NATIONAL HEALTH AND AGING TRENDS STUDY (NHATS)
USER GUIDE

ROUNDS 1-12

FINAL RELEASE

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PREFACE

The NHATS User Guide is designed to provide analysts with documentation about concepts, measures, and characteristics relevant to data analysis. The user guide provides comprehensive descriptions of the NHATS conceptual framework, content of the data collection instruments, data file structure, created measures (including their origin), and selected special topics (e.g., imputation, weighting).

This document reflects scientific contributions of the NHATS leadership team who conceptualized and guided the study's design. Currently the study is led by Jennifer Schrack at Johns Hopkins Bloomberg School of Public Health and Vicki A. Freedman at University of Michigan. Original investigators were: Judith D. Kasper, Vicki A. Freedman, Graham Kalton, Jill DeMatteis, Emily Agree, Brad Edwards, Vincent Mor, Brenda Spillman, Robert Wallace and Douglas Wolf. Others who made contributions in key areas are: Susan Allen to the formulation of items on unmet need; Jack M. Guralnik, Christopher L. Seplaki, and Carlos Weiss to the data collection instruments for the physical performance activities; Jack M. Guralnik to the interviewer training protocol for administering the physical performance activities; Robert Moffitt to the data collection instruments and strategy for the Labor Force and Income and Asset Sections; Liliana E. Pezzin to the development of the approach to the person roster; Brenda L. Plassman to the formulation of the cognitive assessment measures for both participants and proxies; Jennifer Wolff and Cynthia Boyd to the Medical Care Section items on involvement of others in doctor visits; Teresa Seeman to protocols for Dried Blood Spot collection (R7); Alan Jette to the Rehabilitation Section (added R5). Joshua Ehrlich, Frank Lin and Nicholas Reed guided development of the objective vision and hearing protocols, Brenda Plassman guided implementation of cognitive measures, and Jennifer Schrack and Vadim Zipunnikov developed the activity watch data collection (added R11). Kali Thomas developed area-based files with data on long-term care availability. Data collection procedures, interviewer training, and fieldwork oversight were provided by Laura Branden, Tamara Bruce, Tammy Cook, Susan Genoversa, Gayle Grigsby and Catherine Billington at Westat. Ray Saunders and Joshua Boker at Westat and Maureen Skehan at Johns Hopkins University played critical roles in database development and documentation. Mengyao Hu and Sarah Patterson at University of Michigan played critical roles in dissemination and educational activities.

We are also grateful for the guidance of the NHATS Scientific Advisory Panel and the contributions of NHATS Project Scientists (John Haaga, John Phillips, Melissa Gerald, Amelia Karrakar, Elena Fazio) and NHATS Program Officers (Georgeanne Patmios, John Phillips) of the National Institute on Aging.

Finally, we gratefully acknowledge that the current user guide draws heavily upon earlier versions, which were developed through 2021 under the senior authorship of the late Judith D. Kasper (1949-2021).

Table of Contents

I. Overview of NHATS Content

I.A. Basic Facts

The National Health and Aging Trends Study (NHATS) is a unique national resource for the scientific study of functioning in later life. NHATS is intended to foster research that will guide efforts to reduce disability, maximize health and independent functioning, and enhance quality of life at older ages. As the population ages, NHATS will provide the basis for understanding trends and dynamics in late-life functioning, how these differ for various population subgroups, and the economic and social consequences of aging and disability for individuals, families, and society.

To achieve these aims, NHATS gathers information in person from a nationally representative sample of Medicare beneficiaries ages 65 and older. The initial sample was first interviewed in 2011. Replenishment of the sample to maintain its ability to represent the older Medicare population was undertaken in 2015 and in 2022/2023. Annual re-interviews are carried out to document change over time. A Last Month of Life interview captures end-of-life details for decedents. The NHATS sample design, which is drawn from the Medicare enrollment file, oversamples persons at older ages and Black individuals and, beginning in 2022, includes an additional sample of Hispanic individuals.

Detailed information is collected on participants' physical, cognitive, and sensory capacity, how activities of daily life are carried out, the social, physical, and technological environment, and participation in valued activities. A series of performance-based tests provides complimentary measures of physical, cognitive, and sensory capacity. In addition, information is obtained on living arrangements, economic status and well-being, and aspects of early life. For those who die between rounds, the Last Month of Life interview collects details on place and quality of end-of-life care and daily activities since the prior interview.

NHATS is supported by a cooperative agreement with the National Institute on Aging (U01AG032947). The study is led by the Johns Hopkins Bloomberg School of Public Health and University of Michigan's Institute for Social Research, with data collection by Westat. NHATS' design and content were developed by a multidisciplinary team of researchers from the fields of demography, geriatric medicine, epidemiology, health services research, economics, and gerontology.

I.B. NHATS Conceptual Framework & Content At-A-Glance

Development of disability-related content for NHATS was guided by a conceptual framework that blends the language of the World Health Organization's International Classification of Functioning with the Nagi model of disablement (see Figure 1 below and Freedman 2009 for details).

Figure 1. The NHATS Disability Conceptual Framework
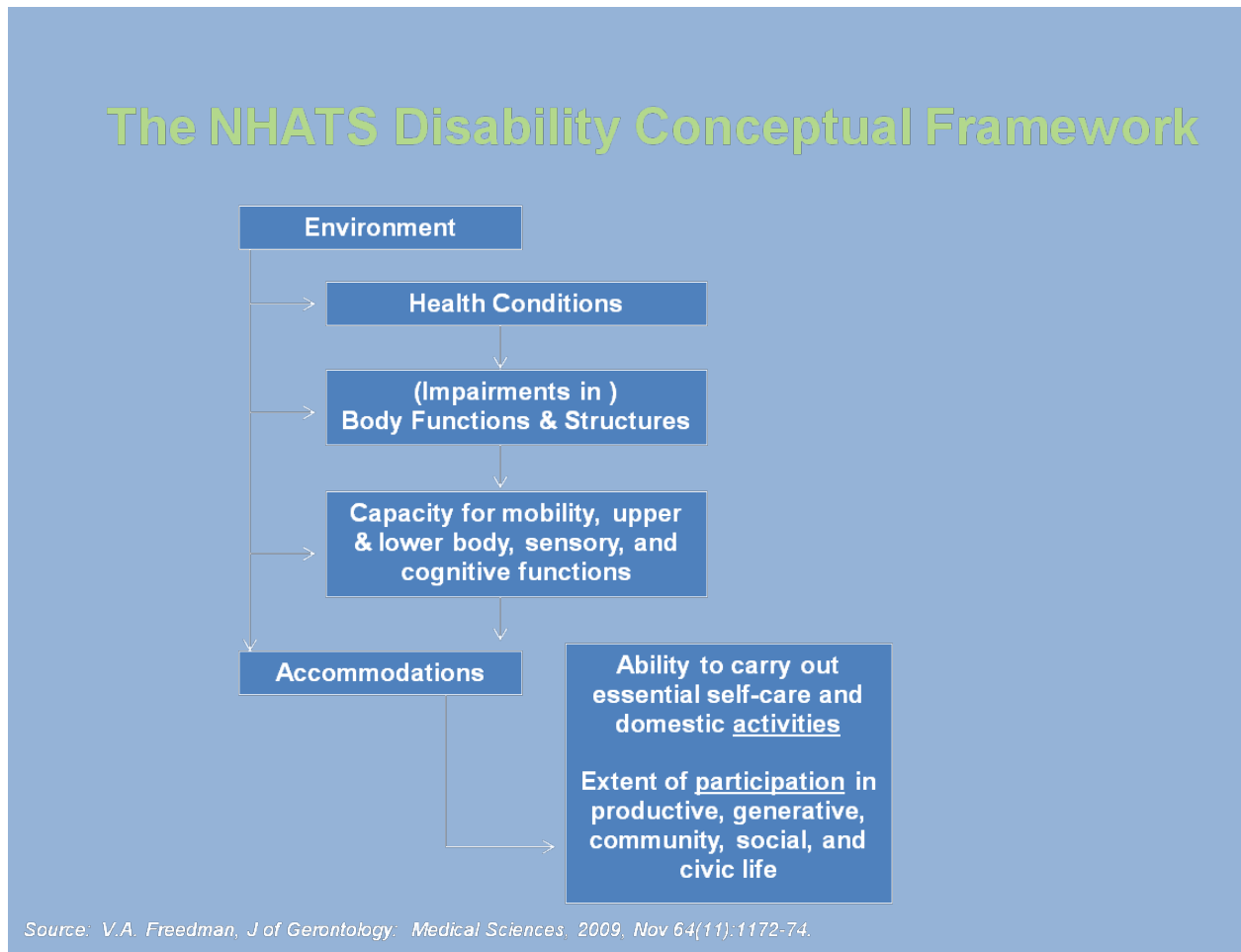
Over a two-year period, the NHATS team reengineered self-reported measures of physical capacity and activity limitations and developed new items to measure participation and restrictions in valued activities.   The process involved obtaining input from the scientific community and several rounds of cognitive testing, followed by instrument refinement. A final step involved a validation study, which established the reliability and validity of the core activity and participation measures (Freedman et al. 2011) and measures of accommodations (Freedman et al. 2013).

The final NHATS disability protocol supports study of more traditional measures of functioning (activities of daily living, instrumental activities of daily living, functional limitations) while expanding their scope—in particular recognizing the role of accommodations (or compensatory strategies such as adopting devices, changing one's environment, changing one's behavior, or getting help or services), broadening measures of physical capacity, and introducing new measures of late-life participation restrictions. NHATS also collects performance-based measures of physical and cognitive capacity to complement the self-reported measures.

NHATS embedded the disability concepts in Figure 1 into a broader conceptual framework that encompassed precursors and consequences of disability for individuals, their families, and society. The key concept areas in Figure 2 form the basis for measurement areas in NHATS.

Figure 2. Key Concept Areas in NHATS

Treatment and Self-care	Compensatory Strategies	Economic and Social Consequences

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┌──────────────────┐              ┌──────────────────┐
│ Personal Factors │ ◄──────────► │   Environment    │
└──────────────────┘              └──────────────────┘
         ▲                                 ▲
         │                                 │
         ▼                                 ▼
┌──────────────────────────────────────────────────────────┐
│  ┌────────────────┐   ┌──────────────┐   ┌──────────────┐ │
│  │Health Conditions│◄─►│Impairments and│◄─►│Activities and│ │
│  │                │   │  Capacity    │   │Participation │ │
│  └────────────────┘   └──────────────┘   └──────────────┘ │
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        │Treatment and │Compensatory  │Economic and Social│
        │Self-care     │Strategies    │Consequences       │
        └──────────────┴──────────────┴──────────────────┘
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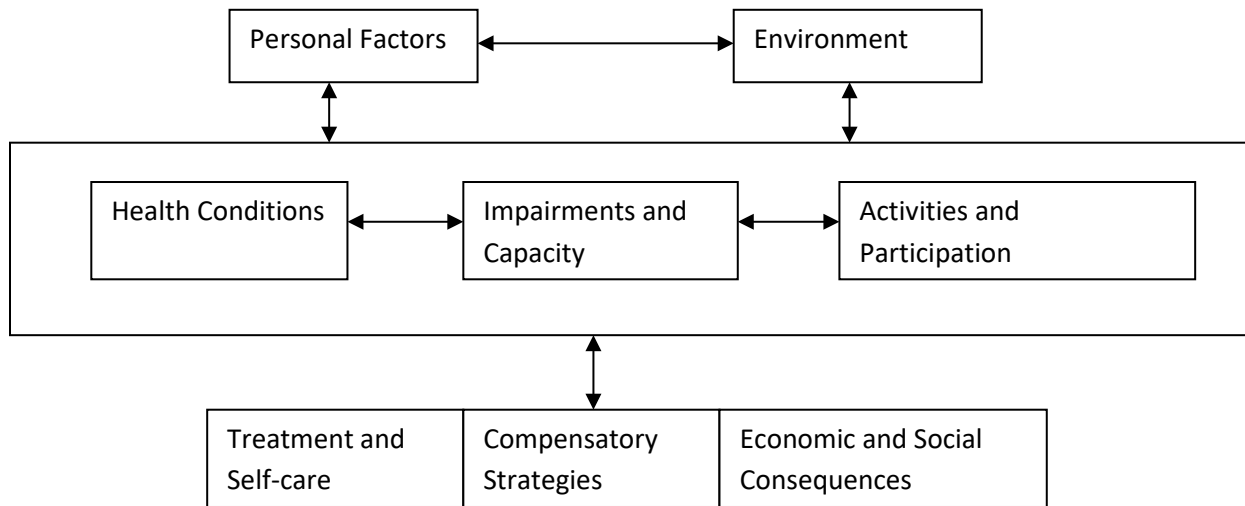
The following table provides an overview of core interview content by section of NHATS and how each section links to the concept areas in Figure 2. All sections, except for the Facility Questionnaire (FQ) and Interviewer Remarks (IR), are administered to the sample person (SP) or a designated proxy for the SP. In addition to this core content, modules on specific topics are introduced in some rounds of data collection (see Modules in *Section II. Content Documentation*). These sections are referred to collectively as the SP interview in the remainder of this guide.

NHATS CONTENT AT-A-GLANCE

Section Name (Abbreviation)	SP's Initial Round	Follow-up Round	Last Month of Life	Concept Area	Brief Description of Contents
Interview Setup (IS)	√	√	√	Personal Factors	Self or proxy respondent; reason for proxy; SP age and gender
Residence (RE)	√	√	√ brief	Environment	Physical structure of residence; address where SP lives
Place of Death (PD)	--	--	√	Environment; Capacity	Where the SP died, whether the SP was awake and able to communicate during the last month of life, and whether the SP was able to get out of bed in the last month.
Quality of Care in the Last Month (LM)	--	--	√	Treatment	Quality of end-of-life care
Health Conditions (HC)	√	√	--	Health Conditions; Treatment and Self-Care	Self-rated health; self-reported diseases & chronic conditions; hospital stays and surgeries; falls; depression; anxiety; sleep quality; COVID-19 (diagnosis, symptoms, health effects, vaccination, and attempts to get vaccinated starting in R11)
Housing Type (HT)	√	√ if moved	--	Environment	Length of residence at place SP lives; description of type of place SP lives (including questions that trigger need for FQ administration); is place part of retirement community
Service Environment (SE)	√	√	--	Environment	Asked only of persons living in residential care (excluding nursing homes): services available at place; services used by SP; does SP pay extra for services used
Household Members (HH)	√	√	--	Personal Factors	Marital status; years together/when marriage ended; spouse/partner: gender, age, education, whether needs help with personal care, where lives if not in household; other household members: relationship to SP, gender, age
Children & Siblings (CS)	√	√	--	Personal Factors	Children not in household: relationship to SP, age, city/state where live; All children: education, marital status, how many children & how many under age 18; SP any living sisters or brothers
Social Network (SN)	√	√	--	Environment; Personal Factors	Up to 5 people SP talks with about important things: relationship to SP, gender, age, city/state where live
Home Environment (HO)	√	√	--	Environment; Compensatory Strategies	*Entrance*: stairs, (if multi-unit shared),ramp; *Building Features*: elevator, stair lift, shared spaces for meals/socializing, number of floors, bedroom/kitchen/bath on same floor; *Inside private space*: private bathroom with shower/tub, bathtub/stall/grab bars; shower seat; raised toilet/grab bars, medical emergency system, private kitchen space, microwave
Environmental Modifications (EM)	√	√	--	Environment; Compensatory Strategies	For modifications in HO: there when moved in or added, any added in last year, pay any of the cost of adding; pay anything for other devices that help with daily activities in last year; how much paid altogether in last year

Community (CM)	√	√	--	Environment	Agreement with statements about community: know each other, willing to help, trust
Technological Environment (TE)	√	√	--	Environment; Compensatory Strategies	*Technology*: cell phone, other phone, working computer, tablet (R3); *Use computer*: in home, other places; Sent messages by email/texting; *Gone on internet/online*: grocery shopping, bills/banking, order/refill meds, visit social network sites (starting R3), visit with family or friends on video calls (R11), telehealth visit with medical providers (R11), contact medical providers, handle Medicare/insurance
Mobility Devices (MD)	√	√	√	Compensatory Strategies	Used: cane, walker, wheelchair (is it where SP lives), scooter (is it where SP lives)
Sensory and Physical Impairments & Symptoms (SS)	√	√	--	Impairments & Capacity	Hearing; vision; chewing & swallowing; speaking & being understood; pain: limits activities, frequency of meds, location; breathing problems (limits activities); strength or movement shoulders, arms, hands, feet (limits activities); strength or movement hips, legs, knees, feet (limits activities); low energy/easily exhausted (limits activities); balance/coordination (limits activities)
Physical Capacity (PC)	√	√	--	Capacity	Able to: walk 6 blocks/walk 3 blocks, climb 20 stairs/climb 10 stairs, lift and carry 20 lbs/10 lbs, kneel down/bend over, heavy object overhead/reach overhead, open sealed jar/grasp small objects
Cognitive Assessments: Proxy (CP)	√	√	√ brief	Capacity	Overall memory rating; 8 items on changes in thinking/memory; behavior: getting lost, wanders off, able to leave alone, sees/hears things
Cognitive Assessments: Self (CG)	√	√	--	Capacity	Self-rated memory (current, interferes activities, one year ago); date (mo/day/year) and day of week; 10-word immediate recall; clock-drawing test (moved to CD in R11); Numbers and Letters (R11); naming President and Vice President; 10-word delayed recall
Stroop Assessment (STROOP)	--	√ R2 only	--	Capacity	Computerized Stroop test providing executive function assessment
Mobility (MO)	√	√	√ brief	Activities: Self-care & Domestic	*Going outside home/building*: frequency of leaving home/building to go outside, frequency of mobility device use, help and who helps, frequency done by self, difficulty by self, unmet need for help; If multiunit: Frequency of leaving private space to go other areas in building; frequency leaving room where SP sleeps; *Getting around inside home/building*: frequency of leaving unit to go into other areas of the building (if in multi-unit building), frequency of leaving room where sleep (if never go out or go into building), frequency of mobility device use, frequency hold onto walls/furniture, help and who helps, frequency done by self, difficulty by self, frequency compared to a year ago, unmet need for help;

					Getting out of bed: frequency use cane/walker, help and who helps, frequency done by self; difficulty by self, unmet need for help
Duration of Mobility Accommodations (DM)	√	√	√	Activities: Self-care & Domestic	Duration of mobility help (getting outside, getting around inside, getting out of bed) and mobility device use (cane, walker, wheelchair, scooter).
Driving & Transportation (DT)	√	√	--	Activities: Self-care & Domestic; Participation	*Drive yourself*: frequency, date or age drove last, driving situations people avoid (night, alone, busy roads, bad weather); *How else get places*: walk, ride (who gives SP ride), van/shuttle service, public transportation, taxi, other
Household Activities (HA)	√	√	--	Activities: Self-care & Domestic	*How did laundry* (always by self, always with someone, someone else always did, it varied, not done): where done, who did with or for, reason someone else did with or for (health/functioning or other), difficulty by self, frequency compared to a year ago, unmet need (due to no help/difficulty); *How did shopping for groceries or personal items* (always by self, always with someone, someone else always did, it varied, not done): in person/online/both ways (R11), pay by check/cash/debit card/credit card, who did with or for, reason someone else did with or for (health/functioning or other), difficulty by self, frequency compared to a year ago, unmet need (due to no help/difficulty); *How hot meals made* (always by self, always with someone, someone else always did, it varied, not done): frequency restaurant meals/ eat-in/take out (not meals on wheels), who did with or for, reason someone else did with or for (health/functioning or other), difficulty by self, frequency compared to a year ago, unmet need (due to no help/difficulty); *How handle bills and banking* (always by self, always with someone, someone else always did, it varied, not done): who did with or for, reason someone else did with or for (health/functioning or other), difficulty by self, frequency compared to a year ago, unmet need (due to no help/difficulty); *Handled less common money matters* (opening/closing accounts, loans): did any of these; help and who helps
Self-Care Activities (SC)	√	√	√ brief	Activities: Self-care & Domestic	*Eating*: frequency use adapted utensils, help and who helps, frequency by self, difficulty by self with adapted utensils if used, unmet need (due to no help/difficulty); *Getting cleaned up*: usually bath/shower/other, which most often, frequency use grab bars, frequency use shower or tub seat, help and who helps, frequency by self, difficulty by self with grab bars/shower or tub seat if used, frequency

					compared to a year ago, unmet need (due to no help/difficulty); *Using the toilet*: use a portable commode/disposable pads or undergarments/grab bars around toilet/raised toilet or seat, help and who helps, frequency by self, difficulty by self with grab bars/raised toilet or seat if used, unmet need (due to no help/difficulty); *Getting dressed*: use a button hook/reacher or grabber/special clothes, help and who helps, frequency by self, difficulty by self with special items if used,; frequency compared to a year ago, unmet need (due to no help/difficulty)
Duration of Self-Care Accommodations (DS)	√	√	√	Activities: Self-care & Domestic	Duration of self-care help (eating, getting cleaned up, using the toilet, or getting dressed)
Medical Care Activities (MC)	√	√	--	Activities: Self-care & Domestic	Take medications prescribed by a doctor; *How keep track of medications*: (always by self, always with someone, someone else always did, it varied, not done): where get medicines, how get medicines (SP picks up, other picks up, delivery), frequency use reminders, help and who helps, reason someone else did with or for (health/functioning or other), difficulty by self, frequency compared to a year ago, unmet need (due to no help/difficulty); *How handle medical care*: regular doctor, in person/online/both ways (R11), seen in last year, how get to doctor, who takes SP, anyone sit in with SP and doctor during visits, who sits in (most often), does person who sits in help, remind, ask, help understand; Handling medical bills and insurance: changed plans in last year, help and who helps
Participation in Activities (PA)	√	√	√ brief	Participation	Visit in person with friends/family not co-resident, health/functioning keep from doing; transportation keep from doing; how important to SP; Attend religious services, health/functioning keep from doing; COVID-19 kept from doing (R11); transportation keep from doing; how important to SP; Participate in clubs, classes, or other organized activities, health/functioning keep from doing; COVID-19 kept from doing (R11); transportation keep from doing; how important to SP; Go out for enjoyment, health/functioning keep from doing; COVID-19 kept from doing (R11); transportation keep from doing; how important to SP; Work for pay or in a business SP owns, health/functioning keep from doing; COVID-19 kept from doing (R11)

					Do volunteer work, health/functioning keep from doing; COVID-19 kept from doing (R11) Provide care/look after an adult or child who cannot care for themselves, who was that; Go walking for exercise; Do vigorous activities What is favorite activity, health/functioning keep from doing
Rehabilitation (RH)	√ R5	√	--	Treatment	Received rehab last year; Number of weeks/months last year; Goals; Devices or equipment recommended; Settings; Change in functioning during rehab; Reasons stopped; Change in functioning since rehab (starting in R5)
Smoking (SD)	√	√ brief	--	Personal Factors	Ever smoked, smokes now, cigarettes per day, age when first smoked regularly, age when last smoked regularly
Physical Performance Assessment Eligibility Questions (PE)	√	√	--	Capacity	Grip strength: exclude if surgery/serious injury or flare-up of pain in both hands, exclude if surgery/serious injury or flare-up of pain in arm/shoulder on both sides, test on dominant hand if not excluded, test on other hand if dominant hand excluded; Chair Stands: exclude if surgery or serious injury on both hips, exclude if SP always uses mobility device to get out of bed or always has help to get out of bed says not able to get up out of chair by him/herself and without mobility devices (if used); Balance Stands: exclude if SP always uses mobility device to get out of bed or always has help to get out of bed says cannot stand without holding onto anyone or anything; Walking: exclude if SP uses wheelchair or scooter every time to get around home or building, exclude if SP says cannot walk a short distance in room by him/herself
Performance Activities Booklet	√	√	--	Capacity	Balance Stands; Walking Course; Chair Stands; Grip Strength; Waist Circumference; Peak Air Flow
Blood collection (BC)		√ R7 only		--	Collection of dried blood spots to conduct assays (hemoglobin A1C, IL-6, CRP, and CMV) and store samples for future research, polygenic scores and genetics (forthcoming)
Height & Weight (HW)	√	√ brief	--	Personal factors	Current weight; weight at age 50; lost 10 pounds in last year; trying to lose weight; current height, height at age 50
Early Life (EL)	√	√ brief	--	Personal factors	Born in US; State or country of birth; year or age came to US to live; health as a child; how well off financially when growing up; live with both parents to age 15; where lived at age 15; education; mother still living; father still living
Race, Ethnicity & Language (RL)	√	--	--	Personal factors	Race; primary race if more than one; Hispanic ethnicity; (interview in Spanish); speak language other than English; how well understand English when spoken to; how well speak English
Veteran's Status (VA)	√	--	--	Personal factors	Served on active duty, period of service, active member of National Guard/military reserve

Well-Being (WB)	√	√	--	Economic and Social Consequences	Frequency of feelings in last month: cheerful, bored, full of life, upset; lonely (R11); Agreement with statements about life: meaning and purpose, confident, gave up trying to improve life, like living situation; Age SP feels; Agreement with statements: other people determine activities, I do what I want, I adjust to change
Insurance Plans (IP)	√	√	--	Personal factors; Economic and Social Consequences	Prescription drug coverage; Medicare supplemental; Medicaid; TRICARE; long-term care insurance: services covered, premiums, how long had policy
Labor Force Participation (LF)	√	√	--	Personal factors; Economic and Social Consequences	Status (working, unemployed, not in labor force); if working: hours per week, hours last week, payment schedule, amount of last paycheck (full version), amount earned last month (full version); occupation most of life; is work now different; does spouse work; spouse pay last month (full version)
Home Ownership (HP)	√	√	--	Personal factors; Economic and Social Consequences	Own or rent; mortgage: paid off, payment amounts, time left, amount owed; present value of home; rent amount; is home public or low income housing
Income & Assets (IA)	√	√	--	Personal factors; Economic and Social Consequences	Note: full section (F) administered in Rounds 1 and 5; brief section (B) administered in Rounds 3, 7, 9, and 11 forward. Sources of income: Social Security, SSI, Veteran's Administration, pension, other retirement plans, mutual funds/stocks, bonds, checking account, savings/money market, CD, business/farm/real estate (F, B); Payment amounts in last month: Social Security, SSI, VA, pension (F); Other retirement plans: worth, amount withdrawn last month, amount withdrawn last calendar year (F); Mutual funds/stocks/bonds: worth; Checking/savings-money market/CD: worth; interest/dividend income in last calendar year from all mutual funds/stocks/bonds/bank accounts/CD; Business/farm/real estate: worth if sold today, income in last calendar year (F); Total income last calendar year from all sources (F, B)
Car Ownership (CO)	√	√	--	Personal factors; Economic and Social Consequences	Own cars/trucks/vans; how many; worth if sold today
Economic Well-Being (EW)	√	√	--	Personal factors; Economic and Social Consequences	Credit card: usually pay off monthly, current balance, amount owed for medical care, paying medical bills over time and amount; Financial transfers: SP receives from children/relatives, who, amount last year; SP gives to children/relatives, who, amount last year; SP receives food stamps, other food assistance such as meals on wheels, energy assistance, food insecurity, problems paying rent/utility bills/medical or drug bills

Helpers (HL)	√	√	--	Compensatory Strategies	For each helper (other than staff at residential care): schedule, days per week or month, hours per day, whether paid to help, sources of payment, amount paid by SP/family
LML Helpers (HM)	--	--	√ R7		For each LML helper: whether helper lives in the household, whether paid
Modules	√	√	--	Varies	Round 1: NLTCS screening questions (LS) Round 2: ACS Disability Questions (AD); Engagement in health care (EH); End of life plans and care (EP) Round 3 & 4: Pain (PN); Personality Traits (PT); Sleep (SL) Round 5: NLTCS screening questions (LS) Round 6: Trade-offs (TR); Medication Attitudes (MA); Sedentary Time (SY) Round 8: End of life plans and care (EP)
Clock Drawing (CD)	√	√	--	Capacity	Clock-drawing test (moved from CG in R11)
Vision & Hearing (VH)	--	√ R11	--	Capacity	Whether person attempted vision and hearing activities
Vision & Hearing Booklet	--	√ R11	--	Capacity	Tablet-based Vision activities: distance and near acuity; contrast sensitivity; whether vision aids were worn for each activity Tablet-based Hearing activity: pure tone audiometry
Cogstate Battery (CB)	--	√ R11	--	Capacity	Tablet-based cognitive activities
Activity Watch (AG)	--	√ R11	--	Capacity	Whether person agreed to wear activity watch (administered to random sample)
Facility Questionnaire (FQ)	√	√	--	Environment; Compensatory Strategies	All residential care places where SPs reside (including nursing homes): name and address, type of place, type of unit where SP lives, services available to persons at SP's level of care; sources of payment for SP, amount paid in last month by source; total monthly payment, primary payer
Interviewer Remarks (IR)	√	√	--	Home Environment; Interview environment	Where interview occurred if not at SP's home; Observed condition of home: flaking paint, pests, broken furniture, flooring, tripping hazards, clutter; Observed conditions around home: litter, graffiti, vacant houses, foreclosure signs; Observed condition of home exterior: windows, foundation, outside of home, roof, walking surfaces. Rounds 2 and forward added continuous sidewalks; Interviewer remarks on # of sessions to complete; SP understanding; help with interview; FQ in person or by phone.
Note: Round number module added shown if added after R1. This table shows the original order of sections. See Table in Section 1.D NHATS Response to COVID-19 for section order differences between R1-R10 and R11 forward.					

I.C. Key Design Features of NHATS

Who does the NHATS sample represent?

The sample represents Medicare beneficiaries ages 65 and older living in the contiguous United States in 2011, 2015, and 2022.[1] Approximately 96%-97% of all persons living in the United States in this age group are Medicare beneficiaries.[2] The sample is drawn from the Medicare enrollment file.

How were NHATS participants initially sampled?

Round 1 of NHATS used a stratified three-stage sample design: 1) selection of 95 primary sampling units (PSUs), which are individual counties or groups of counties, 2) selection of 655 secondary sampling units (SSUs), which are ZIP codes or ZIP code fragments within sampled PSUs, and 3) selection of beneficiaries within sampled SSUs who were age 65 and older as of September 30, 2010 with oversamples by age and for Black non-Hispanic persons. In Round 1, the probabilities of selection at each of the three stages were designed to yield equal probability samples and targeted sample sizes by age group and race/ethnicity. For more details on NHATS Round 1 sample design and selection see Montaquila, Freedman, Edwards, and Kasper (2012).

How is the NHATS sample refreshed?

NHATS is designed to provide at regular intervals a nationally representative cross-section of the Medicare population ages 65 and older. In Rounds 5 and 12/13, new sample was introduced to restore the sample to original sizes by age and race groups. Rounds 5 and 12/13 used the same stratified three-stage sample design used in the initial sample (DeMatteis, Freedman, and Kasper, 2016a;). Beneficiaries who were age 65 and older as of September 30, 2014 were eligible in Round 5. In Rounds 12 and 13, beneficiaries who were age 65 and older as of September 30, 2021 were eligible.

What is the Hispanic Add-on Sample?

During the 2022/2023 replenishment, NHATS sampled and enrolled an additional group of Hispanic Medicare enrollees to facilitate study of health disparities.

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[1] In follow-up years (e.g. 2012-2014, 2016-2021), the sample represents survivors of the original cross-section of interest.

[2] According to the 2010 US Census, there were 40.3 million individuals ages 65 and older living in the United States (Howden and Meyer, 2010). CMS estimates Medicare enrollment for its aged beneficiaries to be 38.8 million (excluding Puerto Rico and the Virgin Islands, but including if state is unknown https://www.cms.gov/MedicareEnRpts/Downloads/10Aged.pdf). In 2015, the figures were 43.8 million (Medicare) and 45.3 million (Census). In 2020, the figures were 54.5 million (Medicare; https://data.cms.gov/summary-statistics-on-beneficiary-enrollment/medicare-and-medicaid-reports/medicare-monthly-enrollment) and 55.8 million (Census; Blakeslee et. al, 2023).

What is the response rate at each round?

Weighted[3] and unweighted response rates are shown in the table below by round.

Round	Overall Unweighted	Overall Weighted	Living Sample Persons Unweighted	Living Sample Persons Weighted	Last Month of Life Only Unweighted	Last Month of Life Only Weighted
1	70.9	71.3	--	--		
2	86.1	85.3	85.6	84.9	94.4	94.6
3	88.3	87.4	87.8	87.0	94.1	93.8
4	89.9	89.5	89.4	89.2	94.8	95.2
5	76.8	73.6	76.2	73.2	95.8	97.1
6	90.6	88.5	90.2	88.2	96.4	97.0
7	93.0	91.9	93.0	91.8	93.1	93.9
8	94.8	94.0	94.7	94.0	96.4	94.3
9	96.7	96.0	96.8	96.0	95.7	95.7
10	95.4	94.7	95.5	94.7	93.9	93.9
11	93.9	94.3	94.3	94.5	90.7	91.3
12[4]	59.0	50.8	58.2	49.7	88.2	85.3

Who are NHATS respondents?

Most sample persons respond to the SP interview for themselves. Proxy respondents are used in instances where the sample person cannot respond and information is collected on the reasons a proxy is used (see IS section of the interview). When the sample person is living in a residential care setting, a staff person at the place serves as a respondent to the Facility Questionnaire (see FQ). When a sample person is deceased, the Last Month of Life portion of the SP interview is administered to a proxy, typically a family member.

What are the data collection instruments for NHATS?

The primary data collection instrument is the Sample Person (SP) Interview. As part of the SP interview, the Performance Activities Booklet is used to record the results of the physical activities and the Interviewer Remarks (IR) Section is used to record characteristics of the SP's environment. The Facility Questionnaire (FQ) is administered to a staff person when a sample person resides in a residential care setting, including a nursing home. When a sample person is deceased, the Last Month of Life interview is administered to a proxy respondent.

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[3] Weighted rates use an interim weight that accounts for differential probabilities of selection by age group and race and nonresponse through the prior round (but does not rake to frame totals). In Round 12, weighted rates also take into account new cases that were randomly selected to be removed (i.e., "subsampled out") of the field. For a description of weights and explanation of their purpose see Section IV. NHATS Weights and Their Use. For a description of how the NHATS samples were drawn, see the series of sample design technical papers (Montaquila et al. 2012; DeMatteis et al. 2016a, Jiao et al. 2023b).

[4] In Round 12 only, unweighted rates are the ratio of completed cases divided by eligible cases that remained in the field until the end of the fieldwork (that is, omitting subsampled out cases). We show these for comparability and ease of replication. Including subsampled out cases, the overall unweighted response rate is 47.5%. Omitting other cases set aside during fieldwork and re-released in R13, the figure is 66.5%. For additional detail see Jiao et al. (2023b).

What is the Last Month of Life Interview?

Beginning in Round 2, a Last Month of Life (LML) Interview was introduced. The LML interview is conducted with a proxy respondent, usually a family member, to obtain information on the end of life experience for persons who died between rounds. For persons in residential care if a family member cannot be identified the LML is conducted with a facility staff member.

What is an SP's Initial Round?

The SP's "Initial Round" is the year the SP enters the NHATS sample. There are currently three initial rounds: 2011, 2015, and 2022. All persons in the 2011 sample have an Initial Round of 2011. In 2015, persons in the replenishment sample are considered "new" and have an Initial Round of 2015, while persons from the 2011 sample are considered "continuing." In Round 12, persons in the replenishment sample are considered "new" and persons from the 2011 and 2015 samples are considered "continuing." Individuals route through the Round 5 and Round 12 interviews differently depending on whether they are new or continuing. In a respondent's initial round only, persons who are nursing home residents are not eligible for an SP interview. The Initial Round is identified on the Tracker file (e.g. year of sample=2011 or 2015 or 2022). In addition, the SP file variables r5dcontnew (1=continuing from R1; 2=new sample in R5) and r12dcontnew (1=continuing from R11; 2=new sample in R12) distinguish between new and continuing sample in 2015 and 2022, respectively.

How is residential care defined for purposes of data collection?

Residential care places other than nursing homes are identified in the SP interview and in the FQ interview. Questions in the Housing Type section (HT) of the SP interview identify residential care places in two ways: 1) if the SP lives in a multi-unit building (or "other" structure) or a retirement community and indicates that the place he/she lives has areas you can move to if care is needed, offers help with medications or self-care, or offers meals or 2) if the SP lives in a freestanding or attached home and reports living in a "group home/board and care/supervised housing" or "assisted living facility or continuing care retirement community." In the FQ interview a staff person also indicates whether the SP is in a residential care setting other than a nursing home (e.g. assisted living, board and care home, non-nursing home part of a CCRC). If the SP interview was conducted first, as happened most often, and SP's residence was identified as a residential care place, interviewers would follow-up with a staff person to conduct the FQ. In some instances, no staff person could be identified (e.g. residence was senior housing with no onsite staff). If the FQ interview was conducted first, in some instances no SP interview was obtained.

In the SP's initial round, if the interviewer learned that the SP was living in a nursing home—through a spouse or other relative at the address in the Medicare enrollment file or from a facility staff person if the address is a nursing home—and was told that the sample person was not expected to return home, the interviewer administered the FQ to a staff person at the nursing home. If the facility respondent confirmed that the SP was in a nursing home unit then the SP was considered a nursing home resident. If the sample person was expected to leave the nursing home, the interviewer either waited until the SP returned to the community or administered a proxy interview.

What components of NHATS are attempted in the initial round by residential status?

The table below summarizes how residential status was identified in the SP's initial round for purposes of data collection.

In an SP's initial round, the Sample Person (SP) Interview (including the Performance Activities Booklet) was administered in all settings except nursing homes. The Facility Questionnaire (FQ) was administered to a staff person whenever a sample person was determined to live in a residential care setting—both nursing homes and residential care settings other than nursing homes.

See detailed descriptions of the Housing Type (HT) and Facility Questionnaire (FQ) in the Content Documentation for additional information.

Identification of residential status in SP's Initial Round	Community	Residential Care not Nursing Home	Nursing Home
How residential status was determined for data collection:			
HT section of SP Interview[1]	X	X	---
FQ Interview[2]	---	X	X

[1] The status of "residential care not nursing home" was assigned and an FQ interview was attempted if: a respondent who lived in a multi-unit building (or "other" structure) or in a retirement community said the place he/she lives has different units/areas SP can move to if care is needed, offers help with medications or bathing/dressing, or offers meals for residents (these 3 questions are in HT section); or a respondent lived in a free standing or attached home and described the type of place he/she lives as either a "group home/board and care/supervised housing" or as "assisted living facility or continuing care retirement community."

[2] The status of "residential care not nursing home" or "nursing home" was assigned in the FQ. In an SP's initial round, an SP interview was administered when the FQ interview (based on items FQ6, FQ10, and FQ11) indicated that the facility type was not a nursing home.

What components are attempted in follow-up rounds?

All persons who completed an SP interview at their initial round were eligible to have an SP interview in all subsequent rounds regardless of residential setting. Persons for whom only an FQ interview was obtained in their initial round were administered only an FQ interview in subsequent rounds.

Data Collection by Round	Residential Care Status		
	Community	Residential Care not Nursing Home	Nursing Home
SP's Initial Round			
SP Interview	√	√	--
FQ Interview	--	√	√
Follow-up Rounds			

SP Interview	√	√[1]	√[1]
FQ Interview (if residential care)[2]	--	√	√
Decedents			
LML Interview with proxy	√	√	√

[1]SPs who completed an SP interview in their initial round. SPs who in their initial round were nursing home residents or lived in residential care and did not complete an SP interview were not eligible for an SP interview in later rounds.

[2]An FQ was administered if the SP was in residential care, including a nursing home. Items in the HT section of the SP interview triggered an FQ.

Respondents who lived in a nursing home in their initial round or who lived in residential care other than a nursing home and did not complete an SP interview were not eligible for an SP interview in follow-up rounds. An FQ interview is conducted at each round for persons still living and determined to be in residential care settings (nursing home or other residential care).

For sample persons who died between their initial round and a follow-up round, a Last Month of Life (LML) Interview was conducted with a proxy respondent, usually a family member. LML interviews were conducted for all participants including those who lived in a nursing home or other residential care setting and had no SP interview at their initial round.

I.D. NHATS Response to COVID-19

Round 10. At the onset of the COVID-19 pandemic, beginning in March 2020, research that relied on in-person contact was widely prohibited, including by the Johns Hopkins Institutional Review Board. As a result, the NHATS interview was conducted by telephone in Round 10 and the following changes were made to the R10 interview:

- HC. In Round 10 only, an open-ended item was added to the beginning of the HC section that asked how the SP was affected by the COVID-19 pandemic: "This year, we'd like to start with a question about the coronavirus or COVID-19 outbreak. Briefly, in your own words, would you like to share how the outbreak has been affecting {your/SP's} life?" The response to this item has been transcribed and is available in the NHATS Restricted Data Repository (see Section III.A).
- CG. Procedures were developed to administer the clock-drawing activity over the phone. SPs were mailed the materials and for most SPs the activity was administered during the interview. Details are provided in Section III.L.
- PE and AB. Eligibility for the performance assessments (PE) and the performance assessments booklet (AB), which requires in-person administration, were not completed.
- IR. The Environmental Checklist from the Interviewer Remarks (IR) section, which requires interviewer observation of the SP's home, was not included in Round 10. Only two Interview Environment items in the Interviewer Remarks (IR) section were recorded: "SP attitude toward the interview" and "whether the interview was conducted in more than one session and reason."

Details on procedures for R10 are available in the NHATS R10 Data Collection Materials (forthcoming).

Round 10 COVID-19 Supplement. NHATS also collected new data to assess the effect of COVID-19 on older adults and their helpers. A mail survey was conducted following the R10 collection with SPs and the two family members or friends who helped the SP the most. Public and sensitive COVID-19 files and documentation are available through the NHATS website. Geographic files of family members or friends who helped the NHATS Sample Person most during the COVID-19 outbreak are available through the NHATS Restricted Data Repository. See the NHATS COVID-19 Supplement User Guide for more details (Freedman & Hu, 2020).

Round 11. In Round 11, the core data collection protocol was revised so that in-person interactions could be limited if necessary. The interview was reorganized into two parts – the first part included sections that could be conducted either by phone or in person and the second half consisted of performance activities that required a home visit. The original (R9, R10) and revised (R11) order of sections for the living SP interview is shown in the Table below, with major changes in **bold**. Indicators of whether the first part was by phone or in person and whether Part 2 was completed are included with the R11 release files.

Additional changes to the Round 11 interview include:
- HC. New questions were added about a COVID diagnosis, testing for COVID-19, symptoms and health effects of COVID, and COVID vaccination.
- TE. Questions were added about visiting with family or friends on video calls and whether the SP had a telehealth visit.
- PC. Clarifying text was added if the SP volunteered they were unable to perform an activity due to COVID-19.
- CP. The differential display for the AD8 was simplified to either "in the last several years" (if proxy has known at least a year) or "since you have known him/her" (if proxy has known less than a year). (Previously, proxies that did not change from the prior round were asked about the time frame "in the last year.")
- CG. The clock drawing activity was moved from the CG section to the new Clock Drawing (CD) section. The Numbers and Letters activity was added in its place.
- HA. Text was added to clarify that shopping for groceries or personal items included shopping in person or online. A question was added to ascertain if the SP shopped only in person, only online, or both ways. Text was added to clarify that handling bills and banking included handling these activities in person or online.
- MC. Text was added to clarify that a doctor's visit included in person visits and online telehealth visits. A question about doctor visits begin only in person, only online or both ways was added.
- PA. Questions were added to ascertain if the COVID-19 outbreak ever kept the SP from participating in valued activities (visiting family or friends, attending religious services, participating in clubs, classes, or other organized activities, going out for enjoyment, working for pay, or volunteering). Text was added to clarify that attending religious services and participating in clubs, classes, or other organized activities could be in person or online.

- WB. A question was added about feeling lonely in the last month.
- AB. Peak air flow was not conducted as part of the physical performance activities.
- FQ. Answer categories were removed distinguishing services provided as part of a service package or at an extra charge.

In addition, for items with show cards in prior rounds, interviewers were instructed to read all response options. Details on data collection procedures for R11 interviews will be available in NHATS R11 Data Collection Materials (forthcoming).

Round 12. In Round 12, NHATS returned to full in-person interviewing but retained the order of the Round 11 two-part design. For most living SPs, both parts of the interview were conducted in-person and in one sitting (as was the case prior to 2020).

In Round 12, questions to ask about the length of health effects from COVID-19 illness and whether the SP received a booster were added to the Health Conditions (HC) section and the peak air flow test was restored.

