

Coding Manual of Curated Gen 3/NOS/Omni 2 dataset

Note:

1. This curated dataset contains information of Gen III, NOS, and Omni 2 participants.
2. There are 4608 unique FHS participants within this dataset, with a total of 599 variables.
3. Variables are generally grouped based on their origins (i.e., primary FHS dataset)
4. The format of the curated dataset is of wide format, with distinct variable names that allow users to tell the difference for repeated measurements of data of similar nature.
5. For protocol descriptions and annotated forms of the primary datasets, refer to the respective documents of the individual source datasets.
6. Take note of the last verified date for outcome and mortality data:
 - a. Dementia – 12/31/2023
 - b. CVD/Stroke/AF – 12/31/2022
 - c. Cancer – 12/31/2019
 - d. Mortality/Last contact – 12/31/2021
7. Refer to [Appendix](#) for FHS core exam timeline (all cohorts)

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Demographics

IDTYPE

Variable name: idtype

Description: Framingham Heart Study cohort identifier

IDTYPE and ID must be used together to form a unique study participant identification number or use variable “framid” instead

| Code or Value | Description | Count |
|---------------|-------------|-------|
| 2 | NOS | 103 |
| 3 | Gen III | 4095 |
| 72 | Omni 2 | 410 |

ID

Variable name: id

Description: Framingham Heart Study participant identifier within cohort

IDTYPE and ID must be used together to form a unique study participant identification number or use variable “framid” instead

| Code or Value | Description |
|---------------|-----------------|
| 0 – 9999 | Range of values |

Note: To preserve confidentiality, the exact range for the ID is not reflected in the coding manual.

FRAMID

Variable name: Framid

Description: Framingham ID assigned to each participant

| Code or Value | Description |
|-----------------|-------------|
| 20000 – 29999 | NOS |
| 30000 – 39999 | Gen III |
| 720000 – 729999 | Omni 2 |

Note: To preserve confidentiality, the exact range for the ID is not reflected in the coding manual.

Demographics

SEX

Variable name: sex

Description: Gender

| Code or Value | Description |
|---------------|-------------|
| 1 | Male |
| 2 | Female |

RACE_CODE

Variable name: RACE_CODE

Description: RACE and ETHNICITY - Summary code string from combining primary codes given at different exams

Information extracted from "vr_raceall_2008_a_0712"

| Code or Value | Description |
|---------------|-------------------------------------|
| W | White |
| B | Black |
| H | Hispanic or Latino |
| E | Not Hispanic or Latino |
| A | Asian |
| P | Native Hawaiian or Pacific Islander |
| N | American Indian or Alaskan Native |
| X | Asian Indian or Pacific Islander |
| R | Prefer not to answer |
| O | Other |
| . | Unknown |

Note: RACE_CODE is constructed using primary codes W, B, H etc.

Race at different time points (exams) were combined to form RACE_CODE to indicate all races reported by participant over time.

Example1: RACE_CODE = 'EW' participant reported 'Not Hispanic or Latino' (H701) and 'White' (H702).

Example2: RACE_CODE = 'HH' participant reported 'Hispanic or Latino' (RACEATOMNI1) and 'Hispanic or Latino' (H700).

Example3: RACE_CODE = 'BEB' participant reported 'Black' (RACEATOMNI1), 'Not Hispanic or Latino' (H701) and 'Black' (H703).

Example4: RACE_CODE = 'ER' participant reported 'Not Hispanic or Latino' (H701) and 'Prefer not to answer' (H707).

Demographics

All Gen 1, 2 and 3 participants with missing race_code information are assumed as Non-Hispanic White

Character variable

RACE

Variable name: Race

Description: Race and ethnicity

| Code or Value | Description |
|---------------|-------------------------------|
| 1 | Non-Hispanic White |
| 2 | Black |
| 3 | Asian/Indian/Pacific Islander |
| 4 | Hispanic/Latino |
| 5 | Others |

DATE_CORE1 — DATE_CORE3

Variable name: date_core1 — date_core3

Description: Exam date of core exam 1 — 3 (MMDDYYYY)

Note: Date includes month, day and year

AGE_CORE1 — AGE_CORE3

Variable name: Age_core1 — Age_core3

Description: Age at core exam 1 — 3

EDU_CORE1 — EDU_CORE3

Variable name: Edu_core1 — Edu_core3

Description: Education at core exam 1 — 3 (If currently enrolled, the highest grade completed or degree received.)

| Code or Value | Description |
|---------------|---|
| 0 | No schooling |
| 1 | Grades 1 – 8 |
| 2 | Grades 9 – 11 |
| 3 | Completed high school (12 th grade) or GED |
| 4 | Some college, but no degree |

Demographics

| | |
|---|---|
| 5 | Technical school certificate |
| 6 | Associate degree (Junior college AA, AS) |
| 7 | Bachelor's degree (BA, AB, BS) |
| 8 | Graduate or professional degree (Master's, Doctorate, MD, etc.) |
| . | Prefer not to answer/Unknown |

Note:

- For edu_core2 only, "Prefer not to answer" was coded as "9" and Unknown was coded as ".".
- Education information is also collected during NP testing. Refer to variable "education_B1", "education_B2" and "educg"

EDU_ALL

Variable name: edu_all

Description: Highest education level attained

| Code or Value | Description |
|---------------|------------------------------|
| 0 | High school did not graduate |
| 1 | High school graduate |
| 2 | Some college |
| 3 | College graduate |
| . | Unknown |

Note:

This variable is derived from core exams, neuropsychological exams, and psychosocial questionnaires. Education level was determined by cohort based on available data, with the following priority order.

- Original cohort:
 1. Exam 1
 2. Psychosocial
 3. NP wave 2
 4. NP wave 1
- Offspring cohort
 1. NP wave 2
 2. NP wave 1
 3. Exam 2
 4. Psychosocial
- Omni 1 cohort
 1. NP wave 2

Demographics

2. NP wave 1
3. Exam 3
- Generation 3, NOS, and Omni 2 cohorts
 1. Exam 2
 2. Exam 1
 3. NP wave 1
 4. Exam 3 **(additional check on top the harmonized education protocol)**

Anthropometric Measurements

HEIGHT_CORE1 — HEIGHT_CORE3

Variable name: Height_core1 — Height_core3

Description: Height at Core Exam 1 — 3 (inches, to next lower 1/4 inch)

WEIGHT_CORE1 — WEIGHT_CORE3

Variable name: Weight_core1 — Weight_core3

Description: Weight at Core Exam 1 — 3 (pounds)

BMI_CORE1 — BMI_CORE3

Variable name: BMI_core1 — BMI_core3

Description: Body mass index at Core Exam 1 — 3 (kg/m²)

HIP_CORE2 — HIP_CORE3

Variable name: Hip_core2 — Hip_core3

Description: Hip girth at Exam 2 — 3 (inches, to next lower 1/4 inch)

Note: Hip girth was not measured for Core Exam 1.

