-11. Mean Time Children Ages 12 Years and Under Spent in Six Major Location Categories for All Respondents (minutes/day)

Location Category	Mean Duration (min)	% Doing	Mean Duration for Doers (min)	Median Duration for Doers (min)	Maximum Duration for Doers (min)	Detailed Location with Highest Avg. Time
Home	1,078	99	1,086	1,110	1,440	Home - bedroom
School/Childcare	109	33	330	325	1,260	School or daycare facility
Friend's/Other's House	80	32	251	144	1,440	Friend's/other's house - bedroom
Stores, Restaurants, Shopping Places	24	35	69	50	475	Shopping mall
In-transit	69	83	83	60	1,111	Traveling in car
Other Locations	79	57	139	105	1,440	Park, playground
Don't Know/Not Coded	<1	1	37	30	90	--
All Locations	1,440					

Source: Wiley et al., 1991.

Table 9-12. Mean Time Children Spent in Six Location Categories Grouped by Age and Gender

Location Category	Mean Duration (minutes/day) - BOYS									
	birth to 1 month	1 to <3 months	3 to <6 months	6 to <12 months	1 to <2 years	2 to <3 years	3 to <6 years	6 to <11 years	11 years[a]	0-11 yrs
Home	938	1295	1164	1189	1177	1161	1102	1016	1010	1079
School/Childcare	0	1	26	53	73	86	79	110	99	89
Friend's/Other's House	418	40	127	63	54	69	89	110	111	95
Stores, Restaurants, Shopping Places	0	14	21	36	29	22	24	23	20	24
In-transit	77	51	69	63	56	61	67	64	72	65
Other Locations	7	40	33	36	52	41	78	116	127	88
Don't Know/Not Coded	0	0	0	0	0	0	0	0	0	0
Sample Sizes (Unweighted)	3	7	15	31	54	62	151	239	62	624

Location Category	Mean Duration (minutes/day) - GIRLS									
	birth to 1 month	1 to <3 months	3 to <6 months	6 to <12 months	1 to <2 years	2 to <3 years	3 to <6 years	6 to <11 years	11 years[b]	0-11 yrs
Home	1285	1341	1151	1192	1162	1065	1118	1012	862	1058
School/Childcare	0	0	109	99	56	61	78	116	128	95
Friend's/Other's House	0	12	44	32	109	103	66	119	193	103
Stores, Restaurants, Shopping Places	0	13	20	15	21	40	32	25	24	27
In-transit	73	56	42	58	55	86	78	70	95	74
Other Locations	83	19	73	43	38	86	67	97	137	84
Don't Know/Not Coded	0	0	0	0	0	0	1	0	0	0
Sample Sizes (Unweighted)	4	10	11	23	43	50	151	225	59	576

[a] The source data end at 11 years of age, so the 11 to <16 year category is truncated and the 16 to <21 year category is not included.

Source: EPA Analysis of source data used by Wiley et al . (1991).

Table 9-13. Mean Time Children Spent in Six Location Categories Grouped by Season and Region

Location Category	Mean Duration (minutes/day)								
	Season					Region of California			
	Winter (Jan-Mar)	Spring (Apr-June)	Summer (July-Sept)	Fall (Oct-Dec)	All Seasons	So. Coast	Bay Area	Rest of State	All Regions
Home	1,091	1,042	1,097	1,081	1,078	1,078	1,078	1,078	1,078
School/Childcare	119	141	52	124	109	113	103	108	109
Friend's/Other's House	69	75	108	69	80	73	86	86	80
Stores, Restaurants, Shopping Places	22	21	30	24	24	26	23	23	24
In transit	75	75	60	65	69	71	73	63	69
Other Locations	63	85	93	76	79	79	76	81	79
Don't Know/Not Coded	<1	<1	<1	<1	<1	<1	<1	<1	<1
All Locations[a]	1,439	1,439	1,440	1,439	1,439	1,439	1,440	1,440	1,439
Sample Sizes (Unweighted N's)	318	204	407	271	1,200	224	263	713	1,200

[a] The column totals may not sum to 1,440 due to rounding error.

Source: Wiley et al., 1991.

Table 9-14. Mean Time Children Spent in Proximity to Two Potential Exposures Grouped by All Respondents, Age, and Gender

Potential Exposures	Mean Duration (minutes/day) - BOYS									
	birth to 1 month	1 to <3 months	3 to <6 months	6 to <12 months	1 to <2 years	2 to <3 years	3 to <6 years	6 to <11 years	11 years[b]	0-11 yrs
Gasoline Fumes	3	9	0	2	1	4	2	2	7	3
Gas Oven Fumes	0	0	2	2	1	3	0	1	0	1
Sample Sizes (Unweighted N's)	3	7	15	31	54	62	151	239	62	624

Potential Exposures	Mean Duration (minutes/day) - GIRLS									
	birth to 1 month	1 to <3 months	3 to <6 months	6 to <12 months	1 to <2 years	2 to <3 years	3 to <6 years	6 to <11 years	11 years[b]	0-11 yrs
Gasoline Fumes	0	3	0	3	1	2	1	2	1	2
Gas Oven Fumes	0	0	0	0	0	3	2	1	0	1
Sample Sizes (Unweighted N's)	4	10	11	23	43	50	151	225	59	576

[a] Respondents with missing data were excluded.
[b]The source data end at 11 years of age, so the 11 to <16 year category is truncated and the 16 to <21 year category is not included.
Source: EPA Analysis of source data used by Wiley et al . (1991).

Table 9-15. Mean Time Spent Indoors and Outdoors Grouped by Age

Age Groups	Boys			Girls		
	sample size	time indoors (min/day)	time outdoors (min/day)	sample size	time indoors (min/day)	time outdoors (min/day)
birth to <1 month	3	1440	0	4	1440	0
1 to <3 months	7	1432	8	10	1431	9
3 to <6 months	15	1407	33	11	1421	19
6 to <12 months	31	1322	118	23	1280	160
1 to <2 years	54	1101	339	43	1164	276
2 to <3 years	62	1121	319	50	1102	338
3 to <6 years	151	1117	323	151	1140	300
6 to <11 years	239	1145	295	225	1183	255
11 years[a]	62	1166	274	59	1215	225
All Ages	624	1181	258	576	1181	258

[a]The source data end at 11 years of age, so the 11 to <16 year category is truncated and the 16 to <21 year category is not included.

Note: Indoor and outdoor minutes may not sum to 1440 due to rounding errors.

Source: EPA Analysis of source data used by Wiley et al . (1991).

Table 9-16. Water and Soil Contact Exposure Factors for Children[a]

	Water Contact				Soil Contact	
	Bathing[b]		Swimming			
	Central	Upper	Central	Upper	Central	Upper
Event time and frequency	20 min/event 1 event/day 350 days/yr	60 min/event 1 event/day 350 days/yr	Site-specific	Site-specific	1event/day days/yr is site -specific	1 event/day 350 days/yr
Exposure Duration [c]	6 years	6 years	6 years	6 years	6 years	6 years

[a] Children age range defined as 1 to 6 years.
[a]Bathing represents baths as well as showers.
[C] Exposure duration is set at 6 years because this corresponds to age range addressed by these factors.

Source: U.S. EPA, , 2004

Table 9-17. Number of Showers Taken Per Day

Age (years)	Total N	Showers per day				
		0	1	2	3	Don't Know
0 to <1	37	36	1	0	0	0
1to < 2	53	48	5	0	0	0
2 to <3	67	54	10	2	0	1
3 to <6	187	153	25	7	1	1
6 to <11	245	122	95	25	1	2
11 to <16	258	51	150	53	3	1
16 to <21	232	23	147	57	5	0

Source: EPA Analysis of source data used by Tsang and Klepeis (1996) (NHAPS database)

Table 9-18. Time (minutes) Spent Taking a Shower and Spent in the Shower Room After Taking a Shower by the Number of Respondents

Age	Total N	Minutes per Shower								
		0	1-10	11-20	21-30	31-40	41-50	51-60	61+	DK
Time (minutes) Spent Taking Showers										
0 to <1	37	36	0	1	0	0	0	0	0	0
1to < 2	53	48	1	2	2	0	0	0	0	0
2 to <3	67	54	3	5	3	0	0	1	0	1
3 to <6	187	153	15	11	5	1	0	1	0	1
6 to <11	245	122	47	47	18	3	2	4	0	2
11 to <16	258	51	76	81	30	10	4	4	0	2
16 to <21	232	23	70	74	40	7	10	6	1	1
Time (minutes) Spent in the Shower Room Immediately After Showering										
0 to <1	1	0	1	0	0	0	0	0	0	0
1to < 2	4	2	2	0	0	0	1	0	0	0
2 to <3	12	1	10	1	0	0	0	0	0	0
3 to <6	34	1	28	4	1	0	0	0	0	0
6 to <11	122	9	96	11	3	0	0	0	0	3
11 to <16	206	12	156	23	8	3	2	1	0	1
16 to <21	210	14	160	26	5	1	1	1	1	1

NOTE: * - Missing data; DK = don't know; N = sample size; Refused = Refused to answer. A value of 61 for number of minutes signifies that more than 60 minutes were spent.

Source: EPA Analysis of source data used by Tsang and Klepeis (1996) (NHAPS database)

Table 9-19. Time Spent Taking a Shower and Spent in the Shower Room Immediately After Showering

Time spent taking a shower (minutes)														
Age	N	Mean	Min	Percentiles										Max
				1	2	5	10	25	50	75	90	95	98	99	
0 to <1	1	1	1	---	---	---	---	—	—	—	—	—	—	—	1
1to < 2	5	20	5	5.4	5.8	7	9	15	20	30	30	30	30	30	30
2 to <3	12	22	5	5	5	5	5.5	13.8	20	30	30	43.5	53.4	56.7	60
3 to <6	33	17	3	3.6	4.3	5	5	10	15	20	30	34	47.2	53.6	60
6 to <11	119	18	4	5	5	5	7	10	15	20	30	40.5	56.8	60	60
11 to <16	204	18	3	4.0	5	5	6.3	10	15	20	30	40	49.7	60	60
16 to <21	207	20	3	5	5	5	8	10	15	30	40	45	60	60	61
Time spent in shower room immediately after showering (minutes)														
Age	N	Mean	Min	Percentiles										Max
				1	2	5	10	25	50	75	90	95	98	99	
0 to <1	1	1	1	—	—	—	—	—	—	—	—	—	—	—	1
1to < 2	5	10	0	0	0	0	0	0	1	5	29	37	41.8	43.4	45
2 to <3	12	5	0	0.1	0.2	0.6	1	1	3.5	6.3	10	12.3	13.9	14.5	15
3 to <6	33	7	0	0.3	0.6	1.6	2	3	5	10	15	20	21.8	23.4	25
6 to <11	119	6	0	0	0	0	1	2	5	10	12.6	15.5	26.4	30	30
11 to <16	204	8	0	0	0	0	1	3	5	10	18.5	30	39.7	44.9	60
16 to <21	207	8	0	0	0	0	1	2.5	5	10	15	20	30	39.4	61

NOTE: N = doer sample size. Percentiles are the percentage of doers below or equal to a given number of minutes. A value of 61 for number of minutes signifies that more than 60 minutes were spent.

Source: EPA Analysis of source data used by Tsang and Klepeis (1996) (NHAPS database)

Table 9-20. Time spent bathing, showering, and in bathroom after bathing and showering (distribution)

Age	Time, min											
	Total N	**0**	**1-10**	**11-20**	**21-30**	**31-40**	**41-50**	**51-60**	**61-70**	**71-80**	**81-90**	**91+**
Duration of Bath												
0 to <1	26	0	9	10	6	0	0	1	0	0	0	0
1to < 2	37	0	6	13	16	1	1	0	0	0	0	0
2 to <3	48	0	8	21	15	0	2	2	0	0	0	0
3 to <6	125	0	20	42	49	2	4	6	2	0	0	0
6 to <11	89	0	12	38	30	2	3	3	1	0	0	0
11 to <16	38	0	5	16	11	4	0	1	1	0	0	0
16 to <21	17	0	1	6	4	1	1	3	1	0	0	0
Time Spent in the Bathroom Immediately Following a Bath												
0 to <1	26	9	17	0	0	0	0	0	0	0	0	0
1to < 2	37	8	29	0	0	0	0	0	0	0	0	0
2 to <3	48	14	30	4	0	0	0	0	0	0	0	0
3 to <6	125	26	90	8	1	0	0	0	0	0	0	0
6 to <11	89	19	66	3	1	0	0	0	0	0	0	0
11 to <16	38	2	26	7	2	1	0	0	0	0	0	0
16 to <21	17	1	12	2	1	0	1	0	0	0	0	0
Sum of Bath Duration and Time Spent in Bathroom Following Bath												
0 to <1	26	0	6	10	4	5	0	0	1	0	0	0
1to < 2	37	0	1	11	11	12	2	0	0	0	0	0
2 to <3	48	0	5	15	11	11	4	1	1	0	0	0
3 to <6	125	0	11	32	30	31	3	5	4	0	0	0
6 to <11	89	0	0	0	0	0	0	0	0	0	0	0
11 to <16	38	0	0	0	0	0	0	0	0	0	0	0
16 to <21	17	0	0	0	0	0	0	0	0	0	0	0
Duration of Shower												
0 to <1	1	0	0	1	0	0	0	0	0	0	0	0
1to < 2	5	0	1	2	2	0	0	0	0	0	0	0
2 to <3	12	0	3	5	3	0	0	1	0	0	0	0
3 to <6	33	0	15	11	5	1	0	1	0	0	0	0
6 to <11	119	0	46	46	18	3	2	4	0	0	0	0
11 to <16	204	0	76	80	30	10	4	4	0	0	0	0
16 to <21	207	0	70	73	40	7	10	6	1	0	0	0
Time Spent in the Bathroom Immediately Following a Shower												
0 to <1	1	0	1	0	0	0	0	0	0	0	0	0
1to < 2	5	2	2	0	0	0	1	0	0	0	0	0
2 to <3	12	1	10	1	0	0	0	0	0	0	0	0
3 to <6	33	1	27	4	1	0	0	0	0	0	0	0
6 to <11	119	9	96	11	3	0	0	0	0	0	0	0
11 to <16	204	12	155	23	8	3	2	1	0	0	0	0
16 to <21	207	14	159	26	5	1	0	1	1	0	0	0
Sum of Shower Duration and Time Spent in Bathroom Following Shower												
0 to <1	1	0	0	1	0	0	0	0	0	0	0	0
1to < 2	5	0	1	0	3	0	0	1	0	0	0	0
2 to <3	12	0	2	3	3	2	1	0	1	0	0	0
3 to <6	33	0	5	11	9	5	2	0	1	0	0	0
6 to <11	119	0	13	55	25	13	8	2	2	0	1	0
11 to <16	204	0	18	80	50	23	14	13	6	0	0	0
16 to <21	207	0	22	72	46	34	13	10	5	2	2	1[a]

Note: Figures are based on respondents who took at least one shower/bath. A value of 61 was used for any shower, bath, or bathroom stay longer than 60 minutes.
[a]121 minutes.