NHATS Core Section Order Changes for Living Sample Person Interview, Rounds 9 and forward

Rounds 9 and 10	Round 11 forward
	Part 1 [a]
Interview Setup (IS)	Interview Setup (IS)
Residence (RE)	Residence (RE)
Health Conditions (HC)	Health Conditions (HC)
Housing Type (HT)	Housing Type (HT)
Service Environment (SE)	Service Environment (SE)
Household Members (HH)	Household Members (HH)
Children & Siblings (CS)	Children & Siblings (CS)
Social Network (SN)	Early Life (EL)[d]
Home Environment (HO)	Race, Ethnicity (RL)[d,f]
Environmental Modifications (EM)	Social Network (SN)
Community (CM)	Home Environment (HO)
Technological Environment (TE)	Environmental Modifications (EM)
Mobility Devices (MD)	Community (CM)
Sensory and Physical Impairments & Symptoms (SS)	Technological Environment (TE)
Physical Capacity (PC)	Mobility Devices (MD)
Cognitive Assessments: Proxy (CP)	Sensory and Physical Impairments & Symptoms (SS)
Cognitive Assessments: Self (CG)[a]	Physical Capacity (PC)
Mobility (MO)	Cognitive Assessments: Proxy (CP)
Duration of Mobility Accommodations (DM)	Cognitive Assessments: Self (CG)
Driving & Transportation (DT)	Mobility (MO)
Household Activities (HA)	Duration of Mobility Accommodations (DM)
Self-Care Activities (SC)	Driving & Transportation (DT)
Duration of Self-Care Accommodations (DS)	Household Activities (HA)
Medical Care Activities (MC)	Self-Care Activities (SC)
Participation in Activities (PA)	Duration of Self-Care Accommodations (DS)
Rehabilitation (RH)	Medical Care Activities (MC)
Smoking (SD)	Participation in Activities (PA)
Physical Performance Assessment Eligibility Questions (PE)[b,c]	Rehabilitation (RH)
Performance Activities Booklet[a,b,c]	Smoking (SD)
Height & Weight (HW)	Physical Performance Assessment Eligibility Questions (PE)
Early Life (EL)[d]	Height & Weight (HW)
Well-Being (WB)	Well-Being (WB)
Insurance Plans (IP)	Veteran's Status (VA) [f]
Labor Force Participation (LF)	Insurance Plans (IP)
Home Ownership (HP)	Labor Force Participation (LF)
Income & Assets (IA)[b]	Home Ownership (HP)
Car Ownership (CO) [b]	Income & Assets (IA)

Economic Well-Being (EW)	Car Ownership (CO)
Helpers (HL)	Economic Well-Being (EW)
Last Month of Life Helpers (HM)	Helpers (HL)
Closing (CL)	Last Month of Life Helpers (HM)
	Caregiver Contact (CC)
	NLTCS Questions (LS) (R12 only)
	Closing (CL)
	Part 2 [a]
	Interview Setup (IS)
	Clock Drawing (CD; previously part of CG)[a]
	Performance Activities Booklet[a]
	Vision & Hearing (VH)[e]
	Vision & Hearing Booklet (VB, HB)[e]
	Cogstate Battery (CB)[e]
	Activity Watch (AG)[e]
	Closing (CL)

[a]In Round 11, the interview was reorganized into two parts – the first part included sections that could be conducted either by phone or in person and the second half consisted of performance activities that required a home visit. The original (R9, R10) and revised (R11) order of sections for the living SP interview is shown in the Table, with major changes in **bold**. [b]Not administered in R10. [c]Moved to Part 2 in R11. [d]Moved before SN in R10 in anticipation of replenishment. [e]New in Round 11. Note in all Rounds, interviews that have responses through at least the Participation in Activities (PA) section are considered complete. [f]Replenishment rounds only

II. Content Documentation

Introduction

This section describes the content of the data collection instruments for the National Health and Aging Trends Study (NHATS). Like the content summary table in *Section I.B.*, it is organized in the order sections were originally administered in the NHATS interview.[5] A description of items in each section is provided, with relevant information about administration and, where applicable, information on sources for items and references.

Interview Setup (IS)

The Interview Setup provides an introduction to the study, obtains age and gender for the sample person, and identifies whether a proxy respondent is being used and why. When a proxy respondent is used information is collected on:

- reasons a proxy was used (dementia or cognitive impairment reported by proxy, sample person is too ill, speech or hearing impairment, language barrier, SP is temporarily unavailable, beginning in Round 2 sample person is deceased, or another reason);
- relationship of the proxy to the sample person; and,
- proxy familiarity with the sample person's daily routine.

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[5] New Round 11 sections – Vision, Hearing, Cogstate and Activity Watch – are included at the end of this section.

Residence (RE)

The Residence section collects information on the type of physical structure the sample person lives in—free-standing (detached) single house, single house attached to others, mobile home or trailer, multi-unit (2+) building, or other (specify). A flag indicating type of structure (fl1structure) is used in skip patterns for some other sections of the interview.

At SP's initial round, physical structure is coded by the interviewer based on observation unless the interview is being conducted somewhere other than the sample person's residence. In these cases, the sample person is asked to identify the physical structure of his/her residence. If the SP lives in a multi-unit building the interviewer also indicates if the building has only one or more than one floor (used for routing in the Home Environment (HO) section). The sample person's address is confirmed in this section as well.

In follow-up rounds, the interviewer determines whether the sample person has moved since the last round, and if so the month and year of move. A flag for New Residence was created and used to route persons through the interview so that questions about the new residence were asked (e.g. some questions in Home Environment, Housing Type, Environmental Modifications, and Residence; see *Appendix II. Flag Variable Specifications*).

Parts of the RE section are included in the Last Month of Life interview.

Other sections collecting information on place sample person lives

Housing Type (HT):	Length of residence and type of place
Service Environment (SE):	If sample person is in residential care (other than nursing home) services available and used
Home Environment (HO):	Features of the home environment
Environmental Modifications (EM):	Whether features of the home environment were added and out-of-pocket costs if so; out of pocket costs for other devices for daily activities
Environmental Checklist (IR):	Conditions inside and outside the home
Facility Questionnaire (FQ):	If sample person is in residential care (including nursing home) services available at place and at sample person's level of care; payment information in last month

Place of Death (PD)

This section, added in Round 2, is part of the Last Month of Life interview and obtains information on where the Sample Person died. Whether the SP was alert (awake and able to communicate) during the last month of life and whether the SP was mobile (able to get out of bed in the last month) also were obtained. Questions were modeled after instruments developed by Teno and colleagues (Teno, 2000).

Quality of Care in Last Month (LM)

This section, added in Round 2, is part of the Last Month of Life Interview. Questions were modeled after quality of end of life care instruments developed by Teno and colleagues (Teno, 2000). Items include whether the SP experienced pain, breathing troubles, and anxiety/sadness and whether there was help in dealing with these. The proxy respondent is asked about input into decisions about care/treatment and whether the SP's personal care needs were met, and whether he/she was treated with respect and kept informed. Items are included on interaction with doctors and medical professionals, including attention to religious beliefs. An overall assessment of care quality in the last month is obtained.

Health Conditions (HC)

This section collects self-reported chronic conditions and diseases, selected health care utilization, information on falls, and measures of depression, anxiety, and sleep quality.

General Health Status and Conditions: General health status is asked first, followed by whether the person has ever been told by a doctor that he/she has any of several chronic conditions. Type(s) of cancer, age at diagnosis if dementia/Alzheimer's disease is reported, and broken or fractured bones since age 50 are asked. An open-ended question asks whether there is another serious disease or illness the person has been told he/she has by a doctor.

At the SP's initial round, SPs are asked if they ever had the following chronic conditions (heart attack, heart disease, high blood pressure, arthritis, osteoporosis, diabetes, stroke, dementia/Alzheimer's disease, cancer). At each follow-up round, selected chronic conditions (heart disease, high blood pressure, arthritis, osteoporosis, diabetes, dementia/Alzheimer's disease) are not re-asked if these conditions were reported in a prior round. A value of 7 indicates the condition was reported in a prior round. For heart attack, stroke, and cancer, respondents are asked whether a doctor has told them they had the condition since the last interview (7 is not an allowable option). Users who want to create indicators of "ever" having these three conditions will need to examine indicators for each round since the SP entered the study.

Hospital Stays and Surgeries: Overnight hospital stays within the last 12 months, the number of overnight hospital stays in the last 12 months, and whether the person ever had certain types of surgery (e.g., knee replacement, hip repair/replacement, cataract, back or spine, heart) are collected at SP's initial round. For surgeries, the timing—within the last 12 months and, if not, at what age this occurred—is ascertained. In follow-up rounds, questions focus on stays and surgeries since the last interview.

Falls: Falls are defined as "any fall, slip, or trip in which you lose your balance and land on the floor or ground or at a lower level." This wording mirrors the definition used in the Women's Health and Aging Study (Guralnik et al. 1995). Information includes: falls within the last month and within the last year, number of falls in the last year, whether persons worried about falling down in the last month, and whether that worry limited activities.

Depression and Anxiety: NHATS uses the PHQ-2 and the GAD-2, which are brief screening instruments for depression and anxiety, respectively. The questions are: "Over the last month, how often have you: a) had little interest or pleasure in doing things; b) felt down, depressed, or hopeless; c) felt nervous, anxious, or on edge; d) been unable to stop or control worrying?" Response categories are: not at all, several days, more than half the days, nearly every day. Items "a" and "b" form the PHQ-2; items "c" and "d" form the GAD-2. Scores can be calculated for each measure separately, or for a combined measure, based on summing scores for the items (1 = not at all; 2= several days; 3=more than half the days; 4=nearly every day). The reference period of "one month" was used in NHATS to correspond to the reference period for measures of functioning (e.g. self-care, mobility); the usual reference period is 2 weeks.   For sensitivity, specificity, and recommended cut-points for the PHQ-2, the GAD-2 and a 4-item combined measure, see Kroenke et al. (2003, 2007, 2009) and Lowe et al. (2009).

Sleep Quality: Three questions are included about sleep in the last month: how often it takes more than 30 minutes to fall asleep at night, how often person had trouble falling back asleep on nights he/she woke up, and how often he/she took medication to sleep. Response categories are: every night, most nights, some nights, rarely, never.

COVID-19: In Round 10, at the beginning of the HC section, SPs and proxies were asked: "This year, we'd like to start with a question about the coronavirus or COVID-19 outbreak. Briefly, in your own words, would you like to share how the outbreak has been affecting {your/SP's} life?" The response to this item has been transcribed and has been made available in the NHATS Restricted Data Repository (described in Section III.A). In Round 11, questions were added about COVID-19 diagnosis, testing, symptoms, symptom intensity, duration of symptoms/health effects, and vaccination (whether the SP received a vaccine, the month, and if not, if they tried to get vaccinated). In Round 12, questions were added to ask about the length of health effects from COVID-19 illness (continuing sample only) and whether the SP received a booster. Note: In Round 12, COVID-19 severity was only obtained for continuing sample.

Housing Type (HT)

At SP's initial round, length of residence at current address is asked and all persons are asked whether their home is part of a retirement community or a senior housing community.

Questions in this section also are used to determine for data collection purposes whether the sample person lives in a residential care setting. The facility flag indicating that an FQ should be administered is set based on positive responses to these items. The items used for this purpose are:
- For SPs in free standing or attached homes, identification of the place the person lives as "group home/board and care/or supervised housing" or "assisted living facility or continuing care retirement community";
- For SPs in multi-unit buildings (or "other" structures) or retirement communities, a positive response to any of 3 nested questions about the place—are there different areas you can move to if you need care; is help offered with medications or activities like bathing or dressing; are meals for residents offered.

The 3 nested questions that are used to set the Facility flag should not be used for analyses of services in residential care environments, since not all questions are asked (once a positive response is given no further questions are asked). Either the Service Environment (SE) (the person's report of services available and used) and/or the Facility Questionnaire (FQ) (staff report of services offered at the sample person's level of care) should be used for this purpose.

A question about what people in residential care settings call their private living space is also asked and the answer fills questions about the home environment later in the interview.

In follow-up rounds, this section is asked only of respondents who moved since the prior round. Length of residence for SPs who moved is captured (along with length of residence for those who are new sample members) in RE.

Other sections collecting information on place sample person lives

Residence (RE):	Physical structure of residence
Service Environment (SE):	If sample person is in residential care (other than nursing home) services available and used
Home Environment (HO):	Features of the home environment
Environmental Modifications (EM):	Whether features of the home environment were added and out-of-pocket costs if so; out of pocket costs for other devices for daily activities
Environmental Checklist (IR):	Conditions inside and outside the home
Facility Questionnaire (FQ):	If sample person is in residential care (including nursing home) services available at place and at sample person's level of care; payment information in last month

Service Environment (SE)

In Rounds 1 through 4, this section was administered only to persons in non-nursing home residential care settings. Starting in Round 5, it was also administered to persons living in age restricted housing (e.g. retirement community or senior housing community).

The questions asked are: services available at the place person lives whether or not he/she uses these; services used in the last month; and, for services used, if there is an extra charge. The list of services in Rounds 1 through 4 includes meals; help with medications, bathing and dressing, laundry, housekeeping; transportation and socializing. Starting in Round 5, the list was expanded to include: areas to walk; fitness center; onsite health and wellness programs; and a medical emergency system to call someone for help.

Other sections collecting information on place sample person lives

Residence (RE):	Physical structure of residence
Housing Type (HT):	Length of residence and type of place
Home Environment (HO):	Features of the home environment

Environmental Modifications (EM):	Whether features of the home environment were added and out-of-pocket costs if so; out of pocket costs for other devices for daily activities
Environmental Checklist (IR):	Conditions inside and outside the home
Facility Questionnaire (FQ):	If sample person is in residential care (including nursing home) services available at place and at sample person's level of care; payment information in last month

Household (HH)

The Household section gathers information on the person's spouse/partner and those who live with the sample person.

Marital Status and History: At the SP's initial round, marital status is asked and, if a person is married or living with a partner, years in relationship. For persons widowed or divorced, month and year that a spouse passed away or a marriage ended is obtained. In follow-up rounds, change in marital status since the prior interview is obtained.

Spouse/Partner Characteristics: Spouse/partner's gender, date of birth, and education are obtained at the SP's initial round and at follow-up rounds for those with a new spouse/partner. Spouse/partner's need for help with personal care is obtained for persons who are married/partnered. Whether the spouse/partner lives with the sample person is confirmed and, if the spouse/partner does not, the type of place the spouse/partner lives is asked.

Other Household Member Characteristics: At the SP's initial round, relationship to the sample person, gender, and date of birth are obtained. In follow-up rounds, whether prior round household members remain in the household is obtained; reason no longer in the household (separation/divorce, deceased, moved elsewhere, other) is asked for those no longer in the household. New household members are identified and relationship to the sample person, gender, and date of birth are obtained (with some exceptions based on relationship).

Other sections collecting information on family

Children and Siblings (CS):	For children not living in sample person's household, relationship, gender, date of birth, and city and state are asked. For all children, education, marital status, and information on their children are asked. Number of living siblings is also obtained.
Early Life (EL):	Questions on whether parents are living are asked.

Children and Siblings (CS)

At the SP's initial round, for children who do not live with the sample person, relationship to the sample person, gender, date of birth, and city and state of residence are asked. (For children who live with the SP, this information is obtained in HH). For all children, this section obtains education, marital status, number of their children and number of their children under age 18.

Through Round 9, children reported in the prior round are confirmed, and age, gender, and city and state of residence are updated. If a child reported in the prior round is deceased, this information is recorded.

Starting in Round 10, additional information is updated at each round for all children, including their education, marital status, number of children and number of children under age 18. New stepchildren may be added after SP's initial round and the same information as for other children is obtained.

See *Section III.J Child Information* for details on information collected on children and what is collected at initial and follow-up rounds.

The section also includes questions on the number of sample person's living brothers and sisters.

Other sections collecting information on family

Household (HH):	Information about household members who are family includes: relationship to sample person, gender, and date of birth. Additional information is collected for a spouse/partner (education, need for help with personal care, type of residence if not in sample person's household).
Early Life (EL):	Questions on whether parents are living and age at death are asked.

Social Network (SN)

Persons are asked to name up to 5 people that they "talk to about important things." Important things may include good or bad things that happen, problems the person is having, or important concerns. Information for each social network member includes relationship to the sample person and gender. Age and location (city/state) are obtained for all social network members in Round 1 and for social network members who are children, spouses, or household members in Rounds 2 through 4. Starting in Round 5, age and location of all social network members is obtained at each round. The NHATS approach to social network is consistent with a traditional approach for egocentric social network data collection used in several surveys and is directly comparable to The National Social Life Health & Aging Project Confidant Roster (http://www.norc.uchicago.edu/nshap; Cornwell et al. 2009).

Interviewers may select people already on the person roster from earlier in the interview or the prior round, or may add new persons to the roster. As a result, social network members may be chosen in any order and the order in which social network members are listed should not be taken to indicate the order in which they were named by the respondent.

Through Round 11, the social network questions were not asked of proxy respondents. Beginning in Round 12, proxy respondents were asked social network questions.

Home Environment (HO)

The Home Environment section collects information on three concepts: access to the home, building amenities, and features inside the person's home or (residential care) private living space (Freedman et al. 2006).

Access to the Home: Questions ascertain the presence of stairs, common or shared entrances for multi-unit dwellings, and presence of a ramp at the entrance.

Building (multi-unit structure) Amenities: These include: an elevator, stair lift/glide, shared spaces for meals and socializing, bath amenities (a bathtub, shower stall, grab bar in the bathtub/shower, a bath/shower seat, raised toilet/seat, grab bars around toilet, medical emergency system), a private kitchen area, and working microwave. For persons in residential care, an additional question is asked: whether the person has a private bathroom with bath/shower. In follow-up rounds, some building amenity questions are asked only if the sample person has moved to a new residence since the prior round.

Features inside the Home (if not multi-unit structure): These include: number of floors, bedroom/kitchen/bath on same floor, elevator, stair lift/glide, bath amenities (a bathtub, shower stall, grab bar in the bathtub/shower, a bath/shower seat, raised toilet/seat, grab bars around toilet, medical emergency system), and working microwave.

Other sections collecting information on place sample person lives

Residence (RE):	Physical structure of residence
Housing Type (HT):	Length of residence and type of place
Service Environment (SE):	If sample person is in residential care (other than nursing home) services available and used
Home Environment (HO):	Features of the home environment
Environmental Modifications (EM):	Whether features of the home environment were added and out-of-pocket costs if so; out of pocket costs for other devices for daily activities
Environmental Checklist (IR):	Conditions inside and outside the home
Facility Questionnaire (FQ):	If sample person is in residential care (including nursing home) services available at place and at sample person's level of care; payment information in last month

Environmental Modifications (EM)

This section refers to features of the home that were identified in HO and asks for each whether it was present when the person moved in or whether it has been added since. If any features were added, the person is asked to identify those added in the last year. Overall costs for features added in the last year to the person or his/her family is asked. A separate question asks about overall costs in the last year for devices that help with daily activities: glasses, hearing aids, canes, walkers, wheelchairs, scooters, reaching devices, dressing devices, adapted eating

utensils. In follow-up rounds, questions to determine whether items were in place or were added when the SP moved in are asked only if the sample person has moved to a new residence since the prior round.

Other sections collecting information on place sample person lives

Residence (RE):	Physical structure of residence
Housing Type (HT):	Length of residence and type of place
Service Environment (SE):	If sample person is in residential care (other than nursing home) services available and used
Home Environment (HO):	Features of the home environment
Environmental Checklist (IR):	Conditions inside and outside the home
Facility Questionnaire (FQ):	If sample person is in residential care (including nursing home) services available at place and at sample person's level of care; payment information in last month

Community (CM)

Persons are asked whether they agree a lot, agree a little, or do not agree with three statements about their community: people know each other well, people are willing to help each other, and people in the community can be trusted. These measures were adapted for use in NHATS from Cagney et al. (2009) and Sampson et al. (1997) to accommodate multiple residential settings.

Technological Environment (TE)

Items focus on communication and information technology available to persons and their use of this type of technology. Questions on availability ask whether the person has a working: cell phone, other telephone, computer or (starting in Round 3) a touch-screen tablet. Questions on use ask about frequency of sending messages by email or texting and using a computer at locations outside the home (if no computer in the home). Persons also are asked about going on the Internet or online in the last month to: shop for groceries or personal items, pay bills or do banking, order or refill prescriptions, contact his/her medical providers, handle Medicare or other insurance matters, or get information about his/her health conditions. In Round 11, questions were added about visiting with family or friends on video calls and telehealth visits.

Other sections collecting information on the use of technology

Household Activities (HA)	Whether the person shopped online, in person, or both ways; whether the person banked online, in person, or both ways (added in R11)
Medical Care Activities (MC)	Whether the person saw their regular doctor online, in person or both ways; whether person received help getting online for a telehealth visit (added in R11)

Mobility Devices (MD)

The Mobility Device section asks about use of mobility-related assistive technology (cane, walker, wheelchair, scooter) in the last month. These items are used in the Mobility (MO) and Duration of Mobility Accommodations (DM) sections.

The MD section is included in the Last Month of Life interview. (In Rounds 2 and 3, this section was not administered if the deceased person was not mobile in the last month of life. This skip was removed staring in Round 4. Starting in Round 4, this section was not administered if the deceased person was not alert in the last month of life.)

Sensory and Physical Impairments and Symptoms (SS)

This section addresses vision, hearing, and limitations or impairments in several body systems. Also in this section are questions on symptoms of pain and fatigue. The reference period is the last month.

Vision and Hearing: Questions are on close and distant vision, hearing, and use of vision or hearing aids. (In Rounds 2 through 4, the vision questions were not asked of persons reported to be blind in any prior round and the hearing questions were not asked of persons reported to be deaf in any prior round. This skip was removed starting in Round 5.) An objective vision and hearing measurement protocol was added in R11.

Chewing/Speaking: Persons are asked about problems with chewing or swallowing and problems in speaking or being understood when talking.

Symptoms of Pain and Fatigue: Persons are asked whether they are bothered by pain, activity limitations due to pain, frequency of medication for pain, and location of pain (back, hips, knees etc.). Persons are asked about having low energy or being easily exhausted and whether this limited their activities.

Physical Impairments and Severity: For a series of problems, respondents are first asked whether they experienced the problem in the last month and, if so, whether the problem limited their activities (adapted from Freedman et al. 2012). The following problems are asked about: breathing problems; limited strength or movement in shoulders, arms, hands; limited strength or movement in hips, legs, knees, or feet; balance/coordination.

Other sections collecting information on sensory and physical impairments and symptoms

Vision and Hearing Booklet	Tablet-based collection of distance acuity, near acuity, contrast sensitivity, and pure tone audiometry (added in R11).

Physical Capacity (PC)

Capacity measures represent the building blocks that underlie the ability to do more complex tasks like self-care or household activities. Capacity measures in NHATS include both self-report items, including traditional Nagi measures (1965), and performance-based measures (both physical and cognitive). For a more detailed discussion see Freedman 2009, and Freedman et al. 2011.

Items in this section ask about ability to do 12 activities in the last month. The items are paired as follows: walk 6 blocks (about ½ mile)/walk 3 blocks, walk up 20 stairs/walk up 10 stairs, lift and carry 20 pounds/lift and carry 10 pounds, kneel down without holding on to anyone or anything/bend over without holding on to anyone or anything, put a heavy object on a shelf overhead/reach up over head, open a sealed jar using hands only/grasp small objects. Persons who are able to do the first, and harder, activity in each pair, are not asked the second. Those who say "no" or "don't know" to the first item, are asked the second. Interviewer instructions for handling volunteered responses about being unable to perform an activity due to COVID-19 were added in Round 11.

Analyses from a Validation Study conducted prior to fielding Round 1 of NHATS showed that these items can be nested for purposes of administration and that a scale constructed from these items has good reliability and compares favorably with a scale using traditional Nagi items only (Freedman et al. 2011). For this scale, two points are given if the first (harder) item in the pair can be carried out and 1 point is given if the second (easier) item in the pair can be carried out; all points are then summed together.

Cognition (Proxy) (CP)

Brief cognitive screening instruments are used in NHATS to provide measures of cognitive functioning (see CG section). When the interview is being administered to a Proxy Respondent the CP section is asked. In addition, an attempt is made to administer the cognitive functioning items to the sample person (see CG Section).

The CP section includes: (1) a rating of the person's memory at the present time, (2) an 8-item screening instrument designed for administration to informants which differentiates between persons with and without possible dementia (the AD8), and (3) questions on behavior problems.

A single item on memory is included in the Last Month of Life interview starting in Round 2. This item was not administered if the deceased person was not alert in the last month.

The AD8: The AD8 is an 8-item measure that was designed for administration to informants for purposes of identifying persons with possible dementia (Galvin et al. 2005, 2006). The items assess memory, temporal orientation, judgment, and function. The questions ask about "changes due to thinking and memory problems." In clinical settings the instrument is typically administered to a family member and changes are in the context of "the last several years." In

NHATS this phrasing was used in Round 1 and Round 5 for all proxy respondents, and for new proxy respondents at any round unless the proxy respondent was not a relative and had known the person for less than 1 year. Then the reference period was framed as "since you have known (sample person)."

In Rounds 2 through 4 and 6 through 10, if the same proxy respondent was interviewed in adjacent rounds (e.g. Round 1 and Round 2) the reference period offered in the latter round was "in the last year." An analysis of cases where adjacent-round proxies were asked about "in the last year" in R4 and "in the last several years" in R5 found high agreement between rounds. To simplify administration, beginning in Round 11 and forward, only two reference periods are now offered ("the last several years" for relatives and those who have known the proxy from a year or more and "since you have known (sample person)" for nonrelative proxies who have knew the SP for less than 1 year).

The AD8 is scored from 0-8 (1 = yes, a change; 0 = no, no change). For NHATS, an additional response (dementia/Alzheimer's reported by proxy) was added to accommodate situations in which the proxy respondent indicates (in response to questions about "changes") that there has been no change because the SP has dementia and, for example, does not remember the month or year. The NHATS recommendation is that these responses be scored as 1 for purposes of calculating the AD8 score. In follow-up rounds, the AD8 items are not asked if one or more AD8 items were coded dementia/Alzheimer's disease in a prior round. We recommend that these cases be scored an 8 for purposes of calculating the AD8 score. For information on recommended cutpoints, sensitivity and specificity, and correlations with other dementia screening instruments, see Galvin et al. (2005, 2006). Code scoring the AD8 as part of the NHATS dementia classification scheme is available from NHATS (Kasper, Freedman & Spillman; 2013)

Behavior Problems: The proxy respondent is asked to report problems observed in the last year: 1) did he/she ever get lost in a familiar environment, 2) did he/she ever wander off and not return by himself/herself, 3) was he/she able to be left alone for an hour or so, and, 4) did he/she hear or see things that were not really there. These questions were drawn from the Health and Retirement Study (administered to persons 65 and older starting in 1998, Ofstedal et al. 2005).

Cognition (Sample Person) (CG)

The NHATS Cognition section is designed to provide information about several aspects of cognitive functioning including memory (self-rated, whether memory interferes with daily activities, and immediate and delayed 10-word recall), orientation (date, month, year, day of week; naming President and Vice President), and executive function (clock drawing test).

When a proxy interview is conducted the proxy respondent is asked whether some questions about memory could be asked of the sample person. If the proxy declines, a reason is obtained (e.g. sample person has dementia/Alzheimer's disease, is unable to speak or hear). If the proxy agrees, the CG section is administered to the sample person.

This section also includes items where the interviewer can note if there are problems in administration: difficulty hearing words read or interruption during reading of the words; whether the respondent used aids for tasks even when asked not to.

Self-Rated Memory: Persons are asked to rate their memory currently, how often memory problems interfered with daily activities in the last month, and how their memory is currently compared to 1 year ago.

Orientation to date: Respondents are asked "without looking at a calendar or watch, please tell me today's date." In Round 1, NHATS records the month, day, year and day of the week and the interviewer notes if the sample person looked at a calendar, newspaper, watch, or other aid for the date. Probes to elicit any component that was not volunteered are allowed (e.g. persons who give the month, day and year but not the day of the week are asked—do you know what day it is today?). Starting in Round 2 day of the week is asked as a separate question rather than as a follow-up probe to the multi-part date item and interviewers note separately use of an aid for date (month, day, and year) and for day of the week. (NOTE: See Section III.O. for correction to labels for some variables on the data file).

Immediate and Delayed 10 Item Word Recall: A list of 10 nouns is read to respondents as they appear on the computer screen. The person is asked recall as many words as possible, in any order. After 10 seconds of silence, the interviewer probes if there are any more words that the sample person can remember. The activity is stopped after another 10 seconds of silence or if the sample person says they are done. Sample persons are randomly assigned to one of three lists that are fielded in the Health and Retirement Study (Ofstedal et al. 2005). List assignments in subsequent years (except R11)[6] rotate so that persons receiving list 1 in Round 1 receives list 2 in Round 2; those receiving list 2 receive list 3; those receiving list 3 receive list 1 and so on. The delayed word recall is administered after the President/Vice President naming and either the Clock Drawing Test (R1-R10) or the Numbers and Letters Activity (starting in R11). Respondents are asked what words they recall from the list read earlier. (NOTE: See Section III.O. for correction to values for cases for some variables on the data file).

Orientation based on naming President and Vice President: Respondents are asked the names of the President and Vice President. Probes to obtain both the first and last names are allowed.

Clock Drawing: The respondent is given a sheet of paper and an erasable pen. They are asked to draw a clock. The interviewer says, "Start by drawing a large circle. Put all of the numbers in the circle and set the hands to show 11:10 (10 past 11)." The respondent has 2 minutes to complete the activity. Interviewers may repeat the instructions as needed. See *Section III.L. Scoring Methodology for Clock Drawing Test* for details on the clock scoring methodology. PDFs of clock drawings are available (NHATS Round # SP Clock Drawings File.pdf). In Round 10, materials were mailed to the SP and the clock drawing activity was attempted over the phone and returned by mail for scoring. Most eligible R10 cases attempted the clock drawing at the appropriate time during the interview and returned the clock (n=2506/4389), and some of those who did not have the materials during the interview still returned the clock (n=592/4389). For remaining R10 cases with missing data, the score was set equal to the R9 clock score if there was

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[6] In Round 11, NHATS did not rotate the list number, so word lists in Rounds 10 and 11 were identical for respondents in both rounds. The lack of rotation was inadvertent and corrected in Round 12.

a valid R9 score (n=703/863). In Round 11, the clock drawing activity was moved from the CG section to the new Clock Drawing (CD) section.

Stroop Test: In Round 2, a computerized version of the Stroop test was included to evaluate the cognitive mechanism of inhibition, a component of executive function. It measures the reaction time of two trials, one easy, (reporting color of the symbol X), and one hard, reporting color of a word (e.g. blue, red, or green) printed in a color opposite of its meaning. The participant sat in front of the laptop screen and pressed colored buttons on a keypad to indicate the color being selected.

Numbers and Letters: In Round 11, the Numbers and Letters activity was added in place of the Clock Drawing in its original place in the CG section. The addition of this activity ensured that the length of time between the immediate and delayed 10 item word recall in the CG section did not change appreciably across rounds. The activity, originally called the Mental Alternations Test (MAT), was developed by Dr. Evelyn Teng (1995) to assess the speed and accuracy in performing sequential alternations between numbers and letters. Sample persons are first asked to count to 20 and then to recite the alphabet. Any errors in the count to 20 and recitation of the alphabet are also noted by the interviewer. SPs are then asked to alternate between numbers and letters, e.g. 1, A, 2, B, 3, C and so on for 30 seconds. Interviewers transcribe the sequence on a form that is then scanned. A point is given each time the respondent switches type of response (number to letter; letter to number) from the last response answer and increments by one from the last response of the same type. Respondents who start with a letter (e.g. A, 1, B, 2, C, 3) are scored without penalty. In Teng's original study (1995), a cut-off score of <=12 distinguished 79% of patients with dementia (n=105) from 86% of age- and education-matched patients without dementia (n=139) and in subgroups of patients had a test-retest correlation of 0.90.

Note: Although the MAT was originally released as part of the R11 Beta files, it was pulled from the Final release files after it was noted that some interviewers did not initiate the 30 second timer (and therefore some participants had unlimited time to complete the test). R12 had a similar issue but answers in Round 12 were recorded. We are investigating options for correcting R12 scores based on the recordings and, if possible, correcting R11 scores based on the R12 experience.

Other sections collecting information on cognition

Clock Drawing (CD)	Clock Drawing activity (moved to CD from CG in R11)
Cognitive Battery (CB)	Tablet-based collection of three tests: a) detecting if the card is turned over b) identifying the color of the card and c) reporting if the card matches the one last shown (one card back). Reaction time and number correct are recorded.

Mobility (MO)

The mobility (MO), self-care (SC), household activities (HA), and medical care activities (MC) sections include NHATS' key measures of activity limitations (Freedman et al. 2011). For each

activity, questions assess the extent to which the activity was done independently in the last month and the use of accommodations in the form of devices, environment, or assistance from others in the same time frame. A measure of difficulty when doing the activity independently (with devices and any modifications that have been put into place, if used) is also included. Questions about changes in the frequency of the activity and about adverse consequences related to unmet need (Allen & Mor 2007) also are asked in the MO section.

A subset of MO section questions is included in the Last Month of Life interview. (In Rounds 2 and 3, the MO Section was not administered to deceased persons who were not mobile in the last month. This skip was removed in Round 4. Starting in Round 2, the MO Section is not administered to deceased persons who were not alert in the last month.)

The MO section obtains measures in the last month of: going outside one's home, getting around inside one's home, and getting out of bed. It also provides a measure of life space constriction (how often SP has left the room where they sleep, left their private living space to go into the building, and left their home/building in the last month). Questions for each mobility activity are summarized in the table below:

Summary table of Mobility section questions by activity

Questions	Going Outside	Getting around inside	Getting out of bed
Frequency of doing activity	X	X	X*
Frequency of using mobility devices to do activity	X**	X**	X**
Who helps[1]	X	X	X
Frequency by self (without help)	X	X	X
How difficult by self (using mobility devices)	X**	X**	X**
Compared to a year ago does more or less often	X	X	-
Consequence because too difficult by him/herself or because no one there to help SP[2]	X	X	X

*Persons who never leave their home or apartment are asked about leaving the room where they sleep.
**Devices reported in MD section.
[1] Individuals who are named as helpers are flagged and routed to the Helper Section (HL).
[2] Individuals who report difficulty or getting help or not doing the activity are asked about consequences.

Going outside one's home: Frequency of leaving one's home (or leaving one's building if living in a multi-unit residence, see RE Section) is asked first. Persons who go outside and report in MD using a mobility device are asked frequency of mobility device use for going outside. Persons who go outside are also asked whether anyone helps with going outside and, if so, who that is. Frequency of going outside by oneself is asked; those who indicate they go outside by themselves are asked about difficulty by themselves (with devices, if used). Persons are then asked compared to a year ago whether they leave their home or building more often, less often or about the same. The final question asks persons who report difficulty, getting help, or who do not go out, whether in the last month they ever had to stay in because it was too difficult to go out by themselves (for those reporting difficulty or not going out) or because there was no one to help (for those reporting help all the time).

Getting around inside one's home (or building, if live in multi-unit building): Persons in multi-unit buildings are asked frequency of leaving their apartment or unit to go to other areas of the building. Persons who indicate they never leave their home (or never go to other areas of the building) are asked frequency of leaving the room where they sleep. Persons who reported in MD using a mobility device are asked frequency of using mobility devices to get around inside their home (or building). Individuals who report leaving the room where they sleep are also asked about frequency of holding onto walls or furniture when getting around inside. Persons are asked whether anyone helps with getting around inside and, if so, who that is. Frequency of getting around inside by oneself is asked; those who indicate they get around by themselves are asked about difficulty by themselves (with devices, if used). Persons are asked compared to a year ago whether they go around their home (or building) more often, less often or about the same. The final question, whether there are places in the home (or building) the person did not go in the last month because it was too difficult or no one was there to help, is asked if the person has difficulty, gets help, or does not go around inside.

Getting out of bed: Persons who report mobility device use in the MD section are asked the frequency of using these devices to get out of bed. Persons are asked whether anyone helps with getting out of bed and, if so, who that is. Frequency of getting out of bed by oneself is asked; those who indicate they get out of bed by themselves are asked about difficulty by themselves (with devices if used). The final question asks persons who report difficulty or help whether in the last month they ever had to stay in bed because no one was there to help him/her or it was too difficult by himself/herself.

Duration of Mobility Accommodations (DM)

This section assesses the duration of help and mobility device use. For more information about using the duration of mobility accommodations measures, see Technical Paper #12, "Mobility and Self-Care Accommodation Duration Measures in the National Health and Aging Trends Study".

In the SP's initial round routing is based on whether mobility help and mobility device use were reported earlier in the interview (see MO and MD Sections). Assistance and device use when the person turned age 65 also is asked, as well as assistance and device use between age 65 and the current (initial round) interview.

Persons who reported help in the last month: Persons are asked whether they have been getting help for a year or more. Those answering "yes" are asked for how many years. Those answering "no, less than a year" are asked in what month they first got help with any of these mobility activities.

Persons who reported no help in the last month: Persons are asked whether they ever had help in the last year with getting out of bed, getting around inside, or going outside. Those answering "yes" are asked in what month they last got help with any of these mobility activities.

Persons who reported using a mobility device in the last month: Persons are asked whether they have used mobility devices for a year or more. Those answering "yes" are asked for how

many years. Those answering "no, less than a year" are asked in what month they first used these.

Persons who reported no mobility device use in the last month: Persons are asked whether they ever used mobility devices in the last year. Those answering "yes" are asked in what month they last used these.

At age 65 and since age 65: Persons are asked whether they had help with mobility activities or were using mobility devices around the time they turned 65. Persons skip this item if they reported "lifetime/since birth" (in response to "how many years" asked earlier) or have a duration of use/help that extends to age 65 or earlier. Persons with no device use or assistance in the last year are asked about use and assistance between age 65 and the current (initial round) interview.

At follow-up rounds, there are four paths based on current and prior reports of mobility help (MO section) and device use (MD section). Questions ask about months between the last interview month and year and the current interview month and year.

The DM Section is included in the Last Month of Life Interview, but with a time frame of between the last interview month and year and the month and year of death. (In Rounds 2 and 3, the DM Section was not administered for deceased persons who were not alert in the last month or for persons who were not mobile in the last month. This skip was removed in Round 4).

Persons who reported help (device use) in the last month but not at the prior round: Persons are asked in what month since the last interview help (device use) started.

Persons who reported no help (device use) in the last month but reported help (device use) at the prior round: Persons are asked in what month since the last interview help (device use) ended.

Persons who reported no help (device use) in the last month and no help (device use) at the prior round: Persons are asked whether they ever had help (device use) since the last interview and if yes, what month the help (device use) started and ended. (The month help (device use) ended was inadvertently skipped in Rounds 2 and 3.)

Persons who reported help (device use) in the last month and help (device use) at the prior round: Persons are asked whether they had no help (device use) for a month or longer since the last interview and if yes, for how many months.

Driving and Transportation (DT)

The Driving and Transportation section gathers information on the frequency of driving in the last month, (for persons who no longer drive, the date or age a person last drove), driving situations persons avoided in the last month (nighttime driving, driving alone, on busy roads or

highways, in the rain or other bad weather), and other ways someone got around in the last month (walking, getting a ride from a family member, friend or someone paid to help, using a van/shuttle provided by residence, using van/shuttle for seniors or persons with disabilities, public transportation, taxi, other). If the sample person got rides from family, friends, or paid helpers in the last month, the person who gave rides most often and their relationship to the sample person are asked; the respondent is then asked if another person gave rides and if so the relationship to the sample person.

Driving questions are skipped in follow-up interviews for persons who reported never driving in their initial round; transportation questions are asked for all sample persons. For more information on driving and transportation measures in NHATS see Skehan et al. 2014.

Other sections collecting information related to transportation

Participation (PA):	Questions are asked about whether transportation problems ever kept someone from doing selected activities in the last month.
Medical Care Activities (MC):	Persons are asked how they get to their regular doctor.
Household Activities (HA):	Persons are asked how they get to the store to shop for groceries or personal items.
Service Environment (SE):	If sample person is in residential care (other than nursing home) services available and used
Environmental Checklist (IR):	Conditions inside and outside the home
Facility Questionnaire (FQ):	If sample person is in residential care (including nursing home) services available at place and at sample person's level of care; payment information in last month

Household Activities (HA)

This section provides detailed measures of the following Household Activities in the last month: laundry, shopping for groceries or other personal items, making hot meals, handling bills and banking, and handling less common money matters. These activities (and handling prescribed medicines in the MC Section) are typically included in measures of instrumental activities of daily living (Lawton & Brody 1969).

Summary of Household Activity questions by how the activity(laundry, shopping, hot meals, bills and banking) was done in the last month

Questions	Always did it by self	Always did it together with someone else	Someone else always did it	It Varied Did by self	It Varied Never did by self	Not Done
Questions specific to the type of activity (see text below)	X	X	X	X	X	
Who did activity with or for person[1]		X	X	X	X	

Reason someone else did activity for or with SP or reason not done: health/functioning, other, both		X*	X*	X*	X*	X**
How difficult to do by self	X			X		
Compared to a year ago does by self more or less often	X	X		X		
Consequence because too difficult by him/herself or because no one there to help [2]	X	X	X	X	X	X

*Not asked if person who helps is staff person from place the person lives.
** If not done, "Was that because of your health or functioning or some other reason?"
[1]Individuals who are named as helpers are flagged and routed to the Helper Section (HL).
[2] Individuals who report difficulty, getting help for health/functioning reasons, getting help from someone in residential care setting where they live, or not doing the activity are asked about consequences.

For each activity, the sequence opens with a question on how the activity was done in the last month: always did activity by self, always did it together with someone else, someone else always did it, it varied. (Persons can also volunteer that the activity was not done in the last month.) These responses are on a card shown to the respondent and are also read by the interviewer.   As shown in the table above, subsequent questions flow from these responses. Validity and reliability of measures of limitations in these activities using NHATS items is reported in Freedman et al. (2011).

The general sequence is the same for laundry, shopping for groceries or personal items, making hot meals, handling bills and banking. The sequence for handling less common money matters differs and is described below (see questions specific to activity).

Always did activity by self: Persons in this category are asked how difficult doing the activity is; compared to a year ago whether they do the activity more or less often; and if they report difficulty, whether there was a consequence because the activity was too difficult to do by him/herself.

Always did it together with someone else: Persons are asked who did the activity with them and—unless the helper was a staff person from the place the sample person lives—whether this was because of health or functioning or some other reason. Also asked is whether compared to a year ago persons do the activity more or less often, and (if help was for a health or functioning reason or helper was a staff person from the place the person lives) whether in the last month a particular consequence occurred because there was no one to help or do that for the SP.

Someone else always did it: Persons are asked who did the activity for them. Whether this was because of health or functioning or some other reason is asked unless the helper was a staff person from the place the person lives. Also asked (if help was for a health or functioning reason or helper was a staff person in place person lives) is whether in the last month a particular consequence occurred because there was no one to help or do that for the SP.

It varied: Persons are asked whether, in the last month, they ever did the activity by themselves. Both response groups (yes/no) are asked who did the activity with or for them and—unless the helper was a staff person from the place the person lives—whether this was because of health or functioning or some other reason.

Those who say "yes" (ever did the activity by themselves) are asked: how difficult it is to do the activity by themselves; compared to a year ago whether they do the activity by themselves more or less often; and whether there was a particular consequence in the last month because it was too difficult to do by him/herself. These questions parallel those for persons who "always did activity by self."

Those who say "no" (never did activity by themselves) and report that help was for a health or functioning reason or the helper was a staff person from the place the person lives are asked whether in the last month the activity could not be done because there was no one to help or do that for SP. This question parallels the final question for persons who responded "always did it together with someone else" or "someone else always did it."

Not done in last month: These persons are asked whether the activity was not done for a health or functioning reason or other reason. If the reason was health or functioning, they are asked whether in the last month there was a particular consequence because it was too difficult to do by him/herself.

Questions specific to activity

Each activity also has questions specific to the activity.

Laundry: where laundry is done

Shopping for groceries or personal items: how groceries or personal items are paid for (cash, check, debit card, credit card); how the sample person got to the store to shop (transportation options); whether a motorized cart was used when at the store; whether the sample person leaned on the shopping cart to help get around the store. Beginning in Round 11, text was added to the introduction to the shopping series to clarify that the questions referred to shopping in person or online. A question was also added to ask if the sample person shopped online, in person, or both ways.

Making hot meals: how often hot meals were restaurant meals, including eat-in, take-out or delivered meals (not including meals provided as a service at the place person lives); how often used microwave oven to make hot meals. In Round 3 a question was added about receipt and frequency of meals from Meals on Wheels or other food assistance programs.

Handling bills and banking. Through Round 11, there were no extra activity-specific questions for bills and banking. However, beginning in Round 11, text was added to the introduction to the bills and banking series to clarify that the questions referred to handling these activities in person or online.

Handling less common money matters: Persons are asked whether in the last year, money matters—opening, closing or cashing in CDs, checking, money market or retirement accounts or applying for loans—needed handling. If the answer is "yes," persons are asked whether anyone helped with these and, if so, who. These individuals are flagged as helpers and routed to the Helper Section.

Reasons for help

When someone does the activity with or for the person, or the activity has not been done in the last month, persons are asked whether that is because of the SP's health or functioning or some other reason. One or both options may be selected.

In a validation study conducted prior to the NHATS baseline, lengthy lists of both health or functioning reasons and other reasons were provided for interviewers. Results from the validation study suggested that a small number of responses are commonly given in addition to saying "health or functioning" or "other reason." These responses are shown as onscreen aids to assist interviewers in coding. Responses of age; memory; vision; mention of specific health conditions, diseases, or surgery; or unable to drive are shown as responses that should be considered "health or functioning" reasons. Responses of: shared activity, always done this way, someone else wanted to do it, pay someone, doesn't like to do it, are shown as responses that should be considered "other reasons."

Other sections collecting information related to Household Activities

Technology (TE):	This section asks about going on the Internet or online in the last month to: shop for groceries or personal items, pay bills, or do banking
Medical Care Activities (MC)	This section asks a similar series of questions about how the SP keeps track of medications and where and how SP gets medicines; help and who helps, reason someone else did with or for (health/functioning or other), difficulty by self, frequency compared to a year ago, unmet need (due to no help/difficulty). The section also includes questions about help with getting to the doctor, who sits in and what activities they help with. There are also items about handling medical bills and insurance, including help and who helps.

