

**2016 National Study of Long-Term Care Providers (NSLTCP)**

**Adult Day Services Center Survey**

**Restricted Data File**

**December 2017**

**Data Description and Usage (Readme)**

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**Please Read Carefully Before Working with the Data File**

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The Public Health Service Act (Section 308 (d)) provides that the data collected by the National Center for Health Statistics (NCHS), Centers for Disease Control and Prevention (CDC), may be used only for the purpose of health statistical reporting and analysis. Any effort to determine the identity of any reported case is prohibited by this law. NCHS does all it can to assure that the identity of data subjects cannot be disclosed. However, the data released through the NCHS Research Data Center (RDC) include restricted variables, including geographic identifiers. Any intentional identification or disclosure of a person or establishment violates the assurances of confidentiality given to the providers of the information. Therefore, users will:

1. Use the data in this dataset for statistical reporting and analysis only.
2. Make no use of the identity of any person or establishment discovered inadvertently and advise the Director, NCHS, of any such discovery.

By using these data, you signify your agreement to comply with the above-stated statutorily based requirements.

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This document describes the data and some of the processes involved in creating the restricted file of the 2016 National Study of Long-Term Care Providers (NSLTCP) survey of adult day services centers. We recommend that data users read this document prior to working with the data.

## **Data File**

The data file contains information on 2,836 adult day services centers that completed a survey in one of the three modes: a hardcopy mail questionnaire, a web questionnaire, and a computer-assisted telephone interview (CATI). Each record in the file is associated with a primary identifier (CASEID) representing one adult day services center that completed the survey. Also included in the data file are 467 variables, including CASEID and design variables, on center characteristics (e.g., ownership type, chain affiliation, number of years in operation, number of users (i.e., participants), and Medicaid participation); number of employee and contract nursing, social work and activities staff; the provision of services; demographic and health characteristics of participants in the center (e.g., race-ethnicity composition of participants, participants needing any assistance with different activities of daily living, participants' hospitalization and use of emergency department); use of electronic health records and health information exchange; derived variables; and imputed variables. The records in the file are sorted in the order of the primary identifier. The data are provided in SAS format.

## **Documentation**

There are several types of documentation available for use with the data file. These include a data dictionary or codebook; the survey questionnaires; the survey methodology documentation that provides a brief overview of the survey, the data collection procedures, and the sampling design; and this provider-specific data description and usage or readme document. A separate readme document on data description and usage is available for the residential care community component of NSLTCP.

### ***Brief description of survey***

The survey on adult day services centers was conducted between August 2016 and February 2017. The survey data frame was obtained from the National Adult Day Services Association. Adult day services providers that operated multiple centers at the same address were identified as separate centers. The master list incorporating all sources was checked for duplicate centers; these duplicates were deleted, resulting in a final survey data frame of 5,348 adult day services centers.

To be eligible for the study, an adult day services center must (a) have been included in the National Adult Day Services Association's database and in operation as of November, 2015; (b) have been licensed or certified by the state specifically to provide adult day services, or accredited by the Commission on Accreditation of Rehabilitation Facilities (CARF), or authorized or otherwise set up to participate in Medicaid (Medicaid state plan, Medicaid waiver, or Medicaid managed care), or part of a Program of All-Inclusive Care for the Elderly (PACE); (c) have had an average daily attendance of one or more participants based on a typical week; and (d) have had one or more participants enrolled at the center at the designated location at the time of the survey.

The survey for the adult day services center component of the 2016 NSLTCP was based on a census of U.S. centers. A total of 182 (3.4%) centers were identified as invalid or out of business. However, 2041 centers (38.2%) could not be contacted; therefore, the final eligibility status of these communities was unknown. Using the eligibility rate,<sup>1</sup> a proportion of these centers of unknown eligibility was estimated to be eligible. This estimated number along with the total number of eligible communities resulting from the screening process was used to estimate the total number of eligible adult day services centers in the United States. The weights of the adult day services centers with known eligibility were adjusted upward based on the proportion of centers that were actually known to be eligible to account for the adult day services centers with unknown eligibility status. Data were collected by three modes: self-administered hardcopy questionnaire, self-administered web questionnaires, and CATI conducted by interviewers. The questionnaire was completed for 2,867 centers. However, there were 31 cases (0.6%) that only completed the eligibility questions and were coded as non-response, thereby resulting in 2,836 completions, for a response rate of 61.8%.