Source: EPA Analysis of source data used by Tsang and Klepeis (1996) (NHAPS database)

Table 9-21.Time spent bathing, showering, and in bathroom after bathing and showering (percentiles)

Age	Total N	Mean	Min	Percentile											Max
				1	2	5	10	25	50	75	90	95	98	99	
Duration of Bath															
0 to <1	26	19	5	5	5	6	8	10	18	28	30	30	45	53	60
1to < 2	37	23	10	10	10	10	10	15	20	30	30	32	41	43	45
2 to <3	48	23	1	2.9	5	7	10	15	20	30	30	45	60	60	60
3 to <6	125	24	5	5	5	6	10	15	25	30	35	60	60	61	61
6 to <11	89	24	5	5	5	10	10	15	20	30	31	46	60	60	61
11 to <16	38	25	5	6	6	10	10	16	20	30	40	43	60	61	61
16 to <21	17	33	10	11	12	14	18	20	30	45	60	60	61	61	61
Time Spent in the Bathroom Immediately Following a Bath															
0 to <1	26	2	0	0	0	0	0	0	1	3	9	10	10	10	10
1to < 2	37	3	0	0	0	0	0	1	2	5	5	6	10	10	10
2 to <3	48	4	0	0	0	0	0	0	1.5	5	10	15	15	18	20
3 to <6	125	4	0	0	0	0	0	1	2	5	10	15	15	19	30
6 to <11	89	4	0	0	0	0	0	1	3	5	10	10	16	21	30
11 to <16	38	9	0	0	0	1	1	2	5	14	20	26	33	36	40
16 to <21	17	11	0	0	1	2	3	5	10	10	19	29	39	42	45
Sum of Bath Duration and Time Spent in Bathroom Following Bath															
0 to <1	26	22	6	7	8	9	10	12	19	29	32	38	55	63	70
1to < 2	37	26	10	10	11	12	16	17	30	32	35	41	46	48	50
2 to <3	48	26	6	7	8	10	14	16	23	34	45	50	60	61	61
3 to <6	125	28	5	6	7	10	12	18	30	32	48	60	66	69	76
6 to <11	89	28	6	6	9	10	13	20	25	33	41	60	63	71	80
11 to <16	38	33	7	8	10	12	16	23	31	41	52	64	70	70	70
16 to <21	17	45	15	15	16	17	21	30	40	60	73	77	82	83	85
Duration of Shower															
0 to <1	1	15	15	—	—	—	—	—	—	—	—	—	—	—	15
1to < 2	5	20	5	5	6	7	9	15	20	30	30	30	30	30	30
2 to <3	12	22	5	5	5	5	6	14	20	30	30	44	53	57	60
3 to <6	33	17	3	4	4	5	5	10	15	20	30	34	47	54	60
6 to <11	119	18	4	5	5	5	7	10	15	20	30	41	57	60	60
11 to <16	204	18	3	4	5	5	6	10	15	20	30	40	50	60	60
16 to <21	207	20	3	5	5	5	8	10	15	30	40	45	60	60	61
Time Spent in the Bathroom Immediately Following a Shower															
0 to <1	1	1	1	---	—	—	—	—	—	—	—	—	—	—	1
1to < 2	5	10	0	0	0	0	0	0	1	5	29	37	42	43	45
2 to <3	12	5	0	0	0	1	1	1	4	6	10	12	14	14	15
3 to <6	33	7	0	0	1	2	2	3	5	10	15	20	22	23	25
6 to <11	119	6	0	0	0	0	1	2	5	10	13	16	26	30	30
11 to <16	204	8	0	0	0	0	1	3	5	10	19	30	40	45	60
16 to <21	207	8	0	0	0	0	1	3	5	10	15	20	30	39	61
Sum of Shower Duration and Time Spent in Bathroom Following Shower															
0 to <1	1	16	16	—	—	—	—	—	—	—	—	—	—	—	16
1to < 2	5	30	6	7	8	10	14	25	30	30	48	54	58	59	60
2 to <3	12	27	6	6	7	8	11	19	21	33	44	56	65	67	70
3 to <6	33	24	8	8	8	8	8	13	25	30	40	45	57	64	70
6 to <11	119	24	5	6	6	8	10	15	20	30	43	50	61	68	90
11 to <16	204	26	4	5	7	10	11	15	22	35	50	60	65	70	70
16 to <21	207	28	4	5	7	10	10	15	25	35	50	60	74	89	121

Note: A value of "121" for number of minutes signifies that more than 120 minutes were spent. N = doer sample size. Percentiles are the percentage of doers below or equal to a given number of minutes.

Source: EPA Analysis of source data used by Tsang and Klepeis (1996) (NHAPS database)

Table 9-22. Range of Number of Times Washing the Hands at Specified Daily Frequencies by the Number of Respondents

Age	Total N	Number of Times/Day							
		0	1-2	3-5	6-9	10-19	20-29	30+	DK
0 to <1	37	2	15	12	2	1	1	0	4
1to < 2	53	7	8	23	8	4	0	2	1
2 to <3	67	0	15	39	10	0	1	0	2
3 to <6	187	2	37	101	27	10	1	2	7
6 to <11	245	2	47	131	34	16	3	1	11
11 to <16	258	8	37	128	49	22	5	2	7
16 to <21	232	0	23	115	47	38	4	3	2

Note: * Signifies missing data. N = doer sample size in a specified range or number of minutes spent. DK= respondents answered "don't know". Refused = respondents refused to answer.

Source: EPA Analysis of source data used by Tsang and Klepeis (1996) (NHAPS database)

Table 9-23. Number of Minutes Spent Working or Being Near Excessive Dust in the Air (minutes/day)

Age	Total N	DK	Min	Percentiles (minutes per day)											Max
				1	**2**	**5**	**10**	**25**	**50**	**75**	**90**	**95**	**98**	**99**	
0 to <1	2	0	5	—	—	—	—	—	—	—	—	—	—	—	121
1to < 2	5	0	0	---	---	---	---	---	---	---	---	---	---	---	121
2 to <3	1	0	121	—	—	—	—	—	—	—	—	—	—	—	121
3 to <6	15	0	0	0	1	1	2	8	60	151	408	710	755	800	800
6 to <11	12	1	0	0	0	1	2	5	45	136	234	677	738	800	800
11 to <16	14	1	0	0	0	1	2	6	38	113	162	639	719	800	800
16 to <21	14	0	2	2	3	4	7	16	53	165	324	449	464	480	480

Note: A value of "121" for number of minutes signifies that more than 120 minutes were spent. N = doer sample size. Percentiles are the percentage of doers below or equal to a given number of minutes.

Source: EPA Analysis of source data used by Tsang and Klepeis (1996) (NHAPS database)

Table 9-24. Range of Number of Times per Day a Motor Vehicle was Started in a Garage or Carport and Started with the Garage Door Closed

Age	Total N in survey	N not answering	N answering	Number of Times per Day Vehicle Was Started					
				0	1-2	3-5	6-9	10+	DK
All Motor Vehicle Starts in Garage or Carport (number of respondents)									
0 to <1	63	41	22	10	10	2	0	0	0
1to < 2	118	65	53	22	18	12	0	1	0
2 to <3	118	68	50	24	16	9	0	1	0
3 to <6	357	213	144	71	48	20	4	0	1
6 to <11	497	280	217	104	64	42	4	0	3
11 to <16	466	259	207	94	68	33	8	1	3
16 to <21	481	304	177	84	48	31	9	2	3
Motor Vehicle Starts in Garage or Carport with Door Closed (number of respondents)									
0 to <1	63	41	22	22	0	0	0	0	0
1to < 2	118	65	53	50	1	1	0	0	1
2 to <3	118	68	50	47	2	0	0	0	1
3 to <6	357	213	144	135	6	1	0	0	2
6 to <11	497	280	217	209	5	0	0	0	3
11 to <16	466	259	207	198	5	1	0	0	3
16 to <21	481	304	177	163	5	5	1	0	3

Note: "DK" = respondent answered “don't know” N = doer sample size.

Source: EPA Analysis of source data used by Tsang and Klepeis (1996) (NHAPS database)

Table 9-25. Number of Minutes Spent Playing on Dirt, Grass , or Sand/Gravel

Number of Minutes Spent Playing on Dirt (number of respondents)																								
Age	N	0	1-10	11-20	21-30	31-40	41-50	51-60	61-70	71-80	81-90	91-100	101-110	111-120	121[a]	180[a]	240[a]	300[a]	360[a]	420[a]	480[a]	540[a]	600[a]	720[a]	DK
0 to <1	11	6	3	1	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0
1to < 2	39	24	4	1	0	1	1	2	0	0	0	0	0	1	3	0	0	0	0	0	0	0	0	0	2
2 to <3	62	37	4	5	5	0	1	4	0	0	1	0	0	1	0	1	1	0	0	0	0	0	0	1	1
3 to <6	197	97	13	6	15	0	2	17	0	0	3	0	0	9	12	4	1	0	0	0	0	0	0	0	18
6 to <11	103	54	4	5	8	0	1	12	0	0	1	0	0	5	6	1	0	0	0	0	0	0	1	0	5
11 to <16	37	17	3	2	5	0	0	4	0	0	1	0	0	2	0	1	0	0	0	0	0	0	0	0	2
16 to <21	9	5	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
Number of Minutes Spent Playing on Grass (number of respondents)																									
Age	N	0	1-10	11-20	21-30	31-40	41-50	51-60	61-70	71-80	81-90	91-100	101-110	111-120	121[a]	180[a]	240[a]	300[a]	360[a]	420[a]	480[a]	540[a]	600[a]	720[a]	DK
0 to <1	11	2	2	1	2	1	0	0	0	0	0	0	1	0	1	0	0	1	0	0	0	0	0	0	0
1to < 2	39	3	3	6	4	0	1	7	0	0	1	0	0	5	6	1	1	0	0	0	0	0	0	0	1
2 to <3	62	6	8	6	11	0	1	6	0	1	3	0	0	5	7	2	1	0	1	0	0	0	0	1	3
3 to <6	197	23	11	11	15	0	2	39	1	0	8	0	0	16	26	10	8	5	0	1	2	2	0	0	17
6 to <11	103	14	5	7	12	1	3	21	0	0	3	1	0	12	11	4	3	1	1	0	0	0	0	0	4
11 to <16	37	1	1	1	7	1	0	8	0	0	1	0	0	7	5	0	1	0	0	0	0	0	0	0	1
16 to <21	9	2	0	1	1	0	1	1	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	1
Number of Minutes Spent Playing on Sand/Gravel (number of respondents)																									
Age	N	0	1-10	11-20	21-30	31-40	41-50	51-60	61-70	71-80	81-90	91-100	101-110	111-120	121[a]	180[a]	240[a]	300[a]	360[a]	420[a]	480[a]	540[a]	600[a]	720[a]	DK
0 to <1	10	8	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1to < 2	38	22	4	1	4	1	0	2	0	1	0	0	0	0	2	0	0	0	0	0	0	0	0	0	1
2 to <3	61	32	8	1	5	0	2	2	0	0	0	0	0	4	3	0	0	1	0	0	0	0	0	0	3
3 to <6	195	93	11	12	12	1	3	24	0	0	7	1	0	4	13	3	1	1	0	0	0	0	0	0	9
6 to <11	102	55	3	4	8	0	3	12	0	1	0	0	0	5	7	2	0	1	0	0	0	0	0	0	1
11 to <16	37	20	1	3	3	0	0	2	0	0	0	1	0	3	1	2	0	0	0	0	0	0	0	0	1
16 to <21	9	4	0	0	1	0	0	1	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	1

Note: "DK" = Don't know. N = Doer sample size in specified range of number of minutes spent. A value of "121" for number of minutes signifies that more than 120 minutes were spent.

Source: EPA Analysis of source data used by Tsang and Klepeis (1996) (NHAPS database)

Table 9-26. Number of Minutes Spent Playing on Dirt, Sand/Gravel, or Grass (minutes/day)