WAIST_CORE1 — WAIST_CORE3

Variable name: Waist_core1 — Waist_core3

Description: Waist girth at Core Exam 1 — 3 (inches, to next lower 1/4 inch)

Smoking

SMOKING_CORE1 — SMOKING_CORE3

Variable name: Smoking_core1 — Smoking_core3

Description: Current smoking status, Exam 1 — 3

| Code or Value | Description |
|---------------|----------------------|
| 0 | Not a current smoker |
| 1 | Current Smoker |
| . | Unknown |

SMOKING_EVER_CORE2 — SMOKING_EVER_CORE3

Variable name: Smoking_ever_core2 — Smoking_ever_core3

Description: History of smoking status at exam 2 — 3

| Code or Value | Description |
|---------------|----------------|
| 0 | Non-smoker |
| 1 | Current Smoker |
| 2 | Ex-smoker |
| . | Unknown |

CPD_CORE1 — CPD_CORE3

Variable name: CPD_core1 — CPD_core3

Description: Number of cigarettes smoked per day, Exam 1 — 3

SBP_CORE1 — SBP_CORE3

Variable name: SBP_core1 — SBP_core3

Description: Average systolic blood pressure, Exam 1 — 3 (mmHg)

DBP_CORE1 — DBP_CORE3

Variable name: DBP_core1 — DBP_core3

Description: Average diastolic blood pressure, Exam 1 — 3 (mmHg)

VENT_RT_CORE1 — VENT_RT_CORE3

Variable name: Vent_rt_core1 — Vent_rt_core3

Description: Ventricular rate per minute by ECG, Exam 1 — 3

DLVH_CORE1 — DLVH_CORE3

Variable name: DLVH_core1 — DLVH_core3

Description: Definite left ventricular hypertrophy, Exam 1 — 3

| Code or Value | Description |
|---------------|-------------|
| 0 | No |
| 1 | Yes |
| . | Unknown |

HRX_CORE1 — HRX_CORE3

Variable name: HRX_core1 — HRX_core3

Description: Treated for hypertension, Exam 1 — 3

| Code or Value | Description |
|---------------|-------------|
| 0 | No |
| 1 | Yes |
| . | Unknown |

BG_CORE1 — BG_CORE3

Variable name: BG_core1 — BG_core3

Description: Blood glucose (includes fasting and non-fasting), Exam 1 — 3 (mg/dL)

FASTING_BG_CORE3 — FASTING_BG_CORE3

Variable name: Fasting_BG_core1 — Fasting_BG_core3

Description: Fasting (≥ 8 hours) blood glucose, Exam 1 — 3 (mg/dL)

DMRX_CORE1 — DMRX_CORE3

Variable name: DMRX_core1 — DMRX_core3

Description: Treated for diabetes, Exam 1 — 3

| Code or Value | Description |
|---------------|-------------|
| 0 | No |
| 1 | Yes |
| . | Unknown |

CURR_DM_CORE1 — CURR_DM_CORE3

Variable name: Curr_dm_core1 — Curr_dm_core3

Description: Current Diabetes status, Exam 1 — 3

| Code or Value | Description |
|---------------|--------------------------------------|
| 0 | No |
| 1 | Yes |
| . | Unknown or did not attend Exam 1 — 3 |

HX_DM_CORE1 — HX_DM_CORE3

Variable name: Hx_dm_core1 — Hx_dm_core3

Description: History of diabetes, Exam 1 — 3

| Code or Value | Description |
|---------------|--------------------------------------|
| 0 | No |
| 1 | Yes |
| . | Unknown or did not attend Exam 1 — 3 |

TC_CORE1 — TC_CORE3

Variable name: TC_core1 — TC_core3

Description: Total cholesterol, Exam 1 — 3 (mg/dL)

TRIGLYCERIDES_CORE1 — TRIGLYCERIDES_CORE3

Variable name: Triglycerides_core1 — Triglycerides_core3

Description: Triglycerides, Exam 1 — 3 (mg/dL)

CALC_LDL_CORE1 — CALC_LDL_CORE3

Variable name: Calc_LDL_core1 — Calc_LDL_core3

Description: Calculated LDL cholesterol, Exam 1 — 3 (mg/dL)

HDL_CORE1 — HDL_CORE3

Variable name: HDL_core1 — HDL_core3

Description: HDL-Cholesterol, Exam 1 — 3 (mg/dL)

LIPRX_CORE1 — LIPRX_CORE9

Variable name: LIPRX_core1 — LIPRX_core9

Description: Treated for lipids, Exam 1 — 3

| Code or Value | Description |
|---------------|-------------|
| 0 | No |
| 1 | Yes |
| . | Unknown |

Creatinine

CREATININE_CORE1 — CREATININE_CORE3

Variable name: Creatinine_core1 — Creatinine_core3

Description: Creatinine, Exam 1 — 3 (mg/dL)

EXAMDATE_NP1 — EXAMDATE_NP4

Variable name: examdate_NP1 — exam_NP4
Description: Date of the first — fourth NP exam (MMDDYYYY)

AGE_NP1 — AGE_NP4

Variable name: age_NP1 — age_NP4
Description: Age of participant at first — fourth NP exam

BATTERY_NP1 — BATTERY_NP4

Variable name: battery_NP1 — battery_NP4
Description: Form of the battery used for first — fourth NP exam

| Code or Value | Description |
|---------------|-------------|
| 1 | Short form |
| 2 | Long form |
| . | Unknown |

MARITAL_NP1 — MARITAL_NP4

Variable name: marital_NP1 — marital_NP4
Description: Current marital status for first — fourth NP exam

| Code or Value | Description |
|---------------|-----------------|
| 1 | Single |
| 2 | Married |
| 3 | Widowed |
| 4 | Divorced |
| 5 | Separated |
| 6 | Other |
| . | Unknown/Missing |

HANDEDNESS_NP1 — HANDEDNESS_NP4

Variable name: handedness_NP1 — handedness_NP4
Description: Subject's handedness, NP Exam 1 — 4 (self-reporting)

| Code or Value | Description |
|---------------|-------------|
|---------------|-------------|

Neuropsychological assessment

| | |
|---|-----------------|
| 1 | Right |
| 2 | Left |
| 3 | Ambidextrous |
| . | Unknown/Missing |