Self-Care Activities (SC)

For each activity in the self-care section, questions are structured to provide insight into the extent to which the activity is done independently and the use of accommodations in the form of devices, environment, or assistance from others. Questions about behavior change—changes in the frequency of the activity—and unmet needs (Allen & Mor 2007)—in the form of consequences related to difficulty or lack of help—also are asked. For a more detailed discussion see Freedman (2009) and Freedman et al. (2011).

A subset of questions from the SC section is included in the Last Month of Life interview. (In Rounds 2 and 3, this section was not administered if the person was not alert in the last month of life. This skip was removed in Round 4).

Activities in the self-care section include: eating, getting cleaned up, using the toilet, and dressing. These activities (together with walking around inside or getting out of bed) are typically included in activities of daily living (Katz et al. 1963; 1970).

Summary of self-care questions by activity (eating, getting cleaned up, using toilet, dressing)

Questions	Eating	Getting cleaned up	Using the toilet	Dressing
Used equipment/devices for	X			X
Frequency of using equipment/devices	X	X*	X*	X
Help with activity	X	X	X	X
How often by self and without help	X	X	X	X
Who helps[1]	X	X	X	X
How difficult by self (using equipment/devices) and without help	X	X	X	X
Compared to a year ago does by self more or less often		X		X
Consequence because too difficult by him/herself or no one there to help SP[2]	X	X	X	X

*Use of equipment/devices is reported in HO section.
[1]Individuals who are named as helpers are flagged and routed to the Helper Section (HL).
[2] Individuals who report difficulty, or getting help, or not doing the activity are asked about consequences.

The general sequence for each activity covers whether devices are used to do the activity and frequency of use, whether there is help with the activity and who provides it, frequency of doing the activity by oneself, difficulty doing the activity, and whether the activity did not get done in the last month because of difficulty or lack of help.

Eating: Persons are asked whether in the last month they used adapted utensils to eat and, if yes, frequency. Everyone is asked whether anyone ever helped them eat, for instance, by cutting up food or feeding them and, if so, who helps. Persons are asked how often they ate without help, and how much difficulty they had eating—with adapted utensils if used—by themselves and without help. Persons who get help or have any difficulty are asked whether in the last month they ever went without eating because there was no one there to help or because it was too difficult to feed themselves.

Getting Cleaned Up: Persons are asked how, in the last month, they usually clean up— by taking a shower, bathing in a tub, or washing up some other way– and, if more than one is named, which they did most often. Persons who reported using grab bars to shower or bathe (see HO Section) are asked frequency of using grab bars; those who reported using bath or shower seats (see HO section) are asked frequency of using these. Everyone is asked whether in the last month

anyone ever helped them shower/bathe/wash up and, if so, who helped. Persons are asked how often they got cleaned up without help, and how much difficulty they had —with grab bars or shower/tub seats if used—by themselves and without help. Persons are asked compared to a year ago whether they get cleaned up more or less often. Those who get help or have any difficulty are asked whether in the last month they ever went without showering/bathing/washing up because there was no one there to help or it was too difficult to do that by themselves.

Using the Toilet: Persons are asked whether in the last month they used: a portable commode, disposable pads or undergarments, grab bars around the toilet (if in the home, see HO Section), raised toilet or raised toilet seat (if in the home, see HO Section). Everyone is asked whether in the last month anyone ever helped them use the toilet. Persons are asked how often they used the toilet by themselves and without help, and how much difficulty they had —with grab bars or raised toilet/toilet seat if used—by themselves and without help. Those who get help or have any difficulty are asked whether in the last month they ever accidentally wet or soiled their clothes because there was no one there to help or it was too difficult to get to or use the toilet by themselves.

Dressing: Persons are asked how often they got dressed in the last month and whether they used any special items to get dressed, such as a button hook, reacher or grabber, or clothes that are designed to get on and off easily. Everyone is asked whether in the last month anyone ever helped them get dressed. Persons are asked how often they got dressed by themselves and without help, and how much difficulty they had —with special items for dressing if used—by themselves and without help. Persons are asked compared to a year ago whether they get dressed more or less often. Those who get help, have difficulty, or did not get dressed are asked whether in the last month they ever went without getting dressed because there was no one there to help or it was too difficult by themselves.

Duration of Self-Care Accommodations (DS)

This section assesses the duration of help with self-care activities (eating, getting cleaned up, using the toilet, or getting dressed). For more information about using the duration of self-care accommodations measures, see Technical Paper #12, "Mobility and Self-Care Accommodation Duration Measures in the National Health and Aging Trends Study".

Like the earlier section on duration of mobility accommodations (see DM Section), persons are routed through the questions depending on whether help in the last month was reported earlier in the interview.   At the SP's initial round questions are asked about help at age 65 and between age 65 and the current (initial round) interview.

Persons who reported help in the last month: Persons are asked whether they have been getting help for a year or more. Those answering "yes" are asked for how many years. Those answering "no, less than a year" are asked in what month they first got help with any of these self-care activities.

Persons who reported no help in the last month: Persons are asked whether they ever had help in the last year with eating, getting cleaned up, using the toilet, or getting dressed. Those answering "yes" are asked in what month they last got help with any of these activities.

At age 65 and since age 65: Persons are asked whether they got help with self-care activities around the time he/she turned 65. Persons skip this item if they reported "lifetime/since birth" (in response to "how many years" asked earlier) or have a duration of help that extends to age 65 or earlier. Persons with no help with self-care in the last year are asked about use and assistance between age 65 and the current (initial round) interview.

Starting in Round 2, there are four paths based on current and prior reports of self-care help (SC section). Questions ask about months between the last interview month and year and the current interview month and year.

The DS Section is included in the Last Month of Life Interview, but with a time frame between the last interview month and year and the month and year of death. (In Rounds 2 and 3, it was not administered if the person was not alert in the last month of life. This skip was removed in Round 4).

Persons who reported help in the last month but not at the prior round: Persons are asked in what month since the last interview help started.

Persons who reported no help in the last month but reported help at the prior round: Persons are asked in what month since the last interview help ended.

Persons who reported no help in the last month and no help at the prior round: Persons are asked whether they ever had help since the last interview and if yes, what month the help started and what month it ended.

Persons who reported help in the last month and help (device use) at the prior round: Persons are asked whether they had no help for a month or longer since the last interview and if yes, for how many months.

For more information about using the duration of self-care accommodations measures, see NHATS Technical Paper #12, "Mobility and Self-Care Accommodation Duration Measures in the National Health and Aging Trends Study."

Medical Care Activities (MC)

This section covers: how the sample person handles their prescription medicines, how doctor visits are managed, and how medical bills and insurance are handled. The items on prescription medicines are structured like those for Household Activities (HA). Questions about doctor visits cover how persons get to the doctor, who goes along, and whether anyone sits in on the visit

with the sample person. The questions on medical bills and insurance focus on assistance from others.

Prescription Medicines: The first question asks whether the sample person takes any medicines prescribed by a doctor. Those answering "no" skip to the next set of questions on how doctor visits are managed. Persons taking medicines are asked whether they: always did activity by self, always did it together with someone else, someone else always did it, it varied, or not done in last month (see HA section).[7] Subsequent questions flow from these responses.

Summary of questions on handling medications by how activity was done in the last month

Questions	Always did it by self	Always did it together with someone else	Someone else always did it	It Varied	
				Did by self	Never did by self
Where medicines from; how obtained; frequency of using reminders	X	X		X	X
Who kept track with or for person[1]		X	X	X	X
Reason someone else did for or with SP or not done: health/functioning or other reason		X*	X*	X*	X**
How difficult to keep track by self	X			X	
Compared to a year ago does by self more or less often	X	X		X	
Consequence because too difficult by self/no one there to help or do for SP[2]	X	X	X	X	X

*Not asked if person who kept track with or for the sample person is staff from place sample person lives.
** If not done, asked as "Was that because of your health or functioning or some other reason?"
[1] Individuals who are named as helpers are flagged and routed to the Helper Section (HL).
[2] Individuals who report difficulty, or getting help for health/functioning reasons or from someone at the place they live, or not doing the activity are asked about consequences.

Always did activity by self: Persons are asked where medicines are from; how they are obtained; and frequency of use of reminders to keep track; how difficult it is to keep track of medicines by themselves; compared to a year ago whether they keep track by themselves more or less often; and whether a mistake was ever made in the last month because it was too difficult to keep track.

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[7] In Round 1 interviewers could select either health/functioning or other reason but not both (unlike for activities in the HA section). This inconsistency was corrected in Round 2. See MC section of derived variable table for details.

Always did it together with someone else: Persons are asked where medicines are from; how they are obtained; frequency of use of reminders to keep track. In addition, they are asked who kept track of their medicines with them and—unless the helper was a staff person from the place the sample person lives—whether this was because of health or functioning or some other reason. Also asked is whether compared to a year ago, persons keep track by themselves more or less often and (if help was for a health or functioning reason or helper was a staff person in place person lives) whether in the last month a mistake in taking medicines was made because no one was there to help or keep track of medicines for them.

Someone else always did it: Persons are asked who kept track of their medicines for them. Whether this was because of health or functioning or some other reason is asked unless the helper was a staff person from the place the sample person lives. If help was for a health or functioning reason or helper was a staff person in place person lives, persons are asked whether in the last month a mistake in taking medicines was made because no one was there to help or keep track of medicines for them.

It varied: Persons are asked whether, in the last month, they ever kept track of their medicines by themselves. Both response groups (yes/no) are asked: where medicines are from; how they are obtained; frequency of use of reminders to keep track. In addition, they are asked who kept track of their medicines with them and—unless the helper was a staff person from the place the sample person lives—whether this was because of health or functioning or some other reason.

Those who said "yes" (ever kept track of their medicines by themselves) are asked: how difficult it is to keep track of medicines by themselves; compared to a year ago whether they keep track by themselves more or less often; and whether a mistake was ever made in the last month because it was too difficult to keep track by him/herself. These questions parallel those for persons who "always did activity by self."

Those who said "no" (never kept track of medicines by themselves) and reported that help was for a health or functioning reason or helper was a staff person in place person lives are asked whether in the last month a mistake in taking medicines was made because no one was there to help or keep track of medicines for them.   This question parallels the final question for persons who responded "always did it together with someone else" or "someone else always did it."

Not done in last month: These persons are asked whether the reason keeping track of medicines was not done was for health or functioning or other reasons. If the reason was health or functioning, they are asked whether in the last month they did not keep track because it was too difficult to do.

Medical Care*:* Respondents are asked if the sample person has a regular doctor and if that doctor (or any doctor if no regular doctor is reported) has been seen in the last year. Starting in Round 11, text was added to clarify that a doctor's visit included in person visits and online telehealth visits and a question was added to ask if the sample person saw their regular doctor online using telehealth visits, in person, or both ways. Persons who have not seen a doctor in the last year are routed to the Medical Bills and Insurance Questions. All others are asked about

means of transportation to the doctor, whether anyone sits in with the person on doctor visits and, if so, who that is (who does it most often if more than one person named). Individuals who are named as "sitting in on doctor visits" are flagged and routed to the Helper Section (HL) (except for those who are staff persons from the place the person lives). The last question is about what the person who sits in on the visit does: helps with getting online for a telehealth visit (beginning in Round 11), helps with getting on exam table or dressing, reminders to ask doctor, asks doctor questions, or helps the sample person to understand what the doctor was saying.

Medical Bills and Insurance: If respondents report a change to a Medicare supplemental plan, a prescription drug plan, or managed care enrollment in the last year, they are asked if anyone helped with these decisions. Individuals who are named as helpers are flagged and routed to the Helper Section (HL) (except for helpers who are a staff person from the place the person lives).

Other sections collecting information related to Medical Activities

Technology (TE):	This section asks about going on the Internet or online in the last month to: order or refill prescriptions, attend a telehealth appointment (added in R11), contact his/her medical providers, handle Medicare or other insurance matters, or get information about the his/her health conditions.

Participation (PA)

These questions reflect participation in activities that are elective but valued (Freedman 2009). Questions are asked about participation (yes/no) in activities in the last month, whether health or transportation problems ever kept the person from doing the activity, and how important it is to the SP to do the activity. Freedman et al. (2011) confirmed the reliability of the participation measures in the form of a scale; reliability of individual items varies.

Activities with full sequence: The full sequence—was the activity done, did health or functioning ever keep person from doing, did transportation problems ever keep person from doing, how important is it to do—is asked for: visiting in person with friends or family not living with person; attending religious services; participating in clubs, classes or other organized activities; and going out for enjoyment (dinner, a movie, to gamble, hear music or see a play). Starting in Round 11, questions were added to ascertain if the COVID-19 outbreak ever kept the SP from participating in these valued activities. Text was also added starting in Round 11 to clarify that attending religious services and participating in clubs, classes, or other organized activities could be in person or online.

Activities with selected follow-up: For both "work for pay or in a business" and "doing volunteer work," only whether the activity was done and, if so, whether health or functioning ever kept someone from doing the activity are asked. Persons who report "providing care for or looking after an adult or child who cannot care for themselves" are asked who that person is and how they are related to the sample person.

All persons are asked whether in the last month they ever "walked for exercise" or "did vigorous activities (e.g. working out)."

Favorite activity: At the SP's initial round, respondents are asked to identify a favorite activity (entered as open text) and whether their health or functioning ever kept them from doing this activity in the last month. Responses were grouped into fifty-two categories developed in the Panel Study of Income Dynamics Supplement on Disability and Time Use (Freedman & Cornman 2009). In follow-up rounds, respondents are asked whether they have done their favorite activity since the last interview month and year and whether their health or functioning ever kept them from doing this activity in the last year. At Rounds 5 and 12, continuing sample also were asked whether the favorite activity named at Round 1 or Round 5, respectively, was still their favorite. If not, they were asked to report a new favorite activity (and whether health or functioning ever kept them from doing this new activity in the last month and in the last year). Starting in Round 6, the Round 5 favorite activity reported by both new and continuing sample is the basis for questions about doing the activity since the last interview. See *Section III.N Favorite Activity* for more details on cross-wave variable naming.

This question is also asked in the Last Month of Life Interview with reference to the period between the last interview month and year and the month and year of death. This question is not asked for persons who were not alert in the last month of life (fl#notalert=1).

Rehabilitation (RH)

Added in Round 5, the Rehabilitation section asks about use of physical rehabilitation services (physical therapy, occupational therapy, speech therapy) in the last year. SPs who report use are asked about duration of services, the purpose of the services (e.g. the main medical condition for which they received services, the body structure/function that was the target for improvement, the activities they were trying to improve), recommended devices or equipment, and setting. They were also asked about changes in functioning while they were receiving services, reasons for stopping services, and changes in functioning since rehab ended. Freedman, Kasper and Jette (2018) confirmed high sensitivity and specificity for self-reported use of rehabilitation services compared with Medicare claims.

Smoking (SD)

The Smoking section captures cigarette smoking status (current, past, never smoked), amount if smoked (cigarettes per day) and duration of smoking (age started or stopped). Smoking status is defined by the response to "ever smoked cigarettes regularly, at least 1 cigarette a day." These items allow measures of pack years and number of years smoking to be calculated. In follow-up rounds, this section is asked only of SPs who reported smoking in their initial round.

Performance Activities Eligibility (PE)

The NHATS includes physical performance activities (walking, balance, chair stands, grip strength, peak air flow) as well as waist circumference. Some of these activities should not be attempted by individuals under certain circumstances. This section is administered to determine which activities the respondent should be asked to try.

Exclusion criteria*:* Questions are asked to determine which activities persons will be asked to do. Exclusion criteria by activity are:

- Grip strength: surgery, or flare up of pain, in both hands or wrists; surgery to both arms or shoulders within last 3 months
- Walking 3 meters: uses a wheelchair or scooter every time to get around inside home (see MO Section); unable to walk a short distance by self (using mobility devices)
- Chair stands: person unable to get up from chair without using mobility devices or help; surgery on both hips within 3 months
- Balance stands: person who always uses a mobility device to get out of bed (see MO Section) or never got out of bed by self (see SC Section) says he/she is unable to stand without holding on to anyone or anything
- Peak air flow: none
- Waist circumference: none

This section also indicates which hand should be used for the grip strength activity (dominant hand unless exclusion criteria apply to that hand). Persons who always use a cane or walker inside the home (see MO Section) are told they may use their cane or walker for the 3 meter walking activity. Whether the device was used is recorded in the Performance Activities Booklet.

This section was not administered in Round 10.

Performance Activities Booklet (AB)

The results of the performance activities are recorded in the Performance Activities Booklet which is mailed in by interviewers and scanned for data entry. Before each activity the interviewer reads a description of the activity and demonstrates the activity for the respondent. The interviewer then asks the respondent whether he/she "thinks it would be safe to try this." If the respondent does not feel safe, the interviewer does not feel the activity would be safe, or a proxy does not feel the activity would be safe, this is recorded and that activity is skipped. Other reasons that an activity is not attempted also are recorded and include: respondent does not understand instructions, could not find appropriate chair (for chair stands) or ample space (for walking course).

Balance activities: There are 5 balance activities —side-by-side, semi-tandem, full tandem, one leg eyes open, one leg eyes closed. Persons are asked to hold the two-leg stands for 10 seconds and the one leg stands for 30 seconds. Whether the activity was completed (yes/no) is

recorded. These stands progress from easy (side-by-side) to hard (one leg eyes closed). Persons move on to the next balance activity if they complete the prior (easier) one.

Chair stands: Persons first do a single chair stand (getting up and sitting back down without using arms). Whether the activity was completed (yes/no) is recorded. Persons who complete the single chair stand are asked to attempt the repeated chair stand. Persons are asked to do 5 repeated chair stands as quickly as they can. Time to complete the activity is recorded.

Walking: A 3 meter walking course is laid out on a level surface. Persons are timed as they walk from the start to finish and timed again on the return. Both times are recorded, along with whether any mobility device was used.[8]

Grip strength: Persons are given a dynamometer and asked to squeeze as hard as they can with their dominant hand.[9] The reading on the dynamometer is recorded. The activity is done twice.

Peak air flow: Persons are asked to blow into a peak air flow meter. The reading on the meter is recorded. The activity is done twice. This activity was not conducted in Round 11.

Waist circumference: A tape measure is used to measure waist circumference while the person is standing (or sitting if they are unable to stand).

The performance activities included in NHATS and the protocols for administration draw on several prior studies including the Women's Health and Aging Study (Simonsick et al. 1997), the Established Populations for Epidemiologic Studies of the Elderly, and the Health and Retirement Study. The walking, balance activities, and chair stands are components of the Short Physical Performance Battery (SPPB) (Guralnik et al. 1994; 2000). Summary scores for each performance activity and two versions of the SPPB (NHATS Expanded SPPB and Original) have been constructed for analysts. See *III.K. Derived Variables* and Kasper, Freedman and Niefeld (2012) for more information.

The performance activities were not conducted in Round 10. Starting in Round 11 the performance activities were restored and moved to later in the interview. See I.D. NHATS Response to COVID-19 for details.

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[8] Individuals who use walking devices (a cane or walker) all the time to get around indoors, and those who use them only sometimes but who do not feel it would be safe to try the walking course without such devices, are told that they may use their device.

[9] Participants who had surgery or a serious injury to their dominant hand or wrist in the last three months or reported currently having a flare-up of pain in the dominant hand or wrist were asked to use their non-dominant hand for the test.

Height and Weight (HW)

This section obtains self-reported current height and weight, height and weight at age 50, and unintentional weight loss (lost 10 pounds or more in the last year and not trying to lose weight). In follow-up rounds, height and weight at age 50 are not asked.

Early Life (EL)

The Early Life section covers selected life experiences and is asked at the SP's initial round. Topics in this section are:
- Place of birth (state if US, country otherwise);
- If not born in US, year or age the person came to live in the US;
- Health as a child (excellent, very good, good, fair, poor);
- How well off financially when growing up;
- Lived with both parents at age 15; if not, lived with mother, father, other relatives or nonrelatives;
- Residence at age 15 (city/town, state);
- Education;
- Mother and father still living.

Questions about whether SP's mother and father are still living are asked in follow-up rounds if either are reported as living in the prior round. In Round 10, this section was moved earlier in the interview following Children and Siblings (CS). In round 12, derived variables that combined responses from the SP's initial round for new and continuing sample were added.

Race, Ethnicity, and Language (RL)

This section collects race (multiple categories are allowed and respondents are asked to select a primary race in these cases). Hispanic ethnicity and subgroups (Mexican American/Chicano, Puerto Rican, Cuban American, Other) are obtained. The NHATS Interview has been translated into Spanish and administration in Spanish is documented. Three questions on language are included: whether the sample person speaks a language other than English (not asked for Spanish language administration), how well the person understands English when spoken, how well he/she speaks English (very well, well, not well, not at all).

The RL Section is asked at the SP's initial round only. In Round 12, variables that combined responses from the SP's initial round for new and continuing sample were added. A derived race/ethnicity variable (rl#dracehisp) created in the SP's initial round is carried forward to subsequent rounds (with the exception of Round 2). In Round 5, the variable rl5dracehisp was derived from the Round 1 variable for continuing sample and from the Round 5 interview for new sample; it is on the Rounds 5 and subsequent files. In Round 12, the variable rl12dracehisp was derived from Rounds 1 and 5 for continuing sample and from Round 12 for new sample.

More detailed data on race and ethnicity is available on the SP Sensitive file. Variables that combine responses from the SP's initial round for new and continuing sample are provided.

Veteran's Status (VA)

The Veteran's Status section asks: whether the person served on active duty in the Armed Forces of the United States, periods of service on active duty, and whether the person was an active member of the National Guard or a military reserve unit.

Periods of service on active duty follow those recommended for the American Community Survey (ACS) by a joint VA-Census Bureau Committee. NHATS periods of service are identical to those in the 2010 ACS with two exceptions: the May 1975 to August 1980 and September 1980 to July 1990 periods are collapsed to May 1975 to July 1990; the February 1955 to February 1961 and March 1961 to July 1964 periods are collapsed to February 1955 to July 1964.

The VA Section is asked at Round 1 of all participants and again at Round 5 of all participants. In Round 12, the VA Section was administered only to new sample persons; derived variables that combined responses from the SP's initial round for new and continuing sample were added.

Well-Being and Age Identity (WB)

The Well-Being section obtains information about positive and negative affect (frequency of feelings in the last month e.g., cheerful, bored, full of life, upset, lonely (beginning in Round 11)), self-realization (agreement with statements about life: life has meaning and purpose, feel confident and good about self, gave up trying to improve life long ago, likes living situation), age identity (age person feels), and self-efficacy and resilience (agreement with statements: other people determine activities, I do what I want, I adjust easily to change). The section draws on similar items that have appeared in MIDUS (Midlife in the U.S. A Study of National Health and Wellbeing). Reference periods and response categories differ across studies that have used these items. NHATS uses "last month" as the reference period and, in general, fewer response categories.

The WB section is not asked of proxy respondents.

Insurance Plans (IP)

Questions are asked about prescription drug coverage, Medigap or Medicare supplemental insurance, Medicaid coverage, and coverage under TRICARE. Questions on long-term care insurance ask whether: "not including government programs, persons have any insurance that would pay for a year or more of care in a nursing home, assisted living, or in their own home." Those who answer "yes" are asked what types of care are covered, premium amount in the last calendar year, and how long they have had the policy (in either years or age at purchase).

Persons who report having long-term care insurance in a round are asked whether they still have the policy in follow-up rounds.

Labor Force (LF)

This section is designed to provide a measure of labor force participation – employed, unemployed, not in the labor force—consistent with definitions produced by the Current Population Survey.   The LF section cycles back and forth between a full and brief version.

In Rounds 1, 5, and 12 only, work-related income in the past month is asked for all persons and their spouses/partners (see IA Section for other income sources and amounts). For those working, hours worked, paycheck schedule, and paycheck amounts are asked. Persons who are in residential care for purposes of data collection and who said in the PA Section that they had not worked for pay or in a business they own last month are not asked questions about labor force participation.

Also in the SP's initial round, questions are asked about their longest held occupation (the work they did most of their lives) and current occupation.

Starting in Round 2, in non-replenishment rounds, a briefer version of this section is administered (without paycheck amounts) and an item asking current occupation for persons who are working is included.

Home Ownership (HP)

At every round, questions are asked about home ownership. In Rounds 1 through 4 persons with a facility flag = 1 skip this section. Beginning in Round 5, all sample persons are asked this section. Topics covered are: whether persons own or rent their home; details about mortgages (if the mortgage is paid off, monthly payment amounts, time left until mortgage is paid off, mortgage balance), the present value of the home, and (beginning in Round 5) payments to live in a facility. For persons who rent or make a monthly payment, amount is asked. Based on thresholds in Box HP 7 (raised in Round 5) persons are asked if their home is Section 8 or public housing or housing for low-income seniors.

Income and Assets (IA)

Administered in Rounds 1 and 5, the full Income and Assets section collects information on: sources of income (except for earned income, see LF Section), income amounts by source and total income from all sources, major assets (other than home ownership, see HP section, and car ownership, see CO section), and the current value or worth of major assets.   Other information in this section includes: whether Social Security is received by mail or direct deposit, and the year and month person started receiving Social Security. A brief version of the

IA Section asking about sources of income, assets, and total annual income from all sources was administered in Rounds 3, 7, 9 and 11 forward. The IA Section was not asked in Rounds 2, 4, 6, 8, or 10.

Time Frame: Many questions are framed in terms of "last month." In this section last month refers to the full month prior to the interview month (e.g. for interviews in May, the last month would be April). A few questions are framed in terms of "last year," meaning the previous calendar year (e.g. for interviews in 2011, calendar year 2010; calendar year 2014 for 2015 interviews).

Response Options: In order to make responding to the IA questions easier several steps were taken. First, respondents were invited in the opening of the IA section to "Please feel free to refer to any records or other persons that may be of assistance in answering these questions." Second, in the case of couples, the respondent could choose how to report each income source or asset: jointly (e.g. joint checking), separately (his and her retirement accounts), or some combination of the two (joint checking and her savings). Third, although questions on income amounts and asset values ask for a dollar amount, interviewers could follow-up as needed with a statement that "We don't need an exact dollar amount. The nearest $100/$1000 is fine. "(The amount varies by type of income and asset). This indicated to the respondent that precision to the exact dollar was not expected.

Don't Know Responses: Income and assets are often sensitive topics and nonresponse tends to be higher for these types of questions. NHATS has addressed this issue in two ways: 1) a statement that explains why this information is needed is in the introduction to the IA Section and can be repeated by the interviewer as needed; 2) use of show cards with bracketed ranges for dollar amounts tailored to types of income and assets when respondents do not provide a dollar amount. Most surveys use a bracketing approach–either unfolding (as in the Health and Retirement Survey) or fixed ranges (as in the Survey of Consumer Finance)–to reduce missing data for responses that ask for answers in dollars. NHATS used 5 fixed brackets with separate ranges for single persons and couples. The ranges were developed based on data from the Survey of Consumer Finance (2007 in Rounds 1 and 3; 2010 and 2013 combined to increase sample size in Round 5, 7, and 9; 2019 in Round 11 and 12).

Summary table of elements in the IA section and location of other income/asset information

Sources of Income and Income Amounts[1]	Time frame	Section if not IA
Social Security	Last Month	
Supplemental Security Income (SSI)	Last Month	
Veteran's Administration	Last Month	
Pension plan	Last Month	
Earned Income (SP and Spouse/Partner)	Last Month/Last Paycheck	Labor Force (LF)
Interest/dividend income from any: mutual funds/stocks, bonds, bank accounts, or CDs	Last Year	
Total income from all sources	Last Year	
Assets and Value[1]		

Retirement accounts	Current worth/amount withdrawn last month/amount withdrawn last year	
Mutual funds or stocks	Current worth	
Bonds	Current worth	
Checking account	Current worth	
Savings account	Current worth	
Certificates of Deposit	Current worth	
Business, farm or real estate (besides home)	Current worth	
Home	Current worth/current outstanding mortgage balance	Home Ownership (HP)
Cars/other vehicles	Current worth	Car ownership (CO)

[1]The allowable range for income amounts and asset values began at $1, rather than $0, so in cases where the response was $0, interviewers were instructed to enter $1 and indicate in a note that the true value was zero.

Car Ownership (CO)

In Rounds 1 and 5, questions are: whether any cars, trucks, or vans are owned, the number of vehicles owned, and their present value. Other assets (and their worth) are included in the IA Section and the HP section. The CO Section was reintroduced in Round 11.

Economic Well-being (EW)

This Section asks about some types of debt, financial gifts from sample persons to relatives and from relatives to sample persons, and participation in government assistance programs.

Debt: Questions cover whether credit card balances are paid off each month and the total balance owed on all cards. Whether any amount owed on credit cards is for medical care and the amount owed is asked. Respondents also are asked whether any medical bills are being paid off over time and, if so, the amount.

Financial gifts to and from the sample person: Persons are asked whether in the previous calendar year they received "any financial help or financial gifts from children or other relatives either regularly—like every month—or just every so often as needed." Who helped is asked and for children the specific child is identified. An amount for the previous calendar year is asked. These questions are repeated for financial help or gifts from sample persons to children or other relatives. Grandchildren are coded separately from children and other relatives.

Government assistance: Participation in the last year in food stamps, food assistance such as Meals-on-Wheels, and energy assistance programs is asked of everyone starting in Round 2 (in Round 1 persons with facility = 1 were not asked).

Food insecurity: Starting in Round 2, questions about skipping meals in the last month because there was not enough food or money to buy food, and frequency of skipping meals

were added. These items were used in the National Health and Nutrition Examination Survey III as indicators of food insecurity.

Financial Hardship: Starting in Round 2, questions were added about whether there were times in the last year when the SP did not have enough money to pay the rent/mortgage, pay utility bills, or pay medical/prescription drug bills.

Helpers (HL)

This section is designed to obtain information about persons identified in earlier sections as helping with activities. Questions are asked about each person who is identified as a "helper" with activities in: Mobility (MO), Driving and Transportation (DT), Household Activities (HA), Self-Care Activities (SC), and Medical Care Activities (MC). NHATS identifies as "helpers" people who in the last month have carried out a household activity or medical care-related activity <u>with</u> or <u>for</u> a sample person, given rides to the SP, sat in on doctor visits, or helped with mobility or self-care activities. This information can be used to characterize the involvement of others in meeting the demands of routine daily activities and, when help is for health or functioning-related reasons, understanding how help from others bridges the gap between individual capacity and doing necessary activities.

The Helper Section (HL) is not administered for persons identified as helping who are "someone/service at the place SP lives/lived" (relationship code = 37).

Activities where Helpers can be identified:

- Getting around outside, getting around inside, getting out of bed (MO Section)
- Persons who give the sample person a ride to get to places (DT Section; two persons can be identified)
- Laundry, shopping for groceries or personal items, preparing hot meals, handling bills and banking, less common money matters (HA Section)
- Eating, getting cleaned up, using the toilet, getting dressed (SC Section)
- Keeping track of medications, sitting in on doctor visits, making decisions about insurance (MC Section)

Helper characteristics: Relationship of the helper to the sample person is obtained when a person is identified as helping with an activity. Questions in the HL Section obtain information on whether the person helping has a regular schedule or whether it varies. If help is given on a regular schedule, days per week and hours per day (on days when help is provided) are asked. Otherwise, days in the last month and hours per day (on days when help is provided) are asked. Starting in R11, if the days helped per week is 0, respondents are asked days in the last month and hours per day. For helpers other than spouses/partners, whether the helper is paid and who pays (family, government program, insurance, other) is asked. If the person or his/her family pays, the amount for the last month is asked. This amount can be reported as an hourly rate, a

weekly rate or a monthly rate. If a government program is named as a source of payment, the type of program is asked (Medicaid, Medicare, a state program or something else).

Last Month of Life (LML) Helpers (HM)

This section was added starting in Round 7 to obtain information on whether an LML helper lived in the SP's household and if the helper was paid or unpaid. Other information about LML helpers is obtained as respondents are routed through the LML interview, including: relationship and what activities were helped with. This information can be used to characterize the involvement of others in providing assistance in the last month of life.

Modules

Modules proposed by NHATS external users are administered in several rounds of NHATS. Calls for Module proposals are posted on the NHATS website and are reviewed by the study team and selected based on congruence with the NHATS study objectives and other criteria (e.g. suitable for administration to a random sample of NHATS participants. The number of modules administered each round varies depending on sample size and other considerations.

Because cases were randomly assigned, the subsample of those responding to a particular module may be used with the sample weights and variance estimation variables (described in Section IV) to calculate weighted percentages and model coefficients (but not population counts).

The table below shows the modules administered and the samples for modules by round. Module contents are also described.

NHATS Round	Modules administered and Sample		
1	LS administered to all participants		
2	AD to random 1/3	EH to random 1/3	EP to random 1/3
3*	PN to random 1/3	PT to random 1/3	SQ to random 1/3
4*	SQ to R3 PN sample	PN to R3 PT sample	PT to R3 SQ sample
5	LS administered to all participants		
6	MA to random 1/3	SY to random 1/3	TR to random 1/3
7**	None		
8	EP administered to all participants		
9***	None		
10****	None		
11	None		
12	LS administered to all participants		

*Modules administered in both Rounds 3 and 4 were intentionally assigned to different random samples in each round so they could be combined for analyses (e.g. PN from R3 plus PN from R4). We recommend that the user draw weights and variance estimation variables from the round administered.

**Dried Blood Spots were collected in R7 so no modules were administered.

***Pilot tests were conducted for Vision, Hearing and Accelerometry activities that were introduced in R11, so no modules were administered.
****At the beginning of the HC section, SPs were asked about how COVID-19 affected their life, so no modules were administered.

AD: American Community Survey Disability Questions. These items are being used in many federal surveys to identify persons with disabilities. They are included as a means of providing a cross-walk between disability estimates based on these items and estimates based on NHATS.

EH: Engagement in Health Care. These items ask about how individuals manage their health, their preferences for sharing health care decisions with doctors as well as family members/close friends (separately), and their experiences with managing their health. Items are adapted from prior studies that asked about individual preferences for sharing health care decisions with doctors (Levinson et. al, 2005) and family members and close friends (Price et., al., 2011), and about the experience of treatment burden related to activities they undertake to maintain their health (Giovanetti et al, 2011 and Boyd et al, 2014).

EP: End of Life Plans and Care. These items ask whether the SP has talked to anyone about the medical treatment he/she wants in case of serious illness and, if so, who. Questions include whether there are legal arrangements and a living will or advanced directive. Preferences for medical treatment and long-term care arrangements under different scenarios are asked.

LS: National Long Term Care Survey (NLTCS) Screener items. All respondents received the LS module. This module administered the 2004 National Long Term Care Survey (NLTCS) screener items, thus providing a means to cross-walk between disability estimates based on the NLTCS screener items and estimates from NHATS.

MA: Medication Attitudes. This module explores people's attitudes about the number of medications that they take and medication cessation. The module draws 6 items from the Patients' Attitudes Toward Deprescribing (PATD) Questionnaire and 2 items from a supplemental review by Reeve and colleagues (Reeve et al. 2001a, 2001b).

PN: Pain. These items focus on pain intensity and interference. A pain intensity question (0 to 10 rating) from PROMIS-29 (Hays et al. 2018) is included, which is also widely used in clinical practice and in clinical trials on pain (Farrar et al. 2001; Turk et al. 2003; Dworkin et al. 2005). Experiencing pain in the last year that lasted more than 24 hours is asked as well.   How much pain interferes with specific activities and overall in daily life is asked. (NOTE: See Section III.O. for correction to value labels for some variables on the data file).

PT: Personality & New Inventions to Make Life Easier. Respondents are asked to say how well a list of 10 words describes them (not at all, a little, some, a lot). Items were drawn from validated scales of five personality traits (Lachman and Weaver 1997). Respondents also were asked an open-ended question regarding an activity that they had trouble with where a new invention might help. Answers to this question were coded as: pt3invention and pt4invention.

SL: Sleep Quality. These items supplement questions on sleep in the HC Section. Items are drawn (and used with permission) from the Pittsburgh Sleep Quality Index (Buysse et al. 1989). A question on overall sleep quality is asked. Questions on daytime sleepiness, snoring, and naps, are included.

SY: Sedentary Time. Modeled after existing instruments (Rosenberg et al. 2010; Gardiner et al. 2011), this module asks on how many of the last 7 days individuals participated in a set of sedentary activities (watching TV, using a computer or tablet, talking to friends or family, nonactive leisure, eating, driving or riding, resting or napping) and when they did this kind of activity how much time did they typically spend.

TR: Trade-offs. This module asks about preferences for four aspects of well-being that are particularly important for choices about where to live: privacy, opportunities for social interaction, safety, and having choices about daily activities. Follow-up items then ask about preferences comparing pairs of domains, with the wording order randomized (e.g. Which is more important to {you/SP}, having privacy, or having opportunities to socialize? vs. Which is more important to {you/SP}, having opportunities to socialize, or having privacy?) and whether they would be willing to give up a little of the more-preferred domain for a lot of the less-preferred domain (e.g. Would {you/SP} be willing to give up a little privacy, to have a lot more opportunities to socialize?) The approach draws upon work by Benjamin and colleagues (2014) and Green and Rao (1971).

Environmental Checklist (IR)

Interviewers recorded their observation of conditions inside and outside the home: conditions in the home (flaking paint, pests, broken furniture, flooring, tripping hazards, clutter), the environment around the home (litter, graffiti, vacant houses, foreclosure signs), and of the home's exterior (windows, foundation, outside of home, roof, walking surfaces). Starting in Round 2, a question on continuous sidewalks was added and the question on foreclosure signs was dropped.

Other sections collecting information on place sample person lives

Residence (RE):	Physical structure of residence
Housing Type (HT):	Length of residence and type of place
Service Environment (SE):	If sample person is in residential care (other than nursing home) services available and used
Home Environment (HO):	Features of the home environment
Environmental Modifications (EM):	Whether features of the home environment were added and out-of-pocket costs if so; out of pocket costs for other devices for daily activities
Facility Questionnaire (FQ):	If sample person is in residential care (including nursing home) services available at place and at the sample person's level of care; payment information in last month

Vision and Hearing (VH)

This section was added in Round 11 and guides the interviewer through the setup of the tablet-based administration of vision and hearing activities. This section also records whether the vision and hearing activities were administered.

Vision and Hearing Booklet (VB, HB)

In Round 11, objective assessments of vision and hearing were added to NHATS. The results of the activities are recorded by the interviewer in the Vision and Hearing Booklet and by the software used for pure tone audiometry. Derived vision and hearing measures are provided for users. More information on the administration of the activities and the associated data files can be found in the NHATS Vision and Hearing Activities User Guide (Hu et al. 2022, 2023).

Vision activities: Three vision activities — distance acuity, near acuity, and contrast sensitivity – were administered. The activities were designed to measure presenting vision, that is with aids if used. Whether the sample person wore/used vision aids (glasses, contacts, or other vision aids) is recorded for each activity. Whether each activity was attempted (yes/no) is recorded. Reasons why an activity was not attempted are recorded (the sample person was unable to understand instructions, refused, the proxy respondent refused, the sample person was not present, the sample person was too ill, there was a language barrier, or another reason). The vision activities were conducted using the NHATS Vision e-book developed by Ridgevue Vision (https://www.ridgevue.com/).

Hearing activities: Pure tone audiometry was conducted by interviewers. Sample persons were asked to remove any hearing devices (hearing aids, cochlear implant) so that unaided hearing could be assessed. Whether the activity was attempted (yes/no) is recorded. Reasons why an activity was not attempted are recorded (the sample person was unable to understand instructions, refused, the proxy respondent refused, the sample person was not present, the sample person was too ill, there was a language barrier, or another reason). The hearing test activity was collected using the automated SHOEBOX application software (https://www.shoebox.md/).

Other sections collecting information on vision and hearing

Sensory and Physical Impairments and Symptoms (SS)	Self-reports of close and distant vision and hearing, and use of vision or hearing aids

Cogstate Battery (CB)

This section was added in Round 11 and guides the interviewer through setup of the tablet-based administration of three activities: a) detecting if playing card is turned over b) identifying if the card is red and c) reporting if the card matches the previous card (one card back). Whether

the activity was attempted (yes/no) is recorded. Reasons why an activity was not attempted are recorded (the sample person was unable to understand instructions, refused, the proxy respondent refused, the sample person was not present, the sample person was too ill, there was a language barrier, or another reason). More information on the administration of the activities and the Tablet Activities File can be found in the NHATS Cogstate User Guide (Plassman et al. 2022, 2023).

Other sections collecting information on cognition

Cognition (Proxy) CP	Proxy reports of: Overall memory rating; 8 items on changes in thinking/memory; behavior: getting lost, wanders off, able to leave alone, sees/hears things
Cognition (CG)	Self-rated memory (current, interferes with activities, one year ago); date (mo/day/year) and day of week; 10 word immediate recall; clock-drawing test (moved to its own section in R11); number letter activity (beginning in R11) naming President and Vice President; 10 word delayed recall
Clock Drawing (CD)	Clock Drawing activity (moved from CG in Round 11)

Activity Watch (AG)

This section was added in Round 11 to collect accelerometry data on a random sample of sample persons (N=747). Participants were asked to wear an Actigraph activity watch for 8 days and to return it in the postage-paid envelope that was provided. Measurements of physical activity are provided through the wrist accelerometer. Whether the sample person agreed to wear the watch is recorded along with reasons why a sample person did not consent to wear the watch (the sample person was unable to understand instructions, refused, the proxy respondent refused, the sample person was not present, the sample person was too ill, there was a language barrier, or another reason). In Round 12, the AG section was administered to the subsample of respondents who wore the activity watch in Round 11. More information on the administration of the activities and the associated data files can be found in the NHATS Accelerometry User Guide (Schrack et al. 2022, 2023).

Interview Environment (IR)

Selected items from the Interviewer Remarks section related to the circumstances of the interview are included: SP's attitude toward the interview; how much of the interview SP was present for; was anyone else helping to answer questions and if so, who; was the interview completed in more than one session and if so, the reason; was the FQ completed in person or by telephone

Facility Questionnaire (FQ)

The FQ collects information about the place the person lives when the residence is a nursing home or other residential care setting (see *Section I.C. Data collected by residential status and*

Section II. Introduction). Questions focus on: the type of place; whether the part of the place where the person lives has a different name from the overall place; for persons in settings where there could be more than one level of care, whether the person lives in independent living, assisted living, special care/memory care/Alzheimer's unit, nursing home; other levels of care available at place; services available to people at the sample person's current level of care; services that are part of the person's service package; whether there are extra charges for each service available (through R10); sources of payment in the last month for person's care and total payment by each source; total monthly payment for care; primary source of payment for care. In Rounds 2, race and ethnicity were collected for respondents with only the FQ administered in Round 1. In Rounds 5 and 12, the FQ included questions about race and ethnicity for all new respondents.

   When the FQ is administered: The FQ is administered for all nursing home residents. The FQ also is administered for SPs in other residential care settings or supportive living environments. Usually the SP interview is conducted first, and responses to items in Housing Type (HT) indicate whether the SP is in a setting where an FQ should be administered. This approach casts a wide net that includes not only assisted living facilities, but other supportive living environments (independent living within a CCRC or retirement community) that have services available to residents. In places where an appropriate staff person cannot be identified the FQ is not administered.

Other sections collecting information on place sample person lives

Residence (RE):	Physical structure of residence
Housing Type (HT):	Length of residence and type of place
Service Environment (SE):	If sample person is in residential care (other than nursing home) services available and used
Home Environment (HO):	Features of the home environment
Environmental Modifications (EM):	Whether features of the home environment were added and out-of-pocket costs if so; out of pocket costs for other devices for daily activities
Environmental Checklist (IR):	Conditions inside and outside the home

Last Month of Life (LML) Interview

   The LML interview consists of the following sections of the SP Interview: IS, RE, PD, LM, MD, CP, MO, DM, SC, DS, and PA. The HM Section was added starting in Round 7. Deceased persons with an LML interview are identified on the SP file (r#dresid = 6 or r#dlmlint = 1) and on the Tracker file (r#status = 62).

   Skip patterns in the LML. Routing through the interview and within the sections that are included in the LML is based on flags indicating the sample person was deceased. In addition, in Rounds 2 and 3, persons who were deceased and not alert in the last month or not mobile in the

last month routed differently than other deceased cases. Starting in Round 4, only persons who were not alert in the last month routed differently from other deceased cases.

- In Rounds 2 and 3, for deceased persons who were not alert in the last month of life (based on response to PD6) these LML sections were not administered: CP, MO, DM, SC, DS, and PA. For deceased persons who were not mobile in the last month of life (based on response to PD7) these LML sections were not administered: MD, CP, MO, DM.
- Starting in Round 4, for deceased persons who were not alert in the last month of life (based on response to PD6) these LML sections were not administered: MD, CP, MO, and PA.

III. Data Documentation

III.A. Overview of Files and Documentation

Public Use Files

In most years, the NHATS data release consists of three public use data files:

(1) the Tracker file,
(2) the Sample Person (SP) file, and
(3) the Other Person (OP) file.

Through Round 8, a separate file containing just a metro/non-metro indicator of where the SP lived are included with each release. Starting in Round 9 this indicator is included in the SP file. Starting in Round 11, NHATS is releasing a separate Tablet Activities file (with objective Vision, Hearing and Cogstate data) and a set of Accelerometry files. The files may be linked to one another using the unique variable, "spid" (Sample Person ID). Public use files are available for download after registering at https://www.nhats.org/user/register.