Age	Total N	Mean	Min	Percentile											Max
				1	2	5	10	25	50	75	90	95	98	99	
Time Spent Playing on Dirt: Whole Population															
0 to <1	11	15	0	0	0	0	0	0	0	10	20	71	101	111	121
1to < 2	37	20	0	0	0	0	0	0	0	10	84	121	121	121	121
2 to <3	61	31	0	0	0	0	0	0	0	20	60	120	228	432	720
3 to <6	179	31	0	0	0	0	0	0	0	59	120	121	180	180	240
6 to <11	98	34	0	0	0	0	0	0	0	60	120	121	124	193	600
11 to <16	35	27	0	0	0	0	0	0	1	30	77	120	139	160	180
16 to <21	7	9	0	0	0	0	0	0	0	15	30	30	30	30	30
Time Spent Playing on Dirt: DOERS ONLY															
0 to <1	5	33	2	2	3	4	5	10	10	20	81	101	113	117	121
1to < 2	13	56	5	5	5	5	6	10	45	120	121	121	121	121	121
2 to <3	24	79	5	5	5	5	7	15	30	60	162	231	499	610	720
3 to <6	82	67	1	1	1	1	6	30	60	120	121	177	180	191	240
6 to <11	44	75	2	3	5	10	15	30	60	120	121	121	239	419	600
11 to <16	18	52	1	2	2	4	9	19	30	60	120	129	160	170	180
16 to <21	2	30	30	30	30	30	30	30	30	30	30	30	30	30	30
Time Spent Playing on Sand/Gravel: Whole Population															
0 to <1	10	4	0	0	0	0	0	0	0	0	16	18	19	20	20
1to < 2	37	17	0	0	0	0	0	0	0	30	60	84	121	121	121
2 to <3	58	27	0	0	0	0	0	0	0	30	120	121	121	198	300
3 to <6	186	33	0	0	0	0	0	0	2	60	120	121	180	189	300
6 to <11	101	33	0	0	0	0	0	0	0	60	120	121	180	180	300
11 to <16	36	33	0	0	0	0	0	0	0	38	120	136	180	180	180
16 to <21	8	56	0	0	0	0	0	0	15	75	157	198	223	232	240
Time Spent Playing on Sand/Gravel: DOERS ONLY															
0 to <1	2	18	15	15	15	15	16	16	18	19	20	20	20	20	20
1to < 2	15	43	5	5	5	5	7	15	30	60	103	121	121	121	121
2 to <3	26	60	1	1	1	1	3	10	30	120	121	121	211	255	300
3 to <6	93	65	3	3	3	5	8	25	60	90	121	145	190	245	300
6 to <11	46	73	5	7	10	11	15	30	60	120	121	165	192	246	300
11 to <16	16	75	1	3	5	12	15	26	60	120	151	180	180	180	180
16 to <21	4	113	30	31	32	35	39	53	91	151	204	222	233	236	240
Time Spent Playing on Grass: Whole Population															
0 to <1	11	59	0	0	0	0	0	2	30	73	121	211	264	282	300
1to < 2	38	67	0	0	0	0	9	16	60	120	121	130	196	218	240
2 to <3	59	73	0	0	0	0	1	15	30	120	121	186	341	511	720
3 to <6	180	93	0	0	0	0	0	28	60	121	186	300	445	493	540
6 to <11	99	73	0	0	0	0	0	20	60	120	121	186	242	301	360
11 to <16	36	70	0	0	0	0	1	30	60	120	121	121	157	198	240
16 to <21	8	45	0	0	0	0	0	11	38	68	99	110	116	118	120
Time Spent Playing on Grass: DOERS ONLY															
0 to <1	9	72	1	1	1	1	2	20	30	110	157	228	271	286	300
1to < 2	35	73	5	7	8	10	15	25	60	120	121	139	199	220	240
2 to <3	53	82	1	2	3	3	5	20	60	120	121	204	355	533	720
3 to <6	157	106	1	2	2	10	15	60	70	121	240	300	473	506	540
6 to <11	85	85	1	5	9	11	17	30	60	120	156	228	259	310	360
11 to <16	32	79	1	5	10	23	30	30	60	120	121	121	166	203	240
16 to <21	6	60	15	16	17	19	23	34	53	83	105	113	117	119	120

NOTE: A value of "121" for number of minutes signifies that more than 120 minutes were spent. N = doer sample size.

Source: EPA Analysis of source data used by Tsang and Klepeis (1996) (NHAPS database)

Table 9-27. Number of Times Swimming in a Month in Freshwater Swimming Pool by the Number of Respondents

Age	Total N	Times/Month															
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
0 to <1	10	1	4	1	0	0	2	0	0	0	1	0	0	0	0	0	0
1to < 2	8	2	3	1	0	1	0	0	1	0	0	0	0	0	0	0	0
2 to <3	18	3	4	1	0	1	1	0	1	1	2	0	2	0	0	1	0
3 to <6	45	5	7	6	5	2	1	1	2	0	2	0	0	1	1	5	0
6 to <11	76	15	10	5	5	5	3	1	3	0	6	0	5	0	0	7	2
11 to <16	66	19	10	6	3	5	4	1	3	1	4	0	1	0	0	2	0
16 to <21	50	6	6	2	6	6	2	2	1	0	5	1	1	0	0	0	0

Age	Total N	Times/Month															
		18	20	23	24	25	26	28	29	30	32	40	42	45	50	60	DK
0 to <1	10	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0
1to < 2	8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2 to <3	18	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0
3 to <6	45	0	2	0	0	1	0	0	0	3	1	0	0	0	0	0	0
6 to <11	76	0	3	0	1	1	0	0	0	3	0	0	0	0	1	0	0
11 to <16	66	1	2	0	0	0	0	0	0	2	0	0	0	0	0	1	1
16 to <21	50	0	6	0	0	1	2	0	0	3	0	0	0	0	0	0	0

Note: "DK" = respondent answered don't know; N= sample size

Source: EPA Analysis of source data used by Tsang and Klepeis (1996) (NHAPS database)

Table 9-28. Number of Minutes Spent Swimming in a Month in Freshwater Swimming Pool (minutes/month)

Age	N	Mean	Min	Percentiles											Max
				1	2	5	10	25	50	75	90	95	98	99	
0 to <1	10	313	6	7	9	12	19	30	75	338	586	1198	1565	1688	1810
1to < 2	7	251	45	46	47	50	54	60	90	300	650	778	854	880	905
2 to <3	18	636	15	16	17	19	27	60	120	600	1950	2817	3215	3347	3480
3 to <6	42	946	6	8	9	12	40	83	420	1013	2700	4715	5405	5418	5430
6 to <11	72	868	8	13	17	30	60	150	425	1110	2340	2781	4644	5574	6000
11 to <16	65	667	4	8	11	20	30	90	240	600	1476	2088	5366	6048	7200
16 to <21	50	868	2	3	5	25	39	124	465	1172	1860	3116	3931	4680	5430

Note: A value of 181 for number of minutes signifies that more than 180 minutes were spent. N = doer sample size.

Source: EPA Analysis of source data used by Tsang and Klepeis (1996) (NHAPS database).

Table 9-29. Time Spent Sleeping/Napping: Whole Population and Doers Only: Percentile Values

Age	N	Min	Percentiles											Max
			1	2	5	10	25	50	75	90	95	98	99	
Time spent sleeping/napping (whole population) (min/day)														
0 to <1	63	485	519	546	579	613	668	762	873	1011	1080	1121	1144	1175
1to < 2	118	360	483	510	579	627	700	780	855	925	962	987	1098	1320
2 to <3	118	270	365	470	523	594	635	708	805	870	917	937	944	990
3 to <6	357	0	480	510	539	573	630	675	735	795	840	893	916	1110
6 to <11	497	120	295	390	458	510	570	625	660	720	750	831	868	945
11 to <16	466	0	320	376	415	450	510	558	630	705	762	809	907	1015
16 to <21	481	0	239	295	360	390	450	525	615	690	750	840	906	1317
Time spent sleeping/napping (DOERS ONLY) (min/day)														
0 to <1	63	485	519	546	579	613	668	762	873	1011	1080	1121	1144	1175
1to < 2	118	360	483	510	579	627	700	780	855	925	962	987	1098	1320
2 to <3	118	270	365	470	523	594	635	708	805	870	917	937	944	990
3 to <6	356	420	491	510	540	578	630	675	738	795	840	893	916	1110
6 to <11	497	120	295	390	458	510	570	625	660	720	750	831	868	945
11 to <16	465	150	341	379	415	450	510	560	630	705	762	809	907	1015
16 to <21	480	85	252	299	360	390	450	525	615	690	751	840	906	1317

Note: A Value of 181 for number of minutes signifies that more than 180 minutes were spent. N = doer sample size. Percentiles are the percentage of doers below or equal to a given number of minutes.

Source: EPA Analysis of source data used by Tsang and Klepeis (1996) (NHAPS database).

Table 9-30. Time Spent Attending School Full-Time: Whole Population and Doers Only: Percentile Values

Age	N	Min	Percentiles											Max
			1	2	5	10	25	50	75	90	95	98	99	
Time spent attending school full-time (whole population) (min/day)														
0 to <1	63	0	0	0	0	0	0	0	0	0	0	83	265	550
1to < 2	118	0	0	0	0	0	0	0	0	0	204	546	594	665
2 to <3	118	0	0	0	0	0	0	0	0	334	502	564	618	710
3 to <6	357	0	0	0	0	0	0	0	0	392	510	558	581	630
6 to <11	497	0	0	0	0	0	0	0	390	435	460	525	570	645
11 to <16	466	0	0	0	0	0	0	0	409	445	464	487	500	595
16 to <21	481	0	0	0	0	0	0	0	270	408	445	489	551	825
Time spent attending school full-time (DOERS ONLY) (min/day)														
0 to <1	3	60	-	-	-	-	-	-	-	-	-	-	-	550
1to < 2	9	20	-	-	-	-	-	-	-	-	-	-	-	665
2 to <3	20	20	37	53	103	119	226	458	520	576	632	679	694	710
3 to <6	71	30	37	66	128	165	203	395	510	558	583	615	627	630
6 to <11	234	60	125	164	211	311	370	390	425	460	497	570	600	645
11 to <16	217	10	86	108	270	343	385	415	440	467	485	505	548	595
16 to <21	162	20	46	78	126	195	270	370	420	459	519	567	609	825

Note: A Value of 181 for number of minutes signifies that more than 180 minutes were spent. N = doer sample size. Percentiles are the percentage of doers below or equal to a given number of minutes.

- For sample sizes less than 10, percentiles were not calculated.
Source: EPA Analysis of source data used by Tsang and Klepeis (1996) (NHAPS database)

Table 9-31. Time Spent in Active Sports: Whole Population and Doers Only: Percentile Values

Age	N	Min	Percentiles											Max
			1	2	5	10	25	50	75	90	95	98	99	
Time spent on active sports (whole population) (min/day)														
0 to <1	63	0	0	0	0	0	0	0	0	60	90	131	143	155
1to < 2	118	0	0	0	0	0	0	0	0	68	131	180	201	270
2 to <3	118	0	0	0	0	0	0	0	0	110	180	257	319	390
3 to <6	357	0	0	0	0	0	0	0	30	135	242	330	408	630
6 to <11	497	0	0	0	0	0	0	0	60	172	272	371	435	975
11 to <16	466	0	0	0	0	0	0	0	74	168	245	309	425	1065
16 to <21	481	0	0	0	0	0	0	0	0	145	180	285	386	565
Time spent on active sports (DOERS ONLY) (min/day)														
0 to <1	13	25	26	26	28	31	40	60	90	132	143	150	153	155
1to < 2	24	10	15	19	30	33	60	73	131	180	201	240	255	270
2 to <3	26	15	18	20	26	30	41	98	179	253	314	360	375	390
3 to <6	97	15	20	29	30	30	60	120	180	315	354	559	625	630
6 to <11	175	2	12	15	20	30	60	110	193	312	393	450	522	975
11 to <16	179	5	5	15	15	30	60	115	180	261	314	442	533	1065
16 to <21	117	5	15	15	20	30	60	120	180	272	371	501	519	565

Note: A Value of 181 for number of minutes signifies that more than 180 minutes were spent. N = doer sample size. Percentiles are the percentage of doers below or equal to a given number of minutes.

Source: EPA Analysis of source data used by Tsang and Klepeis (1996) (NHAPS database).

Table 9-32. Time Spent on Exercise: Whole Population and Doers Only: Percentile Values

Age	N	Min	Percentiles											Max
			1	2	5	10	25	50	75	90	95	98	99	
Time spent on exercise (whole population) (min/day)														
0 to <1	63	0	0	0	0	0	0	0	0	0	0	122	354	670
1to < 2	118	0	0	0	0	0	0	0	0	0	0	25	30	150
2 to <3	118	0	0	0	0	0	0	0	0	0	0	0	0	60
3 to <6	357	0	0	0	0	0	0	0	0	0	0	0	54	525
6 to <11	497	0	0	0	0	0	0	0	0	0	0	100	137	450
11 to <16	466	0	0	0	0	0	0	0	0	0	30	70	114	245
16 to <21	481	0	0	0	0	0	0	0	0	0	60	151	176	300
Time spent on exercise (DOERS ONLY) (min/day)														
0 to <1	2	-	-	-	-	-	-	-	-	-	-	-	-	-
1to < 2	4	-	-	-	-	-	-	-	-	-	-	-	-	-
2 to <3	1	-	-	-	-	-	-	-	-	-	-	-	-	-
3 to <6	7	-	-	-	-	-	-	-	-	-	-	-	-	-
6 to <11	20	15	17	19	25	30	60	100	146	226	284	384	417	450
11 to <16	28	20	21	23	27	30	42	60	101	128	148	194	219	245
16 to <21	41	15	15	15	25	30	40	90	145	180	240	260	280	300

Note: A Value of 181 for number of minutes signifies that more than 180 minutes were spent. N = doer sample size. Percentiles are the percentage of doers below or equal to a given number of minutes.
- For sample sizes less than 10, percentiles were not calculated.

Source: EPA Analysis of source data used by Tsang and Klepeis (1996) (NHAPS database).

Table 9-33. Time Spent on Outdoor Recreation: Whole Population and Doers Only: Percentile Values

Age	N	Min	Percentiles											Max
			1	2	5	10	25	50	75	90	95	98	99	
Time spent on outdoor recreation (whole population) (min/day)														
0 to <1	63	0	0	0	0	0	0	0	0	0	0	0	0	0
1to < 2	118	0	0	0	0	0	0	0	0	0	0	0	0	0
2 to <3	118	0	0	0	0	0	0	0	0	0	0	15	28	370
3 to <6	357	0	0	0	0	0	0	0	0	0	0	60	172	630
6 to <11	497	0	0	0	0	0	0	0	0	0	0	142	226	574
11 to <16	466	0	0	0	0	0	0	0	0	0	0	142	191	465
16 to <21	481	0	0	0	0	0	0	0	0	0	0	103	189	570
Time spent on outdoor recreation (DOERS ONLY) (min/day)														
0 to <1	0	-	-	-	-	-	-	-	-	-	-	-	-	-
1to < 2	0	-	-	-	-	-	-	-	-	-	-	-	-	-
2 to <3	4	15	-	-	-	-	-	-	-	-	-	-	-	370
3 to <6	11	30	30	30	30	30	60	150	240	585	608	621	626	630
6 to <11	17	60	60	60	60	66	120	165	245	351	403	506	540	574
11 to <16	22	5	5	5	5	11	60	126	180	234	411	446	456	465
16 to <21	13	30	35	41	57	77	130	180	300	420	480	534	552	570

Note: A Value of 181 for number of minutes signifies that more than 180 minutes were spent. N = doer sample size. Percentiles are the percentage of doers below or equal to a given number of minutes.

- For sample sizes less than 10, percentiles were not calculated.

Source: EPA Analysis of source data used by Tsang and Klepeis (1996) (NHAPS database).