EMPLOYMENT_NP1 — EMPLOYMENT_NP4

Variable name: employment_NP1 — employment_NP4

Description: Employment status, NP exam 1 — 4

| Code or Value | Description |
|---------------|--|
| 0 | Works full time |
| 1 | Works part-time |
| 2 | Not working due to disability |
| 3 | Retired, no longer works |
| 4 | Unemployed (expects to return to work) |
| 5 | Never worked for pay outside home |
| 6 | Volunteer |
| 7 | Other |
| 10 | Full-time student |
| 11 | Homemaker, expects to return to work |
| . | Unknown/Missing |

EDUCATION_B1_NP1 — EDUCATION_B1_NP4

Variable name: education_b1_NP1 — education_b1_NP4

Description: Highest Education Level Completed (Collected from NP battery1), NP Exam 1 — 4

| Code or Value | Description |
|---------------|--|
| 0 | None |
| 1 | 4th grade or less |
| 2 | 5th, 6th, or 7th grades |
| 3 | Grade school graduate; no high school |
| 4 | High school, did not graduate |
| 5 | High school diploma |
| 6 | College, did not graduate |
| 7 | College graduate |
| 8 | Postgraduate school |
| 10 | High school and business college, nursing school, music school, or art school only |

| | |
|---|---------|
| . | Unknown |
|---|---------|

EDUCATION_B2_NP1 — EDUCATION_B2_NP4

Variable name: education_b2_NP1 — education_b2_NP4

Description: Highest Education Level Completed (Collected from NP battery2), NP Exam 1 — 4

| Code or Value | Description |
|---------------|--|
| 0 | None |
| 1 | 4th grade or less |
| 2 | 5th, 6th, or 7th grades |
| 3 | Grade school graduate; no high school |
| 4 | High school, did not graduate |
| 5 | High school diploma |
| 6 | GED |
| 7 | Some college course-work for credit (no certificate or degree) |
| 8 | Junior college – earned certificate or degree (e.g., AD) |
| 9 | Business college, nursing school, music school, art school |
| 10 | Technical School (post-HS) – earned certificate |
| 11 | Four Year College, partial |
| 12 | Four Year College, graduate |
| 13 | Graduate School, partial (no Masters degree) |
| 14 | Graduate School (Masters) |
| 15 | Graduate School (Doctorate) |
| . | Unknown |

EDUCG_NP1 — EDUCG_NP4

Variable name: educg_NP1 — educg_NP4

Description: Education group (derived variable), NP Exam 1 — 4

| Code or Value | Description |
|---------------|------------------------------|
| 0 | High school did not graduate |
| 1 | High school graduate |
| 2 | Some college |

Neuropsychological assessment

| | |
|---|------------------|
| 3 | College graduate |
| . | Unknown/Missing |

OCCUP_B1_NP1 — OCCUP_B1_NP4

Variable name: occup_b1_NP1 — occup_b1_NP4

Description: Occupation from NP battery1, NP Exam 1 — 4

| Code or Value | Description |
|---------------|----------------------------|
| 1 | Major professionals |
| 2 | Business managers |
| 3 | Administrative personnel |
| 4 | Clerical and sales workers |
| 5 | Skilled manual employees |
| 6 | Semi-skilled employees |
| 7 | Unskilled employed |
| 8 | Never employed |

OCCUP_B2_NP1 — OCCUP_B2_NP4

Variable name: occup_b2_NP1 — occup_b2_NP4

Description: Occupation from NP battery2, NP Exam 1 — 4

| Code or Value | Description |
|---------------|--|
| 1 | Professional, Technical and Related Occupations |
| 2 | Executive, Administrative, and Managerial Occupations |
| 3 | Sales Occupations |
| 4 | Administrative Support Occupations, Including Clerical |
| 5 | Precision Production, Craft, and Repair Occupations |
| 6 | Machine Operators, Assemblers, and Inspectors |
| 7 | Transportation and Material Moving Occupations |
| 8 | Handlers, Equipment Cleaners, Helpers, and Laborers |
| 9 | Service Occupations, Except Private Household |

| | |
|----|--|
| 10 | Never employed for pay (e.g., homemaker) |
| . | Unknown |

LMI_NP1 — LMI_NP4

Variable name: lmi_NP1 — lmi_NP4

Description: Total number correct verbatim and paraphrases from “Logical Memories – Immediate Recall”, NP Exam 1 — 4 (Range: 0 – 23)

LMD_NP1 — LMD_NP4

Variable name: lmd_NP1 — lmd_NP4

Description: Total number correct verbatim and paraphrases from “Logical Memories – Delayed Recall”, NP Exam 1 — 4 (Range: 0 – 23)

LMR_NP1 — LMR_NP4

Variable name: lmr_NP1 — lmr_NP4

Description: Logical Memories – Recognition, NP Exam 1 — 4 (Range: 0 – 11)

LMI_JOE_NP1 — LMI_JOE_NP4

Variable name: lmi_joe_NP1 — lmi_joe_NP4

Description: Total number of correct verbatim and paraphrases from WMS-III “Logical Memory – Immediate Recall” (only for Joe Garcia), NP Exam 1 — 4 (Range: 0 – 23)

LMD_JOE_NP1 — LMD_JOE_NP4

Variable name: lmd_joe_NP1 — lmd_joe_NP4

Description: Total number of correct verbatim and paraphrases from WMS-III “Logical Memory – Delayed Recall” (only for Joe Garcia), NP Exam 1 — 4 (Range: 0 – 23)

LMR_JOE_NP1 — LMR_JOE_NP4

Variable name: lmr_joe_NP1 — lmr_joe_NP4

Description: Total number of correct verbatim and paraphrases from WMS-III “Logical Memory – Recognition” (only for Joe Garcia), NP Exam 1 — 4 (Range: 0 – 11)

LM_STORY_NP1 — LM_STORY_NP4

Variable name: LM_story_NP1 — LM_story_NP4

Description: Which logical memory story was administered? (NP Exam 1 — 4)

| Code or Value | Description |
|---------------|------------------------------|
| 1 | Anna Thompson ONLY |
| 2 | Joe Garcia ONLY |
| 3 | Anna Thompson AND Joe Garcia |
| . | Neither story |

VRI_NP1 — VRI_NP4

Variable name: vri_NP1 — vri_NP4

Description: Total points scored from “Visual Reproductions – Immediate Recall”, NP Exam 1 — 4 (Range: 0 – 14)

VRD_NP1 — VRD_NP4

Variable name: vrd_NP1 — vrd_NP4

Description: Total points scored from “Visual Reproductions – Delayed Recall”, NP Exam 1 — 4 (Range: 0 – 14)

VRR_NP1 — VRR_NP4

Variable name: vrr_NP1 — vrr_NP4

Description: Total points scored from “Visual Reproductions – Recognition”, NP Exam 1 — 4 (Range: 0 – 4)