### *Questionnaire*

Two sets of questionnaires were used to collect data designed at the state and national level: (1.) survey items that were included on both questionnaires and asked of all respondents (designed to provide state-level estimates), and (2.) a few selected items included on one version of the questionnaires and designed to provide national-level estimates (shown in **Table 2**). A variable named QVERSION is included in the data file to indicate the version of questionnaire used. Furthermore, a code of -8 is assigned to indicate when a questionnaire version did not include a particular question, which helps to distinguish between the two questionnaire versions and the data elements assigned to them. Three sets of weights are included in the data file: FACFNWT to be used for all variables that are included in both questionnaires, FACFNWT\_A to be used with

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<sup>1</sup> The eligibility rate is calculated by the number of known eligible adult day services centers divided by the total number of adult day services centers with known eligibility status. Centers that were invalid or out of business and centers that screened out as ineligible were classified as known ineligibles.

variables on questionnaire version A (QVERSION=1), and FACFNWT\_B to be used with variables on questionnaire version B (QVERSION=2).

**Table 2. Variables Designed to Produce National Estimates by Questionnaire Version**

Version A	FALLNUM, HURT, NOTHURT, FALLHOSP, FALLTOOL, FALLREDUC, PRIVRES, ALRCC, NURSHOM, LIVEOTH, ALONE, RELATIV, NONRELATIV
Version B	ADINFO, ADSTATE, ADDOC, ADFILE

The PDFs for the adult day services center questionnaires of the 2016 NSLTCP are available for download from the NSLTCP website ([https://www.cdc.gov/nchs/nsltcp/nsltcp\\_questionnaires.htm](https://www.cdc.gov/nchs/nsltcp/nsltcp_questionnaires.htm)).

The questionnaires include all the questions asked during the survey, along with the skip patterns for selected questions. There may be some differences in how questions were asked in the questionnaires, and how they are coded in the restricted file. For example, the questionnaires use “mark all that apply” questions to ask about different services that adult day services centers provide (Question 30a-i). Respondents indicated as many as four different ways that the center provided a given service. In the data file, for each service, four binary variables were included: four separate variables corresponding to four different ways that adult day services centers provide the service (i.e., by paid center employees, by arranging for the service to be provided by outside service providers, by referring participants or family to outside service providers); one variable indicating whether the center provides the service in any of these ways or does not provide the service. In addition to these four binary variables, a derived variable with three mutually exclusive response categories is included in the data file for each service. These derived variables indicate if the center provides the service: 1) by paid center employees/ by arranging for the service to be provided by outside services providers; 2) only by referral; or 3) does not provide, arrange, or refer the service.

**Data dictionary**

The data dictionary or codebook is provided as a single file containing five sections in the questionnaire: Study Eligibility, Background Information; Participant Profile, Services Offered; Staff Profile; and Information to help inform future waves. Each variable in the restricted file has its own codebook entry.

The web and CATI versions of the NSLTCP survey of adult day services centers used for data collection allowed respondents to answer or interviewers to only ask questions specific to the individual centers, skipping questions that did not apply. The skip instructions found in the hardcopy survey were identified by bold text in a different color, which directed respondents to skip questions that did not apply. If a question or a series of questions in the survey were legitimately skipped by a particular respondent, then the response was coded as “-1= Legitimate skip” in the data dictionary. Skip patterns are specified in the data dictionary in addition to the question text and code categories. When respondents refused to answer, did not know the answer, or did not answer the question because of a breakoff (i.e., did not complete the survey), their responses to the question(s) were coded in the data dictionary as “-9= Not ascertained”. The data users are advised to consult the questionnaire before analyzing the data to better understand the question skip patterns.

### **Data Processing Activities to Create the Restricted File**

The raw data received from the field were reviewed and edited prior to releasing the restricted data file to the NCHS’ Research Data Center (RDC). Data were reviewed for accuracy, logic, consistency, and completeness.

#### ***Consistency checks***

1. To ensure internal consistency of the data, for some questions, edit checks were programmed into the web questionnaire and CATI system and applied during data collection. These edits were programmed based on the expected range of responses for given questions and the logical consistency between questions. For instance, the web questionnaire and CATI system prompted respondents and interviewers, respectively, to verify if the total number of male and female participants provided by the respondent was accurate when it was not within  $\pm 10\%$  range of the total number of participants reported earlier.
2. In most cases, the same skip logic that was applied to the web questionnaire and CATI system was used to edit the data file when the skip instruction was not followed. For instance, if the respondents indicated that the adult day services center did not specialize in serving participants with a particular diagnosis of disability (Question 7), but had selected one or more of the conditions listed in Question 8a-i or left all conditions blank, then the conditions listed in Question 8 were coded as “-1—Legitimate skip”. However, if the response to Question 7 was missing and one or more of the conditions listed in Question 8 had a response, then Question 7 was recoded to ‘Yes’.