Table 9-34. Time Spent on Walking: Whole Population and Doers Only: Percentile Values

Age	N	Min	Percentiles											Max
			1	2	5	10	25	50	75	90	95	98	99	
Time spent on walking (whole population) (min/day)														
0 to <1	63	0	0	0	0	0	0	0	0	9.2	29	64	104	160
1to < 2	118	0	0	0	0	0	0	0	0	0	10	40	58	60
2 to <3	118	0	0	0	0	0	0	0	0	10	17	45	54	60
3 to <6	357	0	0	0	0	0	0	0	0	4	20	35	60	60
6 to <11	497	0	0	0	0	0	0	0	0	14	30	40	55	170
11 to <16	466	0	0	0	0	0	0	0	0	30	55	79	130	190
16 to <21	481	0	0	0	0	0	0	0	0	20	45	90	127	410
Time spent on walking (DOERS ONLY) (min/day)														
0 to <1	9	4	-	-	-	-	-	-	-	-	-	-	-	160
1to < 2	9	4	-	-	-	-	-	-	-	-	-	-	-	60
2 to <3	19	1	1	1	2	2	7	10	28	51	56	58	59	60
3 to <6	44	1	1	1	1	2	5	15	30	56	60	60	60	60
6 to <11	118	1	1	1	2	2	5	10	25	40	51	65	94	170
11 to <16	190	1	1	1	2	3	5	14	30	60	78	134	154	190
16 to <21	128	1	1	2	2	3	5	18	32	62	120	148	175	410

Note: A Value of 181 for number of minutes signifies that more than 180 minutes were spent. N = doer sample size. Percentiles are the percentage of doers below or equal to a given number of minutes.

- For sample sizes less than 10, percentiles were not calculated.

Source: EPA Analysis of source data used by Tsang and Klepeis (1996) (NHAPS database).

Table 9-35. Time Spent Bathing: Whole Population and Doers Only: Percentile Values

Age	N	Min	Percentiles											Max
			1	2	5	10	25	50	75	90	95	98	99	
Time spent on bathing (whole population) (min/day)														
0 to <1	63	0	0	0	0	0	0	15	30	40	50	68	78	90
1to < 2	118	0	0	0	0	0	0	15	30	42	47	60	60	90
2 to <3	118	0	0	0	0	0	0	17	30	45	60	60	68	75
3 to <6	357	0	0	0	0	0	0	15	30	45	60	60	77	125
6 to <11	497	0	0	0	0	0	0	15	25	30	45	60	60	690[a]
11 to <16	466	0	0	0	0	0	0	10	20	30	45	60	60	90
16 to <21	481	0	0	0	0	0	0	15	27	40	45	60	60	90
Time spent on bathing (DOERS ONLY) (min/day)														
0 to <1	37	5	7	9	10	10	15	30	30	47	62	76	83	90
1to < 2	79	10	10	10	10	15	15	30	30	45	60	60	67	90
2 to <3	84	6	9	10	11	15	15	30	30	57	60	63	71	75
3 to <6	208	5	5	10	12	15	20	30	32	53	60	75	85	125
6 to <11	298	2	5	5	7	10	15	20	30	42	50	60	65	690
11 to <16	299	1	4	5	5	8	10	20	30	40	50	60	60	90
16 to <21	362	1	5	5	5	10	15	20	30	45	50	60	60	90

[a] self-reported value of 690 appears in source data; could be a reporting or processing error.

Note: A Value of 181 for number of minutes signifies that more than 180 minutes were spent. N = doer sample size. Percentiles are the percentage of doers below or equal to a given number of minutes.

Source: EPA Analysis of source data used by Tsang and Klepeis (1996) (NHAPS database).

Table 9-36. Time Spent Eating: Whole Population and Doers Only: Percentile Values

Age	N	Min	Percentiles											Max
			1	2	5	10	25	50	75	90	95	98	99	
Time spent on eating (whole population) (min/day)														
0 to <1	63	0	6	12	36	45	73	110	145	194	224	334	345	345
1to < 2	118	0	10	10	29	40	60	90	120	167	206	233	244	270
2 to <3	118	15	15	15	20	30	60	89	120	157	176	198	208	270
3 to <6	357	0	0	0	15	28	45	75	105	135	150	180	217	265
6 to <11	497	0	0	0	10	20	35	60	88	115	139	155	176	255
11 to <16	466	0	0	0	0	10	30	45	74	100	120	146	162	205
16 to <21	481	0	0	0	0	0	20	40	65	105	135	192	210	630
Time spent on eating (DOERS ONLY) (min/day)														
0 to <1	62	10	16	23	40	46	77	110	148	195	224	335	345	345
1to < 2	117	10	10	12	30	40	60	90	120	167	206	234	244	270
2 to <3	118	15	15	15	20	30	60	89	120	157	176	198	208	270
3 to <6	349	2	10	15	20	30	45	75	105	135	150	180	218	265
6 to <11	480	5	10	10	15	20	40	60	90	115	140	157	179	255
11 to <16	432	2	5	7	10	20	30	50	75	100	125	148	163	205
16 to <21	426	2	5	9	10	15	30	45	75	105	144	197	210	630

Note: A Value of 181 for number of minutes signifies that more than 180 minutes were spent. N = doer sample size. Percentiles are the percentage of doers below or equal to a given number of minutes.

Source: EPA Analysis of source data used by Tsang and Klepeis (1996) (NHAPS database).

Table 9-37. Time Spent at Restaurants: Whole Population and Doers Only: Percentile Values

Age	N	Min	Percentiles											Max
			1	2	5	10	25	50	75	90	95	98	99	
Time spent at restaurants (whole population) (min/day)														
0 to <1	63	0	0	0	0	0	0	0	0	45	69	105	194	330
1to < 2	118	0	0	0	0	0	0	0	0	30	62	88	102	120
2 to <3	118	0	0	0	0	0	0	0	0	45	62	92	111	120
3 to <6	357	0	0	0	0	0	0	0	0	21	52	90	120	130
6 to <11	497	0	0	0	0	0	0	0	0	15	45	85	110	180
11 to <16	466	0	0	0	0	0	0	0	0	35	60	90	137	315
16 to <21	481	0	0	0	0	0	0	0	20	105	240	380	466	645
Time spent at restaurants (DOERS ONLY) (min/day)														
0 to <1	10	10	12	14	19	28	45	60	85	132	231	290	310	330
1to < 2	15	5	6	8	12	21	33	55	83	99	110	116	118	120
2 to <3	17	20	21	22	24	28	45	60	80	102	116	118	119	120
3 to <6	43	4	7	9	10	16	30	45	90	120	120	122	126	130
6 to <11	57	5	5	6	10	15	30	45	60	107	124	140	158	180
11 to <16	78	2	3	7	10	18	30	45	65	102	141	223	283	315
16 to <21	135	1	4	5	10	17	30	60	170	334	437	537	546	645

Note: A Value of 181 for number of minutes signifies that more than 180 minutes were spent. N = doer sample size. Percentiles are the percentage of doers below or equal to a given number of minutes.

Source: EPA Analysis of source data used by Tsang and Klepeis (1996) (NHAPS database).

Table 9-38. Time Spent Indoors at School: Whole Population and Doers Only: Percentile Values

Age	N	Min	Percentiles											Max
			1	2	5	10	25	50	75	90	95	98	99	
Time spent at indoors at school (whole population) (min/day)														
0 to <1	63	0	0	0	0	0	0	0	0	0	0	46	100	165
1to < 2	118	0	0	0	0	0	0	0	0	0	22	156	453	665
2 to <3	118	0	0	0	0	0	0	0	0	0	193	414	503	545
3 to <6	357	0	0	0	0	0	0	0	0	416	540	569	589	630
6 to <11	497	0	0	0	0	0	0	0	397	444	480	552	601	665
11 to <16	466	0	0	0	0	0	0	0	420	459	495	578	630	855
16 to <21	481	0	0	0	0	0	0	0	308	430	495	566	629	855
Time spent indoors at school (DOERS ONLY) (min/day)														
0 to <1	2	60	-	-	-	-	-	-	-	-	-	-	-	165
1to < 2	8	5	-	-	-	-	-	-	-	-	-	-	-	665
2 to <3	11	10	10	10	10	10	83	269	388	510	528	538	542	545
3 to <6	71	5	23	34	110	160	228	418	540	570	590	615	627	630
6 to <11	235	5	64	129	195	305	370	400	435	480	540	612	643	665
11 to <16	229	15	38	96	132	290	395	420	450	495	559	631	696	855
16 to <21	171	15	22	31	90	185	270	388	440	525	576	726	801	855

- For sample sizes less than 10, percentiles were not calculated.

Source: EPA Analysis of source data used by Tsang and Klepeis (1996) (NHAPS database).

Table 9-39. Time Spent on School Grounds/Playgrounds: Whole Population and Doers Only: Percentile Values

Age	Total N	Min	Percentile											Max
			1	2	5	10	25	50	75	90	95	98	99	
Time Spent on School Grounds/Playground: Whole Population (min/day)														
0 to <1	63	0	0	0	0	0	0	0	0	0	0	0	53	140
1to < 2	118	0	0	0	0	0	0	0	0	0	0	0	0	0
2 to <3	118	0	0	0	0	0	0	0	0	0	0	50	131	175
3 to <6	357	0	0	0	0	0	0	0	0	0	0	64	127	625
6 to <11	497	0	0	0	0	0	0	0	0	10	60	121	170	315
11 to <16	466	0	0	0	0	0	0	0	0	20	80	120	160	570
16 to <21	481	0	0	0	0	0	0	0	0	0	50	135	180	510
Time Spent on School Grounds/Playground: DOERS ONLY (min/day)														
0 to <1	1	140	-	-	-	-	-	-	-	-	-	-	-	140
1to < 2	0	-	-	-	-	-	-	-	-	-	-	-	-	-
2 to <3	5	10	-	-	-	-	-	-	-	-	-	-	-	175
3 to <6	12	20	22	24	31	42	59	118	138	150	364	521	573	625
6 to <11	52	10	10	10	10	15	30	59	106	169	217	280	298	315
11 to <16	62	3	4	5	5	5	21	53	95	149	178	217	360	570
16 to <21	34	10	10	10	13	18	46	95	161	201	305	418	464	510
Time Spent in parks or golf courses: Whole Population (min/day)														
0 to <1	63	0	0	0	0	0	0	0	0	0	0	45	63	85
1to < 2	118	0	0	0	0	0	0	0	0	0	0	0	25	360
2 to <3	118	0	0	0	0	0	0	0	0	0	24	126	246	755
3 to <6	357	0	0	0	0	0	0	0	0	0	71	163	220	585
6 to <11	497	0	0	0	0	0	0	0	0	0	72	328	483	665
11 to <16	466	0	0	0	0	0	0	0	0	0	114	265	452	1065
16 to <21	481	0	0	0	0	0	0	0	0	0	150	381	546	870
Time Spent Playing on parks or golf courses: DOERS ONLY (min/day)														
0 to <1	3	30	-	-	-	-	-	-	-	-	-	-	-	85
1to < 2	2	30	-	-	-	-	-	-	-	-	-	-	-	360
2 to <3	7	21	-	-	-	-	-	-	-	-	-	-	-	755
3 to <6	26	25	26	28	31	44	63	113	165	273	388	505	545	585
6 to <11	34	25	30	35	43	52	73	123	394	568	644	662	663	665
11 to <16	38	15	15	15	15	27	86	164	266	470	851	954	1010	1065
16 to <21	47	1	7	14	15	24	60	160	308	557	633	677	773	870
Time Spent in a pool, river, or lake: Whole Population (min/day)														
0 to <1	63	0	0	0	0	0	0	0	0	0	0	0	0	0
1to < 2	118	0	0	0	0	0	0	0	0	0	0	0	0	118
2 to <3	118	0	0	0	0	0	0	0	0	0	14	228	352	435
3 to <6	357	0	0	0	0	0	0	0	0	0	0	85	163	630
6 to <11	497	0	0	0	0	0	0	0	0	0	0	220	295	375
11 to <16	466	0	0	0	0	0	0	0	0	0	0	60	160	235
16 to <21	481	0	0	0	0	0	0	0	0	0	0	145	240	570
Time Spent in a pool, river, or lake: DOERS ONLY (min/day)														
0 to <1	0	-	-	-	-	-	-	-	-	-	-	-	-	-
1to < 2	1	118	-	-	-	-	-	-	-	-	-	-	-	118
2 to <3	6	95	-	-	-	-	-	-	-	-	-	-	-	435
3 to <6	9	45	-	-	-	-	-	-	-	-	-	-	-	630
6 to <11	24	25	26	27	32	46	75	155	294	319	359	370	373	375
11 to <16	16	58	58	59	59	60	60	85	206	225	228	232	234	235
16 to <21	22	20	22	24	31	40	55	125	238	415	548	564	567	570

NOTE: A value of "121" for number of minutes signifies that more than 120 minutes were spent. N = doer sample size. Percentiles are the percentage of doers below or equal

- For sample sizes less than 10, percentiles were not calculated.
Source: EPA Analysis of source data used by Tsang and Klepeis (1996) (NHAPS database).

Table 9-40. Time Spent at Home in Kitchen: Whole Population and Doers Only: Percentile Values

Age	N	Min	Percentiles											Max
			1	2	5	10	25	50	75	90	95	98	99	
Time spent at home in kitchen (whole population) (min/day)														
0 to <1	63	0	0	0	0	0	0	10	70	109	125	134	158	195
1to < 2	118	0	0	0	0	0	0	40	90	132	195	232	242	392
2 to <3	118	0	0	0	0	0	0	30	75	120	146	173	188	215
3 to <6	357	0	0	0	0	0	0	30	75	105	150	180	222	362
6 to <11	497	0	0	0	0	0	0	30	60	105	135	150	196	690
11 to <16	466	0	0	0	0	0	0	24	55	90	130	180	249	450
16 to <21	481	0	0	0	0	0	0	15	50	90	130	170	195	545
Time spent at home in kitchen (DOERS ONLY) (min/day)														
0 to <1	33	10	10	10	13	15	30	70	90	124	133	157	176	195
1to < 2	76	10	10	13	19	30	45	70	110	173	214	240	281	392
2 to <3	80	10	10	11	15	15	30	60	105	136	155	184	195	215
3 to <6	252	2	5	10	15	15	30	60	90	133	165	210	232	362
6 to <11	342	1	2	5	10	15	30	50	79	120	145	172	229	690
11 to <16	323	1	2	4	5	10	20	40	65	114	150	218	281	450
16 to <21	305	1	2	3	5	10	20	35	65	120	159	194	209	545

Source: EPA Analysis of source data used by Tsang and Klepeis (1996) (NHAPS database).