PASI_NP1 — PASI_NP4

Variable name: pasi_NP1 — pasi_NP4

Description: Total Score from “Paired Associate Learning – Immediate Recall”, NP Exam 1 — 4 (Range 0 – 21)

PASI_E_NP1 — PASI_E1_NP4

Variable name: pasi_e_NP1 — pasi_e_NP4

Description: Easy Score from “Paired Associate Learning – Immediate Recall”, NP Exam 1 — 4 (Range: 0 – 18)

PASI_H_NP1 — PASI_H_NP4

Variable name: pasi_h_NP1 — pasi_h_NP4

Description: Hard Score from “Paired Associate Learning – Immediate Recall”, NP Exam 1 — 4 (Range: 0 – 12)

PASD_NP1 — PASD_NP4

Variable name: pasd_NP1 — pasd_NP4

Description: Total Score from “Paired Associate Learning – Delayed Recall”, NP Exam 1 — 4 (Range: 0 – 10)

PASD_E_NP1 — PASD_E_NP4

Variable name: pasd_e_NP1 — pasd_e_NP4

Description: Easy Score from “Paired Associate Learning – Delayed Recall”, NP Exam 1 — 4 (Range: 0 – 6)

PASD_H_NP1 — PASD_H_NP4

Variable name: pasd_h_NP1 — pasd_h_NP4

Description: Hard Score from “Paired Associate Learning – Delayed Recall”, NP Exam 1 — 4 (Range: 0 – 4)

PASR_NP1 — PASR_NP4

Variable name: pasr_NP1 — pasr_NP4

Description: Total Score from “Paired Associate Learning - Recognition”, NP Exam 1 — 4 (Range: 0 – 10)

DSF_NP1 — DSF_NP4

Variable name: dsf_NP1 — dsf_NP4

Description: Highest string from “Digits Forward Span”, NP Exam 1 — 4 (Range: 0 – 9)

DSB_NP1 — DSB_NP4

Variable name: dsb_NP1 — dsb_NP4

Description: Highest string from “Digits Backward Span”, NP Exam 1 — 4 (Range: 0 – 8)

TRAILSA_NP1 — TRAILSA_NP4

Variable name: trailsA_NP1 — trailsA_NP4

Description: Time in minutes to finish “Trail A”, NP Exam 1 — 4 – capped at 7 minutes (Range: 0.10 – 7.0)

TRAILS_B_NP1 — TRAILS_B_NP4

Variable name: trails_B_NP1 — trails_B_NP4
Description: Time in minutes to finish “Trail B”, NP Exam 1 — 4 — capped at 10 minutes (Range: 0.32 — 10.0)

SIM_NP1 — SIM_NP4

Variable name: sim_NP1 — sim_NP4
Description: Total raw score from “Similarities Test”, NP Exam 1 — 4 (Range: 0 — 26)

HVOT_NP1 — HVOT_NP4

Variable name: hvot_NP1 — hvot_NP4
Description: Total score from “Hooper Visual Organization Test”, NP Exam 1 — 4 (Range: 0 — 30)

BNT10_NP1 — BNT10_NP4

Variable name: bnt10_NP1 — bnt10_NP4
Description: Correct score without cue from 10 items of “Boston Naming Test”, NP Exam 1 — 4 (Range: 0 — 10)

BNT10_SEMANTIC_NP1 — BNT10_SEMANTIC_NP4

Variable name: bnt10_semantic_NP1 — bnt10_semantic_NP4
Description: Correct score with semantic cue from 10 items of “Boston Naming Test”, NP Exam 1 — 4 (Range: 0 — 10)

BNT10_PHONEMIC_NP1 — BNT10_PHONEMIC_NP4

Variable name: bnt10_phonemic_NP1 — bnt10_phonemic_NP4
Description: Correct score with phonemic cue from 10 items of “Boston Naming Test”, NP Exam 1 — 4 (Range: 0 — 10)

BNT30_NP1 — BNT30_NP4

Variable name: bnt30_NP1 — bnt30_NP4
Description: Correct score without cue from 30 items of “Boston Naming Test”, NP Exam 1 — 4 (Range: 0 — 30)

BNT30_SEMANTIC_NP1 — BNT30_SEMANTIC_NP4

Variable name: bnt30_semantic_NP1 — bnt30_semantic_NP4

Description: Correct score with semantic cue from 30 items of “Boston Naming Test”, NP Exam 1 — 4 (Range: 0 – 30)

BNT30_PHONEMIC_NP1 — BNT30_PHONEMIC_NP4

Variable name: bnt30_phonemic_NP1 — bnt30_phonemic_NP4

Description: Correct score with phonemic cue from 30 items of “Boston Naming Test”, NP Exam 1 — 4 (Range: 0 – 30)

BNT36_NP1 — BNT36_NP4

Variable name: bnt36_NP1 — bnt36_NP4

Description: Correct score without cue from 36 items of “Boston Naming Test”, NP Exam 1 — 4 (Range: 0 – 36)

BNT36_SEMANTIC_NP1 — BNT36_SEMANTIC_NP4

Variable name: bnt36_semantic_NP1 — bnt36_semantic_NP4

Description: Correct score with semantic cue from 36 items of “Boston Naming Test”, NP Exam 1 — 4 (Range: 0 – 36)

BNT36_PHONEMIC_NP1 — BNT36_PHONEMIC_NP4

Variable name: bnt36_phonemic_NP1 — bnt36_phonemic_NP4

Description: Correct score with phonemic cue from 36 items of “Boston Naming Test”, NP Exam 1 — 4 (Range: 0 – 36)

FINGTAPR_NP1 — FINGTAPR_NP4

Variable name: FingTapR_NP1 — FingTapR_NP4

Description: Mean of five trials of “Finger-tapping” of right hand, NP Exam 1 — 4

FINGTAPL_NP1 — FINGTAPL_NP4

Variable name: FingTapL_NP1 — FingTapL_NP4

Description: Mean of five trials of “Finger-tapping” of left hand, NP Exam 1 — 4

WRAT_NP1 — WRAT_NP4

Variable name: wrat_NP1 — wrat_NP4

Description: Raw Score from “Wide Range Achievement Test –Reading”, NP Exam 1 — 4 (Range: 15 – 57)

FAS_NP1 — FAS_NP4

Variable name: fas_NP1 — fas_NP4

Description: The total words (not including the animal part) from the Controlled Oral Word Association Test, NP Exam 1 — 4

FAS_ANIMAL_NP1 — FAS_ANIMAL_NP4

Variable name: fas_animal_NP1 — fas_animal_NP4

Description: The total words from the animal part of the Category Naming Test, NP Exam 1 — 4

Note: This variable only available on “NP battery2”