The Tracker File

The tracker file provides information on the total sample selected for the study. For Round 1 the total sample is n = 12,411. For Round 5, after sample replenishment, the total sample is n = 19,530 (Round 1 sample + 7,119 new Round 5 sample). After sample replenishment, the total sample in Round 12 is n = 27,525 (Rounds 1 and 5 samples + 7,995 new Round 12 sample. The file includes respondents, non-respondents, ineligible cases (those who moved outside the study area prior to interview), and cases who died after the sample was drawn from the Medicare enrollment file (September 30, 2010 for Round 1; September 30, 2014 for new Round 5 sample; September 30, 2021 for new Round 12 sample) and prior to interview.

The tracker file is cumulative and includes all persons ever sampled for NHATS and variables from all rounds. Variables in the tracker file indicate the year SP entered the sample, the final case status at each round, and the month and year the final case status was assigned at each round. Indicators for the SP and FQ interview status and month and year SP and FQ interview were administered in each round are also included.

A tracker weight for each Round that adjusts for cumulative differential non-response is included in this file (for respondents, ineligibles, and deaths) and may be used to make estimates with the full sample. Replicate weights also are provided for each Round. The Round 1-4 tracker weights tie to the 2010 frame and the Round 5-10 tracker weights tie to the 2014 frame. A set of 2011 cohort tracker weights that tie to the 2010 frame is also provided starting in Round 5 for continuing sample members from Round 1. A set of 2015 cohort tracker weights that tie to the 2014 frame is provided starting in Round 12 for continuing sample members from Round 5. See *Section IV. NHATS Weights and Their Use* for further details.

The Sample Person (SP) File
The SP file contains all data on NHATS respondents collected in the Sample Person (SP) interviews, including the Performance Activities Booklet, and the Facility Questionnaire (FQ) interviews. Sections appear in the file in the order administered, followed by weights. All respondents with an SP interview, a Last Month of Life (LML) interview (starting in Round 2), and respondents residing in nursing homes with an FQ interview have a positive analytic weight.

Weights for persons in residential care with both an SP and FQ interview have been adjusted for a small number of respondents in residential care who are missing an SP interview. Like the tracker weights, the Round 1-4 analytic weights tie to the 2010 frame and the Round 5-10 analytic weights tie to the 2014 frame. A set of 2011 cohort analytic weights that tie to the 2010 frame is provided starting in Round 5 for continuing sample members from Round 1. A set of 2015 cohort analytic weights that tie to the 2014 frame is also provided starting in Round 12 for continuing sample members from Round 5. The table below provides details on sample sizes. See *Section IV. NHATS Weights and Their Use* for further details.

Round	Total N	2022 Cohort N with positive analytic weight	2022 Cohort N with zero analytic weight[1]	2015 Cohort N with positive analytic weight	2015 Cohort N with zero analytic weight[1]	2011 Cohort N with positive analytic weight	2011 Cohort N with zero analytic weight[1]
1	8,245					8,077	168
2	7,075					6,885	190
3	5,799					5,620	179
4	4,737					4,581	156
5[2]	8,334			7,859[3]	179	4,026	126
6	7,276			7,099	177	3,565	110
7	6,312			6,154	158	3,139	90
8	5,547			5,435	112	2,776	69
9	4,977			4,889	88	2,496	52
10	4,389			4,312	77	2,209	42
11	3,817			3,753	64	1,909	37
12[2]	6,327	6,012	75	3,197	48	1,618	29

[1] In a small number of cases, a positive analytic weight is assigned after a zero analytic weight in a prior round; this pattern reflects a gap of one or more rounds between SP interviews (N=23 in Round 3; 37 in Round 4; 28 in Round 5; 27 in Round 6; and 30 in Round 7; 58 in Round 8; 41 in Round 9; 34 in Round 10; 31 in Round 11; 13 in Round 12).

The Other Person (OP) File

Each record in the OP file represents a person identified in the SP interview. Individuals are identified based on one or more of the following roles relative to the SP (section where roles are identified shown parenthetically):

- a proxy respondent (IS),
- spouse/partner (HH),
- household member (HH),
- child or stepchild not in SP's household (CS),
- social network member (SN),
- helper with mobility (MO), driving and transportation (DT), self-care (SC), household activities (HA), medical care activities (MC),
- a person SP takes care of (PA)
- a contact person, i.e. someone outside of SP's household who could get in touch with SP (Closing Section: CL).

The type of information collected varies, depending on the reason the person was identified. The OP file is cumulative across rounds. A variable— "opround"—indicates in which round the person was added to the OP file. All persons ever added remain on the OP file, regardless of the round added, as long as the SP is participating in NHATS.

OP file N by Round: Round 1 = 38,097; Round 2 = 37,944; Round 3 = 35,745; Round 4 = 33,016; Round 5 = 52,285; Round 6 = 50,739; Round 7 = 49,065; Round 8 = 46,905; Round 9 = 45,214; Round 10 = 42,605; Round 11 = 39,207; Round 12 = 49,691 . For further details, see *Section III.B. The Other Person File.*

Metro-nonmetro Indicator File

Through Round 8, this file contains a round-specific metro/nonmetro indicator for NHATS Sample Persons (SPs).[10] The variable r#dmetnonmet indicates whether a SP was residing in a metropolitan or non-metropolitan county at the time of interview or during the last month of life for those with last month of life interviews. The metro/nonmetro indicator was derived by linking the SP's county of residence to 2013 Rural-Urban Continuum Codes (RUCC) as described at https://www.ers.usda.gov/data-products/rural-urban-continuum-codes/. Beginning in Round 9, the variable r#dmetnonmet is included in the SP file.

Tablet Activities File

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[10] This file was originally a cross-round file, but in 2019 separate metro/non-metro files were created for each round and released with the public use files.

Beginning in Round 11, this file contains data collected via a tablet protocol: assessments of vision and hearing and the Cogstate cognitive activities. For further details, see the *NHATS Vision and Hearing Activities User Guide* (Hu et al. 2022, 2023) and the *NHATS Cogstate User Guide* (Plassman et al. 2023).

Accelerometry Files
In Round 11, accelerometry data were collected on a random sample of sample persons. In Round 12, accelerometry data were collected on the subsample of respondents who wore the activity watch in Round 11. For further details, see the NHATS Accelerometry User Guide (Schrack et al. 2023). Files include:
- Accelerometry Summary Tracker File (One observation for each SP eligible to wear the watch, with information about whether or not accelerometry data was obtained),
- Accelerometry Summary File (One observation for each SP with information about each day the watch was worn),
- Accelerometry Detailed File (One observation for each day with variables describing each minute of the day), and
- Raw Accelerometry Files (upon request)

Auxiliary Income Imputation Files
Through Round 11, NHATS included 5 income imputations on the Sample Person (SP) files. These initial imputations were prepared using a hot deck approach. Beginning in Round 12, and for all prior rounds, NHATS expanded the number of imputations provided to 20 to improve standard error estimation. These expanded imputations are provided in a set of auxiliary files and were prepared using an interval regression methodology. For further details, see "National Health and Aging Trends Study Twenty Interval Regression Income Imputations: Rounds 1-12," NHATS Technical Paper #43.

Sensitive Files
Sensitive data require additional protection beyond what is implemented for public use data. Access to these data requires information about the researcher requesting the data and agreement to observe restrictions on cell sizes in publications and presentations from these data. Sensitive data files include the National Study of Caregiving (NSOC), NHATS Sample Person (SP) Sensitive Demographic files, NHATS Other Person (OP) Sensitive Demographic files, NHATS Dried Blood Spot (DBS) Assays file, and NHATS COVID-19 Family Members and Friends (FF) File. Information on Sensitive data and how to apply is available on the NHATS website at: https://www.nhats.org/researcher/data-access/.

National Study of Caregiving (NSOC): NSOC is a study of family and unpaid caregivers to NHATS sample persons.

NSOC I was conducted in 2011; NSOC II in 2015. Each consists of three cross sectional files:
- NSOC file
- NSOC Sample Person Tracker file
- NSOC Other Person Tracker file

NSOC III, conducted in 2017, includes both cross-sectional and longitudinal files (caregivers who participated in NSOC II who were re-interviewed in NSOC III), and a caregiver time diary file (24-hour time use interview) for NSOC III caregivers. In addition, last month of life caregivers were included in NSOC III. NSOC III files include:

- Cross sectional files
  - o NSOC file
  - o NSOC Sample Person Tracker file
  - o NSOC Other Person Tracker file
- Longitudinal files
  - o NSOC file
  - o NSOC Sample Person Tracker file
  - o NSOC Other Person Tracker file
- Time Diary file (all cross sectional files are included if users request the time diary file)

The first round of NSOC IV was conducted in 2021 and NSOC IV (Rd 12) was conducted in 2022. Each consists of three cross sectional files:

- NSOC file
- NSOC Sample Person Tracker file
- NSOC Other Person Tracker file

Details on NSOC are available in the National Study of Caregiving (NSOC) I-III User Guide (Freedman et al. 2021) and National Study of Caregiving (NSOC) IV User Guide (Freedman et al. 2023) available at the NHATS website: https://www.nhats.org/researcher/nsoc/ .

Sample Person Demographic Files: The NHATS Sample Person (SP) Sensitive Demographic files contain month and year of birth, age in years, month and year of death, age in years at death (beginning in Round 2), types of cancer (except Rounds 2 and 3), race and primary race if more than one race reported for sample persons (at baseline interview), Hispanic subgroup for sample persons (at baseline interview), periods of service as a veteran (at Round 1 and Round 5), month a marriage ended, year or age that the sample person came to live in the USA (at baseline interview), month and year Social Security payments started (at Round 1 and Round 5).

Other Person Demographic Files: The NHATS Other Person (OP) Sensitive Demographic files contain month and year of birth and age of spouse/partners, children, and household members. The Round 1 file also contains categorical age information for social network members.

Dried Blood Spot (DBS) Assays File: Conducted in R7 and released in 2019, this file contains data on four assays (high-sensitivity C-reactive protein (hsCRP), glycosylated hemoglobin (HbA1c), Cytomegalovirus (CMV) and Interleukin (IL)-6) of DBS samples from respondents. See the "Dried Blood Spot (DBS) Based Biomarkers in the National Health and Aging Trends Study User Guide: Final Release" for more information.

COVID-19 Family Members and Friends (FF) File: In 2020, NHATS conducted a supplemental mail study about participants' experiences during the COVID-19 outbreak. The COVID-19 FF File

includes responses from family members or friends who helped the NHATS participant most during the COVID-19 outbreak.

Restricted Files

Restricted data include information collected by NHATS, such as geographic data, and other external data linked to the NHATS sample person. Access to these data is restricted to qualifying researchers who fulfill the additional requirements for restricted data access.

- Centers for Medicare and Medicaid Services (CMS) data linked to NHATS can be obtained by qualified researchers. Details on files available and procedures for applying are at: https://www.nhats.org/researcher/data-access/.

- The NHATS Restricted Data Repository hosts all other NHATS restricted data, including NHATS and NSOC geographic and distance files, 1940 Census linkages, restricted tracker files, open text about how COVID has affected SP's life, and genetics files. Details on files available and procedures for applying for access are at: https://www.nhats.org/researcher/data-access/.

Documentation

For each Round, NHATS has available for users five types of documentation: Instruments (with original item numbers and associated variable names and labels), Codebooks, Crosswalks (that map items to file locations and variable names/labels), Data Collection Procedures, and Technical Papers.

The **Instruments** contain the specifications for the computer assisted personal interview application, including original item numbers, and variable names and labels as they appear in the Tracker, SP, and OP files. Derived variables and Flag variables also are shown on instrument sections when appropriate. For the Performance Activity Booklet, the Crosswalk is needed to map the original item numbers to the variable names and labels in the SP file.

The **Codebooks** are available to registered users and are included in the zip file with the Public Use files.   The codebooks contain variable names, variable labels (that reference the original item number on the instrument), values, value labels, and frequencies. Variables are organized by order of administration in the interview. Flag variables appear in the file in the section where they originate, as do derived variables.

The **Crosswalk File** provides a link between the instruments and the codebooks. The first column shows questionnaire items, followed by columns that indicate location of variables (SP Public file, OP Public file, Tracker file, Sensitive or Restricted file, Not on file), followed by variable names and labels. Starting in Round 2, a column indicating the variable is new in a given round and a column indicating that the variable is in the last month of life interview were added. In Rounds 5 and 12 two additional columns are included to indicate items that are asked of continuing sample and items that are asked of new sample.   The Crosswalk file is organized by order of administration, but the Excel version can be sorted by the user in different ways. Each combination of instrument item number and codebook variable name forms a unique entry.

Thus, if the instrument item generates more than one variable the item will appear more than once and if a variable is created from multiple instrument items, the variable appears more than once.

The **Crosswalk of Changes from Beta Release to Final Release** documents changes made between the Beta and Final data release for that Round, if both a beta and final file are released. Examples include: new variables added to the final release file, changes to variable names or labels, changes to value labels, and changes to variable coding. The first column in the crosswalk identifies the item where a change occurred; other columns indicate types of changes between the beta and final file.

The **Data Collection Procedures** documents contain selected information on data collection procedures relevant for analysts. A **Technical Paper Series** covers issues related to study and database design and special topics of interest to analysts. The following papers are available at www.nhats.org:

National Health and Aging Trends Study Round 1 Sample Design and Selection (#1)
National Health and Aging Trends Study Development of Round 1 Survey Weights (#2)
National Health and Aging Trends Study Round 1 Income Imputation (#3)
Construction of Performance Based Summary Measures of Physical Capacity in the National
   Health and Aging Trends Study (#4)
Classification of Persons by Dementia Status in the National Health and Aging Trends Study (#5)
National Health and Aging Trends Study Development of Round 2 Survey Weights (#6)
Hours of Care in the 2011 & 2012 National Health and Aging Trends Study (#7)
Driving and Transportation Measures in the National Health and Aging Trends Study (#8)
National Health and Aging Trends Study Development of Round 3 Survey Weights (#9)
National Health and Aging Trends Study Round 3 Income Imputation (#10)
National Health and Aging Trends Study Development of Round 4 Survey Weights (#11)
Mobility and Self-Care Accommodation Duration Measures in the National Health and Aging
   Trends Study (#12)
Calculating Work Productivity Loss in the National Study of Caregiving (#13)
National Health and Aging Trends Study Development of Round 5 Survey Weights (#14)
National Health and Aging Trends Study Round 5 Income Imputation (#15)
National Health and Aging Trends Study Round 5 Sample Design and Selection (#16)
Making National Estimates with the National Health and Aging Trends Study (#17)
National Health and Aging Trends Study Development of Round 6 Survey Weights (#18)
Measuring Late-Life Physical Capacity in the National Health and Aging Trends Study: An Analysis
   of Measurement Stability and Equivalence (#19)
National Health and Aging Trends Study Development of Round 7 Survey Weights (#20)
National Health and Aging Trends Study Round 7 Income Imputation (#21)
National Health and Aging Trends Study Development of Round 8 Survey Weights (#22)
Accounting for Sample Design in NHATS and NSOC Analyses: Frequently Asked Questions (#23)
National Study of Caregiving (NSOC) I-III Weighting Guide (#24)
Income Imputations in the National Study of Caregiving (NSOC) (#25)
National Health and Aging Trends Study Development of Round 9 Survey Weights (#26)
National Health and Aging Trends Study Round 9 Income Imputation (#27)

National Health and Aging Trends Study Development of Round 10 Survey Weights (#28)
National Health and Aging Trends Study COVID-19 Sample Person (SP) and Family Members and Friends (FF) Supplemental Survey Weights (#29)
National Health and Aging Trends Study Development of Round 11 Survey Weights (#30)
National Health and Aging Trends Study Round 11 Income Imputation (#31)
National Health and Aging Trends Study Development of Round 11 Accelerometry Weights (#32)
National Study of Caregiving (NSOC) IV Weighting Guide (#33)
Income Imputations in the National Study of Caregiving (NSOC) IV (#34)
Introducing an Automated Coding Procedure Using Deep Learning Neural Networks to Score the Clock Drawing Test in the National Health and Aging Trends Study (#35)
National Health and Aging Trends Study Round 12 Sample Design and Selection (#36)
National Health and Aging Trends Study Development of Round 12 Survey Weights (#37)
National Health and Aging Trends Study Round 12 Income Imputation (#38)
National Health and Aging Trends Study Development of Round 12 Accelerometry Weights (#39)
Effects of Switching to a Mixed-Mode Design on Estimates from NSOC IV 2021 (Round 11) (#40)
National Study of Caregiving (NSOC) IV (Rd 12) Weighting Guide (#41)
National Health and Aging Trends Study Five Hot Deck Income Imputations: Rounds 1-11 (#42)
National Health and Aging Trends Study Twenty Interval Regression Income Imputations: Rounds 1-12 (#43)
National Study of Caregiving I-III Twenty Interval Regression Income Imputations: Rounds 1, 5 and 7 (#44)
National Study of Caregiving IV Twenty Interval Regression Income Imputations: Rounds 11-12 (#45)

NHATS has released a set of online **video tutorials** designed to introduce NHATS and NSOC to researchers interested in working with these data. The video tutorial series is available at: https://www.nhats.org/researcher/nhats/videos. Users may also sign up for a self-paced, online beginner course. For details see: https://micda.isr.umich.edu/nhats-online-course-registration/.

III.B. Other Person File

In each Round, an Other Person File is constructed from a roster that is generated from questions in different sections of the SP interview. Each person on the OP file has a unique ID—opid—that is a 3-digit (string) variable and can be linked to the relevant SP (using the spid, which is also on the OP file). All variables in the OP file begin with the letters "op" followed by the round number (1, 2 etc. indicated by # when examples are given).

The OP files are cumulative for SPs in the current Round. That is, in Round 1, all Other Persons for SPs in Round 1 are included. In Round 2, for all SPs interviewed, all Other Persons from Round 1 are retained and new Other Persons reported in Round 2 are added, and so on. A variable "opround" indicates the round when a person was added to the OP file. A unique OP record (identified by "opid") has information from all rounds associated with an individual.

Variables on the OP file provide information about the "other person" and his/her role relative to the SP. These indicators may change from round to round. For example, a person added to the OP file in Round 1 as a helper with getting outside may in a subsequent round be designated

as helping with other activities or identified as a proxy respondent. OP file variables indicate persons who are: proxy respondents; spouse/partner; household member; child in household; social network member; child not in household; helper with activity (multiple flags for: mobility activities -- getting outside, getting around inside, getting out of bed; household activities -- laundry, meals, shopping, banking, money matters; self-care activities -- eating, getting cleaned up, using the toilet, getting dressed; medical care activities -- handling medications, sitting in on doctor visits, handling insurance matters; transportation -- family member, friend or paid helper who drove most, someone else who drove; a person the SP cares for; a person named as a contact to locate SP in the future.

For persons in residential care, a record is generated for the OP file with a relationship indicating "someone/service at the place SP lives" ("lives/lived" starting in Round 2 to reflect LML cases) if staff at the place were named as helpers with activities.   Individual staff members are not entered separately in the OP file. In some cases, where an individual staff person serves as a proxy or is named as a social network member, a record for that individual may be generated; for these OP records, relationship code is 37. Flags are set to 1 for each activity for which the category of "someone/service at the place SP lives/lived" provided help. Unlike other helpers, those with a relationship code of 37 are not eligible for the Helper Section in the SP interview and the helper flag, which indicates who is eligible for this section of the SP interview is set to -1 for these OPs. The helper flag does not require the help to be given for health or functioning reasons and should be combined with SP information on reason help is received (see HA, MC) if caregiving is of interest.

Categorical age is based on date of birth for spouses, children and household members. If date of birth was not reported, age in years was obtained. In R2 and subsequent rounds, age is based on incrementing (1 year at each round) from date of birth or, if not obtained, from age at the previous round.

In R1, age was not obtained for proxy respondents who were children living outside of the SP's household (n=118) and proxies who were household members with relationship codes of 3 through 24 (n = 203 children in household; n = 48 other household members). At Round 2, we attempted to fill in this missing information. If one of these individuals served as a proxy respondent in Round 2, age was obtained (children not in the household n = 50; children in the household n = 83; other household members n = 4).

The type of information collected for OPs varies, depending on the reason the person was identified. The table below shows the different types of information collected for different OP file entries. The full set of relationship codes available for different types of persons is listed in *Appendix I. Relationship Codes by Other Person Type.*

Variables	INFORMATION COLLECTED FOR PERSONS LISTED AS:								
	PROXY	SPOUSE/ PARTNER	HOUSEHOLD MEMBER	SOCIAL NETWORK MEMBER	CHILD NOT IN HOUSEHOLD	HELPER	LAST MONTH OF LIFE (LML) HELPER[9]	PERSON SP CARES FOR	CONTACT
ID	X	X	X	X	X	X	X	X	X

Round person added (opround)	X	X	X	X	X	X	X	X	X
Age		X^1	$X^{2,3}$		X^2				
Month, Year of Birth		X	$X^{2,3}$		X^2				
Categorical Age		X	X	X^4	X				
Gender	X^1	X^1	X	X	X				
Relationship[5]	X^1	X^1	X	X	X	X	X	X	
Education[10]		X	X^6		X				
Marital status[10]			X^6		X				
Number of children[10]			X^6		X				
Any and number of children < 18[10]			X^6		X				
Whether lives in the household with SP	X	X	X	X	X	X	X	X	X
Helps with activity (separate indicators for each activity)						X	X		
Help regular schedule						X^7			
Number of days helped per week or month and hours per day[11]						X^7			
Whether paid						X^7	X		
Who paid (SP, government, insurance, program, other)									
Payment unit and amount paid						X^7			
Gave SP financial assistance			X^6		X				
Received financial assistance from SP			X^6		X				
Deceased since prior round[8]		X	X		X				
Reason not co-resident (if co-resident prior round)[8]			X						

[1] Also available in SP file.

[2] In Round 1, if a child or a household member other than a spouse/partner served as a proxy respondent for the SP, date of birth was unintentionally skipped. Date of birth was collected for all proxy respondents starting in Rounds 2.

[3] By design, not collected for household members with relationship codes 25-36, 91, or 92.

[4] Round 1 only.

[5] See Appendix Table 1 for details on relationship status.

[6] Only for children in household.

[7] Collected for helpers if op1ishelper = 1; not collected for helpers that are relationship code 2 (spouse/partner) or 37 (someone/service at the place SP lives/lived)". For Rounds 1, 3, 4, and 6, op#paidhelpr is coded as "-1 Inapplicable" for eligible helpers (op#ishelper==1) who are spouse/partner of SP (relationship code 2), and "2 No" for all other rounds. For Rounds 3, 4, and 6, op#paidhelpr is coded as "-1 Inapplicable" for eligible helpers (op#ishelper==1) who are paid aide / housekeeper / employee (relationship code 31), and "1 Yes" for all other rounds.

[8] Starting in Round 2.

[9] The HM section was added starting in Round 7 to obtain information on whether an LML helper lived in the SP's household and if the helper was paid or unpaid.

[10] Beginning in Round 10, updated for children in and out of household every round.

[11] Beginning in Round 11, those reporting regular schedule and 0 days per week are asked days per month and hours per day.

III.C. Definition of Complete Cases

Completed Interviews

Cases were considered complete if the:
1. SP was community-resident or lived in a residential care setting other than a nursing home and the SP interview was completed (self or proxy respondent)
2. SP lived in a residential care setting other than a nursing home and the FQ was completed, but the SP interview was not completed
3. SP lived in a nursing home in SP's initial round and the FQ interview was completed
4. LML interview was completed (starting in Round 2)

Break offs

In a small number of cases an SP interview was started but not completed. Cases were considered as complete SP interviews if the break-off occurred after the PA section, i.e. all self-report items on functioning had been administered. Based on this criterion, most of these interviews were retained as complete cases (e.g. in Round 1, 92 of 94 break-off cases; in Round 2, 21 of 22 break-off cases). Variables that identify a break-off case and the interview section and question where the break-off occurred are in the SP file (**r#breakoffst** and **r#breakoffqt**). Missing value codes from the point of break-off follow patterns for DK responses (-8 and -1 combinations).

III.D. Indicators of Residential Status and Interview Type (r#dresid and r#dresidlml)

To facilitate creation of appropriate analytic samples, NHATS provides users with a summary indicator of residence and interview type in each round (r#dresid). This summary indicator reflects residential status, whether the SP and/or FQ interviews were completed, and starting in Round 2 deceased SPs. The indicator is constructed from the final interview status codes, information in the FQ, and for those in residential care but missing an FQ, from non-released information on address. Thus, the residence indicators are the best source of information on where the SP lives.

The Round 1 Residential Status values differ from subsequent rounds. The variable r1dresid has the following values:

1 = Community (SP resides in community and SP interview was completed)
2 = Residential care resident not nursing home (SP interview complete) (SP resides in residential care not nursing home and an SP interview was completed)
3 = Residential care resident not nursing home (FQ only) (SP resides in residential care not nursing home FQ was completed but no SP interview was completed)
4 = Nursing home resident (SP lived in a nursing home in Round 1 and FQ was completed)

A value of 3 corresponds to individuals classified with an interview status of "64" on the variable r1status on the Tracker File. This relatively small group has a complete FQ interview but is missing the SP interview. Analytic weights for persons with r1dresid = 2 (in residential care but with a complete SP interview) have been adjusted so that they represent cases with a value of 3 on r1dresid (e.g. missing their SP interview).

Starting in Round 2, two variables indicate residential status: r#dresid and r#dresidlml. The former classifies all complete cases and the latter classifies persons who died.
The variable r#dresid has values of:

1 = Community (SP resides in the community and SP interview was completed)
2 = Residential Care not nursing home (SP interview) (SP resides in residential care not nursing home and an SP interview was completed; an FQ interview is completed for most)
3 = Residential Care not nursing home (FQ only) (SP resides in residential care not nursing home and only an FQ was completed; an SP interview was completed at initial interview in Round 1 or Round 5)
4 = Nursing home (SP interview) (SP resides in a nursing home and completed an SP interview; an SP interview was completed at initial interview in Round 1 or Round 5)
5 = Nursing home (FQ only) (SP resides in a nursing home and completed an FQ only; an SP interview was completed at initial interview in the SP's initial round)
6 = Deceased (Last Month of Life interview conducted)
7 = Residential care not nursing home in initial round (FQ only) (FQ was completed but no SP interview was completed at the SP's initial round)
8 = Nursing home in initial round (FQ only) (SP lived in a nursing home at initial interview and an FQ was completed)

New sample introduced in Rounds 5 and 12 have values of 1, 2, 7 and 8; continuing sample have values of 1 through 8. Values of 3, 5 and 7 (interview status of 64 on r#status on the Tracker file) indicate a missing SP interview; analytic weights in the SP file incorporate a nonresponse adjustment for these cases (see technical papers describing development of weights for each round: Montaquila et al. 2012, 2014, 2015a 2015b; DeMatteis et al. 2016b, 2017, 2018, 2019, 2020; Jiao et al. 2022a, 2023c.

The variable r#dresidlml has values that indicate where the SP lived before death:
1 = SP lived in the community at time of death
2 = SP lived in residential care (including nursing home) at time of death

III.E. Variable Naming and Missing Data Conventions

Variable names
- Variable names are lower case. In the SP file, the first 2 characters of the variable name are the interview section letters, e.g. re (Residence), hc (Health Conditions).
- The third character is a number indicating the round of data collection (starting with 1 for Round 1).
- The remaining characters reflect meaning of the variable.
- Variables in the SP file that were created from flags have "fl" as the first 2 characters (see *Section III.E. Flag Variable Conventions in the SP and OP Files*).
- Derived variable names have a "d" following the data collection round number (with a few exceptions).
- All variables in the OP file begin with "op."

- Variable names are the same from round to round (except for the third character indicating round) if the underlying items and variable being created are identical. In most instances the values of variables that share names across round are also identical, with a few exceptions.

Variable labels
- Labels begin with the round number (R1, R2, etc.), followed by the instrument section, the item number (e.g. IS2A), and a description of the item.
- Labels for derived variables have a "d" following the number indicating data collection round.
- Almost all variable labels are the same from round to round (except for the Round number) if the underlying items and variable being created are identical. In a few cases at Round 2 we modified the label to indicate that the variable included information from the prior round and in other cases we modified the label to clarify the variable. These Round 2 changes are retained in subsequent rounds. A complete listing is available in *Appendix IV. Variable Label Changes Between Rounds 1 and 2.* Starting in Round 2, two conventions were introduced on the OP file. Variable labels that include "**Update and new**" in the OP file combine information from prior rounds with new information from the current round. For example, current spouse or partner's age is brought forward and updated and new information is included if there is a new spouse or partner since last round. Variable labels in the OP file that include "**When Added**" carry forward information from the round when a person was first added (for example child's education collected in Round 1 was carried forward until Round 5 and then carried forward from Round 5 until Round 10 when it was re-collected).

Item-level missing data codes
The following codes were used at the item level for missing data of different types:
> -7 = Refusal
> -8 = Don't Know
> -1 = Inapplicable (legitimate skip)
> -9 = Missing (information not ascertained)

Global missing data codes using residential status
Residential status determined based on eligible components of the interview (e.g. whether SP only, FQ only or both SP and FQ interviews were to be administered). Below is a chart summarizing the missing values assigned to all items in the SP or FQ interview when one or the other component was missing. Residential care refers to all residential care settings other than nursing homes.

In general, -1 indicates inapplicable (legitimate skip) and -9 indicates missing data (information not ascertained).

Round 1: Residential status based on r1dresid	Eligible Components	SP interview missing	FQ interview missing

1 community: SP interview complete	SP only	--	-1
2 residential care: SP interview complete	SP and FQ	--	-9 [1]
3 residential care: FQ interview complete	SP and FQ	-9	--
4 nursing home: FQ interview complete	FQ only	-1	--

[1]For subset of cases with no FQ interview

Round 2 and subsequent rounds: Residential status based on r#dresid	Eligible components	SP interview missing	FQ interview missing	LML interview missing
1 community: SP interview complete	SP only	---	-1	-1
2 residential care: SP interview complete	SP and FQ	---	-9[1]	-1
3 residential care: FQ interview only	SP and FQ	-9[2]	---	-1
4 nursing home: SP interview complete	SP and FQ	---	-9[1]	-1
5 nursing home: FQ interview only	SP and FQ	-9[2]	---	-1
6 deceased	LML	-1	-1	---
7 residential care: FQ interview only at SP's initial round	FQ	-9[2]	---	-1
8 nursing home: FQ interview only at SP's initial round	FQ	-1	---	-1

[1] For subset of cases with no FQ interview.
[2]In Round 5 coded -1 in instances where continuing sample or new sample legitimately skips SP interview sections.

Missing data in Last Month of Life Interview

For the PD and LM sections, persons who are alive will have values of -1 (inapplicable) for all items since these are administered only to respondents for the Last Month of Life interview.

Persons who are deceased will have values of -1 on interview sections that are not administered in the LML and on items within sections that are not asked for deceased persons. Deceased persons who were never alert in the last month of life (fl#notalert = 1 flag set from PD6) also will have values of -1 for some sections of the LML interview (in Rounds 2 and 3: CP, MO, DM, SC, DS, PA; in Round 4 and subsequent rounds: MD, CP, MO, PA). Deceased persons who never got out of bed in the last month of life (fl#notmobile = 1 flag set from PD7) also will have values of -1 in the LML interview in Rounds 2 and 3 for: MD, CP, MO, DM.

In Rounds 4, 6, and 7, LML variables on the sensitive files (pd#mthdied and pd#yrdied) were coded -9 instead of -1 for cases without an SP interview (FQ only; r#dresid=3 or 5 or 7).

Missing data for performance activities (AB Section)

The physical activities section of the interview (AB) was administered using the Activities Performance Booklet and is a paper-and-pencil instrument.

Round 1 item-level:
-1 (inapplicable) for nursing home residents
-9 for all other missing

Round 2 and subsequent rounds item-level:
-1 (inapplicable) for nursing home residents in Round 1; deceased cases; and persons excluded from doing a test (balance, chair stands, walking, or grip strength) for health reasons or because they were unable to complete a prior test (e.g. missing on repeated chair stands because unable to complete single chair stand)
-9 for all other missing

An item may be coded -9 for several reasons including: the SP interview was missing (r#dresid = 3 or 5 or 7) or the interview broke-off prior to the AB Section; an interviewer failed to record information even though the sample person was eligible for the test.

Derived variables for test administration (e.g. ba#dblssadm, ba#dblstadm, ba#dblftadm; see AB Section of *Appendix III Derived Variable Specifications*) may be used to distinguish types of missing:
1 = eligible and recorded result;
2 = eligible and no recorded result;
3 = not administered because unable to complete prior test;
4 = not eligible due to exclusion for health reasons;
-1 = deceased or no SP interview (FQ only)

Missing data for interviewer-observed conditions of the home and area (IR Section)
Interviewers completed questions in the IR Section about the condition of the SP's home and residential area. In cases where these questions were not answered by the interviewer a "-9" has been assigned. A code of -1 (inapplicable) was used for legitimate skips (e.g. SP interview not assigned; interview was not conducted in SP's home or the interviewer did not enter the SP's home, so questions on conditions inside the home were not answered).

III.F. Flag Variables in the SP and OP files

Some questions in the NHATS interview resulted in the setting of flag variables that prompted both routing and screen displays (e.g. question wording). *Appendix II. Flag Variable Specifications* provides a summary of flag variables in the SP and OP files, including where the flag was set, where the flag was used to route a respondent through questions, and where it was used to determine question wording.

In the SP file, the flag variable names all begin with the "fl" prefix and most, but not all, flag variables in the SP file are dichotomous. That is, response codes are either "1", indicating the

flag is turned on or a "-1" indicating it is not (in a small number of cases flags take on values of 2 or 3). Flag variables appear in the file in the section where they are created.

In the OP file the flag variables, like all variables in this file, begin with OP. For flags generated in a specific section, the section is indicated in the variable label. Most flag variables in the OP file are dichotomous ("1" yes or a "-1" missing). The flag variables in the OP file are described in *Section III.B. The Other Person File*.

The flag variables (fl#blind; fl#deaf) were used in Rounds 2 through 4 in the SS and DT sections to skip items. In these rounds the flags were cumulative (information from current and prior rounds). Starting in Round 5 the flags are reset in each round and do not reflect prior round reports. See *Appendix II. Flag Variable Specifications* for additional details.

OP flag variables that indicate cross-round information was used to correct selected OP file variables (relationship to SP, age, gender) are described in Section *III.J. Derived Variables.*

III.G. "Other specify" Fields in the Instrument

Verbatim text from "other specify" fields are not released in the public use files. These data were used in two ways, starting in Round 1 and in later rounds.

- "Other specify" fields were reviewed and upcoded into pre-coded response categories when appropriate. Upcoding was not done, however, in instances where it would change a routing sequence. For example, no upcoding was done for RE1 since physical structure of an SP's home was used to route SPs through subsequent questions. Persons who were coded 91 (other) in RE1 and asked to specify the type of structure in RE1a followed the same routing sequence as persons coded as living in a multi-unit building.

- Two derived variables were created from coding FQ6a and FQ10a. These variables, coded from other specify fields in the FQ, were used along with FQ6 and FQ10 to create a variable that indicates where in a facility the SP lived. This variable is used in nonresponse adjustment of the analytic (and replicate) weight(s) on the SP file (see technical papers #2, #6, #9, #11, #14, #18, #20, #22, #26, #28, #30, and #37 on development of weights at each round: see Montaquila, et al. 2012, 2014, 2015a, 2015b and DeMatteis et al. 2016b, 2017, 2018, 2019, 2020 and, Jiao et al. 2022a, 2023c for details. All variables are included on the SP file.

- In a very limited number of cases in Round 1, "other specify" fields were used to add response codes to variables when a response occurred with enough frequency (and these added response codes are incorporated in later round instruments). In these cases, the variables developed from the "other specify" fields are shown on the instrument. For example, in Round 1 MC15 asks about transportation to SP's regular doctor. Variables for walking, and home visit, were created from upcoding MC15a, other specify for how got to doctor. These response options were added to the instrument starting in Round 2.

III.H. Data for Proxy Respondents

How Proxy Respondents were selected

A proxy respondent was used when an SP was unable to serve as a respondent. (All Last Month of Life interviews were conducted with a proxy respondent). Interviewers were instructed that the best proxy was someone who lives with the SP and is familiar with their daily routine. In residential care, a facility staff person may serve as a proxy respondent.

Data Collected from Proxy Respondents

In the SP interview, proxy respondents were asked all sections except Social Network and Well Being. The Cognition for Proxies section (CP) was administered to proxy respondents only. Even when a proxy interview was conducted, if the proxy agreed, the SP was asked the Cognition section. Similarly, sample persons with a proxy respondent were invited to participate in the performance activities for which he/she was eligible.

Data for Proxy Respondents

The IS section indicates whether a proxy respondent was used and the reasons. A question at the end of this section asks how familiar the proxy respondent is with the SP's daily routine. Variables from these items are on the SP file. Variables indicating the proxy's gender, relationship to the SP, and whether he/she lives with the SP are on both the SP and the OP file. Starting in Round 2, age was also obtained.

The table below shows for proxy respondents: the information obtained, the variable name on the SP and OP file when applicable, and the item that is the source for the variable.

Type of information	SP file variable	OP file variable	Item
Proxy respondent used	is#resptype	op#proxy	IS2
Reason for proxy respondent	is#reasnprx1 is#reasnprx2 is#reasnprx3 is#reasnprx4 is#reasnprx5 is#reasnprx6 is#reasnprx7 is#reasnprx9	NA NA NA NA NA NA NA NA	IS2A
Proxy relationship to SP	is#prxyrelat	op#relatnshp	IS9
Proxy gender	is#prxygendr	op#gender	IS10
Proxy familiarity with SP's daily routine	is#famrrutin	NA	IS11
Proxy lives with SP	hh#proxlivsp	op#prsninhh	HH13a
ID of person on OP file who was proxy respondent	is#dproxyid	NA	Derived

Age of Proxy (beginning in Round 2)	Sensitive File	op#dage	Derived

The derived variable "is#dproxyid" on the SP file gives the 3 digit ID of the OP record that belongs to the person who served as a proxy respondent (and has a missing value otherwise). For example, for an SP with 2 adult children, there will be an OP record for each child. Child 1 might have an opid = 001 and Child 2 might have opid = 002. If Child 2 was the proxy respondent, then is1proxyid=002 indicating that the information about the proxy respondent can be found in the OP record with opid = 002 (Child 2).

Last Month of Life Proxies

For respondents who died between rounds, proxy respondents, typically a family member, provide answers to the Last Month of Life interview. For persons in a residential care setting (including nursing homes) a facility staff member may serve as the LML respondent.

III.I. Spouse/Partner Information

Information on the SP's spouse/partner is provided in both the SP file and the OP file. Some variables are only available on the sensitive files (e.g. month marriage ended, month and year of birth and age in single years). The tables on the following pages summarize key information available in the initial round of interview (Round 1 for 2011 cohort or Round 5 for 2015 new sample and Round 12 for 2022 new sample) and for later rounds. Here we provide a brief description.

In a SP's baseline interview (Round 1 or 5 or 12), all information pertains to the current spouse or partner. Users can find marital status, spouse id, gender, age in categories, education, whether the spouse/partner needs personal care, and information about where the spouse/partner lives on the SP public use file. Month and year of birth and age are found on the SP sensitive demographic file. On the OP file, the spouse/partner can be identified by the spouse/partner relationship indicator and the more general variable indicating type of relationship to SP. Spouse/partner's gender, categorical age, and whether in the SP's household are on the public file, whereas month and year of birth and age in single years are on the OP sensitive demographic file.

Round 1 or 5 Spouse/Partner information	SP file variable(#=1 or 5 or 12)	OP file variable (# = 1 or 5 or 12)	Item(s)
Marital status	hh#martlstat	--	HH1
ID	hh#dspouseid	opid	--
Relationship is Spouse/Partner	--	op#spouprtnr	HH4A1
Relationship to SP	--	op#relatnshp	HH4A1
Gender	hh#spgender	op#gender	HH5
Month of Birth	hh#modob (s)	op#birthmth (s)	HH6A
Year of Birth	hh#yrdob (s)	op#birthyr (s)	HH6C
Age Category	hh#dspouage	op#dage	HH7, HH8
Age in Single Years	hh#dspousage (s)	op#age (s)	HH7, HH8
Education level	hh#spouseduc	op#eduspo[1]	HH9

Needs Personal Care	hh#spoupchlp	--	HH10
SP Lives with Spouse/Partner	hh#livwthspo	op#prsninhh	HH11
Kind of Place Spouse/Partner Lives	hh#placekind	--	HH12
SP Living Arrangement (incl. w, w/o spouse)	hh#dlvngarrg	--	Derived

(s)=available on sensitive file
[1] op#leveledu also includes information on spouse/partner's education level

Starting in Round 2 (for 2011 cohort) or Round 6 (for 2015 new sample), some information pertains only to a <u>new</u> spouse/partner since the prior round; other variables include information on the <u>current</u> spouse (either from a prior round or new this round). In the event of a new spouse, the interview items contain information for the new spouse, but derived variables have been created to combine prior information (current spouse who is same as prior round or new spouse). Variable labels in these cases will read "Update and New." In instances where the information is simply carried forward from the time it was added (e.g. education of spouse) it will read "When Added."

In addition, the SP file has for current spouse/partner variables reflecting age, whether the spouse/partner needs personal care, whether the SP lives with the spouse/partner, and if not the kind of place the spouse/partner lives. An additional derived variable captures the SP's living arrangement and includes categories that reflect whether the SP lives only with his/her spouse/partner vs. with a spouse/partner and others.

Starting in Round 2, indicators have been added to the OP file if a spouse/partner from the previous round died (op#dspoudec). Alternatively, analysts may use op#relatnshp and select on relationship 41 'deceased spouse'. This information is also included in op#ddeceased, which identifies deceased spouses/partners, children, and household members.

The table below shows spouse/partner information, SP and OP file variables, and interview items that are the source for these, using Round 2 as an example. For the 2011 cohort, all subsequent rounds are the same; for the 2015 new sample the example shown applies to Round 6 and all subsequent rounds.

Round 2 Spouse/Partner information	SP file variable	OP file variable	Item(s)
Marital status indicators			
Marital status changed	hh2marchange	--	HH1A
Spouse from previous round deceased	--	op2dspoudec[1]	HH1A
Status if changed	hh2martlstat	--	HH1
Month changed	hh2mthendmar (s)	--	HH2A
Year changed	hh2yrendmar	--	HH2C
Current Status	hh2dmarstat	--	HH1, HH1A
New Spouse/Partner Only			
Spouse/partner different	hh2newspoprt	op2nwspouprt	HH4A
Month of birth	hh2modob (s)	--	HH6A
Year of birth	hh2yrdob (s)	--	HH6C
Age in Single Years	hh2dspousage (s)	--	HH7, HH8
Age Category	hh2dspouage	--	HH7, HH8
Gender	hh2spgender	**--**	HH5

Education	hh2spouseduc	--	HH9

Current Spouse/Partner (including "Update and New" or "When Added" variables)			
ID	hh2dspouseid	opid	--
Relationship is Spouse/Partner	--	op2spouprtnr	HH4A1
Relations to SP	--	op2relatnshp	HH4A1
Gender	--	op2dgender	HH5
Month of Birth	--	op2birthmth (s)	HH6A
Year of Birth	--	op2birthyear (s)	HH6C
Age in Single Years	--	op2age (s)	HH7, HH8
Age Category	hh2dspageall	op2dage	HH7, HH8
Education Level	--	op2eduspo[2]	HH9
Needs Personal Care	hh2spoupchlp	--	HH10
SP Lives with Spouse/Partner	hh2livwthspo	op2prsninhh	HH11
Kind of Place Spouse/Partner Lives	hh2placekind	--	HH12
SP Living Arrangement	hh2dlvngarrg	--	Derived
Reason R1 Spouse/Partner Gone [3]	--	op2reasgone	HH13E

[1]op2relatnshp =41 spouse from prior round deceased and op2ddeceased also include this information.

[2] op2leveledu also include information on spouse/partner's education level.

[3]op2ddeceased also includes information that spouse/partner has died since the last round.

(s) = available on sensitive file

III.J. Child Information

Information on SP's children	Variable Name and file (SP if cs; OP if op)	Updated each Round	Round 1, Round 5. Updated each Round starting in Round 10	Item(s)
ID	opid	--	--	--
Child is not in SP's Household	op#chnotinhh	X		CS2PRE (R1) CS1A/1B (R2 on)
Relationship to SP	op#relatnshp	X		CS3
Gender	op#dgender[1]	X		CS3
Month of Birth	op#birthmth (s)	X		CS4A
Year of Birth	op#birthyear (s)	X		CS4C
Age Category	op#dage	X		CS5, CS6
Age in Single Years	op#age (s)	X		CS5, CS6
City of residence	op#rescity (r)	X		CS7A
State of residence	op#resstate (r)	X		CS7B
Child's education level	op#leveledu[2]		X	CS9
Child's education level	op#educhild[2]		X	CS9
Child's marital status	op#martlstat		X	CS10
Child # of children	op#numchldn		X	CS11
Child any children under 18	op#anychdu18		X	CS12
Child # of children <18	op#numchdu18		X	CS12A
SP's # of children	cs#dnumchild[3, 4]	X		Derived
SP's # of step children	cs#dnmstpchd[3]	X		Derived

SP's # of daughters	cs#dnumdaugh[3]	X		Derived
SP's # of sons	cs#dnumson[3]	X		Derived
SP's in HH last round reason gone	op#reasgone	X		
Child not in SP's HH died	op#dchilddec (R2 – 4)[5]			Derived
Child of SP died	op#ddeceased[6]	X		Derived

[1] op1gender in R1 only.