Table 9-41. Time Spent at Home in Living Room/Family Room/Den: Whole Population and Doers Only: Percentile Values

Age	N	Min	Percentiles											Max
			1	2	5	10	25	50	75	90	95	98	99	
Time spent at home in living room/family room/den (whole population) (min/day)														
0 to <1	63	0	0	0	0	0	90	210	420	666	724	788	938	1180
1to < 2	118	0	0	0	0	0	25	120	279	410	533	616	652	810
2 to <3	118	0	0	0	0	0	56	138	239	346	499	599	680	1125
3 to <6	357	0	0	0	0	0	45	122	240	376	476	680	742	900
6 to <11	497	0	0	0	0	0	30	95	210	322	420	547	612	695
11 to <16	466	0	0	0	0	0	36	120	240	395	570	687	774	1305
16 to <21	481	0	0	0	0	0	0	120	240	370	501	690	819	1080
Time spent at home in living room/family room/den (DOERS ONLY) (min/day)														
0 to <1	54	25	28	31	57	90	136	268	450	686	744	789	973	1180
1to < 2	93	10	15	19	25	60	90	180	310	444	540	642	667	810
2 to <3	105	1	5	10	22	34	90	150	255	377	527	603	691	1125
3 to <6	290	5	8	19	30	50	90	153	270	415	498	705	778	900
6 to <11	403	5	10	10	20	30	60	130	240	349	449	579	655	695
11 to <16	380	2	10	16	30	45	85	165	275	436	594	705	776	1305
16 to <21	352	5	10	15	24	40	85	165	285	440	547	720	909	1080

Source: EPA Analysis of source data used by Tsang and Klepeis (1996) (NHAPS database).

Table 9-42. Time Spent at Home in Dining Room: Whole Population and Doers Only: Percentile Values

Age	N	Min	Percentiles											Max
			1	2	5	10	25	50	75	90	95	98	99	
Time spent at home in dining room (whole population) (min/day)														
0 to <1	63	0	0	0	0	0	0	0	0	30	70	86	96	105
1to < 2	118	0	0	0	0	0	0	0	17	60	90	176	260	315
2 to <3	118	0	0	0	0	0	0	0	30	80	105	118	146	150
3 to <6	357	0	0	0	0	0	0	0	10	60	96	133	150	300
6 to <11	497	0	0	0	0	0	0	0	5	57	70	120	135	225
11 to <16	466	0	0	0	0	0	0	0	0	33	65	119	164	390
16 to <21	481	0	0	0	0	0	0	0	0	30	45	90	112	330
Time spent at home in dining room (DOERS ONLY) (min/day)														
0 to <1	9	15	16	17	21	27	30	65	75	93	99	103	104	105
1to < 2	32	10	12	13	16	30	34	53	66	110	237	287	301	315
2 to <3	34	15	15	15	18	29	30	60	90	105	134	150	150	150
3 to <6	93	10	10	10	15	16	30	55	85	120	150	209	286	300
6 to <11	126	5	5	5	6	15	30	45	60	98	135	150	196	225
11 to <16	90	5	5	5	10	15	30	38	69	122	166	202	283	390
16 to <21	67	5	5	7	15	15	20	35	60	90	124	135	201	330

Source: EPA Analysis of source data used by Tsang and Klepeis (1996) (NHAPS database).

Table 9-43. Time Spent at Home in Bathroom: Whole Population and Doers Only: Percentile Values

Age	N	Min	Percentiles											Max
			1	2	5	10	25	50	75	90	95	98	99	
Time spent at home in bathroom (whole population) (min/day)														
0 to <1	63	0	0	0	0	0	0	0	30	40	59	81	87	90
1to < 2	118	0	0	0	0	0	0	15	30	45	60	80	239	600
2 to <3	118	0	0	0	0	0	1	20	30	60	62	138	290	345
3 to <6	357	0	0	0	0	0	0	15	30	49	65	90	120	270
6 to <11	497	0	0	0	0	0	0	15	30	45	60	81	118	535
11 to <16	466	0	0	0	0	0	0	15	30	45	60	86	97	220
16 to <21	481	0	0	0	0	0	10	20	32	59	65	105	123	547
Time spent at home in bathroom (DOERS ONLY) (min/day)														
0 to <1	31	5	7	8	10	15	18	30	40	60	78	87	89	90
1to < 2	77	6	6	8	10	15	15	30	30	57	60	176	349	600
2 to <3	88	2	3	5	12	15	15	30	45	60	70	208	319	345
3 to <6	240	1	1	2	5	11	15	30	38	60	75	112	123	270
6 to <11	356	1	2	3	5	9	15	25	35	50	60	90	180	535
11 to <16	335	1	2	2	5	6	12	20	35	50	64	90	100	220
16 to <21	392	1	2	5	5	10	15	25	40	60	72	111	135	547

Source: EPA Analysis of source data used by Tsang and Klepeis (1996) (NHAPS database).

Table 9-44. Time Spent at Home in Bedroom: Whole Population and Doers Only: Percentile Values

Age	N	Min	Percentiles											Max
			1	2	5	10	25	50	75	90	95	98	99	
Time spent at home in bedroom (whole population) (min/day)														
0 to <1	63	0	0	104	468	566	653	750	863	972	1092	1119	1179	1275
1to < 2	118	0	56	340	443	559	645	808	884	975	1029	1190	1325	1440
2 to <3	118	0	5	91	419	517	618	718	835	894	931	979	990	1040
3 to <6	357	0	92	210	432	540	630	695	790	875	945	1033	1135	1440
6 to <11	497	0	0	0	304	480	585	660	735	840	906	1005	1096	1440
11 to <16	466	0	0	20	134	403	543	645	745	860	950	1027	1118	1277
16 to <21	481	0	0	0	60	335	475	595	720	855	960	1082	1146	1375
Time spent at home in bedroom (DOERS ONLY) (min/day)														
0 to <1	61	435	453	470	495	590	660	750	865	975	1095	1119	1182	1275
1to < 2	116	330	362	384	450	570	656	810	885	975	1030	1191	1328	1440
2 to <3	116	30	215	266	484	520	620	720	836	896	931	981	990	1040
3 to <6	353	165	210	268	464	540	630	695	790	875	945	1034	1137	1440
6 to <11	486	120	183	261	439	513	599	660	735	843	912	1005	1100	1440
11 to <16	457	15	55	115	179	430	550	646	750	860	951	1029	1122	1277
16 to <21	463	15	34	100	273	395	480	600	725	859	974	1090	1147	1375

Source: EPA Analysis of source data used by Tsang and Klepeis (1996) (NHAPS database).

Table 9-45. Time Spent at Home in Study/Office: Whole Population and Doers Only: Percentile Values

Age	N	Min	Percentiles											Max
			1	2	5	10	25	50	75	90	95	98	99	
Time spent at home in study/office (whole population) (min/day)														
0 to <1	63	0	0	0	0	0	0	0	0	0	0	0	0	0
1to < 2	118	0	0	0	0	0	0	0	0	0	0	0	0	0
2 to <3	118	0	0	0	0	0	0	0	0	0	0	0	25	125
3 to <6	357	0	0	0	0	0	0	0	0	0	0	0	0	345
6 to <11	497	0	0	0	0	0	0	0	0	0	0	0	0	120
11 to <16	466	0	0	0	0	0	0	0	0	0	0	0	81	285
16 to <21	481	0	0	0	0	0	0	0	0	0	0	0	22	180
Time spent at home in study/office (DOERS ONLY) (min/day)														
0 to <1	0	-	-	-	-	-	-	-	-	-	-	-	-	-
1to < 2	0	-	-	-	-	-	-	-	-	-	-	-	-	-
2 to <3	2	30	-	-	-	-	-	-	-	-	-	-	-	125
3 to <6	3	20	-	-	-	-	-	-	-	-	-	-	-	345
6 to <11	4	20	-	-	-	-	-	-	-	-	-	-	-	120
11 to <16	8	2	-	-	-	-	-	-	-	-	-	-	-	285
16 to <21	8	10	-	-	-	-	-	-	-	-	-	-	-	180

- For sample sizes less than 10, percentiles were not calculated.

Source: EPA Analysis of source data used by Tsang and Klepeis (1996) (NHAPS database).

Table 9-46. Time Spent at Home in Garage: Whole Population and Doers Only: Percentile Values

Age	N	Min	Percentiles											Max
			1	2	5	10	25	50	75	90	95	98	99	
Time spent at home in garage (whole population) (min/day)														
0 to <1	63	0	0	0	0	0	0	0	0	0	0	0	34	89
1to < 2	118	0	0	0	0	0	0	0	0	0	0	0	0	0
2 to <3	118	0	0	0	0	0	0	0	0	0	0	0	0	0
3 to <6	357	0	0	0	0	0	0	0	0	0	0	0	7	165
6 to <11	497	0	0	0	0	0	0	0	0	0	0	0	0	120
11 to <16	466	0	0	0	0	0	0	0	0	0	0	19	51	240
16 to <21	481	0	0	0	0	0	0	0	0	0	0	0	0	60
Time spent at home in garage (DOERS ONLY) (min/day)														
0 to <1	1	89	-	-	-	-	-	-	-	-	-	-	-	89
1to < 2	0	-	-	-	-	-	-	-	-	-	-	-	-	-
2 to <3	0	-	-	-	-	-	-	-	-	-	-	-	-	-
3 to <6	4	15	-	-	-	-	-	-	-	-	-	-	-	165
6 to <11	3	30	-	-	-	-	-	-	-	-	-	-	-	120
11 to <16	12	10	11	11	13	16	20	40	139	183	210	228	234	240
16 to <21	4	10	-	-	-	-	-	-	-	-	-	-	-	60

- For sample sizes less than 10, percentiles were not calculated.

Source: EPA Analysis of source data used by Tsang and Klepeis (1996) (NHAPS database).

Table 9-47. Time Spent at Home: All Rooms Combined: Whole Population and Doers Only: Percentile Values

Age	N	Mean	Min	Percentiles											Max
				1	2	5	10	25	50	75	90	95	98	99	
Time spent at home in all rooms (whole population) (min/day)															
0 to <1	63	1091	0	391	631	742	786	943	1105	1258	1440	1440	1440	1440	1440
1to < 2	118	1047	0	63	377	651	705	915	1050	1239	1440	1440	1440	1440	1440
2 to <3	118	971	0	66	342	640	727	852	995	1120	1232	1295	1354	1369	1410
3 to <6	357	951	0	284	402	621	716	810	930	1110	1245	1354	1440	1440	1440
6 to <11	497	873	0	0	0	420	631	758	880	1005	1175	1275	1374	1440	1440
11 to <16	466	876	0	0	117	370	575	751	871	1043	1215	1314	1440	1440	1440
16 to <21	481	819	0	0	165	375	510	645	810	995	1170	1287	1419	1440	1440
Time spent at home in all rooms (DOERS ONLY) (min/day)															
0 to <1	62	1108	630	633	658	751	821	956	1108	1259	1440	1440	1440	1440	1440
1to < 2	116	1065	370	399	495	674	715	923	1050	1243	1440	1440	1440	1440	1440
2 to <3	117	979	30	288	551	650	746	857	1005	1120	1232	1296	1355	1369	1410
3 to <6	355	957	150	352	451	634	720	810	930	1110	1245	1355	1440	1440	1440
6 to <11	486	893	190	335	389	541	655	765	885	1009	1177	1275	1385	1440	1440
11 to <16	459	889	40	141	300	441	590	758	875	1046	1218	1315	1440	1440	1440
16 to <21	473	833	85	206	321	433	525	660	815	1000	1170	1288	1420	1440	1440

Source: EPA Analysis of source data used by Tsang and Klepeis (1996) (NHAPS database).

Table 9-48. Time Spent in an Car: Whole Population and Doers Only: Percentile Values

Age	N	Min	Percentiles											Max
			1	2	5	10	25	50	75	90	95	98	99	
Time spent in a car (whole population) (min/day)														
0 to <1	63	0	0	0	0	0	0	10	49	107	171	208	220	235
1to < 2	118	0	0	0	0	0	0	20	60	98	151	246	336	390
2 to <3	118	0	0	0	0	0	0	20	50	90	126	163	187	215
3 to <6	357	0	0	0	0	0	0	20	60	117	155	221	272	620
6 to <11	497	0	0	0	0	0	0	15	55	102	146	185	212	630
11 to <16	466	0	0	0	0	0	0	15	55	99	150	254	302	900
16 to <21	481	0	0	0	0	0	8	40	90	155	195	249	321	380
Time spent in a car (DOERS ONLY) (min/day)														
0 to <1	35	2	5	7	10	14	20	40	73	159	203	218	227	235
1to < 2	68	5	8	10	10	15	30	58	85	147	186	323	363	390
2 to <3	73	4	4	4	8	10	24	42	65	118	141	181	197	215
3 to <6	227	4	4	5	7	10	25	45	88	150	180	267	327	620
6 to <11	317	1	2	2	5	10	20	40	82	127	163	202	300	630
11 to <16	286	1	3	5	5	10	20	40	75	122	193	279	338	900
16 to <21	364	2	9	10	10	17	30	60	105	180	210	275	334	380

Source: EPA Analysis of source data used by Tsang and Klepeis (1996) (NHAPS database).

Table 9-49. Time Spent in a Truck (Pickup or Van): Whole Population and Doers Only: Percentile Values

Age	N	Min	Percentiles											Max
			1	2	5	10	25	50	75	90	95	98	99	
Time spent in a truck (pickup or van) (whole population) (min/day)														
0 to <1	63	0	0	0	0	0	0	0	0	0	0	0	42	110
1to < 2	118	0	0	0	0	0	0	0	0	0	0	52	81	90
2 to <3	118	0	0	0	0	0	0	0	0	14	31	124	201	955
3 to <6	357	0	0	0	0	0	0	0	0	0	30	60	114	245
6 to <11	497	0	0	0	0	0	0	0	0	15	45	95	110	240
11 to <16	466	0	0	0	0	0	0	0	0	15	59	153	181	352
16 to <21	481	0	0	0	0	0	0	0	0	25	90	150	190	445
Time spent in a truck (pickup or van) (DOERS ONLY) (min/day)														
0 to <1	1	110	-	-	-	-	-	-	-	-	-	-	-	110
1to < 2	5	20	-	-	-	-	-	-	-	-	-	-	-	90
2 to <3	15	10	10	10	10	11	15	30	53	188	434	746	851	955
3 to <6	34	1	2	4	8	10	16	30	59	117	207	222	233	245
6 to <11	69	1	4	6	10	10	15	30	65	110	124	151	186	240
11 to <16	62	5	5	5	5	7	15	35	89	180	185	258	299	352
16 to <21	70	5	5	5	10	11	22	54	115	170	213	238	304	445

- For sample sizes less than 10, percentiles were not calculated.