BD_NP1 — BD_NP4

Variable name: bd_NP1 — bd_NP4

Description: Total Score from “Block Design”, NP Exam 1 — 4 (Range: 0 – 26)

WAIS_NP1 — WAIS_NP4

Variable name: wais_NP1 — wais_NP4

Description: Total correct answers from “WAIS test”, NP Exam 1 — 4 (Range: 0 – 29)

CODING_CORRECT_NP1 — CODING_CORRECT_NP4

Variable name: coding_correct_NP1 — coding_correct_NP4

Description: Total correct from WAIS-IV Coding, NP Exam 1 — 4

CODING_INCORRECT_NP1 — CODING_INCORRECT_NP4

Variable name: coding_incorrect_NP1 — coding_incorrect_NP4

Description: Total incorrect from WAIS-IV Coding, NP Exam 1 — 4

INCIDENTAL_PAISED_NP1 — INCIDENTAL_PAISED_NP4

Variable name: Incidental_paired_NP1 — Incidental_paired_NP4

Description: Total correct from Paired Incidental Learning (Given the number from Coding, the participant had to draw the appropriate symbol associated with that number; each number is presented twice), NP Exam 1 — 4

INCIDENTAL_FREE_NP1 — INCIDENTAL_FREE_NP4

Variable name: Incidental_free_NP1 — Incidental_free_NP4

Description: Total correct from Free Recall Incidental Learning (The participant was asked to draw all the symbols they remember from the Coding task, without having to identify which number accompanied the symbol), NP Exam 1 — 4

MATH_CORRECT_NP1 — MATH_CORRECT_NP4

Variable name: Math_correct_NP1 — Math_correct_NP4
Description: Total correct responses for Math Fluency, NP Exam 1 — 4

MATH_INCORRECT_ADD_NP1 — MATH_INCORRECT_ADD_NP4

Variable name: Math_incorrect_add_NP1 — Math_incorrect_add_NP4
Description: Incorrect responses for addition problems, NP Exam 1 — 4

MATH_INCORRECT_SUB_NP1 — MATH_INCORRECT_SUB_NP4

Variable name: Math_incorrect_sub_NP1 — Math_incorrect_sub_NP4
Description: Incorrect responses for subtraction problems, NP Exam 1 — 4

MATH_INCORRECT_MUL_NP1 — MATH_INCORRECT_MUL_NP4

Variable name: Math_incorrect_mul_NP1 — Math_incorrect_mul_NP4
Description: Incorrect responses for multiplication problems, NP Exam 1 — 4

RIGHT_OPEN_NP1 — RIGHT_OPEN_NP4

Variable name: right_open_NP1 — right_open_NP4
Description: Seconds from balance test on right leg with eyes open (maximum time is set at 30 seconds), NP Exam 1 — 4

LEFT_OPEN_NP1 — LEFT_OPEN_NP4

Variable name: left_open_NP1 — left_open_NP4
Description: Seconds from balance test on left leg with eyes open (maximum time is set at 30 seconds), NP Exam 1 — 4

RIGHT_CLOSE_NP1 — RIGHT_CLOSE_NP4

Variable name: right_close_NP1 — right_close_NP4
Description: Seconds from balance test on right leg with eyes closed (maximum time is set at 30 seconds), NP Exam 1 — 4

LEFT_CLOSE_NP1 — LEFT_CLOSE_NP4

Variable name: left_close_NP1 — left_close_NP4

Description: Seconds from balance test on left leg with eyes closed (maximum time is set at 30 seconds), NP Exam 1 — 4

MRI352_NP1 — MRI352_NP4

Variable name: mri352_NP1 — mri352_NP4

Description: Tester's impression of participant's dementia status (Not verified), NP Exam 1 — 4

| Code or Value | Description |
|---------------|--------------------------------|
| 0 | Not demented |
| 0.25 | Not demented/MCI |
| 0.5 | Mild Cognitive Impairment |
| 1 | Mildly Demented |
| 1.5 | Mild – Moderately Demented |
| 2 | Moderately Demented |
| 2.5 | Moderately – Severely Demented |
| 3 | Severely Demented |
| 5 | Non-progressive impairment |
| . | Unknown |

TEST_LANGUAGE_NP1 — TEST_LANGUAGE_NP4

Variable name: test_language_NP1 — test_language_NP4

Description: Language used during NP Exam 1 — 4

| Code or Value | Description |
|---------------|-----------------|
| 1 | English |
| 2 | Spanish |
| . | Unknown/Missing |

Matching NP Dates with Core Exam Dates

NP_CLOSEST_EXAM_DATE1 — NP_CLOSEST_EXAM_DATE5

Variable name: np_closest_exam_date1 — np_closest_exam_date5

Description: FHS core exam date that was closest to the first — fifth NP test

NP_DAYS_APART1 — NP_DAYS_APART5

Variable name: np_days_apart1 — np_days_5

Description: The number of days between the FHS core exam date that was closest to the first — fifth NP test date.

Note: A negative value means that the FHS core exam that was closest to the NP test occurred prior to the NP test, while a positive value means that the closest FHS core exam occurred after the NP test.

NP_EXAM_CYCLE1 — NP_EXAM_CYCLE5

Variable name: np_exam_cycle1 — np_exam_cycle5

Description: FHS core exam cycle that was closest to the first — fifth NP test

| Code or Value | Description |
|---------------|-------------|
| 1 | Core Exam 1 |
| 2 | Core Exam 2 |
| 3 | Core Exam 3 |
| . | Unknown |

NORMAL_DATE

Variable name: normal_date

Description: Last date documented to be cognitively intact

Note: In event that the day and/or month of onset are uncertain, the day is default to 15 and the month is default to 6. The year of onset is always certain for all non-missing values.

IMPAIRMENT_DATE

Variable name: impairment_date

Description: Date of cognitive impairment onset

Note: In event that the day and/or month of onset are uncertain, the day is default to 15 and the month is default to 6. The year of onset is always certain for all non-missing values.

MILD_DATE

Variable name: mild_date

Description: Date of diagnosis of mild dementia

Note: In event that the day and/or month of onset are uncertain, the day is default to 15 and the month is default to 6. The year of onset is always certain for all non-missing values.

MODERATE_DATE

Variable name: moderate_date

Description: Date of diagnosis of moderate dementia

Note: In event that the day and/or month of onset are uncertain, the day is default to 15 and the month is default to 6. The year of onset is always certain for all non-missing values.

SEVERE_DATE

Variable name: severe_date

Description: Date of diagnosis of severe dementia

Note: In event that the day and/or month of onset are uncertain, the day is default to 15 and the month is default to 6. The year of onset is always certain for all non-missing values.