[2] Child's education level is included in op#leveledu in each round. Starting in R2, a new variable op#educhild reflects the child's education (collected at Round 1, Round 5, and at each round from Round 10 forward)

[3] Variables are on the SP file.

[4] In rounds 1-4, cs#dnumchild includes only children who are alive. In round 5 and 7 and forward, cs#dnumchild includes duplicate records and children identified as deceased in the current round. In round 6, cs#dnumchild does not include children identified as deceased in round 6.

[5] Only includes deceased children who do not live in SP's HH. Dropped after R4.

[6] op#ddeceased includes all deceased children since prior round: those in SP's household at the prior round (op#reasgone = deceased) and those not in SP's household at the prior round.

(s) = available on sensitive file

(r) = available on restricted file

Information on children (biological, adopted, step) is provided on the OP file. A few variables are only available on the sensitive files (e.g. month and year of birth and age in single years) or restricted files (city and state of residence; geocoded residential location). The tables on the following pages summarize key information available in each round of interview. For the 2011 cohort, information on children was collected in Round 1 and on new step children in Round 2 and going forward. For 2015 new sample, information was first collected in Round 5 and on new step children in Round 6 and going forward. Information on age, gender, city and state of residence is updated in each round. Information on education, marital status, number of children and number of children under 18 was collected in Round 1 and again in Round 5. Starting in Round 10, this information is updated in each round.

Corrections to Information on Children

There are a few variables that indicate corrections to a small number of cases. These variables are:

- cs1dreconcil is a Round 1 variable on the SP file that identifies SPs for whom a record was corrected (value = 2), most often a relationship was changed to child from some other relationship code (n = 76), and SPs where 1 or more children existed but a record on the OP file was not created (value = 4; n = 82).
- op#chldedit is a variable from Round 3 forward that indicates a record was added for a child who should have been reported in a prior round. Values of the variable indicate the round when the record was added.

III.K. Derived Variables

Overview

Derived variables have been created to facilitate analyses of NHATS data. Principles for creating derived variables included:

- complex skip patterns
- calculation of scores
- SP file variables that combine information from prior and current round (if, for example, the SP moved or had a change in marital status)
- OP file variables that reflect earlier information (such as education, denoted by "when added" in the label) or combine information from prior and current round (such as selected spouse characteristics, denoted by "updated and new" in the label)

The table below provides a brief description of derived variables that appear in all Rounds or the initial Round (Round 1 or 5 or 12), and derived variables introduced in the round following initial round (Round 2 or 6). For a complete list of all derived variables, including variable names, labels, items used in development, and values see *Appendix III. Derived Variable Specifications.* Following the table, we include more detailed information about selected derived variables.

Section	Derived Variables all rounds or initial round	Derived Variables in follow-up rounds
Residence (RE) and Housing Type (HT)	residential status; location of SP who is in residential care; age category at interview; census division	whether LML interview conducted; residence prior to death; corrected move indicators[1] ; current physical structure of residence; current building has more than one floor
Place of Death (PD)	--	categorical age at death
Household (HH)	living arrangement (alone, with spouse only, with others); counts of people and children in the household; categorical age of current spouse/partner[2]; categorical age of other persons (spouse/hh/child)	current marital status; categorical age of new spouse/partner; spouse education
Children and Siblings (CS)	counts of children, step children, daughters and sons; reconciliation of CS1 and child records on OP file (Round 1 only); Education, marital status, children under 18 & number[3]	
Social Network (SN)	count of the number in the social network; indicator of likely social network member[4]; categorical age for social network member (Round 1 & 5 only)[4]	
Home Environment (HO)		combines prior and current round information on building features (elevator, stair lift, common space for meals, common space for social events), residential care features (private bath private, private kitchen, common kitchen).
Cognition (CG)	random word list assignment; immediate and delayed recall scores, none, refused; indicators of whether each word remembered (immediate and delayed); score for the clock drawing test (moved to CD section beginning in Round 11)	Indicator of dementia reported in any prior round; computerized Stroop test variables: mean Stroop effect, ratio Stroop effect, and accuracy category (Round 2 only for Stroop variables)
Mobility (MO)	for each mobility activity (going outside, getting around inside, and getting out of bed): difficulty doing the activity by self, whether devices used, whether help received	
Duration of Mobility Accommodations (DM)	mobility help and device use in last year, months since mobility help and device use started and/or ended, years of help and device use if more than a year (SP's initial round only)	no. months between last interview and current interview or date of death; months of mobility help and device use between last interview and current interview or date of

		death; variable indicating whether started, stopped, between or gap; variable indicating special routing through DM
Household Activities (HA)	for each activity (laundry, shopping, preparing hot meals, and handling bills and banking): level of difficulty by oneself and reason help is received (health/functioning reason, other reason, both); indicators of meals on wheels and takeout	
Self Care (SC)	for each activity (eating, washing up, dressing, toileting): whether devices used, whether help received, difficulty doing the activity by self	
Duration of Self Care Accommodations (SC)	self-care help in last year, months since self-care started and/or ended, help if more than a year (SP's initial round only)	months of self-care help between last interview and current interview or date of death; variable indicating whether started, stopped, between or gap; variable indicating special routing through DS
Medical Care Activities (MC)	for managing medications: level of difficulty by oneself and reason help is received (health/functioning reason, other reason, both)	
Participation (PA)	favorite activity[5]	
Early Life (EL)	if immigrated, age came to US; whether lives in same city and state as when age 15 (SP's initial round only)	
Race, Ethnicity, Language (RL)	race and Hispanic ethnicity (Rounds 1, 5, only)	
Labor Force (LF)	longest occupation (SP's initial round only)	current occupation
Helpers (HL)	hours of help per month[6]	
Clock Drawing (CD)	score for the clock drawing test (beginning in Round 11); certainty of automated scoring and clock image extraction method (added in Round 12)	
Physical Activities Booklet (AB)	indicators of administration status (eligible and recorded result, eligible and no recorded result, not administered because did not complete prior test, not eligible) for each of the activities; summary scores for each activity; NHATS Expanded and Original SPPB; average and best scores for walking speed, grip strength and peak air flow[7]	
Vision Hearing Booklet (VB/HB)[8]	reason missing indicators for distance acuity, contrast sensitivity, and near acuity vision test; test scores for distance acuity, contrast sensitivity, and near acuity; reason missing indicator for pure-tone average; pure-tone average of the better ear; pure-tone average of the worse ear; which ear is better.	
Cogstate Battery (CB)[8]	reason missing indicator	
Activity Watch (AG)[8]	Summary file: accelerometry status; number of days worn and number of valid days worn; number of minutes device worn on valid days; measures of activity counts, activity fragmentation, and sedentary behavior fragmentation; counts of active and nonactive minutes; counts of active and nonactive bouts; length of active and nonactive bouts; maximum activity counts per minute accumulated in 10, 30, and 60 consecutive minutes Detailed file: day device worn; day of the week device worn; whether the device was worn >21.6 hours (90% of the day); mean activity counts for each minute of the day	
Facility Questionnaire (FQ)	variables from other specify fields for type of place and SP's level of care; variable used in nonresponse adjustment for analytic weight	
Additional OP Variables	Indicators of potential problem cases: no flags set, section where person added, probable duplicate and duplicate id	Indicators of edits that correct relationship to SP, gender, and age group

[1] See re#dresnew and r2daddrscorr in Appendix III.

[2] In Round 1 this variable is called hh1dspouage and starting in Round 2 hh2dspageall.

[3] Collected in Round 1 and again in Round 5. Starting in Round 10, this information is updated in each round.

[4] Individuals added at SN but who did not have the social network flag checked are designated as likely social network members.

[5] A revised version (pa1dv2favact) of the Round 1 derived variable (pa1dfavact) was added in Round 2 with one extra code. See Section III.N and Appendix III for guidance on cross round coding of restriction in favorite activity.

[6] See Freedman, Spillman, and Kasper (2014) for guidance on how to make missing value indicators comparable for Rounds 1 and later rounds.

[7] See Kasper, Freedman, and Niefeld (2012) for details.

[8] Separate user guides are available for each of these components, starting in Round 11. See Hu et al. (2022; vision and hearing), Plassman et al (2022; Cogstate), and Schrack et al. (2022; accelerometry) for details.

Derived Variables on the SP File that Address Minor Corrections and Cross-Round Issues

Corrected Residence Change in Round 2. A small number of cases in Round 2 (n=44) should have been coded as having changed residence but were not. The variables re2spadrsnew reflects how the variable was coded in the interview, as does the flag variable fl2resnew, which was used when residence change affected skip patterns. A corrected variable re2dadrscorr also has been created, which uses corrected values for these 44 cases (indicating they changed residence) and retains original values for all others.

Duration of Mobility Help, Device Use (DM) and Duration of Self Care Help (DS). Derived variables were developed in all Rounds from these sections (*see Appendix III. Derived Variable Specifications)* to reflect any help/use in the last year, months if started in the last year, months if ended in the last year, and for SP's initial round only, years if longer than 1 year. (One recommended change to coding for the Round 1 "months if ended" variables is provided in *Appendix III. Derived Variable Specifications*).

Starting in the round after the initial round, two variables are created that reflect: 1) whether since the last interview help/use started, ended, was in place at both interviews with a gap in between, was in place at both interviews with no gaps, was not in place at either interview but occurred in between, and a small number of cases with varying missing information, 2) months of help/use. The interval between interviews (or last interview and death) is reflected in dmds#dintvl. Cases that routed through these sections in nonstandard ways (e.g. those who died and were not alert in the last month of life in Round 2 and 3; those who died and missing month of death or within 1 month after the prior interview) are identified in dm#flag and ds#flag.

Changes in Missing Values for Hours of Care. Missing data codes for the derived hours variable differ in Round 1 and later rounds. In Round 1, NHATS provided 3 missing value codes (-11, -10, and -9). A value of -11 indicated valid days but missing hours; -10 valid hours but missing days; and -9 missing both days and hours. A value of 9999 (not coded because < 1 hour/day), indicated that the number of hours per day reported was 0, a value used to indicate that the helper provided less than 1 hour of care.   Starting in Round 2, two new missing value codes were introduced: -13 is assigned to OP records in cases where the SP was deceased and the Helper section was not administered, and -12 indicates that the SP reported zero days (per week or per month) for a given helper. Missing codes -9 (missing both days and hours) and -11 (valid days but

missing hours) continue to be available, but -10 is no longer a valid code because if days are missing, hours are not asked. See Freedman, Spillman, and Kasper (2014) for guidance on how to make missing value indicators comparable for Rounds 1 and later rounds.

Physical structure of residence and building amenities. In SP's initial round, physical structure of a person's residence is obtained in RE8 and creates a STRUCTURE flag (1=free standing or attached house; 2 = multi-unit building; 3 = other (including mobile home)) that is used in routing in HT and HO (see *Appendix II Flag Variable Specifications*). In all Rounds, interviewers were instructed to code physical structure based on observation. Starting in Round 2, interviewers were instructed to ask the respondent about the structure of SP's home if the interview did not take place at the SP's residence. In follow-up rounds, structure was updated if the SP had moved since the last interview. In addition, in Rounds 2-4 if the SP had not moved but the last interview was not at his/her place of residence, structure was asked and potentially updated in a very small number of cases. Otherwise the last interview values for physical structure and the STRUCTURE flag were retained. Information on physical structure and whether persons had moved also routed people through the items on number of floors and amenities in residences in HT and HO. Derived variables have been created that reflect current round status for physical structure and building amenities: re#dresistrct and ho#dbldg1 to ho#dbldg4. Information is retained from the prior interview if an SP has not moved and is updated to reflect the new residence if an SP has moved.

Derived Variables on the OP File that Address Minor Corrections

Child not identified in initial interview round (1 or 5) and added later: SPs were asked to provide information on all children at initial interview (2011 or for new sample 2015). In rare instances, in subsequent rounds interviewers identified children not originally listed in the initial interview. A child who was added later but should have been listed in the initial interview is identified by op#childedit. Information, such as age, marital status and education, is not available for these cases.

OP records identifying possible social network members: Persons who were entered on the roster at the SN section but were not flagged as social network members are identified by op#dsocwrkfl.

OP records with no flags set: op#dflmiss identifies records on the OP file that have no flags set (including no flag at op#dsocwrkfl). op#missadd indicates the section where the person identified in op#dflmiss was added. The largest number of records that have no flag were added at the Driving and Transportation section (DT) and the Closing (CL) section of the interview. In the DT section, interviewers were allowed to select only 2 persons who drove the SP but may have entered more than two. These extra persons could not be selected, and as a result have no flag for helping with driving, but generated an OP record nonetheless. Some persons with no flags were entered in the Closing section as a contact for locating the SP in the future but had no other role.

OP records that are likely duplicates or are not the same person: Records that are likely duplicates are identified by op#dprobdup. Values of the variable op#ddupeid identify duplicates; e.g. if case 100 and 103 are duplicates case 100 will have a value of 103, and case 103 will have a value of

100. All other cases are assigned -1. In a small number of cases, a R1 and R2 (or R1 and R3) person with the same opid are likely not the same person, these are identified by op#ddiffop.

OP records that have been corrected: Relationship to SP, gender, and age group have been corrected from round to round in a few cases using information from across rounds. Three derived variables identifying corrections (1 = corrected; -1= not applicable) have been created: op#drelatfl, op#dgenderfl, and op#dagefl. For corrected cases, the Round 1 and later round information will differ, but the later round variables with the corrected information are recommended.   Variables also indicate in which round the correction was made: op#drelflro, op#dgenderflro, op#dageflro.

Derived Variables for Physical Performance and Cognitive Activities

Performance Activities Derived Variables. Measures of administration status (eligible and recorded result, eligible and no recorded result, not administered because did not complete prior test, not eligible) have been constructed for balance stands, walking, single and repeated chair stands, grip strength, peak air flow. Summary scores for each performance activity and two versions of the SPPB (NHATS Expanded SPPB and Original) also have been constructed for analysts. See Kasper, Freedman, and Niefeld (2012) for more information.

10 item word recall (immediate and delayed). Scores have been created for both the 10 item immediate and delayed word recall batteries: cg#dwrdimmrc R# D SCORE IMMEDIATE WORD RECALL and cg#dwrddlyrc R# D SCORE DELAYED WORD RECALL.

Variables from items CG8 (cg#wrdsrcal1 through cg#wrdsrca10) and CG15 (cg#wrdsdcal1 through cg#wrdsdca10) reflect the number of people who recalled at least 1 word, at least 2 words, etc. up to 10 words by the word recalled (word 1, 2, 3, etc.). For example, cg1wrdsrcal9 (variable that reflects results for persons who remembered at least 9 words on immediate word recall) can be interpreted as: among those who recalled 9 words, 2 recalled the 1st word, 4 recalled the 4th word etc.

Word[1]	2
Word[4]	4
Word[5]	7
Word[6]	5
Word[7]	6
Word[8]	2
Word[9]	7
Word[10]	9

A set of derived variables—cg#dwrd1rcl through cg#dwrd10rcl (immediate word recall) and cg#dwrd1dly through cg#dwrd10dly (delayed word recall)—reflects the number of people who recalled the 1st word in the list, the number who recalled the 2nd word in the list, etc.

Numbers and Letters (MAT). Several derived variables were included in the Round 11 Beta File but have been removed from the Final file. We are investigating options for releasing R11 and R12 MAT scores.

Stroop Test Variables. A computerized version of the Stroop Test was administered in Round 2 to SPs who had a completed SP interview and were able to do the short practice for the Stroop. The computerized Stroop test consisted of two trials: an easy trial which called for identifying the color of the symbol X and a hard trial which required identifying the color of words that named colors. Each condition was shown to the SP 30 times.

Three variables are provided for the Stroop: an accuracy group indicator, an individual-level mean Stroop effect (for those meeting accuracy criteria), and an individual-level ratio Stroop effect (for those meeting accuracy criteria).

Accuracy group - r2stroopgrp - was assigned as follows:
      1 = did not meet accuracy criteria to calculate Stroop effect variables
      2 = met accuracy criteria for X condition but not for word color condition
      3 = met accuracy criteria to calculate Stroop effect variables (average accuracy across X condition ≥ .42 and average accuracy across word color condition ≥ .42)
      4 = fewer than 50% of trials were completed for condition 1 or 2
      999 = did not met accuracy criteria for X condition but did for word color condition

For SPs who were in accuracy group 3, the two Stroop effect variables are provided: (1) Mean Stroop effect (r2stroopmean) which is calculated as the difference between an individual's mean reaction time for all accurate word color condition trials and the mean reaction time for all accurate X condition trials, expressed in milliseconds (e.g. 1500 = 1.5 seconds). (2) Ratio Stroop effect (r2strooprati) which is the individual's mean Stroop effect divided by the mean reaction time for all accurate X condition trials.

III.L. Scoring Methodology for Clock Drawing Test

Scoring guidelines for the clock drawing test were reproduced for use in NHATS by special permission of the Publisher, Psychological Assessment Resources, Inc., 16204 North Florida Avenue, Lutz, Florida 33549, from the Calibrated Neuropsychological Normative System, by David J. Schretlen, PhD, S. Marc Test, PhD, and Godfrey D. Pearlson, MD, Copyright 2010 by Psychological Assessment Resources, Inc. Scoring guidelines used by coders consisted of both verbal instructions and illustrative images of clocks.

Clocks were scored on a scale from 0, not recognizable as a clock, to 5, an accurate depiction of a clock. Criteria for scores included:

- 5 (accurate depiction)—numbers in correct quadrants; hands pointing to the numbers 11 and 2; minute hand longer than the hour hand.
- 4 (reasonably accurate depiction)—numbers in roughly correct quadrants; hands reasonably close to the numbers 11 and 2; hands could be of equal length or the minute

hand could be shorter than the hour hand; numbers may be outside the perimeter of the clock face.

- 3 (mildly distorted depiction)—some numbers may be missing or disoriented; there may be a few extra numbers. Hands may be incorrectly drawn or pointing to wrong number combinations; a hand may be missing.
- 2 (moderately distorted depiction)—several numbers are missing, repeated, or drawn in reverse order; there were more than two hands or no hands.
- 1 (severely distorted depiction)—viewer might be able to tell that the drawing was a clock but could not tell the time shown.
- 0 (not recognizable as a clock)—viewer would not be able to tell drawing was supposed to be a clock.

Clocks were scanned into an online database for coding. If a participant drew more than one clock, coders were instructed to score the best of the clocks drawn. If participants clearly marked out something they had drawn, like an extra hand, coders were instructed to score as if two hands had been drawn not three. Clocks that were difficult to read such as clocks missing a part of the outside or a clock that was too small to see were scored by what could be read by the coder. Coders scored the clarity of the clock image (variable name=cg#dclkimgcl) in addition to scoring the clock (variable name=cg#dclkdraw).

In Round 10, because the NHATS interview was conducted by phone, materials to draw the clock were mailed to participants. Interviewers read the instructions as usual but were unable to observe the SP doing the activity. SPs were asked to mail the clock drawing back in a prepaid envelope. Clocks were then scanned and coded as in prior rounds. Materials were re-mailed to those not completing the clock drawing during the interview and to those who attempted the clock drawing but did not return it. The following variables reflect the Round 10 changes to data collection for the clock drawing (see Appendix III. Derived Variable Specifications for more details on the derived variables).

- new derived variables indicate whether the clock drawing was attempted during the phone interview (cg10dclockint); whether the clock drawing was received (cg10dclockreeived); the month and year the clock drawing was received (cg10dclockmonth)

- the clock drawing score (cg10dclkdraw) was assigned the R9 score if the clock was not received and a valid R9 score was available; a derived variable (cg10dclkdrawr9) indicating that the score was carried forward from R9 is included to identify these cases.

Clock Coder Training and Selection of Coders

Training
Training consisted of a presentation that covered: how the clock drawing test was administered in NHATS, review of the 3-page scoring guide which provided both verbal descriptions of coding criteria and clock images corresponding to each score, and a review of 20-25 clocks and discussion of coding. A neuropsychologist was consulted in the development of the training.

Assessing reliability of lay coders against clinically trained coders

Two neuropsychology fellows and 2 lay coders were trained for purposes of evaluating the use of lay coders to code the NHATS sample participant clocks. Following training, each coder was given 220 clock drawings from the NHATS Validation Study conducted in the Spring of 2010. The sample consisted of persons in the community and residential care other than nursing homes; it also included persons receiving help with activities of daily living (see Freedman et al. 2011 for a description of the sample). Clocks from both an initial interview and a re-interview for 111 people were used in training (220 in all; one person had only 1 clock).

The neuropsychology coders were considered the gold standard given their clinical background in cognitive assessment including administering and evaluating clock drawings. The weighted Kappa to assess inter-rater reliability between the two neuropsychology coders was .81. A Kappa for scores of 4 or 5 versus scores of 0 to 3 for the two neuropsychology coders was .93. Weighted Kappas between each of the two lay coders against each neuropsychology coder (4 comparisons) ranged from .78 to .80; the kappa for scores of 4 or 5 versus scores of 0 to 3 ranged from .85 to .93. The high level of agreement between the lay and neuropsychology coders indicated that with training lay coders could accurately implement the scoring system used for NHATS.

Criteria for selecting coders and inter-rater reliability

Prior to Round 1 coding, 6 persons were trained and completed coding of the 220 NHATS validation study clocks. Inter-rater reliability for each coder was assessed against the two neuropsychology coders and 3 persons were selected as coders (all with a kappa of .77 or higher). At each subsequent round, a pool of potential coders was trained. Coders were selected based on inter-rater reliability against the two neuropsychology coders. In Round 2, 4 coders were used (all with kappas of .70 or higher). In Round 3, 3 coders were used (all with kappas of .75 or higher). In Round 4, 4 coders were used (all with kappas of .74 or higher). In Round 5, 5 coders were used (all with kappas of .65 or higher). In Round 6, 4 coders were used (all with kappas of .65 or higher). In Round 7, 5 coders were used (all with kappas of .61 or higher). In Round 8, 5 coders were used (all with kappas of .60 or higher). In Round 9, 4 coders were used (all with kappas of .60 or higher). In Round 10, 3 coders were used (all with kappas of .60 or higher). In Round 11, 2 coders were used (both with kappas of 0.61 or higher). Weighted kappas were above .70 for all coders at each round.

Automated coding procedure using Deep Learning Neural Networks (DLNN) beginning in Round 12

Starting in Round 12, NHATS switched to using deep learning neural networks (DLNN) to code the CDT images. For details on the methodology used in developing and validating the automated coding, as well as procedures for implementing in Round 12, see Hu et al. 2023.

III.M. Income Imputations

Multiple (5) imputed values of total annual income were provided in Rounds 1, 3, 5, 7, 9, and 11 (ia#toincim1 -5); beginning in Round 12 twenty (20) imputed values were released (ia#dttoincimi1-20). The values reflect either individual income or income for couples for those

currently married or living with a partner. An extensive battery of income and asset items was administered in Rounds 1 and 5, and a brief battery in Rounds 3, 7, 9, 11, and 12 (see Montaquila et al. 2012, 2015, 2016c, 2018, 2020; Jiao et al. 2022b.)

Note that in Rounds 1, 7, 9, 11 and 12, the imputed variables combine reported and imputed values (which can be distinguished using flags provided). In Rounds 3 and 5, the imputed variables provide only the imputed values; users must combine reported and imputed values to make a new variable in these rounds.

Through Round 11, 5 imputations were created using a hot-deck imputation process that preserved the joint distribution of the full set of income components (including source indicators (yes/no) and in Rounds 1 and 5 source amounts for respondent and spouse/partner). A cyclical n-partition hot deck was used (see Judkins 1997). The program samples donors (within hot deck cells) with replacement (with a limit on each donor being used no more than 3 times). Through Round 11, the hot-deck imputations are available on the SP file along with flags indicating whether values were imputed. See Technical Paper #42 for more information on the hot-deck imputations.

Beginning in Round 12, new methodology was initiated using multiple imputation by chained equations. Interval regression was used to fill in missing income values 20 times within a specified range. This approach has the advantage of allowing more imputations to be created and is also replicable by the research community. The Stata-based imputations, flags indicating whether values were imputed, and a variable indicating the reason for imputation, are available for each round in auxiliary income files in the NHATS public use zip files. See Technical Paper #43 for additional information on the income imputation methodology using interval regression.

In Round 1, the total income range variable was imputed for 31% of the sample and was used to bound the imputation of the total income amount (imputed for 44%; 13% within reported bracketed value and 31% within imputed bracketed value), so that the imputed value would be consistent with the range. In Round 5, the total income range variable was imputed for 25% of the sample and was used to bound the imputation of the total income amount (imputed for 44%; 19% within reported bracketed value and 25% within imputed bracketed value), so that the imputed value would be consistent with the range. In Round 12, total income was imputed for 28% of the sample (14% because they reported only a bracketed amount; 13% because they had no bracket information or exact value; and less than 1% because of suspected reporting errors).

Data users who wish to distinguish actual (reported) values from imputed values, may use the appropriate imputation flag (indicated with "f" at the end of the imputation variable), which is set to 1 for imputed values and 0 otherwise.

Although income sources and component amounts were included in the imputation for total income in Rounds 1 and 5, we did not attempt to reconcile the total amounts with the component amounts reported from separate sources.

III.N. Favorite activity

Variables identifying the favorite activity. In their first round, sample persons were asked to report their favorite activity. Responses were recorded verbatim and then a 3-digit coding scheme was applied (see *Appendix III. Derived Variable Specifications).*

For the 2011 cohort, favorite activity named in Round 1 is provided in pa1dfavact. In Round 2, a value of 715 (exercise, yoga, working out, swimming, dancing), was introduced into a 2nd version of this variable called pa1dv2favact. The Round 1 derived variable (pa1dfavact) can be recoded to be comparable to pa1dv2favact (see *Appendix III. Derived Variable Specifications* for details*).* The variable pa1dv2favact was included in Rounds 2-4.

In Round 5 continuing persons (from the 2011 cohort) were given the opportunity to name a new favorite activity. The variable pa5dfavact captures the current favorite activity for new (2015 cohort) respondents and either the previously reported (2011) favorite activity or a new (2015) favorite activity for continuing (2011 cohort) respondents. The variable pa1dv2favact (the original favorite activity) is also carried forward for the continuing cohort. For continuing sample members, users can distinguish whether pa5dfavact is a new activity or not by using PA27A (pa5fvactstill).

In Round 12, continuing persons were given the opportunity to name a new favorite activity. The variable pa12dfavact captures the current favorite activity for new (2022 cohort) respondents and either the previously reported (2015) favorite activity or a new (2022) favorite activity for continuing respondents. The variables pa1dv2favact and pa5dfavact (the favorite activity named in Rounds 1 and 5) are also carried forward for the continuing cohort. For continuing sample members, users can distinguish whether pa12dfavact is a new activity or not (pa12fvactstill).

In Rounds 2 and forward, continuing persons (including LML respondents) were asked whether they (the sample person) got to do their favorite activity (named in Round 1) since their last interview (or between the time of their last interview and their death). In Rounds 6 and forward, the fill in this question shifted to the activity named in Round 5.

Variables identifying restriction in favorite activity. In Rounds 2 to 4, continuing persons (including LML respondents) were asked whether they (the sample person) got to do their favorite activity (named in Round 1) since their last interview (or between the time of their last interview and their death). In Rounds 6 to 10 the fill in this question shifted to the activity named in Round 5. At each round individuals are then asked "did {your/SPs} health or functioning ever keep {you/SP} from {favorite activity}." The table below shows the favorite activity referenced and time frame (last month vs. last year) for this question across rounds and corresponding variable names and items.

Round	Cohort	Item	Restriction in favorite	Favorite activity referenced: variable name	Time frame

			activity: variable name		
1	2011	PA26	pa1helmfvact	Round 1: pa1dv2favact	Last month
2 - 4	2011	PA26	pa#helmfvact	Round 1: pa1dv2favact	Last year
5	2011/2015	PA26	pa5helmfvact	2011 cohort: pa1dv2favact 2015 cohort: pa5dfavact	Last month
5	2011/2015	PA26A	pa5fvactlimyr		Last year
5	2011	PA28	pa5actnwlim	2011 cohort (if new activity reported in Round 5): pa5dfavact	Last month
5	2011	PA28A	pa5actnwlimyr		Last year
6 – 11[1]	2011/2015	PA26	pa#fvactlimyr	Round 5: pa5dfavact (2011 cohort: Round 1 or new Round 5 activity)	Last year
12	2015/2022	PA26	pa12helmfvact	2015 cohort: pa5dfavact 2022 cohort: pa12dfavact	Last month
12	2015/2022	PA26A	pa12fvactlimyr		Last year
12	2015	PA28	pa12actnwlim	2015 cohort (if new activity reported in Round 12): pa12dfavact	Last month
12	2015	PA28A	pa12actnwlimyr		Last year

[1]In Rounds 10 and 11, pa10fvactlimyr was asked at item PA26A.

In Round 1, restriction in favorite activity in the last month is obtained, then in Rounds 2-4, the reference period changes to the last year.[11]

In Round 5, for persons in the 2011 cohort, restrictions in favorite activity reported in Round 1 are obtained for the last month (PA26) and the last year (PA26A). In addition, 2011 cohort members who reported having a new favorite activity in Round 5 (in PA27A) are also asked about restrictions for that activity in the last month (PA28) and the last year (PA28A). For persons in the 2015 cohort, restrictions in favorite activity are obtained for the last month (PA26) and the last year (PA26A).

In Round 12, for persons in the 2015 cohort, restrictions in favorite activity reported in Round 5 are obtained for the last month (PA26) and the last year (PA26A). In addition, 2015 cohort members who reported having a new favorite activity in Round 12 (in PA27A) are also asked about restrictions for that activity in the last month (PA28) and the last year (PA28A). For persons in the 2015 cohort, restrictions in favorite activity are obtained for the last month (PA26) and the last year (PA26A).

This section is designed to support analyses of both trends and trajectories. Users interested in trends between 2011 and 2015 in restrictions in (current) favorite activity may compare PA26 in

[11] We recommend users rename pa2helmfvact-pa4helmfvact to pa2fvactlimyr-pa4fvactlimyr, since these variables ask about favorite activity in the last year. From Round 5 forward the "last year" variables are consistently named.

Round 1 (last month) and PA26 (or PA28 for 2011 cohort) in Round 5 (last month). Users interested in trajectories in favorite activity for the 2011 cohort may use PA26 for Round 1 (last month), PA26 for rounds 2-4 (last year), PA26A or PA28A (the latter if a new activity is named; both last year) for Round 5, and PA26 for rounds 6-11 (last year; refers to new activity if named in Round 5 otherwise to Round 1 activity; the item was captured at PA26A in Rounds 10 and 11).

III.O Known Skip Updates

NHATS occasionally changes skip patterns in order to include as many individuals as possible in question sequences. Below is a list of skip pattern changes by section, along with the Round the skip was changed and a brief description of the change.   Skips are typically denoted in instruments in one of three places: boxes placed at the beginning or within a section of the instrument, section letter/item numbers listed to the right of response options for a specific item, or programming instructions below the question text and responses for a specific item.

Section	Round	Description of Skip Change
Service Environment (SE)	5	Rounds 1-4 section administered if facility flag on. Starting in Round 5, section also administered if living in retirement community.
Children and Siblings (CS)	10	Rounds 2-9 age, gender and city and state updated each year; education, marital status, number of children, and number of children under age 18 carried forward from year added (and updated in R5 if entered in R1) but not updated in other years. Starting in Round 10, education, marital status, number of children and number of children under age 18 are updated annually.
Social Network (SN)	5	Rounds 2-4 age and city/state updated for previously rostered children, spouses, or household members who are SN members. Starting in Round 5, updated annually for all SN members. Starting in Round 12, section also administered to proxy respondents.
Sensory and Physical Impairments and Symptoms (SS)	5	Rounds 2-4 vision items skipped if reported to be blind in any prior round; hearing items skipped if reported to be deaf in any prior round. Starting in Round 5, skips for persons reported to be blind / deaf in a prior round were removed.
Duration of Mobility Accommodations (DM)	3	Rounds 2-3, month help (device use) ended inadvertently skipped for persons who reported no help (device use) in the last month and no help (device use) in the prior round but help (device use) in between. Starting in Round 4, both month started and ended were asked.
Home Ownership (HP)	5	Rounds 1-4 section not administered if facility flag on. Starting Round 5, section asked of individuals in both community and facilities.
Economic Well-being (EW)	2	Round 1 government assistance questions (food stamps, food assistance, energy assistance) were not asked of individuals in facilities. Starting in Round 2, items are asked in both community and facility settings.
Helpers (HL)	11	Rounds 2-10, if days helped per week is 0 respondents skip hours per day. Starting in Round 11, if the days helped per week is 0, respondents are asked days in the last month and hours per day.
Last Month of Life (LML)	4	Rounds 2-3, if the SP was not alert in the last month of life sections CP, MO, DM, SC, DS and PA were skipped and if the SP was not mobile in the last month of life MD, CP, MO and DM were skipped. Starting in Round 4, skips based on not mobile were removed and SPs who were not alert in the last month of life skipped only sections MD, CP, MO and PA.

III.P. Data Notices and Corrections

NHATS occasionally sends data notices by email or posts corrections on the website when minor data issues (e.g. variable name, label) are found. The list below includes known issues:

Pain Module (Rounds 3 and 4)

Email Notice date: 10/5/2016

Values for responses to *pn3painlim1-pn3painlim6* and *pn3painall*; *pn4painlim1-pn4painlim6* and *pn4painall* are incorrectly (reverse) labelled in the SP file. As indicated in the instruments, responses for these items should be labeled:

1 NOT AT ALL

2 A LITTLE

3 SOMEWHAT

4 A LOT

CG Variables: cg4todaydat4 and cg4todaydat5 (Round 4)

Dementia classification code corrected 12/1/16

As shown in the instruments, labels for these variables should be reversed: cg4todaydat4 indicates correctly reporting day of the week; cg4todaydat5 indicates an aid was used for day of the week. This correction has been incorporated into the follow-up round dementia classification coding posted on the NHATS website (Addendum to Classification of Persons by Dementia Status in the National Health and Aging Trends Study for Follow-up Rounds).

CG Variable: cg2dwrdimmrc (Round 2)

32 cases were incorrectly coded on the immediate word recall score (coded as 10 instead of -3). To correct this error:

Stata: replace cg2dwrdimmrc=-3 if cg2dwrdimmrc==10 & cg2dwrddlyrc==-3

SAS: If cg2dwrdimmrc = 10 and cg2dwrddlyrc = -3 then cg2dwrdimmrc = -3;

This correction has been incorporated into the follow-up round dementia classification coding posted on the NHATS website (Addendum to Classification of Persons by Dementia Status in the National Health and Aging Trends Study for Follow-up Rounds).

CG Variable: cg6dwrdlstnm and cg7dwrdlstnm (Rounds 6-7)

Though different word lists were assigned each round, the word list number derived variable assigned the Round 5 value to Rounds 6 and 7. There are 3 word lists. To correct values:

- In Round 6: recode 1 to 2; 2 to 3; 3 to 1
- In Round 7: recode 1 to 3; 2 to 1; 3 to 2

PA Variable: pa8dofavact (Round 8)

For SPs who did not provide a favorite activity, the variable pa8dofavact was not set to 95. To fix this, set pa8dofavact to 95 if r8dresid=1 or 2 or 4 or 6 and pa5dfavact=992.

DM Variable: dm5dmohlpgr (Round 5)

There are 8 cases where dm5dmohlpgr=1 and ds5dschlpgr=-1; these cases should have dm5dmohlpgr set to -1.

Physical Activity Variables (Round 5)

At round 5, values of 1 (yes) and 2 (no) were reversed for the following variables: ba5rsn2ssstd, ba5rsn2ststd, ba5rsn2ftstd, ba5rsn21leo, ba5rsn21lec, wa5rsn21wkc, ba5rsn22wkc, ch5rsn21chs, ch5chstntdn2, ch5chstntat2, gr5grp1noat2, gr5grp2noat2, pk5pk1noatt2, pk5pk2noatt2. As a result, we recommend users recode the values of 1 to 2 and the values of 2 to 1.

MC variables: mc5medsyrgo and mc5medsmis (Round 5)

In round 5, incorrect routing occurred at BOX MC7. Cases where keeping track of medications is mc5medstrk=2 (always did it together with someone else) and op5relatnshp is not 31 (any relationship other than paid aide/housekeeper/employee) incorrectly skipped MC8 (mc5medsyrgo; n=264 missing in error). Cases where mc5mestrk=2 and op5relatnship is not 31 and mc5dmedsreas = 1 (help with medications for health/functioning reason) incorrectly skipped MC9 (mc5medsmis; n=146).

Change in Residence in last month of life: re5dresnew (Round 5) and re6dresnew (Round 6)

The Last Month of Life (LML) interview includes question RE4F, which asks whether the place person was living at the time he/she died is the same place he/she was living at the time of the last interview. The derived variable with values of "same residence" or "new residence" was incorrectly coded -1 for LML interview cases in Round 5 and Round 6. The variable re5spadrsnew/re6spadrsnew (from question RE4F) contain the correct values for decedents for these rounds.

Changes in Residence among persons in Residential Care (Rounds 5-9)

In addition to changes in residence identified in RE4F, a small number of additional changes in residence among persons in residential care settings were identified during data review and reconciliation. These changes are incorporated into a derived variable starting in Round 10 (re#dresnew). For prior rounds the SPIDs listed below should be coded as have a change in residence since the prior round:

Round 5: 10000044, 10001152, 10001922, 10004528, 10007271, 10009582, 10009703, 10010246, 10010249, 10012323

Round 6: 10009713, 20000411, 20001733 Round 7: 20005200, 10010328

Round 8: 10008362

Round 9: 10002180, 10004560, 10007341, 20001248, 20006354

Tracker 2011 Cohort Weights: w6tr2011wgt0-w6tr2011wgt56 (Rounds 6, 7, and 8)

The Round 6 2011 tracker file cohort weights were corrected to include weights for cases that were not included in Round 6 data collection (prior round status = 62, 83, -1). The cumulative Round 7 and 8 files also were updated to include the correction to Round 6. The correct weights were added to the rounds 6, 7, and 8 tracker files in September 2020.

Tracker month of interview dates: Rounds 3 through 8

For cases with both an SP and FQ interview, three interview months are available for each case: the month the SP was completed, the month the FQ was completed, and the month the case was completed (the latter of the two). In earlier releases, in Rounds 3 through 8, the month that the case was completed was assigned to both the SP and FQ interview.

Four round-specific variables have been added to each tracker file, beginning in Round 3: r#spstatdtmtchange is a flag indicating that the month of interview changed from prior releases for the SP interview; r#fqstatdtmtchange is a flag indicating the month of interview changed for the FQ interview; r#spstatdtmtrev and r#fqstatdtmtrev are revised variables that incorporate the changed values. Depending on the round, roughly 50-100 cases had their SP interview month affected and roughly 25-50 cases had their FQ interview month affected. The majority of these cases changed by one month.

Analysts may choose to use either the original (case) month or the revised (component) month, depending on their purpose. From Round 9 forward, SP and FQ interview will be assigned month based on when the component was completed.

On the restricted tracker file, which includes both month and day of interview, we have included revised variables reflecting both month and day.

Variable Formatting Issue: spid, opround (Rounds 6, 7, 8, 9 – Stata only)
The variable spid was formatted to appear in scientific notation on the Stata versions of the Rounds 6-9 OP and Tracker files, Rounds 6-8 Metro-nonmetro indicator files, Rounds 6-9 Restricted SP and OP geographic files, and Round 9 restricted tracker file. The variable opround also was formatted to appear in scientific notation on the Stata version of the Rounds 6-9 OP files. In conjunction with the Round 10 beta file release, these files were updated with the correct formatting of spid and opround so that so that the variables are no longer displayed using scientific notation.

CP Derived Variable: cp#dad8dem (Rounds 4-9)
In rounds 4-9, the variable cp#dad8dem was incorrectly coded for some SPs. A report by a proxy that the SP had dementia in response to AD8 items was not carried forward when a prior round interview was missed (r#status for prior round=64). To fix this error, recode the variable shown from a value of -1 to a value of 1 if r#dresid=1, 2, or 4 and is#resptype=2, and cp#chgthink1=-1. This correction has been incorporated into the follow-up round dementia classification coding posted on the NHATS website (Addendum to Classification of Persons by Dementia Status in the National Health and Aging Trends Study for Follow-up Rounds). The table below shows the number of cases that were affected and the variable to recode in each round.

Round	Variable	N
Round 4	cp4dad8dem	46
Round 5	cp5dad8dem	33
Round 6	cp6dad8dem	23
Round 7	cp7dad8dem	12

Round 8	cp8dad8dem	9
Round 9	cp9dad8dem	8
Round 10	cp10dad8dem	7

CG Which Word List Assigned: cg10dwrdlstnm (Round 11)

In Round 11 only, the word list number was not incremented so individuals were administered the same word list in Rounds 10 and 11. In all other rounds the word list number was incremented so that individuals cycle through the three lists (e.g. List 1, 2 or 3) over three years (starting with the first randomly assigned list).

HH Variable: hh10livwthspo (Round 10)

In Round 10, there are 109 records in the R10 SP public file where is10resptype=2 (proxy) and hh10dmarstat = 1 or 2, but hh10livwthspo is incorrectly set to -1. Users can determine what hh10livwthspo should have been set to by looking at the value of op10prsninhh for the spouse record (i.e. op10relatnshp=2) on the R10 OP public file:
- Set hh10livwthspo=1 for 95 records where the spouse has op10prsninhh=1
- Set hh10livwthspo=2 for 14 records where the spouse has op10prsninhh<>1

Last Month of Life (LML) Weights: w5anfinwgt0-56 (Round 5)

In Round 5 only, SPs who were part of the 2011 cohort and died before Round 5 (r5dresid=6) were incorrectly assigned a positive 2015 cohort analytic weight. Users should set the 2015 analytic weights (w5anfinwgt0-56) equal to 0. Users interested in studying decedents in Round 5 (2015) should use the 2011 cohort weight instead.

Part 1 Interview Mode: r11dpt1mode (Round 11)

In Round 11 only, the value labels on the data file are incorrect for the variable r11dpt1mode. The label for values of 1 should be "Part 1 conducted in person"; the label for values of 2 should be "Part 1 conducted on phone". The value labels were corrected in Version 2 of the SP file (April 2024).

Home Environment Checklist (IR) (Round 12)

In the Round 12 SP file, -9 (Missing) was assigned instead of -1 (Inapplicable) for nine variables in the Home Environment Checklist portion of the IR section. The table below provides information on how to correct the values.

Variable	N	Correction
ir12conhomapt	113	Set ir12conhomapt=-1 if r12dresid=8 and ir12conhomapt=-9 (n=112) Set ir12conhomapt=-1 if r12dresid=1 or 2 or 4 and ir12intlangpt2 does not equal -9 and ir12conhomapt=-9 (n=1)
ir12insidhome	1	Set ir12insidhome=-1 if r12dresid=1 or 2 or 4 and ir12intlangpt2 does not equal -9 and ir12insidhome=-9
ir12condihom1	386	Set ir12condihom1=-1 if r12dresid=1 or 2 or 4 and ir12intlangpt2 does not equal -9 and ir12condihom1=-9

ir12condihom2	386	Set ir12condihom2=-1 if r12dresid=1 or 2 or 4 and ir12intlangpt2 does not equal -9 and ir12condihom2=-9
ir12condihom3	386	Set ir12condihom3=-1 if r12dresid=1 or 2 or 4 and ir12intlangpt2 does not equal -9 and ir12condihom3=-9
ir12condihom4	386	Set ir12condihom4=-1 if r12dresid=1 or 2 or 4 and ir12intlangpt2 does not equal -9 and ir12condihom4=-9
ir12condihom5	386	Set ir12condihom5=-1 if r12dresid=1 or 2 or 4 and ir12intlangpt2 does not equal -9 and ir12condihom5=-9
ir12clutterr1	386	Set irclutter1=-1 if r12dresid=1 or 2 or 4 and ir12intlangpt2 does not equal -9 and ir12clutterr1=-9
ir12clutterr2	386	Set irclutter2=-1 if r12dresid=1 or 2 or 4 and ir12intlangpt2 does not equal -9 and ir12clutterr2=-9

IV. NHATS Weights and Their Use

This section provides a brief overview of NHATS Weights. For answers to frequently asked questions about the sample design and weights in analyses, see Technical Paper #23 "Accounting for Sample Design in NHATS and NSOC Analyses: Frequently Asked Questions" (Freedman et al. 2020).

IV.A. Weights Overview

For each round of NHATS, two types of sampling weights have been produced for each cohort (indicated with "&"): a tracker weight (on the Tracker file with the variable name w#tr&wgt0) and an analytic weight (on the Sample Person file with the variable name w#an&wgt0). NHATS has also included replicate weights on the Tracker (w#tr&wgt1-w#tr&wgt56) and Sample Person (w#an&wgt1- w#an&wgt56) files. These survey weights account for differential probabilities of selection and adjust for potential bias related to unit nonresponse. Base weights that reflect only probabilities of selection at baseline (Round 1 or composite weight for Rounds 5 and 12) also are provided on the Tracker file.

Analytic and replicate weights are provided on the SP file for each round and are specific to that round. Each round includes final weights analytic for the most recent cohort (referred to as "fin" for final), and cohort weights for each prior cohort (referred to by the year the cohort began, e.g. 2011, 2015, etc.). The tracker file is cumulative so that weights from earlier rounds are carried forward. The table below shows weights at each round for the SP and Tracker files.