Source: EPA Analysis of source data used by Tsang and Klepeis (1996) (NHAPS database).

Table 9-50. Time Spent in a Truck (Not Pickup or Van): Whole Population and Doers Only: Percentile Values

Age	N	Min	Percentiles											Max
			1	2	5	10	25	50	75	90	95	98	99	
Time spent in a truck (not pickup or van) (whole population) (min/day)														
0 to <1	63	0	0	0	0	0	0	0	0	0	0	0	0	0
1to < 2	118	0	0	0	0	0	0	0	0	0	0	0	0	0
2 to <3	118	0	0	0	0	0	0	0	0	0	0	0	0	105
3 to <6	357	0	0	0	0	0	0	0	0	0	0	0	19	95
6 to <11	497	0	0	0	0	0	0	0	0	0	0	0	0	95
11 to <16	466	0	0	0	0	0	0	0	0	0	0	0	0	250
16 to <21	481	0	0	0	0	0	0	0	0	0	0	0	1	90
Time spent in a truck (not pickup or van) (DOERS ONLY) (min/day)														
0 to <1	0	-	-	-	-	-	-	-	-	-	-	-	-	-
1to < 2	0	-	-	-	-	-	-	-	-	-	-	-	-	-
2 to <3	1	105	-	-	-	-	-	-	-	-	-	-	-	105
3 to <6	5	15	-	-	-	-	-	-	-	-	-	-	-	95
6 to <11	5	10	-	-	-	-	-	-	-	-	-	-	-	95
11 to <16	4	60	-	-	-	-	-	-	-	-	-	-	-	250
16 to <21	5	5	-	-	-	-	-	-	-	-	-	-	-	90

- For sample sizes less than 10, percentiles were not calculated.

Source: EPA Analysis of source data used by Tsang and Klepeis (1996) (NHAPS database).

Table 9-51. Time Spent on a Bus: Whole Population and Doers Only: Percentile Values

Age	N	Min	Percentiles											Max
			1	2	5	10	25	50	75	90	95	98	99	
Time spent on a bus (whole population) (min/day)														
0 to <1	63	0	0	0	0	0	0	0	0	0	0	0	0	0
1to < 2	118	0	0	0	0	0	0	0	0	0	0	0	0	0
2 to <3	118	0	0	0	0	0	0	0	0	0	0	0	25	120
3 to <6	357	0	0	0	0	0	0	0	0	0	0	30	47	80
6 to <11	497	0	0	0	0	0	0	0	0	50	70	90	110	140
11 to <16	466	0	0	0	0	0	0	0	15	60	89	119	148	370
16 to <21	481	0	0	0	0	0	0	0	0	0	45	108	135	225
Time spent on a bus (DOERS ONLY) (min/day)														
0 to <1	0	-	-	-	-	-	-	-	-	-	-	-	-	-
1to < 2	0	-	-	-	-	-	-	-	-	-	-	-	-	-
2 to <3	2	30	-	-	-	-	-	-	-	-	-	-	-	120
3 to <6	14	15	16	16	18	21	30	33	49	67	74	77	79	80
6 to <11	115	5	5	6	14	17	25	43	67	90	107	120	122	140
11 to <16	130	7	10	10	10	15	30	54	71	101	131	159	175	370
16 to <21	41	10	12	14	20	25	30	60	100	135	175	193	209	225

- For sample sizes less than 10, percentiles were not calculated.

Source: EPA Analysis of source data used by Tsang and Klepeis (1996) (NHAPS database).

Table 9-52. Time Spent on a Train: Whole Population and Doers Only: Percentile Values

Age	N	Min	Percentiles											Max
			1	2	5	10	25	50	75	90	95	98	99	
Time spent on a train (whole population) (min/day)														
0 to <1	63	0	0	0	0	0	0	0	0	0	0	0	25	65
1to < 2	118	0	0	0	0	0	0	0	0	0	0	0	0	0
2 to <3	118	0	0	0	0	0	0	0	0	0	0	0	0	120
3 to <6	357	0	0	0	0	0	0	0	0	0	0	0	0	5
6 to <11	497	0	0	0	0	0	0	0	0	0	0	0	0	480
11 to <16	466	0	0	0	0	0	0	0	0	0	0	0	0	15
16 to <21	481	0	0	0	0	0	0	0	0	0	0	4	60	140
Time spent on a train (DOERS ONLY) (min/day)														
0 to <1	1	65	-	-	-	-	-	-	-	-	-	-	-	65
1to < 2	0	-	-	-	-	-	-	-	-	-	-	-	-	-
2 to <3	1	120	-	-	-	-	-	-	-	-	-	-	-	120
3 to <6	1	5	-	-	-	-	-	-	-	-	-	-	-	5
6 to <11	1	480	-	-	-	-	-	-	-	-	-	-	-	480
11 to <16	1	15	-	-	-	-	-	-	-	-	-	-	-	15
16 to <21	10	10	11	11	12	15	56	60	94	122	131	136	138	140

- For sample sizes less than 10, percentiles were not calculated.

Source: EPA Analysis of source data used by Tsang and Klepeis (1996) (NHAPS database).

Table 9-53. Time Spent on an Airplane: Whole Population and Doers Only: Percentile Values

Age	N	Min	Percentiles											Max
			1	2	5	10	25	50	75	90	95	98	99	
Time spent on an airplane (whole population) (min/day)														
0 to <1	63	0	0	0	0	0	0	0	0	0	0	0	0	0
1to < 2	118	0	0	0	0	0	0	0	0	0	0	0	0	0
2 to <3	118	0	0	0	0	0	0	0	0	0	0	0	0	0
3 to <6	357	0	0	0	0	0	0	0	0	0	0	0	0	0
6 to <11	497	0	0	0	0	0	0	0	0	0	0	0	0	0
11 to <16	466	0	0	0	0	0	0	0	0	0	0	0	0	245
16 to <21	481	0	0	0	0	0	0	0	0	0	0	0	0	480
Time spent on an airplane (DOERS ONLY) (min/day)														
0 to <1	0	-	-	-	-	-	-	-	-	-	-	-	-	-
1to < 2	0	-	-	-	-	-	-	-	-	-	-	-	-	-
2 to <3	0	-	-	-	-	-	-	-	-	-	-	-	-	-
3 to <6	0	-	-	-	-	-	-	-	-	-	-	-	-	-
6 to <11	0	-	-	-	-	-	-	-	-	-	-	-	-	-
11 to <16	2	80	-	-	-	-	-	-	-	-	-	-	-	80
16 to <21	3	15	-	-	-	-	-	-	-	-	-	-	-	15

- For sample sizes less than 10, percentiles were not calculated.

Source: EPA Analysis of source data used by Tsang and Klepeis (1996) (NHAPS database).

Table 9-54. Time Spent on a Boat: Whole Population and Doers Only: Percentile Values

Age	N	Min	Percentiles											Max
			1	2	5	10	25	50	75	90	95	98	99	
Time spent on a boat (whole population) (min/day)														
0 to <1	63	0	0	0	0	0	0	0	0	0	0	0	0	0
1to < 2	118	0	0	0	0	0	0	0	0	0	0	0	0	10
2 to <3	118	0	0	0	0	0	0	0	0	0	0	0	0	0
3 to <6	357	0	0	0	0	0	0	0	0	0	0	0	0	0
6 to <11	497	0	0	0	0	0	0	0	0	0	0	0	0	65
11 to <16	466	0	0	0	0	0	0	0	0	0	0	0	0	60
16 to <21	481	0	0	0	0	0	0	0	0	0	0	0	0	30
Time spent on a boat (DOERS ONLY) (min/day)														
0 to <1	0	-	-	-	-	-	-	-	-	-	-	-	-	-
1to < 2	1	10	-	-	-	-	-	-	-	-	-	-	-	10
2 to <3	0	-	-	-	-	-	-	-	-	-	-	-	-	-
3 to <6	0	-	-	-	-	-	-	-	-	-	-	-	-	-
6 to <11	1	65	-	-	-	-	-	-	-	-	-	-	-	65
11 to <16	1	60	-	-	-	-	-	-	-	-	-	-	-	60
16 to <21	1	30	-	-	-	-	-	-	-	-	-	-	-	30

- For sample sizes less than 10, percentiles were not calculated.

Source: EPA Analysis of source data used by Tsang and Klepeis (1996) (NHAPS database).

Table 9-55. Total Time Spent Inside Vehicles: Whole Population and Doers Only: Percentile Values

Age	N	Min	Percentiles											Max
			1	2	5	10	25	50	75	90	95	98	99	
Total time spent inside vehicles (whole population) (min/day)														
0 to <1	63	0	0	0	0	0	0	20	60	113	171	208	220	235
1to < 2	118	0	0	0	0	0	0	28	60	98	151	246	336	390
2 to <3	118	0	0	0	0	0	0	30	60	120	151	203	214	955
3 to <6	357	0	0	0	0	0	0	30	65	122	167	238	272	620
6 to <11	497	0	0	0	0	0	15	40	85	124	155	212	289	630
11 to <16	466	0	0	0	0	0	15	45	85	155	206	291	383	900
16 to <21	481	0	0	0	0	0	25	62	120	180	239	328	382	675
Total time spent inside vehicles (DOERS ONLY) (min/day)														
0 to <1	37	2	5	8	10	16	20	46	75	151	202	217	226	235
1to < 2	72	5	9	10	10	20	30	60	85	143	178	316	362	390
2 to <3	86	4	4	5	10	10	26	45	83	128	166	212	326	955
3 to <6	261	1	4	6	10	13	30	46	85	150	190	261	309	620
6 to <11	417	1	2	4	10	14	25	55	90	130	161	240	306	630
11 to <16	383	1	5	5	10	16	30	60	99	177	235	314	392	900
16 to <21	428	5	8	10	15	20	40	75	120	190	240	345	386	675

Source: EPA Analysis of source data used by Tsang and Klepeis (1996) (NHAPS database).

Table 9-56. Time Spent Inside Grocery/Convenience Stores, Other Stores, and Malls: Whole Population and Doers Only: Percentile Values

Age	N	Min	Percentiles											Max
			1	2	5	10	25	50	75	90	95	98	99	
Total time spent inside grocery/convenience stores, other stores, and malls (whole population) (min/day)														
0 to <1	63	0	0	0	0	0	0	0	30	98	178	224	241	250
1to < 2	118	0	0	0	0	0	0	0	0	62	87	146	202	255
2 to <3	118	0	0	0	0	0	0	0	0	60	86	133	250	360
3 to <6	357	0	0	0	0	0	0	0	0	62	111	189	223	420
6 to <11	497	0	0	0	0	0	0	0	0	49	101	167	225	320
11 to <16	466	0	0	0	0	0	0	0	0	54	122	204	300	413
16 to <21	481	0	0	0	0	0	0	0	15	120	230	402	484	960
Total time spent inside grocery/convenience stores, other stores, and malls (DOERS ONLY) (min/day)														
0 to <1	21	5	5	5	5	24	30	55	130	190	235	244	247	250
1to < 2	23	5	7	9	17	30	55	65	93	152	205	235	245	255
2 to <3	27	10	11	13	20	33	45	60	82	120	234	313	337	360
3 to <6	64	5	5	5	16	23	50	73	116	204	236	339	382	420
6 to <11	91	3	3	5	5	14	20	60	110	170	230	255	262	320
11 to <16	104	1	2	5	10	10	20	45	120	199	300	359	383	413
16 to <21	146	2	4	5	5	10	22	60	149	330	456	517	562	960

Source: EPA Analysis of source data used by Tsang and Klepeis (1996) (NHAPS database).

Table 9-57. Average Time Spent Inside and Outside, By Age Category (min/day)

Age Category	Average Indoor Minutes	Average Outdoor Minutes	Average Unclassified minutes[a]
0 to <1	1355	34	51
1to < 2	1341	51	48
2 to <3	1288	96	56
3 to <6	1275	111	55
6 to <11	1250	126	63
11 to <16	1260	100	80
16 to <21	1249	97	94

[a]Includes time spent in vehicles or in activities that could not be assigned an indoor or outdoor location.

Source: EPA Analysis of source data used by Tsang and Klepeis (1996) (NHAPS database).

Table 9-58. Statistics for 24-hour Cumulative Number of Minutes Spent with Smokers Present

Category	Population Group	N	Mean	Std. Dev.	Std. Error	Min	Percentiles								Max
							5	25	50	75	90	95	98	99	
Age (years)	1-4	155	366.6	324.5	26.06	5	30	90	273	570	825	1010	1140	1305	1440
Age (years)	5-11	224	318.1	314	20.98	1	25	105	190	475	775	1050	1210	1250	1440
Age (years)	12-17	256	245.8	243.6	15.23	1	10	60	165	360	595	774	864	1020	1260

Source: EPA Analysis of source data used by Tsang and Klepeis (1996) (NHAPS database).

Table 9-59. Gender and Age Groups

Age Group	Subgroup	Sample Size	Age Range
Adolescents	Males	98	12-17 years
	Females	85	12-17 years
Children[a]	Young males	145	6-8 years
	Young females	124	6-8 years
	Old males	156	9-11 years
	Old females	160	9-11 years

[a] Children under the age of 6 are excluded for the present study (too few responses in CARB study).

Source: Funk et al., 1998.

Table 9-60. Assignment of At-Home Activities to Ventilation Levels for Children

Low	Moderate
Watching child care	Outdoor cleaning
Night sleep	Food Preparation
Watch Personal care	Metal clean-up
Homework	Cleaning house
Radio use	Clothes care
TV use	Car/boat repair
Records/tapes	Home repair
Reading books	Plant care
Reading magazines	Other household
Reading newspapers	Pet care
Letters/writing	Baby care
Other leisure	Child care
Homework/watch TV	Helping/teaching
Reading/TV	Talking/reading
Reading/listen music	Indoor playing
Paperwork	Outdoor playing
	Medical child care
	Washing, hygiene
	Medical care
	Help and care
	Meals at home
	Dressing
	Visiting at home
	Hobbies
	Domestic crafts
	Art
	Music/dance/drama
	Indoor dance
	Conservations
	Painting room/home
	Building fire
	Washing/dressing
	Outdoor play
	Playing/eating
	Playing/talking
	Playing/watch TV
	TV/eating
	TV/something else
	Reading book/eating
	Read magazine/eat
	Read newspaper/eat

Source: Funk et al., 1998.