3. The variables for race-ethnicity, sex, age, and living arrangement distribution of participants were edited if the values did not add to the total number of participants (TOTPART for Question 3). For example, when a case had missing data for a given race-ethnicity category, then the mean of five imputed values for that specific case was used to assess if values of the race- ethnicity categories summed to TOTPART. When values did not total to TOTPART, values were adjusted to sum to TOTPART based on the proportion of values reported for different race-ethnicity categories for the case.
  - a. In addition to the original variables, edited variables for race-ethnicity, sex, and age distribution of participants are provided in the data file. The edited variables are indicated by adding “RC” as the suffix to the variable name (e.g., MALERC, FEMALERC for Question 14).
  - b. Edited values for some cases are in decimals because of the following: recoding cases with missing data to take an average of five values imputed values for that specific case or making proportional adjustments to individual categories when values did not total to TOTPART.
  
4. Revenue source variables (Question 10) were also edited if the values reported for different revenue source categories did not add to 100%. For example, when a case had missing data for a given revenue source category, then the mean of five imputed values for that specific case was used to assess if values of the revenue source categories summed to 100%. When values did not total to 100%, values were adjusted to sum to 100% based on the proportion of values reported for different revenue source categories for the case. In addition to these edits, revenue sources were also imputed for missing cases.
  - a. In addition to the original variables, edited variables for revenue sources are provided in the data file and indicated in the variable name by the suffix “RC” (e.g., REVMCARERC). More information about imputations is provided in the later section of this document.

### ***Edited/ Derived variables***

- 1 . Ownership (Question 9 OWNERSHPRC: Private—nonprofit; private—for profit, publicly traded company or limited liability company (LLC); government—federal, state, county, or local). There were 48 cases in the survey data file that were missing for OWNERSHP. Of these, 29 cases were recoded to one of the four ownership categories using information that was available on the 2016 adult day services center frame provided by the National Adult Day Services Association (NADSA).

2 . Other Conditions (Question 8i)

- a . In some cases, respondents indicated that the center specialized in serving a particular diagnosis or disability (Question 7) and wrote in the condition or disability as character text in the variable for “other condition” (Question 8i, OTHERCOND). A review of Question 8i (OTHERCOND) was performed to identify any write-in responses that could be used to recode one of the conditions listed in Question 8a-h. When a write-in response contained information pertaining to one or more of the conditions listed in Q8a-h, these conditions were recoded to ‘Yes’. A dichotomous flag variable was created (CONDOTH) to indicate when a respondent had entered text into OTHERCOND.

3 . Number of full-time equivalents by employee staff type (i.e., Question31a-e: RNFTE1, LPNFTE1, AIDEFTE1, SOCWFTE1, ACTFTE1) and contract staff type (Question 33a-e: RNFTE2, LPNFTE2, AIDEFTE2, SOCWFTE2, ACTFTE2):

- a . These variables were derived and provided in the restricted file. Number of full-time and the number of part-time employees and contract staff for a given staff type (separately for employees and contract staff) were converted into the number of full-time equivalents (FTEs) with an assumption that full-time is 1 FTE and part-time is 0.5 FTE. Instruction was provided in the questionnaire to enter “0” if the center had no employees or contract staff for a given staff type. Yet, there were cases where respondents indicated the number of staff in the response box only when specific staff categories were applicable, while leaving inapplicable response boxes blank. Thus, when deriving FTE variables, we coded missing as “0” unless responses to all ten response boxes for all employee staff type or contract staff type were blank or missing (e.g., for employees, the number of full-time RN employees, the number of part-time RN employees, the number of full-time LPN employees, the number of part-time LPN employees, the number of full-time aide employees, the number of part-time aide employees, the number of full-time social worker employees, the number of part-time social worker employees, the number of full-time activities staff employees, and the number of part-time activities staff employees). Otherwise, we kept the missing (-9) as missing (-9). Similarly, for contract staff, if the number of full-time RN contract staff, the number of part-time RN contract staff, the number of full-time LPN contract staff, the number of part-time LPN contract staff, the number of full-time aide contract staff, the number of part-time aide contract staff, the number of full-time social worker contract staff, the number of part-time social worker contract staff, the number of full-

time activities contract staff, and the number of part-time activities contract staff the number of full-time RN contract staff, the number of part-time RN contract staff were all coded as missing (-9), then the codes remained as missing (-9). Otherwise the variables were recoded to "0". This coding scheme used in 2016 is different from the coding scheme used in 2014. When deriving FTE variables in 2014, we coded missing as "0" unless responses to all four response boxes for a given staff type were blank or missing (e.g., the number of full-time RN employees, the number of part-time RN employees, the number of full-time RN contract staff, the number of part-time RN contract staff). Otherwise, we kept the missing (-9) as missing (-9). In the 2014 scheme, each staff type was grouped and included both employees and contract staff.