EDDD

Variable name: eddd

Description: Earliest documented date of Dementia

Note: This date variable is an estimated onset date for dementia using the earliest dates of various supporting resources and/or derived from earliest documented date variables of “mild_date”, “moderate_date” and “severe_dates”. In certain situations, the “EDDD” may precede those derived using “mild_date”, “moderate_date” and “severe_dates”.

DEMRV046

Variable name: demrv046

Description: Probable Dementia present

| Code or Value | Description |
|---------------|-------------|
| 0 | No |
| 1 | Yes |
| . | Unknown |

Note: This variable refers to all-cause dementia.

DEMRV103

Variable name: demrv103

Description: Dementia subtype

| Code or Value | Description |
|---------------|---|
| 0 | None |
| 1 | Alzheimer’s disease without stroke |
| 2 | Alzheimer’s disease with stroke |
| 3 | Vascular dementia without Alzheimer’s disease |
| 4 | Mixed dementia type (Alzheimer’s disease + vascular dementia) |
| 5 | Frontotemporal dementia |
| 6 | Dementia with Lewy bodies |
| 7 | Dementia that does not fit any other Category (progressive) |
| 8 | Dementia that does not fit any other category (non-progressive) |

Verified Outcomes – Dementia and Related Variables

| | |
|----|------------------------------------|
| 9 | Cognitive Impairment – No Dementia |
| 10 | Dementia – Uncertain |
| . | Unknown |

Note: Value “9” refers to Cognitive impairment without Dementia. These subjects are verified to have mild cognitive impairment (MCI). However, it is also possible that participants, who had not yet been screened by the dementia consensus panel, may also suffer from mild cognitive impairment. Hence, if the research outcome of interest is mild cognitive impairment, it is advisable to also consider the psychometric results of the study population as part of the outcome evaluation.

FIRST_CHD_DATE

Variable name: first_chd_date

Description: Date of first Coronary Heart Disease (CHD) Event

Note: This variable is derived from the Sequence of Event (SoE) dataset, using the following values in (1, 2, 3, 4, 5, 6, 7, 8, 21, 22, 23, 24) for the variable “EVENT”

Event Values in SoE Dataset Description

| | |
|----|---|
| 1 | MI recognized, with diagnostic ECG |
| 2 | MI recognized, without diagnostic ECG, with enzymes and history |
| 3 | MI recognized, without diagnostic ECG, with autopsy evidence, new event (see also code 9) |
| 4 | MI unrecognized, silent |
| 5 | MI unrecognized, not silent |
| 6 | AP, first episode only |
| 7 | CI, definite by both history and ECG |
| 8 | Questionable MI at exam 1 |
| 21 | Death, CHD sudden, within 1 hour |
| 22 | Death, CHD, 1 - 23 hours, nonsudden |
| 23 | Death, CHD, 24-47 hours, non sudden |
| 24 | Death, CHD, 48 hours or more, non sudden |
| . | No record in SoE dataset |

Abbreviations:

MI – Myocardial Infarction

ECG – Electrocardiogram

AP – Angina Pectoris

CI – Coronary Insufficiency

FIRST_STROKE_DATE

Variable name: first_stroke_date

Description: Date of first Stroke (CVA) Event

Note: This variable is derived from the Sequence of Event (SoE) dataset, using the following values in (10, 11, 13, 14, 15, 16, 17, 19) for the variable “EVENT”

Event Values in SoE Dataset Description

| | |
|----|---|
| 10 | Definite CVA at exam 1, but questionable type |
| 11 | ABI (Atherothrombotic Infarction of brain) |
| 13 | Cerebral embolism |
| 14 | Intracerebral hemorrhage |
| 15 | Subarachnoid hemorrhage |
| 16 | Other CVA |
| 17 | CVA, definite CVA, type unknown |
| 19 | Questionable CVA at exam 1 |
| . | No record in SoE dataset |

Abbreviations:

CVA – Cerebrovascular Accident

ABI – Atherothrombotic Infarction of Brain

Verified Outcomes – First Atrial Fibrillation (AF) Event

FIRST_AF_DATE

Variable name: first_af_date

Description: Date for first Atrial Fibrillation (AF) Event

Note: This variable is derived from the verified Atrial Fibrillation (AF) dataset, using the values in (1, 2, 3) for the variable “RHYTHM”

| Rhythm Values in AF Dataset | Description |
|-----------------------------|-------------|
|-----------------------------|-------------|

| | |
|---|--------------------------------------|
| 1 | Atrial fibrillation |
| 2 | Atrial flutter |
| 3 | Atrial fibrillation / atrial flutter |
| . | No record in AF dataset |

FIRST_CANCER_DATE

Variable name: first_cancer_date

Description: First diagnosis date of tumor or cancer

Note: This variable is derived from the verified Cancer dataset, using the variable “D_DATE”

TOPO_CANCER

Variable name: topo_cancer

Description: Topography - describes site - corresponds to first three digits of topography code WHO ICD-O

Note: This variable is derived from the verified Cancer dataset, using the variable “TOPO”

| Rhythm Values in AF Dataset | Description |
|-----------------------------|---|
| 140 | Lip |
| 141 | Tongue |
| 142 | Major salivary gland |
| 143 | Gum |
| 144 | Floor of mouth |
| 145 | Other and unspecified parts of mouth |
| 146 | Oropharynx |
| 147 | Nasopharynx |
| 148 | Hypopharynx |
| 149 | Pharynx and ill-defined sites in lip, oral cavity and pharynx |
| 150 | Esophagus |
| 151 | Stomach |
| 152 | Small intestine |
| 153 | Colon |
| 154 | Rectum, rectosigmoid junction, anal canal and anus, not otherwise specified |
| 155 | Liver and intrahepatic bile ducts |
| 156 | Gallbladder and extrahepatic bile ducts |
| 157 | Pancreas |
| 158 | Retroperitoneum and peritoneum |
| 159 | Other and ill-defined sites within digestive organs and peritoneum |
| 160 | Nasal cavities, accessory sinuses, middle ear and inner ear |
| 161 | Larynx |
| 162 | Trachea bronchus, and lung |
| 163 | Pleura |