Table 9-61. Aggregate Time Spent (minutes/day) At-Home in Activity Groups by Adolescents and Children[a]

Activity Group	Adolescents		Children	
	Mean	SD	Mean	SD
Low	789	230	823	153
Moderate	197	131	241[b]	136
High	1	11	3	17
$High_{participants}$[c]	43	72	58	47

a Time spent engaging in all activities embodied by Ve category (minutes/day).
b Significantly differ from adolescents ($p < 0.05$).
c Represents time spent at-home by individuals participating in high ventilation levels (i.e. doers).

Source: Funk et al., 1998.

Table 9-62. Comparison of Mean Time (minutes/day) Spent At-Home by Gender[a] (Adolescents)

Activity Group	Male		Female	
	Mean	SD	Mean	SD
Low	775	206	804	253
Moderate	181	126	241	134
High	2	16	0	0

Source: Funk et al., 1998.

Table 9-63. Comparison of Mean Time (minutes/day) Spent At-Home by Gender and Age for Children[a]

Activity Group	Males				Females			
	6-8 Years		9-11 Years		6-8 Years		9-11 Years	
	Mean	SD	Mean	SD	Mean	SD	Mean	SD
Low	806	134	860	157	828	155	803	162
Moderate	259	135	198	111	256	141	247	146
High	3	17	7	27	1	9	2	10
$High_{participants}$[b]	77	59	70	54	68	11	30	23

[a] Time spent engaging in all activities embodied by Ve category (minutes/day)
[b] Participants in high Ve activities (i.e. doers)

Source: Funk et al., 1998.

Table 9-64. Number of Person-Days/Individuals[a] for Children in CHAD[a] Database

Age Group	All Studies	California[b]	Cincinnati[c]	NHAPS-Air	NHAPS-Water
0 year	223/199	104	36/12	39	44
0-6 months		50	15/5		
6-12 months		54	21/7		
1 year	259/238	97	31/11	64	67
12-18 months		57			
18-24 months		40			
2 years	317/264	112	81/28	57	67
3 years	278/242	113	54/18	51	60
4 years	259/232	91	41/14	64	63
5 years	254/227	98	40/14	52	64
6 years	237/199	81	57/19	59	40
7 years	243/213	85	45/15	57	56
8 years	259/226	103	49/17	51	55
9 years	229/195	90	51/17	42	46
10 years	224/199	105	38/13	39	42
11 years	227/206	121	32/11	44	30
Total	3009/2640	1200	556/187	619	634

[a] CHAD - Consolidated Human Activity Database is available on U.S. EPA Intranet.
[b] The California study referred to in this table is the Wiley 1991 study.
[c] The Cincinnati study referred to in this table is the Johnson 1989 study.

The number of person-days of data are the same as the number of individuals for all studies except for the Cincinnati study. Since up to three days of activity pattern data were obtained from each participant in this study, the number of person-days of data is approximately three times the number of individuals.

Source: Hubal et al., 2000.

Table 9-65. Number of Hours Per Day Children Spend in Various Microenvironments by Age

Age (years)	Average ± Std. Dev. (Percent of Children Reporting >0 Hours in Microenvironment)				
	Indoors at Home	Outdoors at Home	Indoors at School	Outdoors at Park	In Vehicle
0	19.6 ± 4.3 (99%)	1.4 ± 1.5 (20%)	3.5 ± 3.7 (2%)	1.6 ± 1.5 (9%)	1.2 ± 1.0 (65%)
1	19.5 ± 4.1 (99)	1.6 ± 1.3 (35)	3.4 ± 3.8 (5)	1.9 ± 2.7 (10)	1.1 ± 0.9 (66)
2	17.8 ± 4.3 (100)	2.0 ± 1.7 (46)	6.2 ± 3.3 (9)	2.0 ± 1.7 (17)	1.2 ± 1.5 (76)
3	18.0 ± 4.2 (100)	2.1 ± 1.8 (48)	5.7 ± 2.8 (14)	1.5 ± 0.9 (17)	1.4 ± 1.9 (73)
4	17.3 ± 4.3 (100)	2.4 ± 1.8 (42)	4.9 ± 3.2 (16)	2.3 ± 1.9 (20)	1.1 ± 0.8 (78)
5	16.3 ± 4.0 (99)	2.5 ± 2.1 (52)	5.4 ± 2.5 (39)	1.6 ± 1.5 (28)	1.3 ± 1.8 (80)
6	16.0 ± 4.2 (98)	2.6 ± 2.2 (48)	5.8 ± 2.2 (34)	2.1 ± 2.4 (32)	1.1 ± 0.8 (79)
7	15.5 ± 3.9 (99)	2.6 ± 2.0 (48)	6.3 ± 1.3 (40)	1.5 ± 1.0 (28)	1.1 ± 1.1 (77)
8	15.6 ± 4.1 (99)	2.1 ± 2.5 (44)	6.2 ± 1.1 (41)	2.2 ± 2.4 (37)	1.3 ± 2.1 (82)
9	15.2 ± 4.3 (99)	2.3 ± 2.8 (49)	6.0 ± 1.5 (39)	1.7 ± 1.5 (34)	1.2 ± 1.2 (76)
10	16.0 ± 4.4 (96)	1.7 ± 1.9 (40)	5.9 ± 1.5 (39)	2.2 ± 2.3 (40)	1.1 ± 1.1 (82)
11	14.9 ± 4.6 (98)	1.9 ± 2.3 (45)	5.9 ± 1.5 (41)	2.0 ± 1.7 (44)	1.6 ± 1.9 (74)

Source: Hubal et al., 2000.

Table 9-66. Average Number of Hours Per Day Children Spend Doing Various Macroactivities *While Indoors at Home*

Age (year)	Number of hours and Percentage of Children Reporting >0 Hours for Microenvironment/macroactivity)						
	Eat	Sleep or Nap	Shower or Bathe	Play Games	Watch TV or Listen to Radio	Read, Write, Homework	Think, Relax, Passive
0	1.9 (96%)	12.6 (99%)	0.4 (44%)	4.3 (29%)	1.1 (9%)	0.4 (4%)	3.3 (62%)
1	1.5 (97)	12.1 (99)	0.5 (56)	3.9 (68)	1.8 (41)	0.6 (19)	2.3 (20)
2	1.3 (92)	11.5 (100)	0.5 (53)	2.5 (59)	2.1 (69)	0.6 (27)	1.4 (18)
3	1.2 (95)	11.3 (99)	0.4 (53)	2.6 (59)	2.6 (81)	0.8 (27)	1.0 (19)
4	1.1 (93)	10.9 (100)	0.5 (52)	2.6 (54)	2.5 (82)	0.7 (31)	1.1 (17)
5	1.1 (95)	10.5 (98)	0.5 (54)	2.0 (49)	2.3 (85)	0.8 (31)	1.2 (19)
6	1.1 (94)	10.4 (98)	0.4 (49)	1.9 (35)	2.3 (82)	0.9 (38)	1.1 (14)
7	1.0 (93)	9.9 (99)	0.4 (56)	2.1 (38)	2.5 (84)	0.9 (40)	0.6 (10)
8	0.9 (91)	10.0 (96)	0.4 (51)	2.0 (35)	2.7 (83)	1.0 (45)	0.7 (7)
9	0.9 (90)	9.7 (96)	0.5 (43)	1.7 (28)	3.1 (83)	1.0 (44)	0.9 (17)
10	1.0 (86)	9.6 (94)	0.4 (43)	1.7 (38)	3.5 (79)	1.5 (47)	0.6 (10)
11	0.9 (89)	9.3 (94)	0.4 (45)	1.9 (27)	3.1 (85)	1.1 (47)	0.6 (10)

Source: Hubal et al., 2000.

Table 9-67. Number of Hours Per Day Children Spend in Various Microenvironments by Age - Recast Into New Standard Age Categories

Age Category	Indoors at Home		Outdoors at Home		Indoors at School		Outdoors at Park		In Vehicle	
	mean hr/day	% doing	mean hr/day	% doing	mean hr/day	% doing	mean hr/day	% doing	mean hr/day	% doing
birth to <1 month	19.6	98%	1.7	21%	4.3	3%	1.3	3%	1.3	63%
1 to <3 months	20.9	100%	1.8	9%	0.2	3%	1.6	9%	1.3	27%
3 to <6 months	19.6	100%	0.8	8%	7.8	7%	1.3	6%	1.1	14%
6 to <12 months	19.1	99%	1.1	15%	7.6	8%	1.8	5%	1.3	14%
1 to <2 years	19.2	99%	1.4	34%	6.4	9%	1.5	5%	1.1	27%
2 to <3 years	18.2	99%	1.8	38%	6.8	12%	2.1	7%	1.3	28%
3 to <6 years	17.3	100%	1.9	43%	5.9	26%	1.6	10%	1.3	29%
6 to <11 years	15.7	99%	1.9	40%	6.5	44%	2.1	17%	1.1	29%
11 to <16 years	15.5	97%	1.7	30%	6.6	45%	2.6	15%	1.3	42%
16 to <21 years	14.6	98%	1.4	20%	5.7	33%	3.1	10%	1.7	90%

Source: Based on data source used by Hubal et al., 2000. (CHAD Database)

Table 9-68. Number of Hours Per Day Children Spend in Various Macroactivities *While Indoors at Home* - Recast Into New Standard Age Categories

Age Category	Eat		Sleep or Nap		Shower or Bathe		Play Games		Watch TV/Listen to Radio		Read, Write, Homework		Think, Relax, Passive	
	mean hr/day	% doing	mean hr/day	% doing	mean hr/day	% doing	mean hr/day	% doing	mean hr/day	% doing	mean hr/day	% doing	mean hr/day	% doing
birth to <1 month	2.2	98%	13.0	100%	0.5	41%	5.0	53%	1.3	8%	0.7	2%	2.7	48%
1 to <3 months	2.4	100%	14.8	100%	0.4	24%	0.7	6%	1.6	15%	0.0	0%	3.5	79%
3 to <6 months	2.0	100%	13.5	100%	0.5	9%	1.3	31%	1.0	21%	1.1	3%	2.5	59%
6 to <12 months	1.8	100%	12.9	100%	0.4	11%	1.1	30%	1.3	25%	0.5	4%	2.5	35%
1 to <2 years	1.7	99%	12.5	100%	0.5	21%	3.2	45%	1.8	52%	0.6	13%	1.4	26%
2 to <3 years	1.5	98%	12.0	100%	0.5	22%	2.6	45%	2.0	77%	0.6	18%	0.8	30%
3 to <6 years	1.4	99%	11.2	100%	0.5	38%	2.5	38%	2.3	86%	0.7	25%	0.8	28%
6 to <11 years	1.2	98%	10.2	100%	0.4	54%	2.0	28%	2.6	84%	1.0	43%	0.8	20%
11 to <16 years	1.1	94%	9.7	98%	0.4	50%	1.8	18%	3.0	85%	1.4	45%	0.8	20%
16 to <21 years	1.0	84%	8.9	98%	0.4	45%	1.9	5%	3.2	73%	2.2	37%	1.3	24%

Source: Based on data source used by Hubal et al., 2000. (CHAD Database)

Table 9-69. Number and percentage of respondents with children and those reporting outdoor play[a] activities in both warm and cold weather

Source	Respond-ents with children	Child players[a]		Child non players		Warm weather player[b]	Cold weather player	Player in both seasons
	n	n	%	n	%	n	n	%
SCS-II base	197	128	65.0	69	35.0	127	100	50.8
SCS-II oversample	483	372	77.0	111	23.0	370	290	60.0
Total	680	500	73.5	180	26.5	497	390	57.4

[a] "Play" and "player" refer specifically to participation in outdoor play on bare dirt or mixed grass and dirt.
[b] Does not include three "Don't know/refused" responses regarding warm weather play.

Source: Wong et al. (2000)

Table 9-70. Play frequency and duration for all child players (from SCS-II data)

Statistic	Cold weather			Warm weather		
	Frequency (d/wk)	Duration (hrs/d)	Total (hrs/wk)	Frequency (d/wk)	Duration (hrs/d)	Total (hrs/wk)
n	372	374	373	488	479	480
5th Percentile	1	1	1	2	1	4
50th Percentile	3	1	5	7	3	20
95th Percentile	7	4	20	7	8	50

Source: Wong et al. (2000)

Table 9-71. Hand washing and bathing frequency for all child players (from SCS-II data)

Statistic	Cold weather		Warm weather	
	Hand washing (times/d)	Bathing (times/wk)	Hand washing (times/d)	Bathing (times/wk)
n	329	388	433	494
5th Percentile	2	2	2	3
50th Percentile	4	7	4	7
95th Percentile	10	10	12	14

Source: Wong et al. (2000)

Table 9-72 NHAPS and SCS-II play duration[a] comparison

Data Source	Mean play duration (min/d)			O^2 test[b]
	Cold weather	Warm weather	Total	
NHAPS	114	109	223	$p<0.0001$
SCS-II	102	206	308	

[a] Selected previous day activities in NHAPS, average day outdoor play on bare dirt or mixed grass and dirt in SCS-II.

[b] 2x2 Chi-square test for contingency between NHAPS and SCS-II.

Source: Wong et al. (2000)

Table 9-73. NHAPS and SCS-II hand wash frequency comparison

Data Source	Season	Percent[b] reporting frequency (times/d) of:								O^2 test[c]
		0	1-2	3-5	6-9	10-19	20-29	30+	"Don't know"	
NHAPS	cold	3	18	51	17	7	1	1	3	p = 0.06
SCS-II	cold	1	16	50	11	7	1	0	15	
NHAPS	warm	3	18	51	15	7	2	1	4	p = 0.001
SCS-II	warm	0	12	46	16	10	1	0	13	

[a] Selected previous day activities in NHAPS, average day outdoor play on bare dirt or mixed grass and dirt in SCS-II.
[b] Results are reported as percentage of total for clarity. Incidence data were used in statistical tests.
[c] 2x2 Chi-square test for contingency between NHAPS and SCS-II.

Source: Wong et al., 2000

Table 9-74. Summary of Activity Pattern Studies

Summary of Activity Patterns Studies				
Study	Age Groups (yrs)	Sample Size	Population	Activities
Timmer (1985)	3-5, 6-8, 9-11, 12-14, 15-17	922	National	18 microenvironments
Robinson & Thomas (1991)	12-adults	1,762 (California) 2,762 (national)	California and National	16 microenvironments
Wiley (1991)*	0-2, 3-5, 6-8, 9-11	1,200	California	10 microenvironments
Tsang & Kleipeis (1996)*	1-4, 5-11, 12-17	Varies with age groups and activities	U.S. National	23 microenvironments
Funk (1998)	6-11, 12-17	768	California	Activities grouped into low, medium, and high ventilation levels
Hubal (2000)*	0, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11	2,640	Based on Wiley (1991), Johnson (1989), and Tsang & Kleipeis (1996)	Activities grouped into indoors at home, indoors at school, outdoors at home, outdoors at part, and in vehicle

*These studies were re-analyzed by obtaining the source data and recasting it to fit the standardized age categories used in this Handbook.