- b . Outliers for FTE variables were defined as values that are 2 standard deviations above or below the size-specific mean for a given staff type, where size was defined as the number of participants served based on average daily attendance (1= 1-25 participants; 2=26-100 participants; 3=101 or more participants). Outliers were coded as the size-specific mean. When calculating the size-specific mean for a given staff type, cases were coded as missing if the number of full-time equivalent (FTE) registered nurse employees/contract staff was greater than 999; if the number of FTE licensed practical/vocational nurse employees/contract staff was greater than 999; if the number of FTE personal care aide employees/contract staff was greater than 999; if the number of FTE social work employees/contract staff was greater than 99; and if the number of FTE activities employees/contract staff was greater than 99.

4 . Hours per participant day, by employee staff type (i.e., RNHPPD1, LPNHPPD1, AIDEHPPD1, SOCWHPPD1, and ACTHPPD1), and by contract staff type (i.e., RNHPPD2, LPNHPPD2, AIDEHPPD2, SOCWHPPD2, and ACTHPPD2):

- a. Hours per participant day were derived from the number of full-time equivalents for each staff type and the average daily attendance (AVGPART for Question 2). The number of FTEs for a given employee staff type/ contract staff type was converted into hours by multiplying the FTEs by the average number of hours in a work week (based on a 35 hour work week), and dividing the total number of hours per staff type by the average daily attendance at the center and by the number of days in a work week (5 days). When HPPD variables had values greater than 24, these values were coded as 24.

5. Any employees (ANYRN\_EMP, ANYLPN\_EMP, ANYAIDE\_EMP, ANYSOCW\_EMP, ANYACT\_EMP), any contract staff (ANYRN\_CON, ANYLPN\_CON, ANYAIDE\_CON, ANYSOCW\_CON, ANYACT\_CON), and any employee or contract staff (ANYRN\_EMPCON, ANYLPN\_EMPCON, ANYAIDE\_EMPCON, ANYSOCW\_EMPCON, ANYACT\_EMPCON), by staff type
  - a. These variables were derived from the FTE variables for employees and FTE variables for contract staff (e.g., RNFTE1 to derive ANYRN\_EMP; RNFTE2 to derive ANYRN\_CON; and both RNFTE1 and RNFTE2 to derive ANYRN\_EMPCON) indicating whether the adult day services center had any RNs who are employees, any RNs who are contract staff RN, and any RNs who are employees or contract staff, respectively.
  
6. Having a computerized system that supports electronic health information exchange with physicians, pharmacies, or hospitals (ANYEX):
  - a. This variable was derived from ITMD, ITPHARM, and ITHOSP (Question 12a-c).
  
7. Activities of daily living (TRANSHELPRC, BATHHELPRC, EATHHELPRC, DRESHELPRC, BEDHELPRC, WALKHELPRC)
  - a. Instruction was provided in the questionnaire to enter “0” if the adult day services center had no participants that needed assistance with activities of daily living (ADL) limitations listed in Question 16. Yet, there were cases where respondents indicated the number of participants with a given ADL limitation in the response box only when specific ADL limitation categories were applicable, while leaving inapplicable response boxes blank. We coded missing as “0” unless responses to all response boxes for Question 16 were blank or missing. Otherwise, we kept the missing (-9) as missing (-9).

### ***Item nonresponse***

Item nonresponse is a source of missing data that occurred when a respondent did not know the answer to a question or refused to answer a question; the interviewer inadvertently skipped a question due to problems relating to CATI; or if the interview broke off before the entire questionnaire could be administered. The variables with the highest item-nonresponse were the diagnoses variables: item nonresponse (weighted) was greater than 10% for all diagnoses (Question 17a-r) and ranged from 11.2% (Weighted) for Alzheimer’s disease or other dementias to 15.8% (Weighted) for osteoporosis.