Weights	SP File			Tracker File*		
	All Rounds	New starting R5	New starting R12	All Rounds	New starting R5	New starting R12
SP File:						
Current Cohort						

Analytic	√					
Replicate	√					
2011 Cohort						
Analytic		√				
Replicate		√				
2015 Cohort						
Analytic			√			
Replicate			√			
<u>**Tracker File:**</u>						
Current Cohort						
Tracker				√		
Replicate				√		
2011 Cohort						
Tracker					√	
Replicate					√	
2015 Cohort						
Tracker						√
Replicate						√
Base weights						
R1 Base				√		
R5 Base					√	
R12 Base						√

*The tracker file is cumulative so all weights from prior rounds are carried forward.

Cohort weights. The final weights for Rounds 1-4 tie back to the 2010 sample frame whereas the final weights for Rounds 5-9 tie to the 2014 frame and for Round 12 to the 2021 frame. In some cases, users may wish to make estimates in Round 5 or later using only the continuing sample (e.g. following the group initially interviewed in Round 1 beyond Round 4). For this purpose, we have provided starting in Round 5 a set of weights (analytic, tracker, and replicate) referred to as the 2011 cohort weights. Similarly, in Round 12, a set of 2015 cohort weights (analytic, tracker, and replicate) that tie back to the 2014 sample frame are available.

Weighting Technical Papers. The methodology to develop these weights, including procedures for nonresponse adjustments, is described in technical papers for each round (#2, #6, #9, #11, #14, #18, #20, #22, #26, #28, #30, #37): Montaquila et al. 2012, 2014, 2015a, 2015b; DeMatteis et al. 2016b, 2017, 2018, 2019, 2020, 2021; Jiao et al. 2022a, 2023c. The remainder of this section provides guidance on the use of each of these weights.

Other Survey Design Variables. In addition to weights, NHATS data at each round also includes variables that reflect stratification and clustering in the NHATS design. These are provided in the SP file and the Tracker file, and are used in combination with the SP analytic weight and the Tracker weight. For more information on the NHATS design, see the Rounds 1, 5, and 12 sample design technical papers (Montaquila et al. 2012; DeMatteis et al. 2016a, Jiao et al. 2023b).

IV.B. Use of Weights in the SP file, Tracker file, and for Modules

Using the Tracker and SP File Weights. When using the tracker file weights, respondents are weighted up to represent all Medicare beneficiaries ages 65 and older who were alive at the reference date for the sampling frame (on September 30, 2010 for the Round 1 sample; September 30, 2014 for the Round 5 new sample; and September 30, 2021 for the Round 12 sample) and residing in the contiguous United States. In contrast, the SP file weights reproduce only those alive and eligible for NHATS during the fieldwork period (beginning May 2011 for Round 1; May 2014 for Round 5; and May 2022 for Round 12).

The other difference between the weights on the two files is the treatment of respondents who are eligible for both an SP and FQ interview. In Round 1, cases missing an SP interview (r1dresid = 3) have a positive tracker weight but an SP file weight of zero. The SP file weights of individuals who completed both an SP and FQ interview are adjusted to represent these cases (for details see Montaquila et al. 2012, 2014, 2015a, 2015b; DeMatteis, et al. 2016b, 2017, 2018, 2019, 2020; 2021; Jiao et al. 2022, 2023c). The same is true for cases missing an SP interview in Round 2 or later (r#dresid = 3, 5, 7) if the person has a completed FQ.

Most often analyses will use the SP file weights (analytic or replicate). The tracker file weights (tracker or replicate) are appropriate for making national estimates using the Facility Questionnaire information (e.g. for services available to older adults living in residential care settings) since all persons with a completed FQ have a positive weight, or for investigating certain questions about disability trends such as the role of mortality between the screen and survey on estimates.

Initial Interview (Round 1 or Round 5 or Round 12) vs. Subsequent Round Weights. Another important consideration is whether to use a weight for the initial interview population (Round 1 or 5 or 12) or for the population at a later Round. A useful rule of thumb is to always consider the population to which an estimate is being generalized. To estimate, for example, the proportion of the population having a particular characteristic (measured in the Round 1 SP interview) who are deceased by Round 2 or the proportion of the total population in Round 1 who were deceased by Round 2, a Round 1 weight should be used. The former would use the Round 1 analytic (or replicate) weight and the latter the Round 1 tracker (or replicate) weight. To estimate characteristics of the population at a given round using the Sample Person Interview or the FQ interview, the weight for that round should be used. The former estimates would use the analytic (or replicate) weight for that round and the latter the tracker (or replicate) weight for that round.

Modules. Since sample persons are assigned to a module at random, all approaches to using weights are the same for the subset of individuals with a given module. Weighted estimates (e.g. percentages, ratios, and regressions) are applicable to the total population although weighted N's will no longer accurately reflect population totals.

IV.C. Computation of sampling errors

The NHATS public use files also include variables to allow proper computation of standard errors. Analysts may choose from Taylor series linearization and replication methods.

Analysts using Taylor series linearization should use the stratum and cluster variables (w#varstrat and w#varunit) provided on both the Tracker and SP files. We also recommend that analysts conducting subgroup analysis and adjusting for complex sample design use the subpop statement in Stata or the DOMAIN statement in SAS to subset.

For analysts using replication methods, we have included replicate tracker and analytic weights (w#trfinwgt1-56 on the Tracker file and w#anfinwgt1-56 on the SP file, respectively). The replicates were constructed using the modified balanced repeated replication (BRR) method suggested by Fay (Judkins 1990). With the standard BRR replication approach, replicates are constructed by multiplying the full-sample base weights by either 0 or 2; with Fay's modified BRR, the full-sample base weights are instead multiplied by k or $(2 - k)$, where k is a value between 0 and 1. Thus, when using software that uses the replication approach to variance estimation, it is necessary to specify the "Fay's k" value. For NHATS, $k = 0.3$.

IV.D. Examples of SAS, Stata, and R Programming Statements Using Weights

A few examples of programming statements for use in analyses of NHATS that show how to incorporate weights and sample design variables are provided below. A more detailed discussion of these issues and detailed examples of programming statements for various analytic objectives are provided in Technical Paper #23 "Accounting for Sample Design in NHATS and NSOC Analyses: Frequently Asked Questions" (Freedman, Hu, DeMatteis, and Kasper 2020).

SAS Example Using the Analytic Weight. The following is an example of code that should be used in SAS survey procs to weight the data and calculate standard errors that account for the NHATS complex sample design.

```
[sas survey procedure];
weight w#anfinwgt0;
cluster w#varunit;
strata w#varstrat;
[model or other statement];
run;
```

SAS Example Using Replication Weighting Methods: The following is an example of code that should be used in SAS survey procs to weight the data and calculate standard errors that account for the NHATS complex sample design using replication weighting methods. The varmethod statement (as shown below) and the analytic weight and replicate weight variables are specified.

```
proc [sas survey procedure] data = [data name] varmethod = brr (fay = 0.3);
weight w#anfinwgt0;
```

```
repweights w#anfinwgt1 - w#anfinwgt56;
[model or other statement];
run;
```

Stata Example Using the Analytic Weight. The following is an example of code that should be used in Stata to weight the data and calculate standard errors that account for the NHATS complex sample design. Note that the svy prefix and subpop() option should be used when performing subpopulation estimation.

```
svyset w#varunit [pweight=w#anfinwgt0], strata(w#varstrat)
svy: [stata procedures]
```

Stata Example for Replication Weighting Methods. The following is an example of code that should be used in Stata to weight the data and calculate standard errors that account for the NHATS complex sample design using replication weighting methods

```
svyset [pweight= w#anfinwgt0], brrweight(w#anfinwgt1 - w#anfinwgt56) fay(.3) vce(brr) mse
svy: [stata procedures]
```

R Example Using the Analytic Weight. The following is an example of code that should be used with R to weight the data and calculate standard errors that account for NHATS complex sample design.
```
library(survey) #need this line only once per session
nhats.dsgn <- svydesign(id=~w#varunit, strata=~w#varstrat, weights=~w#anfinwgt0,
data = [data frame name], nest=TRUE)
[model or other statement]
```

R Example for Replication Weighting Methods. The following is an example of code that should be used in R to weight the data and calculate standard errors that account for the NHATS complex sample design using replication weighting methods.
```
library(survey) #need this line only once per session
nhatsrep<-svrepdesign(weights=~w#anfinwgt0, data=[data frame name], type="Fay",
rho = 0.3, repweights="w#anfinwgt[1-56]+")
[model or other statement]
```

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RELATIONSHIP CODES		CODES AVAILABLE FOR PERSONS LISTED AS:						
		PROXY	HOUSEHOLD MEMBER	SOCIAL NETWORK MEMBER	CHILD NOT IN HOUSEHOLD	HELPER	PERSON SP CARES FOR	PERSON NAMED AS CONTACT FOR SP
2	SPOUSE/PARTNER	X	X	X		X	X	X
3	DAUGHTER	X	X	X	X	X	X	X
4	SON	X	X	X	X	X	X	X
5	DAUGHTER-IN-LAW	X	X	X		X	X	X
6	SON-IN-LAW	X	X	X		X	X	X
7	STEPDAUGHTER	X	X	X	X	X	X	X
8	STEPSON	X	X	X	X	X	X	X
9	SISTER	X	X	X		X	X	X
10	BROTHER	X	X	X		X	X	X
11	SISTER-IN-LAW	X	X	X		X	X	X
12	BROTHER-IN-LAW	X	X	X		X	X	X
13	MOTHER	X	X	X		X	X	X
14	STEPMOTHER	X	X	X		X	X	X
15	MOTHER-IN-LAW	X	X	X		X	X	X
16	FATHER	X	X	X		X	X	X
17	STEPFATHER	X	X	X		X	X	X
18	FATHER-IN-LAW	X	X	X		X	X	X
19	GRANDAUGHTER	X	X	X		X	X	X
20	GRANDSON	X	X	X		X	X	X
21	NIECE	X	X	X		X	X	X
22	NEPHEW	X	X	X		X	X	X
23	AUNT	X	X	X		X	X	X
24	UNCLE	X	X	X		X	X	X
25	COUSIN	X	X	X		X	X	X
26	STEPDAUGHTER'S SON/DAUGHTER	X	X	X		X	X	X
27	STEPSON'S SON/DAUGHTER	X	X	X		X	X	X
28	DAUGHTER-IN-LAW'S SON/DAUGHTER	X	X	X		X	X	X
29	SON-IN-LAWS SON/DAUGHER	X	X	X		X	X	X
30	BOARDER/RENTER	X	X	X		X	X	X
31	PAID AIDE/HOUSEKEEPER/EMPLOYEE	X	X	X		X		
32	ROOMMATE	X	X	X		X	X	X
33	EX-WIFE/EX-HUSBAND	X	X	X		X	X	X
34	BOYFRIEND/GIRLFRIEND	X	X	X		X	X	X
35	NEIGHBOR	X	X	X		X	X	X
36	FRIEND	X	X	X		X	X	X
37	SERVICE/SOMEONE FROM THE PLACE SP LIVES*	X		X				
38	CO-WORKER			X				
39	MINISTER, PRIEST, OR OTHER CLERGY			X				
40	PSYCHIATRIST, PSYCHOLOGIST, COUNSELOR, OR THERAPIST			X				
41	DECEASED SPOUSE/PARTNER**	X	X	X		X	X	
91	OTHER RELATIVE	X	X	X		X	X	X
92	OTHER NONRELATIVE	X	X	X		X	X	X

*If someone on the staff is named as a social network member that person is listed by name but will have a relationship code of 37.
**New code starting in Round 2.

Appendix II. Flag Variable Specifications

In the table below, replace # with the round number in the variable name and label.

TABLE OF FLAG VARIABLES IN THE SP FILE			
Variable Name VARIABLE LABEL	**WHERE FLAG IS SET**	**QUESTIONS WHERE FLAG PROMPTS ROUTING**	**QUESTIONS WHERE FLAG PROMPTS WORDING DISPLAY**
Interview Setup (IS)			
fl#newsample R# F SP ADDED IN ROUND # This variable is only applicable in replenishment rounds.	Preload	BOX IS4, BOX IS8, BOX RE4F, BOX RE10, BOX HC4, BOX HC6, BOX HC9C, BOX HC10C, BOX HC11C, BOX HC12C, BOX HC13C, BOX HT1, BOX HH1A, BOX HH2A, BOX HH2B, BOX HH13, BOX CS1, BOX CS2, BOX DM1, BOX DM2, BOX DM4, BOX DM5, BOX DM7, BOX DT1A, BOX DT2, BOX DS1, BOX DS2, BOX DS4, BOX PA25, BOX PA27, BOX SD2, BOX SD3, BOX SD4, BOX HW3, BOX HW9, BOX EL1PRE, BOX NA2A, BOX NA3A, BOX RL1PRE, BOX IP5A, BOX IP9, BOX LF1, BOX LF11, BOX LF12, BOX FQ26	IS1, HC2, HC5, HC7, HC8, HC9PRE, HC9B, HC10B, HC11B, HC12B, HC13B, HC17, HC18, HH14, CS2, CS3, CS8, EM2, EM4, EM5, DM1, DM4, DS1, FQ1PRE
fl#pt2miss R# F PART 2 INTERVIEW COMPLETE OR MISSING Starting in R11	Sample management system		
RESIDENCE (RE)			
fl#structure R# F RE STRUCTURE OF SP DWELLING	RE1, BOX RE8, RE8	BOX HT5, BOX HO2, BOX HO4, BOX HO5, BOX MO11, BOX MO12	HO1PRE, TE8, MO1PRE, MO11PRE, MO13, MO14, MO15, MO16, MO17, MO18, MO19A, MO20, MO21, MO22, MO23, DM1, DM2, HA2
fl#bldgfl R# F RE BLDG MORE THAN ONE FLOOR	RE2		
fl#resnew	RE4F	BOX HO4, BOX HO10, BOX HO12, BOX EM1, BOX RE8, BOX RE10, BOX HT1	RE3, EM2

R# F RE NEW ADDRESS FROM PRIOR ROUND **R5 F RE NEW RESIDENCE ROUTING FLAG** In Round 2, 44 cases that moved but who were not flagged as having a new address on fl2resnew (and therefore not routed correctly) are corrected in re2dadrscorr (R2 Derived Variable); note these cases are incorrectly coded in re2spadrsnew. Starting in Round 5, this flag was used to correctly route 3 types of cases: continuing sample persons who moved (as in prior rounds); new sample added in Round 5; a small number of cases with no SP interview (FQ only) in the previous round.	In Round 5, BOX RE4F, RE4F		
PLACE OF DEATH (PD)			
fl#spdied **R# F SP DIED PRIOR TO R#** Added in Round 2 as part of the LML interview	IS2A	BOX RE4, BOX RE5, BOX RE10, BOX RE11, BOX MD1PRE, BOX MD2,BOX MD4A, BOX MD5A, BOX CP1PRE, BOX CP2, BOX MO2, BOX MO6A, BOX MO12, BOX MO13, BOX MO19A, BOX MO25A, BOX MO26, BOX DM1, BOX DM7, BOX SC2, BOX SC3A, BOX SC7A, BOX SC11A, BOX SC12, BOX SC17A, BOX SC18, BOX SC22, BOX SC23A, BOX SC24, BOX DS1, BOX DS4, BOX PA1PRE, BOX PA26	IS2, RE3, RE4A-F, MD1PRE, MD1, MD2, MD3, MD4, MD5, CP1, MO1PRE, MO1,MO6, MO12, MO13,MO19A, MO25, DM1, DMC3C, DM3D, DM3E, DM4, DM6D, DM6E, SC1PRE, SC1, SC3, SC7PRE, SC7, SC16, SC17, SC21PRE, SC21, SC22, SC23, DS1, DS3C, DS3D, DS3E, PA25A
fl#notalert **R# F LML NOT ALERT** Added in Round 2 as part of the LML interview		In Rounds 2 & 3: Used to skip sections of the LML: CP (BOX CP1PRE), MO, DM (BOX DM1, BOX DM4), SC, DS (BOX DS1), PA In R4: Used to skip sections of the LML: MD (BOX MD1PRE), CP (BOX CP1PRE), MO	

117

fl#notmobile **R# F LML NOT MOBILE** Added in Round 2 as part of the LML interview		In Rounds 2 & 3: Used to skip sections of the LML: MD (BOX MD1PRE), CP (BOX CP1PRE), MO, DM (BOX DM1, BOX DM4)	
HEALTH CONDITIONS (HC)			
fl#vaccine **R# F HC SP PREVIOUSLY RECEIVED COVID-19 VACCINE** Added in Round 12	Preload	BOX HC5H, BOX HC5K	
HOUSING TYPE (HT)			
fl#facility **R# F ROUTING FLAG FROM HT3 5 6 7**	BOX HT3b, BOX HT8, End of FQ	BOX HT5, BOX HT8, BOX HT11, BOX SE1PRE, BOX HH13, BOX HO10, BOX HO12, BOX LF1, BOX LF13, BOX HP1, BOX EW15 Starting in R2, this flag also was set in PD These cases were set to -1 on fl2facility, but starting in R3 are left as fl#facility = 1. A small number of cases have the facility flag set to 1 incorrectly, and route as facility (in R3, 5 cases where r3dresid = 1; in R4, 6 cases where r4dresid = 1). A small number that should have the facility flag set to 1 but do not, route as not facility (in R3, 1 case where r3dresid = 4; in R4 1 case where r4dresid = 2).	HO11, MO6, MO6a, MO11, MO18, MO19A, MO25, MO25a, DT4, HA2, HA3A, HA23, HA25A, HA30B, HA32A, HA42A, HA51A, HA52A, SC3, SC3A, SC11, SC11A, SC17, SC17A, SC23, SC23A, MC5A, MC15, MC16, MC17A, MC22A
fl#hotype **R# F HT TYPE OF HOME**	RE4F, BOX HT11		HO10PRE, HO10
fl#retirecom **R# F HT SP LIVES IN RETIREMT COM**	RE4F, HT4	BOX HT5 In Round 5 Box SE1Pre	MO6A, MO19A, MO25A, DT4, HA3A, HA23, HA25A, HA32A, HA42A, HA52A, SC3A, SC11A, SC17A, SC23A, MC5A, MC15, MC17A, MC22A
SOCIAL NETWORK (SN)			

fl#noonetalk **R# F SN SP HAS NO ONE TO TALK TO**	SN2	In Round 3, cases with a proxy respondent were coded as 1 (no one to talk to). Since the SN section was skipped for proxy respondents, these cases should have been coded as -1 (inapplicable)	
HOME ENVIRONMENT (HO)			
fl#onefloor **R# F HO SP LIVES ON ONE FLOOR** Flag dropped in R3	RE9, HO5		
fl#bathgrbbr **R# F HO SPS BATH HAS GRAB BARS**	HO11	BOX SC9	
fl#bathseat **R# F HO SPS BATH HAS SEAT**	HO11	BOX SC10	
fl#raisedtlt **R# F HO SP HAS RAISED TOILET**	HO11		SC16
fl#tltgrbbr **R1 F HO SP TOILET HAS GRAB BARS**	HO11		SC16
MOBILITY DEVICES (MD)			
fl#cane **R# F MD SP USES CANE**	MD2	BOX MO2, BOX MO13, BOX MO24, BOX DM4	PC1PRE, PC1, PC2, PC3, PC4, PC5, PC6, MO24, MO27, DM5, PE12
fl#walker **R# F MD SP USES WALKER**	MD3	BOX MO3, BOX MO14, BOX MO24, BOX DM4	PC1PRE, PC1, PC2, PC5, PC6, MO24, MO27, DM5, PE12
fl#wheelchr **R# F MD SP USES WHEELCHAIR**	MD4	BOX MO4, BOX DM4	DM5, DT4
fl#whlchrhom **R# F MD SP HAS WHEELCHR AT HOME**	MD4A	BOX MO15	
fl#scooter **R# F MD SP USES SCOOTER**	MD5	BOX MO5, BOX DM4	DM5, DT4
fl#scooterhm **R# F MD SP HAS SCOOTER AT HOME**	MD5A	BOX MO16	
SENSORY AND PHYSICAL IMPAIRMENTS AND SYSTEMS (SS)			
fl#deaf **R# F DEAF PRIOR OR CURRENT ROUND**	Rounds 2-4: BOX SS4	Rounds 2-4: BOX SS3PRE Starting in Round 5: SS3	

	Starting in Round 5: SS3	This flag was cumulative from Round 2 to Round 4. Starting in Round 5, it is reset at each round.	
fl#blind **R# F BLIND PRIOR OR CURRENT ROUND**	Rounds 2-4: BOX SS8 Starting in Round 5: SS7	BOX SS8, BOX DT1A This flag was cumulative from Round 2 to Round 4. Starting in Round 5, it is reset at each round.	
MOBILITY (MO)			
fl#didntleav **R# F MO SP DID NOT LEAVE HOME**	MO1	BOX DT1, BOX DT3PRE	
fl#ntlvrmslp **R# F MO SP DID NOT LEAVE BEDROOM**	MO12		
DRIVING AND TRANSPORTATION (DT)			
fl#drives **R# F DT SP DRIVES CAR**	DT1	BOX DT3PRE, BOX PA3, BOX PA7, BOX PA11, BOX PA15	DT4
fl#drvlstyr **R# F DT SP DROVE CAR IN PAST YR**	BOX DT3PRE		HA23, MC15
fl1dneverdrv/fl5dneverdrv (new sample) **R# F DT SP NEVER DROVE**	R1 DT2 (=7) R5 BOX DT3	BOX DT1PRE, BOX DT1A	
SELF CARE ACTIVITIES (SC)			
fl#showering **R# F SC SP USES SHOWER**	SC7, SC8	BOX SC9, BOX SC10	SC9, SC10, SC11, SC11A, SC12, SC13, SC14, SC15
fl#takingbth **R# F SC SP TAKES BATHS**	SC7, SC8	BOX SC9, BOX SC10	SC9, SC10, SC11, SC11A, SC12, SC13, SC14, SC15
fl#washingup **R# F SC SP WASHES OTHER WAY**	SC7, SC8		SC11, SC11A, SC12, SC13, SC14, SC15
PERFORMANCE ACTIVITIES ELIGIBILITY (PE)			
fl#lefthand **R# F PE CAN SP DO LEFT HAND TEST**	PE1		PE14
fl#righthand **R# F PE CAN SP DO RGT HAND TEST**	PE1		PE14
fl#eiherhand **R# F PE CAN SP DO EITHR HAND TST**	PE1		PE14

fl#lftgrptst **R# F PE CAN SP DO LFT GRIP TST**	PE3, PE5, PE7		PE14
fl#rhtgrptst **R# F SC SP WASHES OTHER WAY**	PE3, PE5, PE7		PE14
fl#charstnds **R# F PE CAN SP DO CHAIR STANDS**	PE3, PE12	BOX PE12	PE14
fl#balstands **R# F PE CAN SP DO BALANCE STANDS**	PE11		PE14
fl#wlkingrse **R# F PE CAN SP DO WALKING COURSE**	BOX PE13, PE13		PE14

TABLE OF FLAGS THAT GENERATE VARIABLES IN THE OP FILE			
Variable Name VARIABLE LABEL	WHERE FLAG IS SET	QUESTIONS WHERE FLAG PROMPTS ROUTING	QUESTIONS WHERE FLAG PROMPTS WORDING DISPLAY
HOUSEHOLD (HH)			
op#prsninhh **R# HH14 IN HOUSEHOLD**	IS11A, HH11, HH12, HH13A, HH13D, HH14, HH14A	BOX IS12B, BOX HH13D	HH13B, HH13D HH14
op#childinhh **R# HH15 CHILD IN HOUSEHOLD**	BOX CS2	BOX CS2	CS9
op#chnotinhh **R# CS2 CHILD NOT IN HOUSEHOLD**	CS2PRE		CS9
SOCIAL NETWORK (SN)			
op#soclntwrk **R# SN2 PART OF SP SOCIAL NETWORK**	SN2		
MOBILITY (MO)			
op#outhlp **R# MO6A HELPS SP GO OUTSIDE**	MO6a	BOX HL1PRE	
op#insdhlp **R# MO19A HELPS SP INSIDE HOUSE**	MO19a	BOX HL1PRE	
op#bedhelp **R# MO25A HELPS SP OUT OF BED**	MO25a	BOX HL1PRE	
DRIVING AND TRANSPORTATION (DT)			
op#tkplhlp1 **R# DT5A TAKES SP PLACES MOST**	DT5a	BOX HL1PRE	DT7a
op#klplhlp2 **R# DT7A TAKES SP PLACES OTH**	DT7a	BOX HL1PRE	
HOUSEHOLD ACTIVITIES (HA)			
op#launhlp **R# HA3A HELPS SP WITH LAUNDRY**	HA3a	BOX HA4, Box HA7, BOX HL1PRE	
op#shophlp **R# HA25A HELPS SP WITH SHOPPING**	HA25a	BOX HA26, BOX HA29, BOX HL1PRE	
op#mealhlp **R# HA32A HELPS SP WITH MEALS**	HA32a	BOX HA33, BOX HA36, BOX HL1PRE	
op#bankhlp	HA42a	BOX HA43, BOX HA46, BOX HL1PRE	

R# HA42A HELPS SP WITH BANKING			
op#moneyhlp **R# HA52A HELPS SP WITH MONEY**	HA52a	BOX HL1PRE	
op#eathlp **R# SC3A HELPS SP WITH EATING**	SC3a	BOX HL1PRE	
op#bathhlp **R# SC11A HELPS SP WITH BATHING**	SC11a	BOX HL1PRE	
op#toilhlp **R# SC17A HELPS SP WITH TOILETING**	SC17a	BOX HL1PRE	
op#dreshlp **R# SC23A HELPS SP WITH DRESSING**	SC23a	BOX HL1PRE	
MEDICAL CARE ACTIVITIES (MC)			
op#medshlp **R# MC5A HELPS SP WITH MEDICINES**	MC5a	BOX MC6, BOX MC9, BOX HL1PRE	
op#dochlp **R# MC17A SITS IN W SP AT DRS**	MC17a	BOX HL1PRE	
op#dochlpmst **R# MC18 SITS MOST IF MORE THAN 1**	BOX MC18, MC18		MC19
op#insurhlp **R# MC22A HELPS WITH INSUR DECIS**	MC22a	BOX HL1PRE	
PARTICIPATION (PA)			
op#spcaredfr **R# PA22D SP CARED FOR PERSON**	PA22d		
ECONOMIC WELL-BEING (EW)			
op#chhlpfin **R# EW9 CHILDREN WHO HELP FINANCE**	EW9		
op#hlpchfin **R# EW13 HELPED CHILDREN FINANCE**	EW13		
HELPER (HL)			
op#paidhelpr **R# HL5 HELPER IS PAID**	HL5		
op#ishelper **R# BXHL1 HELPS SP**	BOX HL1		
LML HELPERS (HM)			
op#lmlhelper **R# BXHM1 ELIGIBLE HM SECTION**	BOX HM1	Beginning in Round 7	

op#lmlpaidhelpr **R# HM3 LML HELPER IS PAID**	HM3	Beginning in Round 7	
CLOSING (CL)			
op#contctflg **R# PERSON IS LISTED AS CONTACT**	CL24		

Appendix III. Derived Variable Specifications

In the table below, replace # with the round number in the variable name and label.

Variable Name VARIABLE LABEL File Location	CODING SPECIFICATIONS	VALUES and VALUE LABELS
Sample Identifier		
r5dcontnew **R5 D CONTINUING OR NEW SAMPLE IN R5** SP File Round 5 only	1 if continuing sample from round 1 2 if new sample added in round 5	1 Continuing sample from R1 2 New sample in R5
r12dcontnew **R5 12 CONTINUING OR NEW SAMPLE IN R12** SP File Round 12 only	1 if continuing sample from round 5 2 if new sample added in round 12	1 Continuing sample from R5 2 New sample in R12
Interview Mode and Status		
r#dpt1mode **R# D PART 1 INTERVIEW MODE** SP File Starting in R11	Round 11: 1 if IR1 = 1 2 if IR1 = 2 -1 if r11dresid = 3 or 5 or 7 or 8 Else -9 if IR1 is missing Round 12 and forward: 1 if IS1PRE = 1	1 Part 1 conducted in person 2 Part 1 conducted on phone -1 Inapplicable -9 Missing

	2 if IS1PRE = 2 -1 if r#dresid = 3 or 5 or 7 or 8 Else -9 if IR1 is missing *Note in Round 11 the value labels are incorrect on the data file. The label for values of 1 should be "Part 1 conducted in person"; the label for values of 2 should be "Part 1 conducted on phone".	
r#dintdays **R# D DAYS BTWN PART 1 AND PART 2** SP File Starting in R11	1 if Part 1 and Part 2 conducted on the same day 2 if Part 2 conducted 1 day after Part 1 3 if Part 2 conducted 2-6 days after Part 1 4 if Part 2 conducted 7 or more days after Part 1 5 if r#dresid = 1 or 2 or 4 and r#breakoffst=1 fl#pt2miss = 2 (Part 2 was not conducted) -1 if r#dresid = 3 or 5 or 6 or 7 or 8	1 Same day 2 1 day apart 3 2-6 days apart 4 7 or more days apart 5 No part 2 interview -1 Inapplicable
RE and HT Sections		
r1dresid **R1 D RESIDENTIAL CARE STATUS** SP File Round 1 only	1 if SP interview and no FQ interview required 2 if SP and FQ required; both completed or SP only completed 3 if SP and FQ required; FQ only completed 4 if nursing home resident; FQ only required and completed	1 Community 2 Residential Care not nursing home (SP interview) 3 Residential Care not nursing home (FQ only) 4 Nursing home resident
r1dresidr **R1 D RESIDENTIAL CARE STATUS RECODE** SP File Round 1 only	1 if one of 7 cases with recoded final status -1 all other cases	1 Case status recoded from nursing home resident to residential care resident not nursing home -1 Inapplicable The SP interview for these cases indicated the individual was not a nursing home resident even though the FQ respondent subsequently reported the SP was in a nursing home part of the facility at the time of interview. Fq1dlocsp provides an edited version of FQ 6 6a 10 10a for these cases.

r#dresid **R# D RESIDENTIAL CARE STATUS** SP File	1 if SP interview and no FQ interview required 2 if SP and FQ required; both completed or SP only completed 3 if SP and FQ required; FQ only completed 4 if nursing home resident; SP and FQ required, both completed or SP only completed 5 if nursing home resident; FQ only completed 6 if deceased 7 if residential care not nursing home in initial interview; FQ only completed 8 if nursing home resident in initial interview; FQ only required and completed	1 Community 2 Residential care not nursing home (SP interview) 3 Residential care not nursing home (FQ only) 4 Nursing home (SP interview) 5 Nursing home (FQ only) 6 Deceased 7 Residential care not nursing home in initial round (FQ only) 8 Nursing home in initial round (FQ only)
r#dlmlint **R# D LAST MTH LIFE INTVW DONE** SP File Added starting in R2	1 if Last Month of Life interview conducted (r#dresid = 6) -1 inapplicable if r#dresid = 1, 2, 3, 4, 5, 7 or 8	1 Last month of life interview -1 Inapplicable
r#dresidlml **R# D RESIDENTIAL CARE LAST MTH** SP File Added starting in R2	1 if living in community at time of death 2 if living in residential care at time of death -1 inapplicable if r#dresid = 1, 2, 3, 4, 5, 7 or 8	1 Community 2 Residential Care -1 Inapplicable
r#d2intvrage **R# D SP CAT AGE AT INTVW** SP File (IS Section)	Categorical version of age at interview -1 if r#dresid=6 in round following initial interview	1 65-69 2 70-74 3 75-79 4 80-84 5 85-89 6 90+ -1 Inapplicable
re2dadrscorr **R2 D ADDRESS SAME DIFF CORRECTED** SP File (RE Section) Round 2 only	In Round 2, incorporates corrected values for 44 cases based on review; these cases routed as if they did not move but they did have a different address in Round 2 than in Round 1; for other cases re2dadrscorr = RE4f -1 if r2dresid = 6 or 8 -9 if r2dresid = 3 or 5 or 7	1 Same address as R1 2 Different address at R2 3 Same with minor changes -1 Inapplicable -9 Missing

re#dresnew
R# D NEW RESIDENCE SINCE LAST INT
SP File (RE Section)
Added starting in R5
	Indicates if the SP has a new residence since the last interview
	
	If (r#dresid = 1 or 2 or 4 and previous round r#dresid = 1 or 2 or 4) or r#dresid=6*:
	   1 if re#spadrsnew = 1 or 3 (same)
	   2 if re#spadrsnew = 2 (new)
	
	Persons with prior round r#dresid = 3 or 5 or 7 have a manual look-up of address from last SP interview and are assigned as 1 (same address) or 2 (different address) based on comparison of current address and last SP interview address.
	
	*See Data Notices and Corrections for a list of cases that were not incorporated into re#dresnew in Rounds 5-9 and for correction to re#dresnew for decedents (r#dresid=6) in Rounds 5 and 6.
		1 same residence as last int
		2 new residence since last int
		-1 Inapplicable

re#dresistrct **R# D RESIDNCE PHYSICAL STRCTUR** SP File (RE Section) Added starting in R2	Structure of residence. Starting in R2 reflects changes if SP has moved since prior round. In Round 2, this derived variable was incorrectly coded for cases that did not move but for whom structure was updated. The following logic can be used to correct re2dresistrct: replace with re2newstrct if re2spadrsnew = 1 or 3 (not new residence in R2) and re2newstrct = 1 or 2 or 3 or 4 or 91.	1 Free-standing (detached) single house 2 Single house but attached to others (row house, townhouse, duplex, triplex, or triple decker) 3 Mobile home or trailer 4 Multi-unit (2+) building 91 Other (specify) -1 Inapplicable
re#dbldg **R# D SP BLDG MORE THAN ONE FLOOR** SP File (RE Section) Added starting in R2	Number of floors in building if structure of residence = 4 or 91. * In R3, new residences where RE8 = 1 (free-standing detached single house) routed incorrectly to RE9. re3dbldg has been corrected so that only multi-unit buildings or other structures are included. ho#levelsflr (from HO5) can be used for number of floors in free-standing houses in all rounds.	1 Building has one floor 2 Building has multiple floors -1 Inapplicable

	* In R2, re2dbldg was incorrectly coded for 16 cases that did not move but for whom structure was updated. New residences where RE8 = 1 (free-standing detached single house) also routed incorrectly to RE9. The following logic can be used to correct re2dbldg: replace with re2newblgfl if re2spadrsnew = 1 or 3 (not new residence in R2) and re2newstrct = 1 or 2 or 3 or 4 or 91.	
re#dcensdiv **R# D SP CENSUS DIVISION** SP File (RE Section)	Categorical version of SP residence at the Census Division level -9 value added starting at R2 (person moved to address unknown and died)	1 Northeast Region: New England Division (ME, NH, VT, MA, RI, CT) 2 Northeast Region: Middle Atlantic Division (NY, NJ, PA) 3 Midwest Region: East North Central Division (OH, IN, IL, MI, WI) 4 Midwest Region: West North Central Division (MN, IA, MO, ND, SD, NE, KS) 5 South Region: South Atlantic Division (DE, MD, DC, VA, WV, NC, SC, GA, FL) 6 South Region: East South Central Division (KY, TN, AL, MS) 7 South Region: West South Central Division (AR, LA, OK, TX) 8 West Region: Mountain Division (MT, ID, WY, CO, NM, AZ, UT, NV) 9 West Region: Pacific Division (WA, OR, CA) -9 Missing
PD Section		
r#d2deathage **R# D SP CAT AGE AT DEATH** SP file (PD Section) Added starting in R2	Categorical version of age at death -1 if r#dresid NE 6	1 65-69 2 70-74 3 75-79 4 80-84 5 85-89 6 90+ -1 Inapplicable
HH Section		

hh#dmarstat **R# D MARITAL STATUS AT R#** SP File (HH Section) Added starting in R2	Current marital status. 1 if (married in prior round and HH1A = 2) or HH1 = 1 2 if (living with partner in prior round and HH1A = 2) or HH1 = 2 3 if (separated and HH1A = 2) or HH1 = 3 4 if (divorced and HH1A = 2) or HH1 = 4 5 if (widowed and HH1A = 2) or HH1 = 5 6 if (never married and HH1A = 2) or HH1 = 6 -7 if HH1A = refused or HH1 = refused -8 if HH1A = don't know or HH1 = don't know -1 if r#dresid = 3 or 5 or 6 or 7 or 8	1 Married 2 Living with a partner 3 Separated 4 Divorced 5 Widowed 6 Never married -7 RF -8 DK -1 Inapplicable
hh#dlvngarrg **R# D LIVING ARRANGEMENT** SP File (HH Section)	1 if SP is only person with INHOUSEHOLD flag = 1 2 if SP and spouse/partner with INHOUSEHOLD flag = 1 and no other persons with INHOUSEHOLD flag = 1) 3 if spouse/partner with INHOUSEHOLD flag = 1 and 1 or more other persons with INHOUSEHOLD flag = 1 4 if spouse/partner with INHOUSEHOLD flag NE 1 and 1 or more other persons with INHOUSEHOLD flag = 1 -1 if (r1dresid = 3 or 4) or (r#dresid = 3 or 5 or 6 or 7 or 8) In R1, for 26 SPs where the spouse was not in the household (hh1livwthspo=2), this variable was incorrectly coded. To correct this problem for R1, recode this variable from 2 to 1 and from 3 to 4 if hh1livwthspo = 2.	1 Alone 2 With Spouse/partner only [spouse/partner in household] 3 With spouse/partner and with others 4 With others only -1 Inapplicable
hh#dhshldnum **R# D TOTAL NUMBER IN HOUSEHOLD** SP File (HH Section)	Count of persons on roster with INHOUSEHOLD flag = 1 -1 if (r1dresid = 3 or 4) or (r#dresid = 3 or 5 or 6 or 7 or 8) In R1, for 26 SPs where the spouse was not in the household (hh1livwthspo=2), this variable was incorrectly coded. To correct this problem for R1, recode this variable from 2 to 1 and from 3 to 4 if hh1livwthspo = 2.	1-N Number of persons -1 Inapplicable

hh#dhshldchd **R# D TOTAL CHILDREN IN HOUSEHOLD** SP File (HH Section)	Count of persons with CHILDINHH flag = 1 0 if no flags = 1 -1 if (r1dresid = 3 or 4) or (r#dresid = 3 or 5 or 6 or 7 or 8)	0 1-N Number of persons -1 Inapplicable
hh1d2spouage **R1 D SPOUSE CAT AGE AT INTVW** SP File (HH Section) Round 1 only	Categorical version of age for spouse/partner in R1 -1 if r1dresid = 3 or 4	1 <50 2 50-54 3 55-59 4 60-64 5 65-69 6 70-74 7 75-79 8 80-84 9 85-89 10 90+ -7 RF -8 DK -1 Inapplicable
hh#dspouage **R# D NEW R# SPOU PART CAT AGE** SP File (HH Section) Added starting in Round 2	Categorical version of age for new spouse/partner for sample persons initially interviewed in Round 1 -1 if r#dresid = 3 or 5 or 6 or 7 or 8	1 <50 2 50-54 3 55-59 4 60-64 5 65-69 6 70-74 7 75-79 8 80-84 9 85-89 10 90+ -7 RF -8 DK -1 Inapplicable
hh#dspageall **R# D SPOU PAR AGE UPDATE AND NEW** SP File (HH Section) Added starting in Round 2	Categorical age for current spouse/partner If same spouse/partner as prior round then based on prior round spouse/partner's date of birth If new spouse/partner this round then based on new spouse/partner's date of birth -1 if r#dresid = 3 or 5 or 6 or 7 or 8	1 <50 2 50-54 3 55-59 4 60-64 5 65-69 6 70-74 7 75-79 8 80-84

		9	85-89
		10	90+
		-7	RF
		-8	DK
		-1	Inapplicable
op#dage **R# D OTH PERSN CAT AGE AT INTVW** OP File (HH Section)	Categorical version of age for other persons: spouse/partner, current household member, children (biological, adopted, step) -7 if RF -8 if DK -1 otherwise Incremented by 1 year at each round from date of birth or age, if date of birth not provided	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 -1 -7 -8	<20 20-24 25-29 30-34 35-39 40-44 45-49 50-54 55-59 60-64 65-69 70-74 75-79 80-84 85-89 90+ Inapplicable RF DK
op#dspoudec **R# D SPOUSE DIED** OP File (HH Section) Added starting in Round 2	Spouse from prior round deceased	1 -1	Yes Inapplicable
hh5dyrendmarr **R5 D YR MARR END FROM HH2B AND HH2C** SP File (HH Section) Only in R5	Year marriage ended. If r5dcontnew = 1 then = HH2C If r5dcontnew = 2 then = HH2B	 -7 -8 -1	Year RF DK Inapplicable
CS Section			
cs#dnumchild **R# D NUMBER OF CHILDREN** SP File (CS Section)	Count of persons with CHILDINHH flag = 1 or CHILDNOTINHH flag = 1 and op#relatnshp = 3 or 4 or 7 or 8	0 1-N -1	 Number of persons Inapplicable

	0 if no flags = 1 -1 if (r1dresid = 3 or 4) or (r#dresid = 3 or 5 or 6 or 7 or 8)	
cs#dnmstpchd **R# D NUMBER OF STEP CHILDREN** SP File (CS Section)	Count of persons with CHILDINHH flag = 1 or CHILDNOTINHH flag = 1 and op#relatnshp = 7 or 8 0 if no flags = 1 -1 if (r1dresid = 3 or 4) or (r#dresid = 3 or 5 or 6 or 7 or 8)	0 1-N Number of persons -1 Inapplicable
cs#dnumdaugh **R# D NUMBER OF DAUGHTERS** SP File (CS Section)	Count of persons with CHILDINHH flag = 1 or CHILDNOTINHH flag = 1 and op#relatnshp = 3 or 7 0 if no flags = 1 -1 if (r1dresid = 3 or 4) or (r#dresid = 3 or 5 or 6 or 7 or 8)	0 1-N Number of persons -1 Inapplicable
cs#dnumson **R# D NUMBER OF SONS** SP File (CS Section)	Count of persons with CHILDINHH flag = 1 or CHILDNOTINHH flag = 1 and op#relatnshp = 4 or 8 0 if no flags = 1 -1 if (r1dresid = 3 or 4) or (r#dresid = 3 or 5 or 6 or 7 or 8)	0 1-N Number of persons -1 Inapplicable
op#dchilddec **R# CHILD OF SP DIED SINCE LST INT** OP File (CS Section) Added starting in Round 2	Child deceased since prior interview. 1 if DECEASED flag = 1 (CS1B is coded 3 to set flag) -1 otherwise	1 Child deceased -1 Inapplicable
EL Section		
Starting in Round 12, derived variables for all items combine responses across initial rounds. Data were carried forward from prior initial rounds for continuing sample and from the current initial round for new sample in a replenishment year. Derived variables from the EL section in Rounds 1 and 5 are listed later in this appendix in the original section placement.		
RL Section		
Starting in Round 12, derived variables for all items combine responses across initial rounds. Data were carried forward from prior initial rounds for continuing sample and from the current initial round for new sample in a replenishment year. Derived variables from the RL section in Rounds 1 and 5 are listed later in this appendix in the original section placement.		
SN Section		
sn#dnumsn **R# D NUMBER IN SOCIAL NETWORK** SP File (SN Section)	Count number of persons with SOCIALNETWORK flag = 1 -1 if (r1dresid = 3 or 4) or (r#dresid = 3 or 5 or 6 or 7 or 8) or proxy respondent	0 1-N Number of persons -1 Inapplicable

	0 otherwise In Round 3, cases with a proxy respondent were coded as 0 instead of -1.	
op#dcatgryag **R# D OTH PERSN SN CAT AGE** OP File (SN Section) Round 1 and added starting in Round 5	Categorical age for social network members.	1 <30 2 30-39 3 40-49 4 50-59 5 60-69 6 70-79 7 80-89 8 90+ -1 Inapplicable -7 RF -8 DK
op#dsocwrkfl **R# D LIKELY SOCIAL NETWRK MEMBER** OP File (SN Section)	Person entered on roster at SN Section but not checked as SN member. Not included in sn#dnumsn.	1 Yes -1 Inapplicable
HO Section		

ho#dbldg1
R# D BLDG HAS ELEVATOR
SP File (HO Section)
Added starting in Round 2
	Building has elevator if more than 1 floor.
	Derived from initial interview and updated if SP moved.
	
	  * In Round 3, ho3dbldg1 was incorrectly coded for persons who had not moved since the last round and, as a result, information that should have been carried forward from prior rounds is not retained.
	   To correct ho3dbldg1 do the following:
	ho3dbldg1new = ho2dbldg1 if re3spardrsnew = 1 or 3 and re3newstrct = -1;
	ho3dbldg1new = -1 if r3dresid = 6;
	else ho3dbldg1new = ho3dbldg1
		1 Yes
		2 No
		-7 RF
		-8 DK
		-9 Missing
		-1 Inapplicable

ho#dbldg2
R# D BLDG HAS STAIR LIFT GLIDE
SP File (HO Section)
Added starting in Round 2
	Building has stair life guide if more than 1 floor
	Derived from initial interview and updated if SP moved.
	