Verified Outcomes – First Cancer and Related Variables

| | |
|-----|--|
| 164 | Thymus, heart and mediastinum |
| 165 | Other and ill-defined sites within respiratory system and intrathoracic organs |
| 169 | Hematopoietic and reticuloendothelial systems |
| 170 | Bones, joints and articular cartilage |
| 171 | Connective, subcutaneous and other soft tissues |
| 173 | Skin (excludes skin of labia majora, skin of vulva, skin of penis and skin of scrotum) |
| 174 | Female breast (excludes skin of breast) |
| 175 | Male breast (excludes skin of breast) |
| 179 | Uterus, not otherwise specified |
| 180 | Cervix uteri |
| 181 | Placenta |
| 182 | Corpus uteri or endometrium |
| 183 | Ovary, fallopian tube and broad ligament |
| 184 | Other and unspecified female genital organs |
| 185 | Prostate gland |
| 186 | Testis |
| 187 | Penis and other male genital organs |
| 188 | Urinary bladder |
| 189 | Kidney and other urinary organs |
| 190 | Eye and lacrimal gland |
| 191 | Brain |
| 192 | Other and unspecified parts of the nervous system (excludes 4 peripheral nerves, sympathetic and parasympathetic nerves and ganglia) |
| 193 | Thyroid gland |
| 194 | Other endocrine glands |
| 195 | Other ill-defined sites |
| 196 | Lymph nodes |
| 199 | Unknown primary site |
| . | No record in Cancer dataset |

LOCATION_CANCER

Variable name: location_cancer

Description: Location - describes subdivision of site - corresponds to fourth digit of topography code WHO ICD-O

Note: This variable is derived from the verified Cancer dataset, using the variable “LOCATION”

| Code or Value | Description |
|---------------|-------------|
|---------------|-------------|

Verified Outcomes – First Cancer and Related Variables

| | |
|-------|-----------------|
| 0 – 9 | Range of values |
|-------|-----------------|

HIST_CANCER

Variable name: hist_cancer

Description: Histology or morphology - describes cell histopathology - corresponds to four digit morphology code WHO ICD-O

Note: This variable is derived from the verified Cancer dataset, using the variable “HIST”

| Code or Value | Description |
|---------------|-----------------|
| 8000 – 9990 | Range of values |

Survival Information

LAST_CONTACT_DATE

Variable name: Last_contact_date

Description: Date of last contact (This is the last time the participant was known to be alive)

Note: This date is censored to be the last day of 2020 if the last contact date was after the last day of 2020.

DEATH_DATE

Variable name: Death_date

Description: Date of death

PREVALENT_CHD_CORE1 – PREVALENT_CHD_CORE3**Variable name:** prevalent_chd_core1 – prevalent_chd_core3**Description:** History of CHD present at core exam 1 – 3

| Code or Value | Description |
|---------------|--------------------------|
| 0 | No |
| 1 | Yes |
| . | Did not attend core exam |

Note: This variable is derived using the variable “first_chd_date” and the respective FHS core exam date variables “date_core”.

PREVALENT_STROKE_CORE1 – PREVALENT_STROKE_CORE3**Variable name:** prevalent_stroke_core1 – prevalent_stroke_core3**Description:** History of stroke present at core exam 1 – 3

| Code or Value | Description |
|---------------|--------------------------|
| 0 | No |
| 1 | Yes |
| . | Did not attend core exam |

Note: This variable is derived using the variable “first_stroke_date” and the respective FHS core exam date variables “date_core”.

PREVALENT_AF_CORE1 – PREVALENT_AF_CORE3**Variable name:** prevalent_af_core1 – prevalent_af_core3**Description:** History of AF present at core exam 1 – 3

| Code or Value | Description |
|---------------|--------------------------|
| 0 | No |
| 1 | Yes |
| . | Did not attend core exam |

Note: This variable is derived using the variable “first_af_date” and the respective FHS core exam date variables “date_core”.

PREVALENT_DEMENTIA_CORE1 – PREVALENT_DEMENTIA_CORE3

Variable name: prevalent_dementia_core1 – prevalent_dementia_core3

Description: History of dementia present at core exam 1 – 3

| Code or Value | Description |
|---------------|--------------------------|
| 0 | No |
| 1 | Yes |
| . | Did not attend core exam |

Note: This variable is derived using the variable “eddd” and the respective FHS core exam date variables “date_core”.

PREVALENT_CANCER_CORE1 – PREVALENT_CANCER_CORE3

Variable name: prevalent_cancer_core1 – prevalent_cancer_core3

Description: History of cancer present at core exam 1 – 3

| Code or Value | Description |
|---------------|--------------------------|
| 0 | No |
| 1 | Yes |
| . | Did not attend core exam |

Note: This variable is derived using the variable “first_cancer_date” and the respective FHS core exam date variables “date_core”.

PREVALENT_CHD_NP1 – PREVALENT_CHD_NP5**Variable name:** prevalent_chd_np1 – prevalent_chd_np5**Description:** History of CHD present at NP test 1 – 5

| Code or Value | Description |
|---------------|------------------------|
| 0 | No |
| 1 | Yes |
| . | Did not attend NP test |

Note: This variable is derived using the variable “first_chd_date” and the respective NP test date variables “examdate_np”.

PREVALENT_STROKE_NP1 – PREVALENT_STROKE_NP5**Variable name:** prevalent_stroke_np1 – prevalent_stroke_np5**Description:** History of stroke present at NP test 1 – 5

| Code or Value | Description |
|---------------|------------------------|
| 0 | No |
| 1 | Yes |
| . | Did not attend NP test |

Note: This variable is derived using the variable “first_stroke_date” and the respective NP test date variables “examdate_np”.

PREVALENT_AF_NP1 – PREVALENT_AF_NP5**Variable name:** prevalent_af_np1 – prevalent_af_np5**Description:** History of AF present at NP test 1 – 5

| Code or Value | Description |
|---------------|------------------------|
| 0 | No |
| 1 | Yes |
| . | Did not attend NP test |

Note: This variable is derived using the variable “first_af_date” and the respective NP test date variables “examdate_np”.

PREVALENT_DEMENTIA_NP1 – PREVALENT_DEMENTIA_NP5

Variable name: prevalent_dementia_np1 – prevalent_dementia_np5

Description: History of dementia present at NP test 1 – 5

| Code or Value | Description |
|---------------|------------------------|
| 0 | No |
| 1 | Yes |
| . | Did not attend NP test |

Note: This variable is derived using the variable “eddd” and the respective NP test date variables “examdate_np”.

PREVALENT_CANCER_NP1 – PREVALENT_CANCER_NP5

Variable name: prevalent_cancer_np1 – prevalent_cancer_np5

Description: History of cancer present at NP test 1 – 5

| Code or Value | Description |
|---------------|------------------------|
| 0 | No |
| 1 | Yes |
| . | Did not attend NP test |

Note: This variable is derived using the variable “first_cancer_date” and the respective NP test date variables “examdate_np”.

Refer to publication: D’Agostino Sr, R. B., Vasan, R. S., Pencina, M. J., Wolf, P. A., Cobain, M., Massaro, J. M., & Kannel, W. B. (2008). General cardiovascular risk profile for use in primary care: the Framingham Heart Study. *Circulation*, 117(6), 743-753.