### *Imputed data*

In the data file, item nonresponse is coded as “-9= Not ascertained.” Missing values for revenue sources (Question 10a-h), race-ethnicity (Question 13a-i), sex (Question 14), and age (Question 15a-g) variables were imputed. In addition to the original variables, five sets of imputed variables are provided in the data file. Imputed variables are indicated by adding “i” as the suffix along with an underscore and numeral to the variable name (e.g., AG17LESSi\_1, AG17LESSi\_5). A flagging variable is also included to indicate cases imputed for the variable (e.g., AG17LESSIMPFL). Among 2,836 respondents, the percentage of imputed records ranged from 4.3% (121 missing responses) for the “Out-of-pocket payment by the participant or family” response category for the revenue sources variable (REVSELF for Question 10f) to 7.3% (203 missing responses) for the “Age 75 to 84” response category for the age group variable (AG75TO84 for Question 15f).

After the weights were finalized, multiple imputations were created using the Cox-Iannacchione Weighted Sequential Hot Deck (WSHD) procedure in SUDAAN.

- a. For the WSHD procedure in SUDAAN the variables used in the imputation procedure must be specified; they are referred to as the imputation class variables. Within the cross of the imputation class variables, all responding and non-responding records for a given variable were identified. The responding records were potential donors for non-responding (missing) records. In other words, respondents were selected sequentially from within the cross of the imputation class variables and became donors for missing records within that same cross of variables.

For all demographic and revenue variable names ending with “RC” (e.g., FEMALERC, HISPANICRC, AG85UPRC, and REVMCARERC), class variables specified for the imputation procedure include: state, maximum number of participants allowed (MAXPART), ownership type (OWNERSHP), chain affiliation (CHAIN), Medicaid paying for long-term care services (MEDPAID), and metropolitan statistical area status (MSA). Cases with missing data were recoded as the mean of five imputed values for that specific case and cases with no missing data kept the value as respondents reported.

### **Reliability of Estimates**

The data collected in the 2016 NSLTCP adult day services center (ADSC) survey were obtained through a census of all adult day services centers. However, although a census was attempted, the adult day services center estimates were subject to variability due to the amount of non-response. Although the records that make up the adult day services center file were not sampled, the variability associated with the non-response needs to be treated as if it were from a stratified (by

state) sample without replacement. The final weights provided for analytic purposes have been adjusted in several ways to yield valid national and state estimates for adult day services centers in the United States. These weights adjust for non-response and unknown eligibility in the survey.

In this document, examples of SUDAAN and STATA computer code are provided for illustrative purposes. However, the appropriate application of these procedures is ultimately the responsibility of the data users. NCHS strongly recommends that users analyze the NSLTCP survey data under the direction of or in consultation with a statistician who is knowledgeable in sampling methodologies and techniques for the analysis of complex survey data.

**Table 1a. Computations using SUDAAN**

PROC statement	NEST statement	TOTCNT statement	WEIGHT statement
PROC x FILE = y DESIGN = WOR;	NEST = FACSTRAT/ MISSUNIT;	TOTCNT= POPFAC;	WEIGHT= FACFNWT; FACFNWT_A; FACFNWT_B (to be used as indicated by questionnaire version)

**Table 1b. Computations using STATA**

Design description in STATA
svyset facid [pweight=facfnwt*], strata(facstrat) fpc(popfac) vce(linearized) singleunit(centered)
*facfnwt_a, facfnwt_b (to be used as indicated by questionnaire version)

### Accessing the Restricted Data File

The 2016 NSLTCP ADSC survey restricted data file can be accessed through the NCHS' Research Data Center (RDC). In addition to following the RDC procedures for restricted data file access, there are a few conditions or restrictions for data use and they are as follows:

1. Use the data in this dataset only for statistical reporting and analysis.
2. Make no use of the identity of any person or establishment discovered inadvertently and

- advise the Director, NCHS, of any such discovery.
3. Report apparent errors in the data file or documentation to the Long-Term Care Statistics Branch (LTCSB).

We also request the user to inform LTCSB of any publications or presentations produced based on the 2016 NSLTCP ADSC survey data, and cite relevant NSLTCP documentations/ data products in their work when appropriate.

### **Contact Information**

For questions, suggestions, or comments concerning the NSLTCP data, please contact the LTCSB at:

Long-term Care Statistics Branch (LTCSB), NCHS,

3311 Toledo Road, Hyattsville, MD 20782

E-mail: [ltcsbfeedback@cdc.gov](mailto:ltcsbfeedback@cdc.gov)

Phone: 301-458-4747