	  * In Round 3, ho3dbldg2 was incorrectly coded for persons who had not moved since the last round and, as a result, information that should have been carried forward from prior rounds is not retained.
	   To correct ho3dbldg2 do the following:
	ho3dbldg2new = ho2dbldg2 if re3spardrsnew = 1 or 3 and re3newstrct = -1;
	ho3dbldg2new = -1 if r3dresid = 6;
	else ho3dbldg2new = ho3dbldg2
		1 Yes
		2 No
		-7 RF
		-8 DK
		-9 Missing
		-1 Inapplicable

ho#dbldg3
R# D BLDG HAS COMMN SPACE MEALS
SP File (HO Section)
Added starting in Round 2
	Building has common space for meals.
	Derived from initial interview and updated if SP moved.
	
	  * In Round 3, ho3dbldg3 was incorrectly coded for persons who had not moved since the last round and, as a result, information that should have been carried forward from prior rounds is not retained.
	   To correct ho3dbldg3 do the following:
	ho3dbldg3new = ho2dbldg3 if re3spardrsnew = 1 or 3 and re3newstrct = -1;
	ho3dbldg3new = -1 if r3dresid = 6;
	else ho3dbldg3new = ho3dbldg3
		1 Yes
		2 No
		-7 RF
		-8 DK
		-9 Missing
		-1 Inapplicable

ho#dbldg4
R# D BLDG HAS SPACE SOCIAL EVENT
SP File (HO Section)
Added starting in Round 2
	Building has space for social events.
	Derived from initial interview and updated if SP moved.
	
	  * In Round 3, ho3dbldg4 was incorrectly coded for persons who had not moved since the last round and, as a result, information that should have been carried forward from prior rounds is not retained.
	   To correct ho3dbldg4 do the following:
		1 Yes
		2 No
		-7 RF
		-8 DK
		-9 Missing
		-1 Inapplicable

	ho3dbldg4new = ho2dbldg4 if re3spardrsnew = 1 or 3 and re3newstrct = -1;
	ho3dbldg4new = -1 if r3dresid = 6;
	else ho3dbldg4new = ho3dbldg4	

ho#dbathprvt **R# D FAC HAS PRIVATE BATH** SP File (HO Section) Added starting in Round 2	Facility residence has private bath. Derived from initial interview and updated if SP moved.	1 Yes 2 No -7 RF -8 DK -1 Inapplicable
ho#dkitchnpr **R# D FAC HAS PRIV KITCHEN** SP File (HO Section) Added starting in Round 2	Facility residence has private kitchen. Derived from initial interview and updated if SP moved.	1 Yes 2 No -7 RF -8 DK -1 Inapplicable
ho#dkitchnco **R# D FAC HAS COMMON KITCHEN** SP File (HO Section) Added starting in Round 2	Facility residence has common kitchen area. Derived from initial interview and updated if SP moved.	1 Yes 2 No -7 RF -8 DK -1 Inapplicable
CP & CG Sections		
cp#dad8dem **R# D DEMENTIA REPORTED IN PRIOR AD8** SP File (CP Section) Added starting in Round 2	1 if BOX CP 3 indicates skip in current interview based on last interview (any a through h = 3 in last interview) 1 if coded 1 on prior round variable (cp#dad8dem) -1 otherwise See Section III.O Data Notices and Corrections for information about a coding error in rounds 4-9.	1 Dementia response to any AD8 item in prior round -1 Inapplicable
cg#dwrdlstnm **R# D WHCH WORD LIST WAS ASSIGNED** SP File (CG Section)	1 = list 1 2= list 2 3 = list 3 -1 if (r1dresid = 3 or 4) or (r#dresid = 3 or 5 or 6 or 7 or 8) -9 if r5dresid=1 or 2 or 4 and r4dresid=3 or 5*	1-3 Word list administered -1 Inapplicable -9 Missing

	*In Round 5 a small number of cases who did not have an SP interview in Round 4 were inadvertently not assigned a word list and therefore coded -9	
cg#dwrdimmrc **R# D SCORE IMMEDIATE WORD RECALL** SP File (CG Section)	0 if CG8 = 91 (no words remembered) 1 to 10 for number of correct words -1 if r#dresid = 3 or 5 or 6 or 7 or 8 -2 if CG1A = 2 -3 if CG1A =1 and ((CG 6Aa and 6Ab and 6Ac and 6Ba = no or -7 or -8) or CG1D = 2 or -7 or -8* -7 if CG7PRE = 2 (refuses activity) or CG8 = 92 (refused) Otherwise -9 if no R4 interview and missing word list** *In Round 1, if CG1A = 1 and ((CG 6a and 6b and 6c and 6d and6e = no or -7 or -8) or (CG1c = 2 or -7 or -8) **In Round 5 a small number of cases who did not have an SP interview in Round 4 were inadvertently not assigned a word list and therefore coded -9	0-10 Score -1 Inapplicable -2 Proxy says cannot ask SP -3 Proxy says can ask SP cognitive items but SP unable to answer -7 SP refused activity -9 missing
cg#dwrdinone **R# D IMMEDIATE RECALL NONE** SP File (CG Section)	1 if CG8= 91 -1 otherwise	1 No words remembered -1 Inapplicable
cg#dwrdirref **R# D IMMEDIATE RECALL REFUSED** SP File (CG Section)	1 if CG7PRE = 2 (refuses activity) or CG8= 92 -1 otherwise	1 Refused word recall task -1 Inapplicable
cg#dwrddlyrc **R# D SCORE DELAYED WORD RECALL** SP File (CG Section)	0 if CG15 = 91 (no words remembered) 1 to 10 for number of correct words -1 if r#dresid = 3 or 5 or 6 or 7 or 8 -2 if CG1A = 2 -3 if CG1A =1 and ((CG 6Aa and 6Ab and 6Ac and 6Ad and 6Ba and 6Bb = no or -7 or -8) or (CG1c=2 or -7 or -8))* -7 if CG7PRE = 2 (refused immediate word recall activity) or CG15 = 92 (refused) Otherwise -9 if no R4 interview and missing word list	0-10 Score -1 Inapplicable -2 Proxy says cannot ask SP -3 Proxy says can ask SP but SP unable to answer -7 SP refused activity -9 Missing

	*In Round 1, if CG1A = 1 and ((CG 6a and 6b and 6c and 6d and6e = no or -7 or -8) or (CG1c = 2 or -7 or -8) **In Round 5 a small number of cases who did not have an SP interview in Round 4 were inadvertently not assigned a word list and therefore coded -9	
cg#dwrddnone **R# D DELAYED RECALL REFUSED** SP File (CG Section)	1 if CG15 = 91 -1 otherwise	1 No words remembered -1 Inapplicable
cg#dwrddrref **R# D DELAYED RECALL REFUSED** SP File (CG Section)	1 if CG7PRE = 2 (refuses activity) or CG15= 92 -1 otherwise	1 Refused word recall task -1 Inapplicable
cg#dwrd1rcl – cg#dwrd10rcl **R# D WORD1 IMMEDIATE RECALL – R# D WOR10 IMMEDIATE RECALL** SP File (CG Section)	1 if correctly identified word 1 (word 2 etc.) 2 if word not correctly identified -1 otherwise	1 Yes 2 No -1 Inapplicable
cg#dwrd1dly – cg#dwrd10dly **R# D WORD1 DELAYED RECALL – R# D WOR10 DELAYED RECALL** SP File (CG Section)	1 if correctly identified word 1 (word 2 etc.) 2 if word not correctly identified -1 otherwise	1 Yes 2 No -1 Inapplicable

Clock Drawing (CD)
Through Round 10, the clock drawing activity was conducted in the Cognition (CG) section. Beginning in Round 11, the activity was moved to a new Clock Drawing (CD) section. The variable names and labels were unchanged.

cg#dclkdraw **R# D SCORE OF CLOCK DRAWING TEST** SP File (CG Section) In Round 11 and forward, the clock drawing activity is administered in a new Clock Drawing (CD) section. The variable names and labels remain the same.	0 = worst score; 5 = best score Rounds 1-11: -1 if (r1dresid = 3 or 4) or (r#dresid = 3 or 5 or 6 or 7 or 8) -2 if CG1A = 2 -3 if CG1A = 1 and (CG1c = 2 or -7 or -8)* -4 if CG10A = 2 -7 if CG10A = 3 or 97** Else -9***	0-5 Score -1 Inapplicable -2 Proxy says cannot ask SP -3 Proxy says can ask SP but SP unable to answer -4 SP did not attempt to draw clock -7 SP refused to draw clock -9 Missing

137

	*In Round 1, -3 if CG1A = 1 and ((CG 6a and 6b and 6c and 6d and6e = no or -7 or -8) or (CG1c = 2 or -7 or -8) **Values indicating refusal at CG10A differed across rounds; a value of 3 indicated refused in Rounds 2-9 and a value of 97 was indicted refused in Rounds 1, 10, 11 and forward. ***In Round 10 only, values of -2 through -7 were not used; instead missing clocks were assigned a value of -9. Before this code was assigned, if a clock was missing in R10 and there was a valid R9 clock score, the R9 value was assigned (see cg10dclkdrawr9). Round 12 and forward: -1 if r#dresid = 3 or 5 or 6 or 7 or 8 if cg#dclkcoding = 1 or cg#dclkcoding = 2 then cg#dclkdraw = vit_ordinal; Else if cg#dclkcoding = 3 then cg#dclkdraw = manually coded score. Else -4 if cg#atdrwclck = 2 Else -7 if cg#atdrwclck = 97 Else cg#dclkdraw = -9	
cg10dclkdrawr9 **R10 D SCORE OF CLOCK DRAWING SET EQUAL TO R9** SP file (CG Section) Only in R10	1 if r10dresid = 1, 2 or 4 and no clock in Round 10 and cg9dclkdraw = 0 to 5 2 if r10dresid = 1, 2 or 4 and score assigned from Round 10 clock -9 if r10dresid=1, 2 or 4 and no clock in Round 10 and cg9dclkdraw<0 -1 otherwise	1 R10 clock missing and set equal to R9 clock drawing score 2 R10 clock not missing -1 Inapplicable -9 Missing (clock not received in round 10 and round 9)
cg#dclkimgcl **R# D IMAGE CLARITY CLOCK DRAWING** SP File (CG Section) For rounds 1-11 only	Image clarity of clock drawings used for scoring -1 if (r1dresid = 3 or 4) or (r#dresid = 3 or 5 or 6 or 7 or 8) -2 if CG1A = 2 -3 if CG1A = 1 and (CG1c = 2 or -7 or -8)* -4 if CG10A = 2 -7 if CG10A = 3 or 97** Else -9***	1 Very Clear 2 Somewhat Clear 3 Somewhat Unclear 4 Very Unclear -1 Inapplicable -2 Proxy says cannot ask SP -3 Proxy says can ask SP but SP unable to answer

		-4 SP did not attempt to draw clock
	* In Round 1, -3 if CG1A = 1 and ((CG 6a and 6b and 6c and 6d and6e = no or -7 or -8) or (CG1c = 2 or -7 or -8) **Values indicating refusal at CG10A differed across rounds; a value of 3 indicated refused in Rounds 2-9 and a value of 97 was indicted refused in Rounds 1, 10, 11 and forward. ***In Round 10 only, values of -2 through -7 were not used; instead missing clocks were assigned a value of -9 for clarity.	-7 SP refused to draw clock -9 Missing
cg10dclockint **R10 D CLOCK ATTEMPTED DURING INTERVIEW** SP file (CG section) Only in R10	1 if CG10A = 1 2 if r10dresid = 1 or 2 or 4 and [(CG10 = 2 not attempted or 7 refused) or CG1A=2 or (CG1A=1 and ((CG1C = 2 or -7 or -8) or (CG6Aa and CG6Ab and CG6Ac and CG6Ba = 2 or -7))] -1 otherwise	1 Yes -1 Inapplicable
cg10dclockreceived **R10 D CLOCK RECEIVED** SP File (CG section) Only in R10	1 if clock received (receipted at Westat mailroom and scanned) 2 if clock not received -1 otherwise	1 Yes 2 No -1 Inapplicable
cg10dclockmonth **R10 D CLOCK MONTH RECEIVED** SP file (CG Section) Only in R10	Month and year clock was receipted at the Westat mailroom. This may differ from postmarked month due to mail delays. -9 if cg10dclockreceived=2 -1 otherwise	1 January 2021 6 June 2020 7 July 2020 8 August 2020 9 September 2020 10 October 2020 11 November 2020 12 December 2020 -1 Inapplicable -9 Missing (clock not received)
cg#dclkcoding **R# D CLOCK CODING CERTAINTY MACHINE OR MANUAL** SP File (CD Section) Starting in R12	-1 if r#dresid = 3 or 5 or 6 or 7 or 8 1 if CDT score coded by VIT classification is the same as score coded by VIT ordinal approach: vit_classification = vit_ordinal 2 if CDT score coded by VIT classification is one point away from the score coded by VIT ordinal approach, and	1 Machine-coded high certainty 2 Machine-coded moderate certainty 3 Manually coded -1 Inapplicable -4 SP did not attempt to draw clock -7 SP refused to draw clock

	it does not change the CDT component of the NHATS dementia classification: absolute value of (vit_classification - vit_ordinal) = 1 and ((vit_classification !=1 & vit_classification != 2) or (vit_ordinal !=1 & vit_ordinal != 2) or (vit_classification == 1 & vit_ordinal == 0) or (vit_classification == 2 & vit_ordinal == 3) or (vit_classification == 0 & vit_ordinal == 1) or (vit_classification == 3 & vit_ordinal == 2)) 3 if (absolute value of (vit_classification - vit_ordinal) > 1) or (vit_classification == 1 & vit_ordinal == 2) or (vit_classification == 2 & vit_ordinal == 1) Else -4 if cg#atdrwclck = 2 Else -7 if cg#atdrwclck = 97 Else cg#dclkdraw = -9	-9 Missing (no clock)
cg#dclkextract **R# D CLOCK IMAGE EXTRACTED MACHINE OR MANUAL** SP File (CD Section) Starting in R12	-1 if r#dresid = 3 or 5 or 6 or 7 or 8 1 if CDT image extracted by machine (manually_extracted = No) 2 if CDT image manually extracted (manually_extracted = Yes) Else -4 if cg#atdrwclck = 2 Else -7 if cg#atdrwclck = 97 Else cg#dclkdraw = -9	1 Machine extracted 2 Manually extracted -1 Inapplicable -4 SP did not attempt to draw clock -7 SP refused to draw clock -9 Missing (no clock)
MO Section		
mo#doutsfdf **R# D GO OUTSIDE SELF** SP File (MO Section)	1 if MO7= 4 2 if (MO6= 2 or MO7= 1 to 3) and MO8= 1 3 if (MO6= 2 or MO7= 1 to 3) and MO8= 2 to 4 4 if ((MO6= -7 or -8) or (MO7= -7or -8)) and MO8= 1 5 if ((MO6= -7 or -8) or (MO7= -7 or -8)) and MO8= 2 to 4 6 if ((MO6= 2 or (MO7= 1 to 3)) and MO8= -7 or -8 7 if ((MO6= -7 or -8) or (MO7= -7 or -8)) and MO8= -7 or -8 -1 if (r1dresid = 3 or 4) or (r#dresid = 3 or 5 or 6 or 7 or 8)	1 Did not do by self in last month 2 Did by self in last month/no difficulty 3 Did by self in last month/difficulty 4 DKRF did by self in last month/no difficulty 5 DKRF did by self in last month/difficulty 6 Did by self in last month/DKRF difficulty 7 DKRF did by self in last month/DKRF difficulty 8 Not done in last month -1 Inapplicable
mo#doutdevi **R# D GO OUTSIDE USING DEVICES** SP File (MO Section)	1 if (MO2 = 5 and MO3 = 5 or -1 and MO4 = 5 or -1 and MO5 =5 or -1) or (MO2 = 5 or -1 and MO3= 5 and MO4 = 5 or -1 and MO5 = 5 or -1) or (MO2 = 5 or -1 and MO3 = 5 or -1 and MO4 = 5 and MO5 =5 or -1) or (MO2 = 5 or -1	1 No use of devices to go outside in last month 2 Use of devices to go outside in last month 3 DKRF if used devices to go outside in last month 4 DKRF if used devices in last month

	and MO3 = 5 or -1 and MO4 = 5 or -1 and MO5 =5) or MD1 = 2 2 if (MO2 = 1 to 4) or (MO3 = 1 to 4) or (MO4 = 1 to 4) or (MO5 =1 to 4); 3 if MD1=1 and (MO2 = -7 or -8 or -1) and (MO3 = -7 or -8 or -1) and (MO4 =-7 or -8 or -1) and (MO5 =-7 or-8 or -1) 4 if MD1 = -7 or -8 8 if MO1=5 -1 if (r1dresid = 3 or 4) or (r#dresid = 3 or 5 or 6 or 7 or 8)	8 Not done in last month -1 Inapplicable

mo#douthelp
R# D GO OUTSIDE USING HELP
SP File (MO Section)
	1 if MO6 = 2
	2 if MO6 = 1
	3 if MO6 = -7 or -8
	8 if MO1= 5
	-1 if (r1dresid = 3 or 4) or (r#dresid = 3 or 5 or 7 or 8) or*
	
	*in R2: fl2notalert = 1 or fl2notmobile = 1;
	in R3: fl3notalert = 1 or fl3notmobile = 1;
	in R4: fl4notalert = 1
		1 No help to go outside in last month
		2 Had help to go outside in last month
		3 DKRF if had help to go outside in last month
		8 Not done in last month
		-1 Inapplicable

mo#dinsdsfdf **R# D MOVE INSIDE SELF** SP File (MO Section)	1 if MO20 = 4 2 if (MO18 = 2 or MO20 = 1 to 3) and MO21 = 1 3 if (MO18 = 2 or MO20 = 1 to 3) and MO21 = 2 to 4 4 if ((MO18 = -7 or -8) or (MO20 = -7 or-8)) and MO21 =1 5 if ((MO18 = -7 or -8) or (MO20 = -7 or -8)) and MO21 =2 to 4 6 if ((MO18 = 2) or (MO20 = 1 to 3)) and MO21 = -7 or -8 7 if ((MO18 18 = -7 or -8) or (MO20 = -7 or -8)) and MO21 = -7 or -8 8 if MO12 = 5 -1 if (r1dresid = 3 or 4) or (r#dresid = 3 or 5 or 6 or 7 or 8)	1 Did not do by self in last month 2 Did by self in last month/no difficulty 3 Did by self in last month/difficulty 4 DKRF did by self in last month/no difficulty 5 DKRF did by self in last month/difficulty 6 Did by self in last month/DKRF difficulty 7 DKRF did by self in last month/DKRF difficulty 8 Not done in last month -1 Inapplicable
mo#dinsddevi **R# D MOVE INSIDE WITH DEVICES** SP File (MO Section)	1 if (MO13 = 5 and MO14 = 5 or -1 and MO15 = 5 or -1 and MO16 =5 or -1) or (MO13 = 5 or -1 and MO14 = 5 and MO15 = 5 or -1 and MO16 =5 or -1) or (MO13 = 5 or -1 and MO14 = 5 or -1 and MO15 = 5 and MO16 =5 or -1) or (MO13 = 5 or -1 and MO14 = 5 or -1 and MO15 = 5 or -1 and MO16 = 5) or MD1 = 2 2 if (MO13 = 1 to 4) or (MO14 = 1 to 4) or (MO15 = 1 to 4) or (MO16 =1 to 4)	1 No use of devices inside in last month 2 Use of devices inside in last month 3 DKRF if used devices inside in last month 4 DKRF on use of devices 8 Not done in last month -1 Inapplicable

	3 if MD1 =1 and (MO13 = -7 or -8 or -1) and (MO14 = -7 or -8 or -1) and (MO15 = -7 or -8 or -1) and (MO16 =-7 or -8 or -1) 4 if MD1 = -7 or -8 8 if MO12 = 5 -1 if (r1dresid = 3 or 4) or (r#dresid = 3 or 5 or 6 or 7 or 8)	

mo#dinsdhelp
R# D MOVE INSIDE W HELP
SP File (MO Section)
	1 if MO18 = 2
	2 if MO18 = 1
	3 if MO18 = -7 or-8
	8 if MO12 = 5
	-1 if (r1dresid = 3 or 4) or (r#dresid = 3 or 5 or 7 or 8) or *
	*in R2: fl2notalert = 1 or fl2notmobile = 1;
	in R3: fl3notalert = 1 or fl3notmobile = 1;
	in R4: fl4notalert = 1
		1 No help to go around inside in last month
		2 Had help to go around inside in last month
		3 DKRF if had help to go around inside
		8 Not done in last month
		-1 Inapplicable

mo#dbedsfdf **R# D GET OUT OF BED** SP File (MO Section)	1 if MO26 =4 2 if (MO25 = 2 or MO26 = 1 to 3) and MO27 = 1 3 if (MO25 = 2 or MO26 = 1 to 3) and MO27 = 2 to 4 4 if ((MO25 = -7 or -8) or (MO26 = -7 or -8)) and MO27 = 1 5 if ((MO25 = -7 or -8) or (MO26 = -7 or -8)) and MO27 = 2 to 4 6 if ((MO25 = 2) or (MO26 = 1 to 3)) and MO27 = -7 or -8 7 if ((MO25 = -7 or -8) or (MO26 = -7 or -8)) and MO27 = -7 or -8 -1 if (r1dresid = 3 or 4) or (r#dresid = 3 or 5 or 6 or 7 or 8)	1 Did not do by self in last month 2 Did by self in last month/no difficulty 3 Did by self in last month/difficulty 4 DKRF did by self in last month/no difficulty 5 DKRF did by self in last month/difficulty 6 Did by self in last month/DKRF difficulty 7 DKRF did by self in last month/DKRF difficulty -1 Inapplicable
mo#dbeddevi **R# D DEVICE USE 2 GET OUT OF BED** SP File (MO Section)	1 if MD1 = 2 or MO24 = 5 or (MD2 = 2 and MD3 =2) or (MD2 = 2 and MD3 = -7 or -8) or (MD3 = 2 and MD2 = -7 or -8) 2 if MO24 = 1 to 4 3 if MO24 = -7 or -8 4 if (MD1 = -7 or -8) or (MD1 = 1 and (MD2 = -7 or -8) and (MD3 = -7 or -8)) -1 if (r1dresid = 3 or 4) or (r#dresid = 3 or 5 or 6 or 7 or 8)	1 No use of cane or walker to get out of bed in last month 2 Use of cane or walker to get out of bed in last month 3 DKRF if used cane or walker to get out of bed in last month 4 DKRF if used cane or walker in last month -1 Inapplicable
mo#dbedhelp **R# D HELP TO GET OUT OF BED** SP File (MO Section)	1 if MO25 = 2 2 if MO25 = 1 3 if MO25 = -7 or -8	1 No help to get out of bed in last month 2 Had help to get out of bed in last month 3 DKRF if had help to get out of bed in last month

	-1 if (r1dresid = 3 or 4) or (r#dresid = 3 or 5 or 7 or 8) or *
	
	*in R2: fl2notalert = 1 or fl2notmobile = 1;
	in R3: fl3notalert = 1 or fl3notmobile = 1;
	in R4: fl4notalert = 1
		-1	Inapplicable

DM Section

dm#dhlpyr **R# D ANY MOBILITY HELP LAST YEAR** SP File (DM Section) Initial Interview only	1 if DM1 = 2 2 if DM1 = 1 or DM2 = 1 or 2 or MO6 = 1 or MO18 = 1 or MO25 = 1 -7 if DM1 =-7 or DM2 = -7 -8 if DM1 = -8 or DM2 = -8 -1 otherwise	1 2 -1 -7 -8	No Mobility help in last year Mobility help in last year Inapplicable RF DK
dm#dhlpst **R# D MTHS MOBILITY HELP STARTED** SP File (DM Section) Initial Interview only	0 if DM2 = 2 and interview month = month in DM3B 1 if DM2 = 2 and month in DM3B is 1 month prior to interview month (e.g. DM3B = April and interview month = May) 2 if DM2 = 2 and month in DM3B is 2 months prior to interview month (e.g. DM3B = March and interview month = May) Etc. 11 if DM2 = 2 and month in DM3B is 11 months prior to interview month (e.g. DM3B = June and interview month = May) -7 if DM2 =2 and DM3B = -7 -8 if DM2 = 2 and DM3B = -8 -1 otherwise	0 1-11 -1 -7 -8	Less than 1 month of help Number of months of help Inapplicable Help last month but RF number of months of help in year Help last month but DK number of months of help in year
dm#dhlpend **R# D MONTHS MOBILITY HELP ENDED** SP File (DM Section) Initial Interview only	1 if DM1 = 1 and month in DM3B is 1 month prior to interview month (e.g. DM3B = April and interview month = May) 2 if DM1 = 1 and month in DM3B is 2 months prior to interview month (e.g. DM3B = March and interview month = May) Etc. 11 if DM1 = 1 and month in DM3B is 11 months prior to interview month (e.g. DM3B = June and interview month = May) -7 if DM1 = 1 and DM3B = -7	0 1 2-11 -1 -7 -8	Between 11 and 12 months since help ended (Note label in data file—less than 1 month since help ended—is INCORRECT) 1 month since help ended Number of months since help needed Inapplicable No help last month but RF number of months since help ended No help last month but DK number of months since help ended

	-8 if DM1 = 1 and DM3B = -8 -1 otherwise	

dm#dhlpyrs
R# D YEARS OF MOBILITY HELP
SP File (DM Section)
Initial Interview only
	0 if DM1 = 2 (no help last year) or DM2 = 2 (less than a
	  year)
	997 if DM3A = 997 or number in DM3A > age
	90 if number in DM3A ≥ 90
	Else = number in DM3A;
	-7 if DM2 = 1 and DM3A = -7
	-8 if DM2 = 1 and DM3A = -8
	-1 otherwise
		0 None or less than 1 year of help
		1-N Years of help
		997 Help since birth
		  -1 Inapplicable
		  -7 RF
		  -8 DK

dm#dmohlpgr
R# D MOBILITY HELP USE GROUP
SP file (DM Section)
Follow-up interview only
	Coded from last interview and current interview
	responses to MO
	
	Indicates type of case: help with mobility activities
	started since last interview, help ended since last
	interview, help between interviews with a gap, help
	between interviews with no gaps, cases that have some
	missing information (see dm2flag for reason information
	missing)
	
	Note: In Rounds 2 and 3, for help between interviews
	only the month help ended was inadvertently skipped
	(dm2dmohlpgr=5/dm3dmohlpgr=5). This was corrected
	in R4.
		-9 Missing
		 -1 Inapplicable
		  1 Help started
		  2 Help ended
		  3 Help both interviews with gap
		  4 Help both interviews with no gap
		  5 Help between interviews only (month ended
		     missing)
		  6 No help either interview or between
		11 Help started (month started missing)
		21 Help ended (month ended missing)
		41 Help both interviews (DK whether gap)
		61 No help either interview (DK whether help
		     between)

dm#dmohlp
R# D MONTHS OF MOBILITY HELP
SP File (DM Section)
Follow-up Interview only
	Coded from items DM1 through DM3F	-13 None
		-12 Outside of range
		-10 Not ascertained
		  -9 Missing
		  -8 DK
		  -7 RF
		  -1 Inapplicable
		   0 Less than 1 month
		1-17 Months

		90	Last round disputed

dm#ddeviyr **R# D MOB DEVICE USE LAST YR** SP File (DM Section) Initial Interview only	1 if DM4 = 1 or DM5 = 1 or 2 or CANEflag= 1 or WALKER flag = 1 or WHEELCHAIRflag = 1 or SCOOTERflag = 1 2 if DM4 = 2 -7 if DM4 =-7 or DM5 = -7 -8 if DM4 = -8 or DM5 = -8 -1 otherwise	1 2 -1 -7 -8	Mobility device use in last year No Mobility device use in last year Inapplicable RF DK
dm#ddevist **R# D MTHS DEVICE USE SINCE START** SP File (DM Section) Initial Interview only	0 if DM5 = 2 and interview month = month in DM6B 1 if DM5 = 2 and month in DM6B is 1 month prior to interview month (e.g. DM6B = April and interview month = May) 2 if DM5 = 2 and month in DM6B is 2 months prior to interview month (e.g. DM6B = March and interview month = May) Etc. 11 if DM5 = 2 and month in DM6B is 11 months prior to interview month (e.g. DM6B = June and interview month = May) -7 if DM5 = 1 and DM6B = -7 -8 if DM5 = 2 and DM6B = -8 -1 otherwise	0 1-11 -1 -7 -8	Less than 1 month of mobility device use Number of months of mobility device use Inapplicable Used last month but RF number of months of use in year Used last month but DK number of months of use in year
dm#ddeviend **R# D MONTHS DEVICE USE SINCE END** SP File (DM Section) Initial Interview only	1 if DM4 = 1 and month in DM6B is 1 month prior to interview month (e.g. DM6B = April and interview month = May) 2 if DM4 = 1 and month in DM6B is 2 months prior to interview month (e.g. DM6B = March and interview month = May) Etc. 11 if DM4 = 1 and month in DM6B is 11 months prior to interview month (e.g. DM6B = June and interview month = May) -7 if DM4 = 1 and DM6B = -7 -8 if DM4 = 1 and DM6B = -8 -1 otherwise	0 1-11 -1 -7 -8	Between 11 and 12 months since device use ended (Note label in data file—less than 1 month since device use ended— is INCORRECT) Number of months since mobility device use ended Inapplicable No use last month but RF number of months since device use ended No use last month but DK number of months since device use ended
dm#ddeviyrs **R# D YEARS OF DEVICE USE** SP File (DM Section)	0 if DM4 = 2 (no device use last year) or DM5 = 2 (less than a year) 997 if DM6A = 997 or DM6A > age	0 1- N 997	None or less than 1 year of mobility device use Years of use Since birth/entire life

Initial Interview only	90 if number in DM6A ≥ 90 Else = number in DM6A -7 if DM5 = 1 and DM6A = -7 -8 if DM5 = 1 and DM6A = -8 -1 otherwise	-7 RF -8 DK -1 Inapplicable
dm#dmodevgr **R# D MOBILITY DEVICE USE GROUP** SP File (DM Section) Follow-up Interview only	Coded from last interview and current interview responses to MD Indicates type of case: device use started since last interview, device use ended since last interview, device use between interviews with a gap, device use between interviews with no gaps, cases that have some missing information (see dm#flag for reason information is missing). Note: In Rounds 2 and 3, for help between interviews only the month help ended was inadvertently skipped (dm2dmohlpgr=5/dm3dmohlpgr=5). This was corrected in R4.	-9 Missing -1 Inapplicable 1 Use started 2 Use ended 3 Use both interviews with gap 4 Use both interviews with no gap 5 Use between interviews only (month ended missing) 6 No use either interview or between 11 Use started (month started missing) 21 Use ended (month ended missing) 41 Use both interviews (DK whether gap) 61 No use either interview (DK whether use between)
dm#dmodev **R# D MONTHS OF MOBILITY DEVICE USE** SP File (DM Section) Follow-up interview only	Coded from items DM4 through DM6F	-13 None -12 Outside of range -10 Not ascertained -9 Missing -8 DK -7 RF -1 Inapplicable 0 Less than 1 month 1-17 Months 90 Last round disputed
dmds#dintvl **R# D MONTHS BETWEEN LAST INT AND EITHER CURRENT INT OR DATE OF DEATH** Follow-up Interview only	Interval between last and current interview (or date of death) in months	-9 Missing -8 DK -7 RF -1 Inapplicable 0 Less than 1 month 1-17 Months
dm#flag	Cases that followed a nonstandard route through the DM Section	-1 Inapplicable 1 No SP interview last round

R# D SPECIAL ROUTE THRU/AROUND DM SECTION SP File (DM Section) Follow-up Interview only	Cases that followed a standard route or missing a current SP interview are coded -1 Values of 5 and 6 do not apply from Round 4 on.	2 Died and Month death missing 3 Died <=1 month after last interview 5 Died and Not Mobile (fl2notmobile=1/fl3notmobile=1) 6 Died and Not Alert (fl2notalert = 1/fl3notalert=1) 7 Skipped 1 or more help questions

HA Section

ha#dlaunsfdf **R# D LAUNDRY SELF AND DIFF LEVEL** SP File (HA Section)	1 if (HA1 = 2 or 3) or HA1A = 2 2 if (HA1 = 1 or HA1A = 1) and HA5 = 1 3 if (HA1 = 1 or HA1A = 1) and HA5 = 2 to 4 4 if HA1 = -7 or -8 and HA5 = 1 5 if HA1 = -7 or -8 and HA5 = 2 to 4 6 if (HA1 = 1 or HA1A = 1) and HA5 = -7 or -8 7 if (HA1 = -7 or -8 and HA5 = -7 or -8) or (HA1A = -7 or -8 and HA5 = -1) 8 if HA1 = 5 -1 if(r1dresid = 3 or 4) or (r#dresid = 3 or 5 or 6 or 7 or 8)	1 Did not do by self in last month 2 Did by self in last month/no difficulty 3 Did by self in last month/difficulty 4 DKRF did by self in last month/no difficulty 5 DKRF did by self in last month/difficulty 6 Did by self in last month/DKRF difficulty 7 DKRF did by self in last month/DKRF difficulty 8 Not done in last month -1 Inapplicable
ha#dlaunreas **R# D LAUNDRY REASN WITH BY OTHERS** SP File (HA Section)	1 if reason given in HA4 is health/functioning only 2 if reason given in HA4 is other only 3 if both health/functioning and other reason given in HA4 4 if BOX HA4 indicates help is SERVICE/SOMEONE FROM THE PLACE SP LIVES -7 if refused reason or HA1 = -7 -8 if refused reason or HA1 = -8 -1 if (r1dresid = 3 or 4) or (r#dresid = 3 or 5 or 6 or 7 or 8) or if HA1=1 (always did by self)	1 Health/functioning reason only 2 Other reason only 3 Both health/functioning and other 4 Service/someone from the place SP lives -7 RF -8 DK -1 Inapplicable
ha#dshopsfdf **R# D SLF SHOPPING AND DIFF LEVEL** SP File (HA Section)	1 if (HA20 = 2 or 3) or HA20A = 2 2 if (HA20 = 1 or HA20A = 1) and HA27 = 1 3 if (HA20 = 1 or HA20A = 1) and HA27 = 2-4 4 if HA20 = -7 or -8 and HA27 = 1 5 if HA20 = -7 or -8 and HA27 = 2-4 6 if (HA20 = 1 or HA20A = 1) and HA27 = -7 or -8 7 if (HA20 = -7 or -8 and HA27 = -7 or -8) or (HA20A = -7 or -8) 8 if HA20 = 5 -1 if (r1dresid = 3 or 4) or (r#dresid = 3 or 5 or 6 or 7 or 8)	1 Did not do by self in last month 2 Did by self in last month/no difficulty 3 Did by self in last month/difficulty 4 DKRF did by self in last month/no difficulty 5 DKRF did by self in last month/difficulty 6 Did by self in last month/DKRF difficulty 7 DKRF did by self in last month/DKRF difficulty 8 Not done in last month -1 Inapplicable

ha#dshopreas **R# D SHOP REASN WITH BY OTHERS** SP File (HA Section)	1 if reason given in HA26 is health/functioning only 2 if reason given in HA26 is other only 3 if both health/functioning and other reason given in HA26 4 if BOX HA26 indicates help is SERVICE/SOMEONE FROM THE PLACE SP LIVES -7 if refused reason or HA20 = -7 -8 if refused reason or HA20 = -8 -1 if (r1dresid = 3 or 4) or (r#dresid = 3 or 5 or 6 or 7 or 8) or HA20 = 1 (always did by self)	1 Health reason only 2 Other reason only 3 Both health/functioning and other 4 Service/someone from the place SP lives -7 Refused -8 DK -1 Inapplicable
ha#dmealsfdf **R# D SELF MEALS AND DIFF LEVEL** SP File (HA Section)	1 if (HA30 = 2 or 3) or HA30A = 2 2 if (HA30 = 1 or HA30A = 1) and HA34 = 1 3 if (HA30 = 1 or HA30A = 1) and HA34 = 2-4 4 if HA30 = -7 or -8 and HA34 = 1 5 if HA30 = -7 or -8 and HA34 = 2-4 6 if (HA30 = 1 or HA30A = 1) and HA34 = -7 or -8 7 if (HA30 = -7 or -8 and HA34 = -7 or -8) or (HA30A = -7 or -8) 8 if HA30 = 5 -1 if (r1dresid = 3 or 4) or (r#dresid = 3 or 5 or 6 or 7 or 8)	1 Did not do by self in last month 2 Did by self in last month/no difficulty 3 Did by self in last month/difficulty 4 DKRF did by self in last month/no difficulty 5 DKRF did by self in last month/difficulty 6 Did by self in last month/DKRF difficulty 7 DKRF did by self in last month/DKRF difficulty 8 Not done in last month -1 Inapplicable
ha#dmealreas **R# D MEALS REASN WITH BY OTHERS** SP File (HA Section)	1 if reason given in HA33 is health/functioning only 2 if reason given in HA33 is other only 3 if both health/functioning and other reason given in HA33 4 if BOX HA33 indicates help is SERVICE/SOMEONE FROM THE PLACE SP LIVES -7 if refused reason or HA30 = -7 -8 if refused reason or HA30 = -8 -1 if (r1dresid = 3 or 4) or (r#dresid = 3 or 5 or 6 or 7 or 8) or HA30 = 1 (always did by self)	1 Health reason only 2 Other reason only 3 Both health/functioning and other 4 Service/someone from the place SP lives -7 RF -8 DK -1 Inapplicable
ha#dbanksfdf **R# D SELF BANKS AND DIFF LEVEL** SP File (HA Section)	1 if (HA40 = 2 or 3) or HA40A = 2 2 if (HA40 = 1 or HA40A = 1) and HA44 = 1 3 if (HA40 = 1 or HA40A = 1) and HA44 = 2-4 4 if HA 40 = -7 or -8 and HA44 = 1 5 if HA 40 = -7 or -8 and HA44 = 2-4 6 if (HA40 = 1 or HA40A = 1) and HA44 = -7 or -8 7 if (HA40 = -7 or -8 and HA44 = -7 or -8) or (HA40A = -7 or -8)	1 Did not do by self in last month 2 Did by self in last month/no difficulty 3 Did by self in last month/difficulty 4 DKRF did by self in last month/no difficulty 5 DKRF did by self in last month/difficulty 6 Did by self in last month/DKRF difficulty 7 DKRF did by self in last month/DKRF difficulty 8 Not done in last month

	8 if HA40A = 5 -1 if (r1dresid = 3 or 4) or (r#dresid = 3 or 5 or 6 or 7 or 8)	-1 Inapplicable
ha#dbankreas **R# D BANK BILL REASN WITH BY OTH** SP File (HA Section)	1 if reason given in HA43 is health/functioning only 2 if reason given in HA43 is other only 3 if both health/functioning and other reason given in HA43 4 if BOX HA43 indicates help is SERVICE/SOMEONE FROM THE PLACE SP LIVES -7 if refused reason or HA40 = -7 -8 if refused reason or HA40 = -8 -1 if (r1dresid = 3 or 4) or (r#dresid = 3 or 5 or 6 or 7 or 8) or HA40 = 1 (always did by self)	1 Health reason only 2 Other reason only 3 Both health/functioning and other 4 Service/someone from the place SP lives -7 RF -8 DK -1 Inapplicable
ha#dmealwhl **R# D HELPER IS MEALS ON WHEELS** SP File (HA Section)	In Round 1 through 4, indicates whether person said "meals on wheels" in response to question HA32A about who made hot meals for person if help with meals was reported In Round 2, HA30C was added Round 2 and asks about meals on wheels or other food assistance programs, but is not included in the derived variable. Starting in Round 5, ha#dmealwhl = yes if HA30C = yes or person said "meals on wheels" in response to HA32A	1 Yes -1 Inapplicable
ha#dmealtkot **R# D HELPER IS RESTAURNT TAKEOUT** SP File (HA Section)	In Round 1 through 4, indicates whether person said "restaurant/take out services" in response to question HA32A about who made hot meals for person if help with meals was reported In Round 2, HA30B was added and asks about restaurant/take out or delivered meals but is not included in the derived variable. Starting in Round 5, ha#dmealtkot = yes if HA30B = yes or person said "restaurant/take out services" in response to HA32A	1 Yes -1 Inapplicable
SC Sections		

sc#deatdevi **R# D USES DEVICES WHILE EATING** SP File (SC Section)	1 if SC1 = 2 2 if SC1 = 1 3 if SC1 = -7 or -8 8 if SC1 = 7 -1 if (r1dresid = 3 or 4) or (r#dresid = 3 or 5 or 7 or 8) or* * in R2: fl2notalert = 1; * in R3: fl3notalert=1	1 No use of adapted utensils in last month 2 Use of adapted utensils in last month 3 DKRF if used adapted utensils in last month 8 Not done in last month -1 Inapplicable
sc#deathelp **R# D HAS HELP EATING** SP File (SC Section)	1 if SC3 = 2 2 if SC3 = 1 3 if SC13 = -7 or -8 8 if SC1 = 7 -1 if (r1dresid = 3 or 4) or (r#dresid = 3 or 5 or 7 or 8) or * *in R2: fl2notalert = 1; *in R3: fl3notalert=1	1 No help eating in last month 2 Help eating in last month 3 DKRF if had help eating in last month 8 Not done in last month -1 Inapplicable
sc#deatsfdf **R# D DIFF EATING BY SELF WO HELP** SP File (SC Section)	1 if SC4 = 4 2 if SC5 = 1 3 if SC5 = 2 or 3 or 4 6 if SC3 = 1 and ((SC4 = -7 or -8) or (SC5 = -7 or -8)) 7 if SC3 = -7 or -8 and SC5 = -7 or -8 8 if SC1 = 7 -1 if (r1dresid = 3 or 4) or (r#dresid = 3 or 5 or 6 or 7 or 8)	1 Did not do by self in last month 2 No difficulty by self (and when using utensils) 3 Difficulty by self (and when using utensils) 6 Did by self in last month/DKRF difficulty 7 DKRF did by self in last month/DKRF difficulty 8 Not done in last month -1 Inapplicable
sc#dbathdevi **R# D USES DEVICES WHILE BATHING** SP File (SC Section)	1 if [[fl#bathgrbbr = 1 and (fl#showering = 1 or fl1#takingbth = 1) and SC9 =5) and (fl#bathseat = 1 and (fl#showering = 1 or fl#takingbth = 1) and SC10 = 5)] OR [(fl#bathgrbbr = 1 and (fl#showering = 1 or fl#takingbth = 1) and SC9 =5) and (fl#bathseat NE 1)] OR [(fl#bathseat = 1 and (fl#showering = 1 or fl#takingbth = 1) and SC10 =5) and (fl#bathgrbbr NE 1)] OR SC7A = 2 2 if SC9 =1 to 4 OR SC10 = 1 to 4 OR SC7A = 1 3 if [(fl#bathgrbbr= 1 or fl#bathseat = 1) and SC7 = -7 or -8] OR [(fl#bathgrbbr = 1 and (fl#showering = 1 or fl#takingbth = 1) and SC9 = -7 or -8) and (fl#bathseat = 1 and	1 No use of grab bars or bath seats in last month 2 Use of grab bars or bath seats in last month 3 DKRF if use of grab bars or bath seats in last month DKRF if had grab bars or bath seats in last month 4 No bars/seats/shower/tub or washes up other way 9 Inapplicable -1

	(fl#showering = 1 or fl#takingbth = 1) and SC10 = -7 or -8] OR [(fl#bathgrbbr = 1 and (fl#showering = 1 or fl#takingbth = 1) and SC9 =-7 or -8) and fl#bathseat NE 1)] OR [(fl#bathseat = 1 and (fl#showering = 1 or fl#takingbth = 1) and SC10 =-7 or -8) and fl#bathgrbbr NE 1] OR [(fl#bathgrbbr = 1 and (fl#showering = 1 or fl#takingbth = 1) and SC9 = -7 or -8) and (fl#bathseat = 1 and (fl#showering = 1 or fl#takingbth = 1) and SC10 = 5)] OR [(fl#bathgrbbr = 1 and (fl#showering = 1 or fl#takingbth = 1) and sc#scusgrbrs =5) and (fl#bathseat = 1 and (fl#showering = 1 or fl#takingbth = 1) and SC10 = -7 or -8] OR 4 if (HO11C = -7 or -8 and HO11D = -7 or -8) or (HO11C = -7 or -8 and HO11D = 2) or (HO11C = 2 and HO11D = -7 or -8) or (r#dresid = 6 and SC7 = -7 or -8) 9 if (SC7 NE 1 and SC7 NE 2 and SC7= 3) or (SC8 =3) or (HO11A = 2 and HO11B = 2) or (HO11C = 2 and HO11D = 2) -1 if r1dresid = 3 or 4) or (r#dresid = 3 or 5 or 7 or 8) or* *in R2: fl2notalert = 1; *in R3: fl3notalert=1)	
sc#dbathhelp **R# D HAS HELP WHILE BATHING** SP File (SC Section)	1 if SC11=2 2 if SC11 = 1 3 if (SC7 = -7 or -8) or (SC11 = -7 or -8) -1 if (r1dresid = 3 or 4) or (r#dresid = 3 or 5 or 7 or 8) or* * in R2: fl2notalert=1; *in R3: fl3notalert=1)	1 No help bathing in last month 2 Had help bathing in last month 3 DKRF if had help bathing in last month -1 Inapplicable
sc#dbathsfdf **R# D DIFF BATHING SELF NO HELP** SP File (SC Section)	1 if SC12 = 4 2 if SC13 = 1 3 if SC13 = 2 or 3 or 4 6 if (SC11 = 1 and (SC12 = -7 or -8 or SC13 = -7 or -8)) or (SC11 = 2 and (SC13 = -7 or -8)) 7 if (SC7= -7 or -8) or (SC11 = -7 or -8 and SC13 = -7 or	1 Did not do by self in last month 2 No difficulty by self (and when using grab bars or tub seat) 3 Difficulty by self (and when using grab bars or tub seat) 6 Did by self in last month/DKRF difficulty