Table 9-75. Summary of Mean Time Spent Indoors and Outdoors from Several Studies

Age (years)	Time Indoors (hours/day)[1]	Time Outdoors (hours/day)[1]	Study
3-5 years	19	2.8 (national)	
6-8 years	20	2.2	Timmer et al., 1985
9-11 years	20	1.8	
12-14 years	20	1.8	See Table 9-3
15-17 years	19	1.9	
birth to <1 month	**24**	**0**	
1 to <3 months	**24**	**0**	Wiley et al., 1991
3 to <6 months	**23**	**1**	
6 to <12 months	**22**	**2**	(EPA Analysis
1 to <2 years	**18**	**6**	of source data)
2 to <3 years	**19**	**5**	
3 to <6 years	**19**	**5**	See Table 9-15
6 to <11 years	**19**	**5**	
11 years	19	5	
0 to <1 year	23	1	Tsang and Kleipeis, 1996
1 to <2 years	**22**	**1**	
2 to <3 years	**21**	**2**	(EPA Analysis
3 to <6 years	**21**	**2**	of source data)
6 to <11 years	**21**	**2**	
11to <16 years	**21**	**2**	See Table 9-57
16 to <21 years	**21**	**1**	

[1] Mean of weekday and weekend rounded up to two significant figures, where applicable.
Standardized age groupings are shown in **bold**.

Table 9-76. Summary of Recommended Values for Activity Factors

Type	Age Group	Mean (min/day)	Source
Time Indoors (at residence)	0 to <1 year	1108	Tsang and Kleipeis (1996)
	1to < 2 years	1065	
	2 to <3 years	979	(EPA Analysis of source data)
	3 to <6 years	957	
	6 to <11 years	893	Means of doers from Table 9-47, see table for
	11 to <16 years	889	percentiles.
	16 to <21 years	833	
Time Indoors (total)	birth to <1 month	1440	Wiley et al., 1991
	1 to <3 months	1431	
	3 to <6 months	1414	(EPA Analysis of source data)
	6 to <12 months	1301	
	1 to <2 years	1132	Average of means for boys and girls from Table 9-
	2 to <3 years	1112	15
	3 to <6 years	1128	
	6 to <11 years	1164	
	11to <16 years	1260	Tsang and Kleipeis, 1996
	16 to <21 years	1249	(EPA Analysis of source data)
			Means from Table 9-57
Time Outdoors	birth to <1 month	0	Wiley et al., 1991
	1 to <3 months	8	
	3 to <6 months	26	(EPA Analysis of source data)
	6 to <12 months	139	
	1 to <2 years	307	Average of means for boys and girls from Table 9-
	2 to <3 years	328	15
	3 to <6 years	311	
	6 to <11 years	275	
	11to <16 years	100	Tsang and Kleipeis, 1996
	16 to <21 years	97	(EPA Analysis of source data)
			Means from Table 9-57
Showering	birth to <1year	1	Tsang and Kleipeis, 1996
	1 to <2 years	20	
	2 to <3 years	22	(EPA Analysis of source data)
	3 to <6 years	17	
	6 to <11 years	18	Means for doers Table 9-19, see table for percentiles
	11to <16 years	18	
	16 to <21 years	20	
Bathing	birth to <1 year	19	Tsang and Kleipeis, 1996
	1 to <2 years	23	
	2 to <3 years	23	(EPA Analysis of source data)
	3 to <6 years	24	
	6 to <11 years	24	Means for doers from Table 9-21, see table for
	11to <16 years	25	percentiles
	16 to <21 years	33	
Playing on Sand/Gravel	0 to <1 years	18	Tsang and Kleipeis, 1996
	1to < 2 years	43	
	2 to <3 years	60	(EPA Analysis of source data)
	3 to <6 years	65	
	6 to <11 years	73	Means for doers from Table 9-26, see table for
	11 to <16 years	75	percentiles
	16 to <21 years	113	

Type	Age Group	Mean (min/day)	Source
Playing on Grass	0 to <1 years 1to < 2 years 2 to <3 years 3 to <6 years 6 to <11 years 11 to <16 years 16 to <21 years	72 73 82 106 85 79 60	Tsang and Kleipeis, 1996 (EPA Analysis of source data) Means for doers from Table 9-26, see table for percentiles
Playing on Dirt	0 to <1 years 1to < 2 years 2 to <3 years 3 to <6 years 6 to <11 years 11 to <16 years 16 to <21 years	33 56 79 67 75 52 30	Tsang and Kleipeis, 1996 (EPA Analysis of source data) Means for doers from Table 9-26, see table for percentiles

Type	Age Group	Mean (Min/month)	Source
Swimming	0 to <1 years 1to < 2 years 2 to <3 years 3 to <6 years 6 to <11 years 11 to <16 years 16 to <21 years	313 251 636 946 868 667 868	Tsang and Kleipeis, 1996 (EPA Analysis of source data) Means for doers from Table 9-28, see table for percentiles

Table 9-77. Confidence in Activity Patterns Recommendations

Considerations	Rationale	Rating
TIME SPENT INDOORS VS. OUTDOORS		
Study Elements		
• Level of peer review	The original studies received a high level of peer review; re-analysis of source data was not peer-reviewe	Low
• Accessibility	The studies are widely available to the public.	High
• Reproducibility	The reproducibility of these studies is left to question. Evidence has shown that activities have tended to over the past decade since the study was published, due to economic conditions and technological developments, etc. Thus, it is assumed there would be differences in reproducing these results. However data were reanalyzed in the same manner the results are expected to be the same.	Medium
• Focus on factor of interest	The studies focused on general activity patterns.	High
• Data pertinent to US	The studies focused on the U.S. population.	High
• Primary data	Data were collected via questionnaires and interviews.	High
• Currency	The studies were published in 1985, 1991, and 1996.	Medium
• Adequacy of data collection period	Timmer: Households were sampled 4 times during 3 month intervals from February to December, 1981. NHAPS: data were collected in a single telephone interview and are based on one day of activity.	Medium
• Validity of approach	A 24 hour or real time recall diary method was used to collect data.	High
• Study size	Timmer: The sample population was 922 children between the ages of 3-17 years old. NHAPS: The samp size was 2,100 individuals under the age of 21.	High
• Representativeness of the population	The study focused on activities of children.	High
• Characterization of variability	Variability was characterized by age, gender, and day of the week; location of activities and various age categories for children.	Medium
• Lack of bias in study design (high rating is desirable)	Bias noted were sampled during time when children were in school (activities during vacation time are represented); activities in the 1980's and 1990's may be different than they are now.	Medium
• Measurement error	Measurement or recording error may occur since the diaries were based on recall (in most cases a 24 hou recall).	Medium
Other Elements		
• Number of studies	3	High
• Agreement between researchers	Difficult to compare due to varying categories of activities and the unique age groups studied within study.	No Ranking
Overall Rating		**Medium**

Table 9-77 Confidence in Activity Patterns Recommendations (cont'd)

Considerations	Rationale	Rating
TIME SPENT SHOWERING		
Study Elements		
• Level of peer review	The original study received high level of peer review. The re-analysis of the NHAPS data to conform to t standardized age categories was not peer-reviewed.	High Low
• Accessibility	Raw data are available to the public.	High
• Reproducibility	Results are reproducible.	High
• Focus on factor of interest	The study focused specifically focused on time spent showering.	High
• Data pertinent to US	The study focused on the U.S. general population.	High
• Primary data	The study was based on primary data.	High
• Currency	The study was published in 1996.	Medium
• Adequacy of data collection period	The data were collected between October 1992 and September 1994.	Medium
• Validity of approach	The study used a valid methodology and approach which, in addition to 24-hour diaries, collected information on temporal conditions and demographic data such as geographic location and socioeconomi status for various U.S. subgroups.	High
• Study size	Study consisted of 9,386 total participants consisting of all ages; 2100 respondents ages 0 to 20 years old this category	Medium Low
• Representativeness of the population	The data were representative of the U.S. population.	High
• Characterization of variability	The study provides a distribution on showering duration.	High
• Lack of bias in study design (high rating is desirable)	The study includes distributions for showering duration. Study is based on short-term data.	High
• Measurement error	Measurement or recording error may occur because diaries are based on 24-hour recall.	Medium
Other Elements		
• Number of studies	One; the study was a national study.	Low
• Agreement between researchers	The recommendation is based on the data (presented in ranges) from only one study (NHAPS), but it is a widely accepted study. The recommended value was selected based on professional judgment because th data were presented as a range (10-20 minutes).	Low Medium
Overall Rating		**Medium**

Table 9-77. Confidence in Activity Patterns Recommendations (cont'd)

Considerations	Rationale	Rating
SHOWER FREQUENCY		
Study Elements		
• Level of peer review	The original study received high level of peer review. The re-analysis of the NHAPS data to conform to standardized age categories was not peer-reviewed.	Low
• Accessibility	Raw data are available to the public.	High
• Reproducibility	Results can be reproduced or methodology can be followed and evaluated provided comparable economi and social conditions exists.	High
• Focus on factor of interest	The survey collected information on duration and frequency of showering.	High
• Data pertinent to US	The data represents the U.S. population	High
• Primary data	The study was based on primary data.	High
• Currency	The study was published in 1996.	Medium
• Adequacy of data collection period	The data were collected between October 1992 and September 1994.	Medium
• Validity of approach	The study used a valid methodology and approach which, in addition to 24-hour diaries, collected information on temporal conditions and demographic data such as geographic location and socioeconom status for various U.S. subgroups. Responses were weighted according to this demographic data.	High
• Study size	The study consisted of 9,386 total participants consisting of all age groups; 1200 respondents ages 0-20 years old for this category.	Medium
• Representativeness of the population	Studies were based on the U.S. population.	High
• Characterization of variability	The study provided data that varied across geographic region, race, gender, employment status, educatio level, day of the week, seasonal conditions, and medical conditions of respondent..	High
• Lack of bias in study design (high rating is desirable)	Study is based on short term data..	Medium
• Measurement error	Measurement or recording error may occur because diaries were based on 24-hour recall.	Medium
Other Elements		
• Number of studies	One; the study was based on one, primary, national study.	Low
• Agreement between researchers	Recommendation was based on only one study.	Not Ranked
Overall Rating		**Medium**

Table 9-77. Confidence in Activity Patterns Recommendations (cont'd)

Considerations	Rationale	Rating
TIME SPENT SWIMMING		
Study Elements		
• Level of peer review	The original study received high level of peer review. The re-analysis of the NHAPS data to conform to th standardized age categories was not peer-reviewed.	Low

Table 9-77. Confidence in Activity Patterns Recommendations (cont'd)

Considerations	Rationale	Rating
• Accessibility	Raw data are available to the public.	High
• Reproducibility	Results can be reproduced or methodology can be followed and evaluated provided comparable economic and social conditions exists.	High
• Focus on factor of interest	The survey collected information on duration and frequency of selected activities and time spent in selected micro-environments. It only addresses time swimming at a swimming pool.	Medium
• Data pertinent to US	The data represents the U.S. population	High
• Primary data	The study was based on primary data.	High
• Currency	The study was published in 1996.	Medium
• Adequacy of data collection period	The data were collected between October 1992 and September 1994.	Medium
• Validity of approach	The study used a valid methodology and approach which, in addition to 24-hour diaries, collected information on temporal conditions and demographic data such as geographic location and socioeconomic status for various U.S. subgroups. Responses were weighted according to this demographic data.	High
• Study size	The study consisted of 9,386 total participants consisting of all age groups; 273 respondents aged 0-20 years old swam at least once.	Low
• Representativeness of the population	Studies were based on the U.S. population.	High
• Characterization of variability	The study provided data that varied across geographic region, race, gender, employment status, education level, day of the week, seasonal conditions, and medical conditions of respondent..	High
• Lack of bias in study design (high rating is desirable)	The study includes distributions for swimming duration. Study is based on short term data.	Medium
• Measurement error	Measurement or recording error may occur because diaries were based on 24-hour recall.	Medium
Other Elements		
• Number of studies	One; the study was based on one, primary, national study.	Low
• Agreement between researchers	Recommendation was based on only one study.	Not Ranked
Overall Rating		**Medium**

Table 9- 77. Confidence in Activity Patterns Recommendations (cont'd)

Considerations	Rationale	Rating
TIME SPENT PLAYING ON SAND, GRAVEL, OR GRASS		
Study Elements		
• Level of peer review	The original study received high level of peer review. The re-analysis of the NHAPS data to conform to standardized age categories was not peer-reviewed.	High
• Accessibility	Raw data are available to the public.	High
• Reproducibility	Results can be reproduced or methodology can be followed and evaluated provided comparable economic and social conditions exists.	High

Table 9- 77. Confidence in Activity Patterns Recommendations (cont'd)

Considerations	Rationale	Rating
• Focus on factor of interest	The survey collected information on duration and frequency of selected activities and time spent in selected micro-environments.	High
• Data pertinent to US	The data represents the U.S. population.	High
• Primary data	The study was based on primary data.	High
• Currency	The study was published in 1996.	Medium
• Adequacy of data collection period	The data were collected between October 1992 and September 1994.	Medium
• Validity of approach	The study used a valid methodology and approach which, in addition to 24-hour diaries, collected information on temporal conditions and demographic data such as geographic location and socioeconomic status for various U.S. subgroups. Responses were weighted according to this demographic data.	High
• Study size	The study consisted of 9,386 total participants consisting of all age groups; 2100 respondents aged 0-20 years old for this category.	Medium-low
• Representativeness of the population	The studies were based on the U.S. population.	High
• Characterization of variability	The study provided data that varied across geographic region, race, gender, employment status, educational level, day of the week, seasonal conditions, and medical conditions of respondent..	High
• Lack of bias in study design (high rating is desirable)	The study includes distributions for bathing duration. Study is based on short-term data.	Medium
• Measurement error	Measurement or recording error may occur because diaries were based on 24-hour recall.	Medium
Other Elements		
• Number of studies	One; the study was based on one, primary, national study.	Low
• Agreement between researchers	Recommendation was based on only one study. Recommendations based on 50% time spent playing on grass.	Not Ranked
Overall Rating		**Medium**