	-8) -1 if (r1dresid = 3 or 4) or (r#dresid = 3 or 5 or 6 or 7 or 8)	7 DKRF if did by self in last month/DKRF difficulty -1 Inapplicable

sc#dtoildevi
R# D USES DEVICE WHILE TOILETING
SP File (SC Section)
	1 if (SC16A = 2 and SC16B = 2 and HO11E = 2 and HO11F
	  = 2) or
	  (SC16A = 2 and SC16B = 2 and (fl#raisedtlt = 1 and
	  SC16D = 2) and (HO11F = 2)) or
	  (SC16A = 2 and SC16B = 2 and (HO11E = 2) and
	  (fl#tlgrbbr=1 and SC16C =2)) or
	  (SC16A = 2 and SC16B = 2 and (fl#raisedtlt = 1 and
	  SC16D = 2) and (fl#tlgrbbr=1 and SC16C =2))
	
	2 if SC16a = 1 or SC16b = 1 or SC16c = 1 or SC16d = 1
	
	3 Otherwise (except for r#dresid = 3 or 5 or 6 or 7 or 8)
	
	-1 if (r1dresid = 3 or 4) or (r#dresid = 3 or 5 or 7 or 8) or*
	*in R2: fl2notalert = 1;
	*in R3: fl3notalert=1
		1 No use of toileting devices in last month
		2 Use of toileting devices in last month
		3 DKRF of some and no use of other toileting devices
		   in last month
		-1 Inapplicable

sc#dtoilhelp **R# D HAS HELP WHILE TOILETING** SP File (SC Section)	1 if SC17=2 2 if SC17 = 1 3 if SC17 = -7 or -8 -1 if (r1dresid = 3 or 4) or (r#dresid = 3 or 5 or 7 or 8) or* *in R2: fl2notalert = 1; *in R3: fl3notalert=1	1 No help toileting in last month 2 Had help toileting in last month 3 DKRF if had help toileting in last month -1 Inapplicable
sc#dtoilsfdf **R# D DIFF LEVEL TOILETING SELF** SP File (SC Section)	1 if SC18 = 4 2 if SC19 = 1 3 if SC19 = 2 or 3 or 4 6 if (SC17 = 1 and (SC18 = -7 or -8 or SC19 = -7 or -8)) or (SC17 = 2 and (SC19 = -7 or -8)) 7 if ((SC17 = -7 or -8) and (SC18 = -7 or -8)) and SC19 = -7 or -8 -1 if (r1dresid = 3 or 4) or (r#dresid = 3 or 5 or 6 or 7 or 8)	1 Did not do by self in last month 2 No difficulty by self (and when using toileting devices) 3 Difficulty by self (and when using toileting devices) 6 Did by self in last month/DKRF difficulty by self 7 DKRF help toileting/DKRF difficulty by self -1 Inapplicable
sc#ddresdevi **R# D USES DEVICES WHILE DRESSING** SP File (SC Section)	1 if SC22 = 2 2 if SC22 = 1 3 if SC22 = -7 or -8 8 if SC21 = 5	1 No use of dressing devices in last month 2 Use of dressing devices in last month 3 DKRF if use of dressing devices in last month 8 Not done in last month

	9 if SC21 = -7 or -8 -1 if (r1dresid = 3 or 4) or (r#dresid = 3 or 5 or 7 or 8) or * *in R2: fl2notalert = 1; *in R3: fl3notalert=1	9 DKRF if dressed in last month -1 Inapplicable
sc#ddreshelp **R# D HAS HELP WHILE DRESSING** SP File (SC Section)	1 if SC23 =2 2 if SC23 = 1 3 if SC23 = -7 or -8 8 if SC21 = 5 9 if SC21 = -7 or -8 -1 if (r1dresid = 3 or 4) or (r#dresid = 3 or 5 or 7 or 8) or * *in R2: fl2notalert = 1; * in R3: fl3notalert=1	1 No help dressing in last month 2 Had help dressing in last month 3 DKRF if had help dressing in last month 8 Not done in last month 9 DKRF if dressed in last month -1 Inapplicable
sc#ddressfdf **R# D DIFF LEVEL DRESSING SELF** SP File (SC Section)	1 if SC24 = 4 2 if SC25 = 1 3 if SC25 = 2 or 3 or 4 6 if (SC23 = 1 and (SC24 = -7 or -8 or SC25 = -7 or -8)) or (SC23 = 2 and (SC25 = -7 or -8)) 7 if (SC21 = -7 or -8) or (SC23 = -7 or -8 and SC25 = -7 or -8) 8 if SC21 = 5 -1 if (r1dresid = 3 or 4) or (r#dresid = 3 or 5 or 6 or 7 or 8)	1 Did not do by self in last month 2 No difficulty by self (and when using dressing devices) 3 Difficulty by self (and when using dressing devices) 6 Did by self in last month/DKRF difficulty 7 DKRF did by self in last month/DKRF difficulty 8 Not done in last month -1 Inapplicable
DS Section		
ds#dhlpyr **R# D ANY SELF CARE HELP LAST YEAR** SP File (DS Section) Initial Interview only	1 if DS1 = 2 2 if DS1 = 1 or DS2 = 1 or 2 or SC3 = 1 or SC11 = 1 or SC17 = 1 or SC23 = 1 -7 if DS1 = -7 or DS2 = -7 -8 if DS1 = -8 or DS2 = -8 -1 otherwise	1 No self care help in last year 2 Self care help in last year -1 Inapplicable -7 RF -8 DK
ds#dhlpst **R# D MTHS SINCE SLF CARE HELP ST** SP File (DS Section) Initial Interview only	0 if DS2 = 2 and interview month = month in DS3B 1 if DS2 = 2 and month in DS3B is 1 month prior to interview month (e.g. DS3B = April and interview month = May) 2 if DS2 = 2 and month in DS3B is 2 months prior to interview month (e.g. DS3B = March and interview month = May) Etc.	0 Less than 1 month of self care help 1- 11 Number of months of self care help -1 Inapplicable -7 Help in last month but RF number of months of help in last year -8 Help in last month but DK number of months of help in last year

	11 if DS2 = 2 and month in DS3B is 11 months prior to interview month (e.g. DS3B = June and interview month = May) -7 if DS2 = 2 and DS3B = RF -8 if DS2 = 2 and DS3B = DK Else -1	
ds#dhlpend **R# D MTHS SINCE SLF CARE HLP END** SP File (DS Section) Initial Interview only	1 if DS1 = 1 and month in DS3B is 1 month prior to interview month (e.g. DS3B = April and interview month = May) 2 if DS1 = 1 and month in DS3B is 2 months prior to interview month (e.g. DS3B = March and interview month = May) Etc. 11 if DS1 = 1 and month in DS3B is 11 months prior to interview month (e.g. DS3B = June and interview month = May) -7 if DS1 = 1 and DS3B = -7 -8 if DS1 = 1 and DS3B = -8 -1 otherwise	0 Between 11 and 12 months since self care help ended (Note the label in the data file—0 months since help ended—is INCORRECT) 1 1 month since self care help ended 2-11 Number of months since self care help ended -1 Inapplicable -7 No help last month but RF number of months since help ended -8 No help last month but DK number of months since help ended
ds#dhlpyrs **R# D YEARS HELP IN CARING 4 SELF** SP File (DS Section) Initial Interview only	0 if DS1 = 2 or DS2 = 2 997 if DS3A = 997 or DS3A > age 90 if number in DM3A ≥ 90 Else = number in DS3A -7 if DS2 = 1 and DS3A = -7 -8 if DS2 = 1 and DS3A = -8 -1 otherwise	0 None or less than 1 year 1- N Numbers of years 997 Since birth/entire life -1 Inapplicable -7 RF -8 DK
ds#dschlpgr **R# D SELF CARE HELP GROUP** SP file (DS Section) Follow-up Interview	Coded from last interview and current interview responses to SC. Indicates type of case: help with self care activities started since last interview, help ended since last interview, help between interviews with a gap, help between interviews with no gaps, cases that have some missing information (see ds2flag for reason information missing)	-9 Missing -1 Inapplicable 1 Help started 2 Help ended 3 Help both interviews with gap 4 Help both interviews with no gap 5 Help between interviews only 6 No help either interview or between 11 Help started (month started missing) 21 Help ended (month ended missing) 41 Help both times (DK whether gap)

	In Rounds 2 and 3, fl#notalert skipped SC section (coded -1)	61	No help either interview (DK whether help between)
ds#dschlp **R# D MONTHS OF SELF CARE HELP** SP File (DS Section) Follow-up Interview	Coded from items DS1 through DS3F	-13 -12 -10 -9 -8 -7 -1 0 1-17 90	None Outside of range Not ascertained Missing DK RF Inapplicable Less than 1 month Months Last round disputed
dmds#dintvl **R# D MONTHS BETWEEN LAST INT AND EITHER CURRENT INT OR DATE OF DEATH** SP File Follow-up Interview	Interval between interviews (or date of death) in months	-9 -8 -7 -1 0 1-17	Missing DK RF Inapplicable Less than 1 month Months
ds#flag **R# D SPECIAL CASES DS SECTION ROUTE** SP File (DS Section) Follow-up Interview	Cases that followed a nonstandard route through the DS Section Cases that followed a standard route or who did not have a current SP interview are coded -1	-1 1 2 3 4 6 7	Inapplicable No SP interview last round Died and Month death missing Died <=1 month after last interview Died 12-13 months after last interview Died and Not Alert (fl2notalert=1 / fl3notalert=1) Skipped 1 or more help questions
MC Section			
mc#dmedsfdf **R# D DIFF LEVEL MEDICATIONS SELF** SP File (MC Section)	1 if (MC2 =2 or 3) or MC2A = 2 2 if (MC2 = 1 or MC2A = 1) and MC7 = 1 3 if (MC2 = 1 or MC2A = 1) and MC7 = 2 to 4 4 if (MC2 = -7 or -8) and MC7 = 1 5 if MC2 = -7 or -8) and MC7 = 2 to 4 6 if (MC2 = 1 or MC2A = 1) and MC7 = -7 or -8 7 if (MC2 = -7 or -8) and (MC7 = -7 or -8) 8 if MC2 = 5 9 if MC1 = 2 or -7 or -8 -1 if (r1dresid = 3 or 4) or (r#dresid = 3 or 5 or 6 or 7 or 8)	1 2 3 4 5 6 7 8 9 -1	Did not do by self in last month Did by self in last month/no difficulty Did by self in last month/difficulty DKRF did by self in last month/no difficulty DKRF did by self in last month/difficulty Did by self in last month/DKRF difficulty DKRF did by self in last month/DKRF difficulty Not done in last month No or DKRF if medications taken in last month Inapplicable

mc#dmedsreas **R# D MEDS REASN BY WITH OTHERS** SP File (MC section)	1 if reason given in MC6 is health/functioning only 2 if reason given in MC6 is other only 3 if both health/functioning and other reason given in MC6 4 if BOX MC6 indicates help is SERVICE/SOMEONE FROM THE PLACE SP LIVES -7 if refused reason or MC2 = -7 -8 if refused reason or MC2 = -8 -1 if (r1dresid = 3 or 4) or (r#dresid = 3 or 5 or 6 or 7 or 8) or MC1 = 2 (no medications or -7 or -8) or MC2 = 1 (always did by self)	1 Health reason only 2 Other reason only 3 Both health/functioning and other 4 Service/someone from the place SP lives -7 RF -8 DK -1 Inapplicable

PA Section

pa1dv2favact **R1 D VERSION 2 FAVORITE ACTIVITY** SP File (PA Section) Round 1 Sample only	Codes for favorite activity at Round 1. These codes were developed based on review of verbatim responses obtained during Round 1 interviews. Note: Code 715 was added in Round 2. To make Round 1 pa1dfavact comparable to later rounds, recode all Round 1 cases initially coded 799 to 715 except for the following 14 SPIDs (which remain 799): 10000723, 10006873, 10003102, 10005733, 10012026, 10012352, 10002233, 10004137, 10006817, 10009006, 10010986, 10007270, 10010481, 10006759	Self-care activities 111 Sleeping; Napping 131 Eating 132 Going out to eat 199 Other self-care activities Productive activities 211 Work and work-related activities 221 Other income generating activities 241 Volunteering 299 Other productive activities Shopping 321 Shopping for non-durable goods 399 Other shopping Household activities 411 Food and drink preparation 434 Outdoor Maintenance 439 Household chores (indoor/outdoor) 441 Animal and pet care 442 Walking and exercising pets 449 Other animal and pet care 451 Vehicle maintenance and repair 471 Financial management 499 Other household activities Care of others 511 Physical care and assistance to others

599   Other physical care

      Socializing
611   Socializing with others in person
612   Socializing with others on the phone
616   Socializing and communicating on the computer

      <u>Non active leisure</u>
621   Watching TV and movies
631   Doing puzzles or games not on computer or online
632   Gambling not online or at a casino
636   Doing puzzles or games on a computer or online
641   Arts and crafts or hobbies
642   Reading
643   Writing
644   Listening to music
646   Computer or online leisure activities
651   Smoking or other tobacco use
652   Drinking alcohol
661   Doing nothing/relaxing
669   No activity
699   Other non active leisure
      Active leisure
711   Playing sports
712   Walking or jogging
713   Other outdoor recreating activities
714   Attending sporting events
715   Other physical activity (exercise, yoga, working
      out, swimming, dancing)
718   Watching sporting events
721   Attending arts including plays and concerts
723   Attending movies
724   Attending casinos
737   Travel for leisure
799   Other active leisure
      Religious and organizational activities
811   Attending religious activities
812   Other religious and spiritual activities

		821	Attending meetings or events
		899	Other organizational activity
		991	Other miscellaneous
		992	No favorite activity
		997	RF
		998	DK
		999	Not Codeable
pa5dfavact **R5 D FAVORITE ACTIVITY AT R5** SP File (PA Section)	Favorite activity at Round 5.		See codes for pa1dv2favact
pa12dfavact **R5 D FAVORITE ACTIVITY AT R12** SP File (PA Section)	Favorite activity at Round 12.		See codes for pa1dv2favact

EL Section			
el#dage2us **R# D AGE CAME TO US** SP File (EL Section) Initial Interview only	997 if EL1 = 1 0 If EL4 year = SP birth year or EL4b = 0 1 to XXX (EL4 year minus SP birth year or age in EL4b) -7 if EL4A = -7 -8 if EL4A = -8 -1 if r1dresid = 3 or 4	0 1-N 997 -1 -7 -8	Less than age 1 Age Born in US Inapplicable DK RF
el#dsameres **R# D CITY STATE NOW AND AGE 15** SP File (EL Section) Initial Interview only	1 if EL9A city and EL9B state match RE address city and state 2 if (EL9A city does not match RE address city or EL9A = -7 or -8) and EL9B state does match RE address state 3 if EL9A city does not match and EL9B state does match RE address city and state -1 if r1dresid = 3 or 4 or ((EL1 = 2 or DK or RF) and (EL4b >15 or EL4a minus SP's BIRTH YEAR >15))	1 2 3 -1	Lives in same City and State as at age 15 Lives in same state but different City (or DKRF city) as age 15 Does not live in same State as age 15 Inapplicable

RL Section			
rl#dracehisp **R# D RACE AND HISPANIC ETHNICITY** SP File (RL Section) Initial Interview only	1, 2 or 3 if white, black or other and Hispanic ethnicity not selected and: • Only 1 race selected	1 2 3	White, non-Hispanic Black, non-Hispanic Other (Am Indian/Asian/Native Hawaiian/Pacific Islander/other specify), non-Hispanic

	• More than 1 race selected and primary race selected 4 if Hispanic ethnicity selected 5 if more than one race selected and Hispanic ethnicity not selected and no primary race selected 6 if no race selected and Hispanic ethnicity not selected From SP interview if r1dresid = 1 or 2 or r5dresid = 1 or 2 or 4. From FQ interview if r1dresid = 3 or 4 or r5dresid = 3 or 5 or 7 or 8	4 Hispanic 5 More than one and DKRF primary 6 DKRF

VA Section

Starting in Round 12, derived variables for all items combine responses across initial rounds. Data were carried forward from prior initial rounds for continuing sample and from the current initial round for new sample in a replenishment year.

AB Section

ba#dblssadm **R# D BALANCE SIDE BY SIDE ADMIN** SP File (AB Section)	1 if BA2 = 1 or 2 or BA3 = 1 or 2 or 3 2 if (BA2 NE 1 or 2) and (BA3 NE 1 or 2 or 3) 4 if fl#balstands = 2 -1 if (r1dresid = 3 or 4) or (r#dresid = 3 or 5 or 6 or 7 or 8)	1 Eligible and recorded information for SxS Balance 2 Eligible and no recorded information for SxS Balance 4 Not eligible due to exclusion criteria -1 Inapplicable
ba#dblstadm **R# D BALANCE SEMI TANDEM ADMIN** SP File (AB Section)	1 if BA6 = 1 or 2 or BA7 = 1 or 2 or 3 2 if (BA6 NE 1 or 2) or (BA7 NE 1 or 2 or 3) 3 if BA2 = 2 or BA3 = 2 or 3 4 if fl#balstands = 2 -1 if (r1dresid = 3 or 4) or (r#dresid =3 or 5 or 6 or 7 or 8)	1 Eligible and recorded information for Semi Tandem Balance 2 Eligible and no recorded information for Semi Tandem Balance 3 Not administered because failed to complete prior balance test 4 Not eligible due to exclusion criteria -1 Inapplicable
ba#dblftadm **R# D BALANCE FULL TANDEM ADMIN** SP File (AB Section)	1 if BA10 = 1 or 2 or BA11 = 1 or 2 or 3 2 if (BA10 NE 1 or 2) and (BA11 NE 1 or 2 or 3) 3 if BA2 = 2 or BA3 = 2 or 3 or BA6 = 2 or BA7 = 2 or 3 4 if fl#balstands = 2 -1 if (r1dresid = 3 or 4) or (r#dresid =3 or 5 or 6 or 7 or 8)	1 Eligible and recorded information for Full Tandem Balance Eligible and no recorded information for Full 2 Tandem Balance

		3	Not administered because failed to complete prior balance test
		4	Not eligible due to exclusion criteria
		-1	Inapplicable
ba#dblopadm **R# D BALANCE 1 LEG OP EYE ADMIN** SP File (AB Section)	1 if BA14 = 1 or 2 or BA15 = 1 or 2 or 3 2 if (BA14 NE 1 or 2) and (BA15 NE 1 or 2 or 3) 3 if BA2 = 2 or BA3 = 2 or 3 or BA6 = 2 or BA7 = 2 or 3 or BA10 = 2 or BA11 = 2 or 3 4 if fl#balstands = 2 -1 if (r1dresid = 3 or 4) or (r#dresid = 3 or 5 or 6 or 7 or 8)	1 2 3 4 -1	Eligible and recorded information for One leg eyes open Balance Eligible and no recorded information for One leg eyes open Balance Not administered because failed to complete prior balance test Not eligible due to exclusion criteria Inapplicable
ba#dblcladm **R# D BALANCE 1 LEG CLS EYE ADMIN** SP File (AB Section)	1 if BA18 = 1 or 2 or BA19 = 1 or 2 or 3 2 if (BA18 NE 1 or 2) and (BA19 NE 1 or 2 or 3) 3 if BA2 = 2 or BA3 = 2 or 3 or BA6 = 2 or BA7 = 2 or 3 or BA10 = 2 or BA11 = 2 or 3 or BA14 = 2 or BA15 = 2 or 3 4 if fl#balstands = 2 -1 if (r1dresid = 3 or 4) or (r#dresid = 3 or 5 or 6 or 7 or 8)	1 2 3 4 -1	Eligible and recorded information for One leg eyes closed Balance Eligible and no recorded information for One leg eyes closed Balance Not administered because failed to complete prior balance tests Not Eligible due to exclusion criteria Inapplicable
wa#dwlkadm **R# D WALKING COURSE ADMIN** SP File (AB Section)	1 if WA3a = 1 or 2 or WA3b = 1 or 2 or WA3c = 1 or 2 or WA5 = 1 or 2 or 3 2 if WA3a NE 1 or 2 and WA3b NE 1 or 2 and WA3c NE 1 or 2 and WA5 = 1 or 2 or 3 4 if fl#wlkingrse = 2 -1 if r1dresid = 3 or 4) or (r#dresid =3 or 5 or 6 or 7 or 8)	1 2 4 -1	Eligible and recorded information for walking course Eligible and no recorded information for walking course Not Eligible due to exclusion criteria Inapplicable
ch#dschradm **R# D SINGLE CHAIR ADMIN** SP File (AB Section)	1 if CH3 = 1 or 2 or CH4 = 1 (not completed) or 2 (completed) CH7 = 1 or 2 or 3 2 if CH3 NE 1 or 2 and CH4 NE 1 or 2 and CH7 NE 1 or 2 or 3 4 if fl#charstnds = 2 -1 if (r1dresid = 3 or 4) or (r#dresid = 3 or 5 or 6 or 7 or 8)	1 2 4 -1	Eligible and recorded information for single chair stand Eligible and no recorded information for single chair stand Not Eligible due to exclusion criteria Inapplicable
ch#drchradm **R# D REPEAT CHAIR ADMIN** SP File (AB Section)	1 if CH10 = 1 or 2 or CH11 = 1 or 2 or 3 or CH12 = 1 or 2 or 3 2 if CH8 = 2 and (CH10 NE 1 or 2) and (CH11 NE 1 or 2) and (CH12 NE 1 or 2 or 3) 3 if CH3 = 2 or CH4 = 1 or (CH7 = 2 or 3) or CH8 = 1	1 2 3	Eligible and recorded information for repeated chair stand Eligible and no recorded information for repeated chair stand

	4 if fl#charstnds = 2 --1 if (r1dresid = 3 or 4) or (r#dresid = 3 or 5 or 6 or 7 or 8)	4 -1	Not administered because failed to complete single chair stand w/o arms Not Eligible due to exclusion criteria Inapplicable
gr#dgripadm **R# D GRIP STRENGTH ADMIN** SP File (AB Section)	1 if (GR2 = 1 or 2) or (GR5 = 1 or 2 or 3) 2 if (GR2 NE 1 or 2) and (GR5 NE 1 or 2 or 3) 4 if fl#lefthand = 2 and fl#righthand = 2 -1 if (r1dresid – 3 or 4) or (r#dresid = 3 or 5 or 6 or 7 or 8)	1 2 4 -1	Eligible and recorded information for grip strength Eligible and no recorded information for grip strength Not Eligible due to exclusion criteria Inapplicable
wc#dwaistadm **R# D WAIST CIRCUMFERENCE ADMIN** SP File (AB Section)	1 if (WC1 = 1 or 2) or (WC3 = 1 or 2 or 3) 2 if (WC1 NE 1 or 2) and (WC3 NE 1 or 2 or 3) -1 if (r1dresid = 3 or 4) or (r#dresid = 3 or 5 or 6 or 7 or 8)	1 2 -1	Eligible and recorded information for waist circumference Eligible and no recorded information for waist circumference Inapplicable
pk#dpeakadm **R# D PEAK AIR FLOW ADMIN** SP File (AB Section)	1 if PK1 = 1 or 2 or PK4 = 1 or 2 or 3 2 if PK1 NE 1 or 2) and (PK4 NE 1 or 2 or 3); -1 if (r1dresid = 3 or 4) or (r#dresid = 3 or 5 or 6 or 7 or 8)	1 2 -1	Eligible and recorded information for peak air flow Eligible and no recorded information for peak air flow Inapplicable
r#dnhatssppb **R# D SPPB SCORE NHATS** SP File (AB Section)	0 = worst score; 12 = best score -1 if (r1dresid = 3 or 4) or (r#dresid = 3 or 5 or 6 or 7 or 8) -9 missing	0-12 -1 -9	Score Inapplicable Missing
r#dnhatsbasc **R# D BALANCE STAND SCORE NHATS** SP File (AB Section)	0 = worst score; 4 = best score -1 if (r1dresid = 3 or 4) or (r#dresid = 3 or 5 or 6 or 7 or 8) -9 missing	0-4 -1 -9	Score Inapplicable Missing
r#dnhatswksc **R# D WALK SCORE NHATS** SP File (AB Section)	0 = worst score; 4 = best score -1 if (r1dresid = 3 or 4) or (r#dresid = 3 or 5 or 6 or 7 or 8) -9 missing	0-4 -1 -9	Score Inapplicable Missing
r#dnhatschsc **R# D REPEAT CHR STND SCORE NHATS** SP File (AB Section)	0 = worst score; 4 = best score -1 if (r1dresid = 3 or 4) or r#dresid = 3 or 5 or 6 or 7 or 8) -9 missing	0-4 -1 -9	Score Inapplicable Missing
r#dnhatsgrb **R# D BEST GRIP STRENGTH SCORE** SP File (AB Section)	0 = worst score; 4 = best score -1 if (r1drewsid = 3 or 4) or (r#dresid = 3 or 5 or 6 or 7 or 8)	0-4 -1 -9	Score Inapplicable Missing

	-9 missing	
r#dnhatsgrav **R# D AVG GRIP STRENGTH SCORE** SP File (AB Section)	0 = worst score; 4 = best score -1 if (r1dresid = 3 or 4) or (r#dresid = 3 or 5 or 6 or 7 or 8) -9 missing	0-4 Score -1 Inapplicable -9 Missing
r#dnhatspkb **R#D BEST PEAK AIR FLOW SCORE** SP File (AB Section)	0 = worst score; 4 = best score -1 if (r1dresid = 3 or 4) or (r#dresid = 3 or 5 or 6 or 7 or 8) -9 missing	0-4 Score -1 Inapplicable -9 Missing
r#dnhatspkav **R# D AVG PEAK AIR FLOW SCORE** SP File (AB Section)	0 = worst score; 4 = best score -1 if (r1dresid = 3 or 4) or (r#dresid = 3 or 5 or 6 or 7 or 8) -9 missing	0-4 Score -1 Inapplicable -9 Missing
r#dsppbmiss **R# D REASON MISSING SPPB** SP File (AB Section)	Categorical variable for persons treated as missing in SPPB scores and reasons. See Kasper, Freedman, Niefeld 2012 for details.	1 Proxy interview 2 Missing walk and repeat chair and balance 3 Missing walk and repeat chair 4 Missing walk and balance 5 Missing repeat chair and balance 6 Missing walk 7 Missing repeat chair 8 Missing balance 9 No space 10 No chair 11 No space walk and no chair 12 No space walk and non-safety missing 13 No chair and non-safety missing 14 Non-safety walk 15 Non-safety chair 16 Non-safety balance 17 Non-safety walk and chair 18 Non-safety walk and balance 19 Non-safety chair and balance 20 Non-safety walk and chair and balance -1 Inapplicable
r#dorigsppb **R# D SPPB SCORE ORIGINAL**	0 = worst score; 12 = best score -1 if (r1dresid = 3 or 4) or (r#dresid = 3 or 5 or 6 or 7 or 8)	0-12 Score -1 Inapplicable

SP File (AB Section)	-9 missing	-9 Missing
r#dorigbasc **R# D BALANCE STND SCORE ORIGINAL** SP File (AB Section)	0 = worst score; 4 = best score -1 if (r1dresid = 3 or 4) or (r#dresid = 3 or 5 or 6 or 7 or 8) -9 missing	0-4 Score -1 Inapplicable -9 Missing
r#dorigwksc **R# D WALK SCORE ORIGINAL** SP File (AB Section)	0 = worst score; 4 = best score -1 if (r1dresid = 3 or 4) or (r#dresid = 3 or 5 or 6 or 7 or 8) -9 missing	0-4 Score -1 Inapplicable -9 Missing
r#dorigchsc **R# D REPEAT CHR STAND SCORE ORIG** SP File (AB Section)	0 = worst score; 4 = best score -1 if (r1dresid = 3 or 4) or (r#dresid = 3 or 5 or 6 or 7 or 8) -9 missing	0-4 Score -1 Inapplicable -9 Missing

BC Section

bc7dconsent **R7 D BC2 SP CONSENT BLOOD SPOT COLLECTION** SP File (BC Section) Round 7 only	-1 if (r7dresid = 3 or 5 or 6 or 7 or 8) 1 if BC2=1 2 if BC2=7 3 if is7resptype = 2	-1 Inapplicable 1 Eligible and consented 2 Eligible and did not consent 3 Ineligible, proxy respondent

LF Section

lf#doccupaton R12 D LF11 OCCUPATION MOST OF LIFE SP File (LF Section) Initial Interview only Beginning in Round 12	1 if r#dresid = 7 or 8 lf#doccupaton = LF1 if r#dcontnew=2 Else lf#doccupaton = lf5doccupaton if yearsample=2015 Else lf#doccupaton = lf1doccupaton if yearsample=2011	1 ENTER OCCUPATION 2 NEVER WORKED ENTIRE LIFE 3 HOMEMAKER/RAISED CHILDREN/WORKED IN THE HOME -1 Inapplicable -7 Don't Know -8 Refused -9 Missing
lf#doccpctgy **R# D LONGEST OCCUPATION CATEGORY** SP File (LF Section) Initial Interview only	Developed from LF11 and LF11a based on the 2010 Census Occupational Classification (see http://www.bls.gov/cps/cenocc.pdf) In Round 12, data were carried forward from Round 1 if the SP's initial round was Round 1 (2011) and from Round 5 if the SP's initial round was Round 5 (2015). For sample	1 Management Occupations: 0010-0430 2 Business and Financial Operations Occupations: 0500-0950 3 Computer and mathematical Occupations: 1000-1240 4 Architecture and Engineering Occupations: 1300-1560 5

persons newly added in Round 12, responses were obtained as part of the Round 12 interview. 1 if r#dresid = 7 or 8 lf#doccpctgy = LF1 if r#dcontnew=2 Else lf#doccpctgy = lf5doccupaton if yearsample=2015 Else lf#doccpctgy = lf1doccupaton if yearsample=2011	6 Life, Physical and Social Science Occupations: 1600-1965 7 Community and Social Service Occupations: 2000-2060 8 Legal Occupations: 2100-2160 9 Education, Training, and Library Occupations: 2200-2550 10 Arts, Design, Entertainment, Sports, and Media Occupations: 2600-2960 11 Healthcare Practitioners and Technical Occupations: 3000-3540 12 Healthcare support Occupations: 3600-3655 13 Protective Service Occupations: 3700-3955 14 Food Preparation and Serving Related Occupations: 4000-4160 15 Building and Grounds Cleaning and Maintenance Occupations: 4200-4250 16 Personal Care and Service Occupations: 4300-4650 17 Sales and Related Occupations: 4700-4965 18 Office and Administrative support Occupations: 5000-5940 19 Farming, Fishing, and Forestry Occupations: 6000-6130 20 Construction and Extraction Occupations: 6200-6940 21 Installation, Maintenance, and Repair Occupations: 7000-7630 22 Production Occupations: 7700-8965 23 Transportations and Material Moving Occupations: 9000-9750 94 Military specific Occupations: 9800-9830 95 Not codeable 96 Never worked entire life -7 Homemaker/raised children -8 RF -9 DK -1 Missing Inapplicable

lf#doccup **R# D CURRENT OCCUPATION CATEGORY** SP File (LF Section)	Developed from LF11 and LF11a based on the 2010 Census Occupational Classification (see http://www.bls.gov/cps/cenocc.pdf) -1 if (r1dresid = 3 or 4) or (r#dresid = 3 or 5 or 6 or 7 or 8)	1 Management Occupations: 0010-0430 2 Business and Financial Operations Occupations: 0500-0950 3 Computer and mathematical Occupations: 1000-1240 4 Architecture and Engineering Occupations: 1300-1560 5 Life, Physical and Social Science Occupations: 1600-1965 6 Community and Social Service Occupations: 2000-2060 7 Legal Occupations: 2100-2160 8 Education, Training, and Library Occupations: 2200-2550 9 Arts, Design, Entertainment, Sports, and Media Occupations: 2600-2960 10 Healthcare Practitioners and Technical Occupations: 3000-3540 11 Healthcare support Occupations: 3600-3655 12 Protective Service Occupations: 3700-3955 13 Food Preparation and Serving Related Occupations: 4000-4160 14 Building and Grounds Cleaning and Maintenance Occupations: 4200-4250 15 Personal Care and Service Occupations: 4300-4650 16 Sales and Related Occupations: 4700-4965 17 Office and Administrative support Occupations: 5000-5940 18 Farming, Fishing, and Forestry Occupations: 6000-6130 19 Construction and Extraction Occupations: 6200-6940 20 Installation, Maintenance, and Repair Occupations: 7000-7630 21 Production Occupations: 7700-8965 22 Transportations and Material Moving Occupations: 9000-9750 24

		94	No current occ (Unemployed, no work in the last 5 years, never worked: 9920
		-9	Uncodeable
		-1	Missing
			Inapplicable

IA Section			
ia#dtoincimi1-20 **R# D IA50 IMPUTED TOTAL INC1-20 INTERVAL** Income Imputation File	Income reported at IA50 if ia#toincimif = -1 Imputed income if ia#toincimif = 1 -1 if r#dresid = 6 or 8 -9 if r#dresid = 3 or 5 or 7	-9 -1	Missing Inapplicable Total income in dollars
ia#dtoincimreas **R# D IMPUTED TOTAL INC REASON** Income Imputation File	-1 if r#dresid = 6 or 8 -9 if r#dresid = 3 or 5 or 7 1 if income reported at IA50 2 if IA50 = -8 or -7 and ((hh#dmarstat = 1 or 2 and IA51A = 1 or 2 or 3 or 4 or 5) or (hh#dmarstat = -8 or -7 or 3 or 4 or 5 or 6 and IA51B = 1 or 2 or 3 or 4 or 5)) 3 if IA50 = -8 or -7 and ((hh#dmarstat = 1 or 2 and IA51A = -8 or -7) or (hh#dmarstat = -8 or -7 or 3 or 4 or 5 or 6 and IA51B = -8 or -7)) 4 if income reported at IA50 < $200 5 if income reported at IA50 > $900,000	-9 -1 1 2 3 4	Missing Inapplicable Not imputed: exact value reported Imputed: bracket response only Imputed: missing exact value and bracket response Other

HL Section			
op1dhrsmth **R1 D HL2 HL3 HL4 HRS HELP MONTH** SP File (HL Section)	Developed from HL2, HL3, and HL4 9999=cases reporting less than 1 hour per day and number of days helping is missing See NHATS Technical Paper Hours of Care in the 2011 & 2012 National Health and Aging Trends Study (#7) for changes in coding after Round 1.	-11 -10 -9 -1 1-744 9999	Hours missing Days missing Hours and days missing Inapplicable Hours per month Not codeable, <1 hour/day
op#dhrsmth **R# D HL2 HL3 HL4 HRS HELP MONTH** OP File	Categorical hours helped by Other Person See NHATS Technical Paper Hours of Care in the 2011 & 2012 National Health and Aging Trends Study (#7) for changes in coding after Round 1.	-13 -12 -11 -10 -9 1-744 9999	Deceased Zero days/wk or mo Hours missing Days missing Days & hours missing Number of hours Not Codeable, <1 hour/day

		-1 Inapplicable

FQ Section		
fq#dosfacd **R# D FQ6A OTHER SPECIFY FAC TYPE** SP File (FQ section)	Coded from FQ6a Other Specify	1 Free standing nursing home 2 Free standing assisted living facility/residential care facility 3 Nursing home and assisted living facility 4 Continuing care retirement community (CCRC) 5 Adult family care home 6 Group home 7 Board and care home/ personal care home 8 Retirement community or senior housing (not 9 CCRC) 10 Independent living 11 Assisted and independent (no nursing home) Housing (Apartment, Condo, etc.) -8 DK -9 Missing -1 Inapplicable
fq#dosfaca **R# D FQ10A OTHER SPECIFY FAC AREA** SP File (FQ section)	Coded from FQ10a Other Specify	-8 DK 1 Independent living/housing/retirement 2 Assisted living/personal care 3 Special care, memory, or Alzheimer's unit 4 Nursing Home -8 DK -9 Missing -1 Inapplicable
fq#dlocsp **R# D FQ6 6A 10 10A FOR SAMP WGT** SP File (FQ section)	Variable that identifies type of residential care place SP lives in (other than nursing home). Coded from FQ6, FQ6a, FQ10, FQ10a	1 Independent living/housing/retirement 2 Assisted living/personal care 3 Special care, memory, or Alzheimer's unit 4 Nursing home 8 Not reported -1 Inapplicable
For race (FQ26), primary race (FQ27), and Hispanic ethnicity (FQ28): Starting in Round 12, data were carried forward across initial rounds. Data were carried forward from prior initial rounds for continuing sample and from the current initial round for new sample in a replenishment year.		

OP File		
opround **ROUND OTHER PERSON ADDED** OP file	Indicates round other person was added	1 2 3 4 5 6 7 8 9 10 11 12
op#drelatfl **R# D RELATIONSHIP TO SP CORRECTED R#** OP file	1 if relationship corrected from prior round -1 otherwise	1 Yes -1 Inapplicable
op#drelflro **R# D RELATIONSHIP TO SP ROUND LAST CORRECTED** OP file	2 if relationship last corrected in round 2 3 if relationship last corrected in round 3 4 if relationship last corrected in round 4 5 if relationship last corrected in round 5 6 if relationship last corrected in round 6 7 if relationship last corrected in round 7 8 if relationship last corrected in round 8 9 if relationship last corrected in round 9 10 if relationship last corrected in round 10 11 if relationship last corrected in round 11 12 if relationship last corrected in round 12 -1 if never corrected	2 Most recent correction in R2 3 Most recent correction in R3 4 Most recent correction in R4 5 Most recent correction in R5 6 Most recent correction in R6 7 Most recent correction in R7 8 Most recent correction in R8 9 Most recent correction in R9 10 Most recent correction in R10 11 Most recent correction in R11 12 Most recent correction in R12 -1 Inapplicable
op#dagefl **R# D OP AGE CORRECTED R#** OP file	1 if age corrected from prior round -1 otherwise	1 Yes -1 Inapplicable
op#dageflro **R# D OP AGE ROUND LAST CORRECTED** OP file	2 if age last corrected in round 2 3 if age last corrected in round 3 4 if age last corrected in round 4	2 Most recent correction in R2 3 Most recent correction in R3 4 Most recent correction in R4

	5 if age last corrected in round 5 6 if age last corrected in round 6 7 if age last corrected in round 7 8 if age last corrected in round 8 9 if age last corrected in round 9 10 if age last corrected in round 10 11 if age last corrected in round 11 12 if age last corrected in round 12 -1 if never corrected	5 Most recent correction in R5 6 Most recent correction in R6 7 Most recent correction in R7 8 Most recent correction in R8 9 Most recent correction in R9 10 Most recent correction in R10 11 Most recent correction in R11 12 Most recent correction in R12 -1 Inapplicable
op#dgenderfl **R# D GENDER CORRECTED** OP file	1 if gender corrected from prior round -1 otherwise	1 Yes -1 Inapplicable
op#dgenderflro **R# D OP GENDER ROUND LAST** **CORRECTED** OP file	2 if gender last corrected in round 2 3 if gender last corrected in round 3 4 if gender last corrected in round 4 5 if gender last corrected in round 5 6 if gender last corrected in round 6 7 if gender last corrected in round 7 8 if gender last corrected in round 8 9 if gender last corrected in round 9 10 if gender last corrected in round 10 11 if gender last corrected in round 11 12 if gender last corrected in round 12 -1 if never corrected	2 Most recent correction in R2 3 Most recent correction in R3 4 Most recent correction in R4 5 Most recent correction in R5 6 Most recent correction in R6 7 Most recent correction in R7 8 Most recent correction in R8 9 Most recent correction in R9 10 Most recent correction in R10 11 Most recent correction in R11 12 Most recent correction in R12 -1 Inapplicable
op#ddeceased **R# D SPOUSE CHILD HH MEMBER DIED** OP file	1 if spouse, child, or household member died between rounds -1 otherwise	1 Yes -1 Inapplicable
op#dflmiss **R# D NO FLAGS SET FOR PERSON** OP file	1 if OP record and no flags are set -1 otherwise	1 Yes -1 Inapplicable

op#dmissadd **R# D WHERE NO FLAGS PERSN ADDED** OP file	If op#dflmiss = 1 then 1 to 14 = section where person was added to person roster -1 if op#dflmiss =- 1	1 Added at CL 2 Added at DT 3 Added at EW 4 Added at HA 5 Added at HO 6 Added at MC 7 Added at MO 8 Added at PA 9 Added at PE 10 Added at SC 12 Added at CS 13 Added at HH 14 Added at IS -1 Inapplicable
op#dprobdup **R# D OTH PERSN PROBABLE DUPLICAT** OP File	For each OPID that is a probable duplicate of another in the current round, the OPID of the probable duplicate. Example: 001 and 005 are probable duplicates. op2dprobdup = 001 for case 005 op2dprobdup = 005 for case 001 -1 otherwise	OPID of duplicate -1 Inapplicable
op#ddupeid **R# D POSSIBLE DUPLICATE OF ID** OP File	OPID of op record that is a probable duplicate in the current round	OPID of duplicate -1 Inapplicable
op#ddiffop **R# D SAME R1 OPID BUT DIFF PRSN**	OPID is the same this round and prior round but person is not the same	OPID of Case -1 Inapplicable

Appendix IV. Variable Label Changes Between Rounds 1 and 2

The following table documents changes in variable labels between rounds 1 and 2. Round 2 labels are used in each round going forward.

Label changes were made to clarify groups to which the variables apply.

Variable	Label Starting in R2	R1 Label
SP FILE CURRENT MARITAL STATUS IN R1 AND UPDATED MARITAL STATUS IN R2:		
hh2martlstat	R2 HH1 MARITAL STATUS IF CHANGED	R1 HH1 MARITAL STATUS
hh2dmarstat	R2 D MARITAL STATUS AT R2	--
SP FILE SPOUSE IN R1 AND NEW SPOUSE IN R2:		
hh2spgender	R2 HH5 NEW R2 SPOU PART GENDER	R1 HH5 GENDER OF SPOUSE
hh2modob	R2 HH6A NEW R2 SPOU PART MO DOB	R1 HH6A MONTH DOB OF SPOUSE
hh2yrdob	R2 HH6C NEW R2 SPOU PART YR DOB	R1 HH6C YEAR DOB OF SPOUSE
hh2dspousage	R2 D NEW R2 SPOU PART AGE	R1 D SPOUSE AGE
hh2dspouage	R2 D NEW R2 SPOU PART CAT AGE	R1 D SPOUSE CAT AGE AT INTVW
hh2spouseduc	R2 HH9 NEW R2 SPOU PART HIGH EDUC	R1 HH9 HIGHEST EDUC OF SPOUSE
SP FILE RESIDENCE IN R1 AND NEW RESIDENCE IN R2:		
ho2bldgamen1	R2 HO4A NEW RES BLDG HAS ELEVATOR	R1 HO4A BUILDING HAS ELEVATOR
ho2bldgamen2	R2 HO4B NEW RES BLDG STAIR LIFT GLIDE	R1 HO4B BUILDNG STAIR LIFT GLIDE
ho2bldgamen3	R2 HO4C NEW RES BLDG COMMN SPACE MEALS	R1 HO4C BUILD COMMN SPACE MEALS
ho2bldgamen4	R2 HO4D NEW RES BLDG SPACE SOCIAL EVT	R1 HO4D BUILD SPACE SOCIAL EVENT
ho2kitchnprv	R2 HO12 NEW FAC RES PRIV KITCHEN	R1 HO12 PRIVATE KITCHEN
ho2kitchncom	R2 H013 NEW FAC RES COMMON KITCHEN	R1 H013 COMMON KITCHEN
OP FILE UPDATED AND NEW OTHER PERSON INFORMATION IN R2:		
op2relatnshp	R2 RELASHIP TO SP UPDATE AND NEW	R1 OTHR PRSN RELATIONSHIP TO SP
op2dgender	R2 D GENDER UPDATE AND NEW	R1 OTHER PERSON GENDER (op1gender)
op2prsninhh	R2 OP IN HOUSEHOLD UPDATE AND NEW	R1 OTHER PRSN IN HOUSEHOLD
op2age	R2 OTH PERSON AGE UPDATE AND NEW	R1 OTHER PERSON AGE
op2dage	R2 D OP CAT AGE UPDATE AND NEW	R1 D OTH PERSN CAT AGE AT INTVW
OP FILE VARIABLES INDICATE WHEN ADDED IN R2:		
op2leveledu	R2 OP HIGHEST ED WHEN ADDED	R1 OP HIGHEST LEVEL EDUCATION

op2martlstat	R2 CHILD MARITL STAT WHEN ADDED	R1 OTHER PERSON MARITAL STATUS
op2numchldrn	R2 CHILD NUM CHILDRN WHEN ADDED	R1 OTHER PRSN NUMBER OF CHILDREN
op2anychdu18	R2 CHILD CHILD U 18 WHEN ADDED	R1 OTH PRS ANY CHILDREN UNDER 18
op2numchdu18	R2 CHILD NUM CHILD U 18 WHEN ADDED	R1 OTH PR NUMBER OF CHILDREN U18
OTHER OP VARIABLE NAME CHANGES FOR CLARITY:		
op2ishelper	R2 BXHL2 ELIGIBLE HL SECTION	R1 BXHL1 HELPS SP