AGE_FHSCVD_CORE1 – AGE_FHSCVD_CORE3

Variable name: age_fhscvd_core1 – age_fhscvd_core3
Description: Age component for FHS CVD risk score at exam 1 – 3

| Code or Value | Description |
|---------------|---|
| 0 – 15 | Range of values |
| . | Did not attend core exam or out of bounds |

HDL_FHSCVD_CORE1 – HDL_FHSCVD_CORE3

Variable name: hdl_fhscvd_core1 – hdl_fhscvd_core3
Description: HDL component for FHS CVD risk score at exam 1 – 3

| Code or Value | Description |
|---------------|---|
| -2 – 2 | Range of values |
| . | Did not attend core exam or out of bounds |

TC_FHSCVD_CORE1 – TC_FHSCVD_CORE3

Variable name: tc_fhscvd_core1 – tc_fhscvd_core3
Description: TC (Total Cholesterol) component for FHS CVD risk score at exam 1 – 3

| Code or Value | Description |
|---------------|---|
| 0 – 5 | Range of values |
| . | Did not attend core exam or out of bounds |

SMOKING_FHSCVD_CORE1 – SMOKING_FHSCVD_CORE3**Variable name:** smoking_fhscvd_core1 – smoking_fhscvd_core3**Description:** Current smoker component for FHS CVD risk score at exam 1 – 3

| Code or Value | Description |
|---------------|---|
| 0 | No |
| 3 | Yes (Female) |
| 4 | Yes (Male) |
| . | Did not attend core exam or out of bounds |

DM_FHSCVD_CORE1 – DM_FHSCVD_CORE3**Variable name:** dm_fhscvd_core1 – dm_fhscvd_core3**Description:** History of diabetes component for FHS CVD risk score at exam 1 – 3

| Code or Value | Description |
|---------------|---|
| 0 | No |
| 3 | Yes (Male) |
| 4 | Yes (Female) |
| . | Did not attend core exam or out of bounds |

SBP_FHSCVD_CORE1 – SBP_FHSCVD_CORE3**Variable name:** sbp_fhscvd_core1 – sbp_fhscvd_core3**Description:** Systolic blood pressure component for FHS CVD risk score at exam 1 – 3

| Code or Value | Description |
|---------------|---|
| -3 – 7 | Range of values |
| . | Did not attend core exam or out of bounds |

FHSCVD_CORE1 –FHSCVD_CORE3**Variable name:** fhscvd_core1 – fhscvd_core3**Description:** FHS CVD risk score at exam 1 – 3

| |
|---|
| $\text{fhscvd_core} = \text{age_fhscvd_core} + \text{hdl_fhscvd_core} + \text{tc_fhscvd_core} + \text{smoking_fhscvd_core} + \text{dm_fhscvd_core} + \text{sbp_fhscvd_core}$ |
|---|

| Code or Value | Description |
|---------------|---|
| -5 – 36 | Range of values |
| . | Did not attend core exam or out of bounds |

Note: This derived variable is only available if all components of the FHS CVD risk score are available. Refer to publication for more information

Refer to publications:

Wolf, P. A., D'Agostino, R. B., Belanger, A. J., & Kannel, W. B. (1991). Probability of stroke: a risk profile from the Framingham Study. *Stroke*, 22(3), 312-318.

Dufouil, C., Beiser, A., McLure, L. A., Wolf, P. A., Tzourio, C., Howard, V. J., ... & Seshadri, S. (2017). Revised Framingham stroke risk profile to reflect temporal trends. *Circulation*, 135(12), 1145-149.

AGE_FSRP_CORE1 – AGE_FSRP_CORE3

Variable name: age_fsrp_core1 – age_fsrp_core3

Description: Age component for FSRP at exam 1 – 3

| Code or Value | Description |
|---------------|---|
| 0 – 10 | Range of values |
| . | Did not attend core exam or out of bounds |

SBP_FSRP_CORE1 – SBP_FSRP_CORE3

Variable name: sbp_fsrp_core1 – sbp_fsrp_core3

Description: Systolic blood pressure component for FSRP at exam 1 – 3

| Code or Value | Description |
|---------------|---|
| 0 – 10 | Range of values |
| . | Did not attend core exam or out of bounds |

HRX_FSRP_CORE1 – HRX_FSRP_CORE3

Variable name: hrx_fsrp_core1 – hrx_fsrp_core3

Description: Anti-hypertensive medications usage component for FSRP at exam 1 – 3

| Code or Value | Description |
|---------------|---|
| 0 | No |
| 2 | Yes (Male) |
| 0 – 6 | Yes (Female) |
| . | Did not attend core exam or out of bounds |

DM_FSRP_CORE1 – DM_FSRP_CORE3**Variable name:** dm_fsrp_core1 – dm_fsrp_core3**Description:** History of diabetes component for FSRP at exam 1 – 3

| Code or Value | Description |
|---------------|---|
| 0 | No |
| 2 | Yes (Male) |
| 3 | Yes (Female) |
| . | Did not attend core exam or out of bounds |

SMOKING_FSRP_CORE1 – SMOKING_FSRP_CORE3**Variable name:** smoking_fsrp_core1 – smoking_fsrp_core3**Description:** Current smoker component for FSRP at exam 1 – 3

| Code or Value | Description |
|---------------|---|
| 0 | No |
| 3 | Yes |
| . | Did not attend core exam or out of bounds |

PRECVD_FSRP_CORE1 – PRECVD_FSRP_CORE3**Variable name:** precvd_fsrp_core1 – precvd_fsrp_core3**Description:** History of CVD component for FSRP at exam 1 – 3

| Code or Value | Description |
|---------------|---|
| 0 | No |
| 2 | Yes (Female) |
| 3 | Yes (Male) |
| . | Did not attend core exam or out of bounds |

Note:

The definition of CVD is not the same as that of the variable “first_chd_date”.

This variable includes the following conditions:

- *Myocardial Infarction*
- *Angina Pectoris*
- *Coronary Heart Disease*

- **Cardiovascular Disease**
- **Coronary Insufficiency**
- **Intermittent Claudication**
- **Congestive Heart Failure**

This aligns with the code values of (1, 2, 3, 4, 5, 6, 7, 8, 9, 21, 22, 23, 24, 26, 30, 39, 40, 41, 49) for variable “event” in the verified Sequence of Events (SOE) Cardiovascular Endpoints dataset.

Refer to publication for more information

PREAF_FSRP_CORE1 – PREAF_FSRP_CORE3

Variable name: preaf_fsrp_core1 – preaf_fsrp_core3

Description: History of AF component for FSRP at exam 1 – 3

| Code or Value | Description |
|----------------------|---|
| 0 | No |
| 4 | Yes (Male) |
| 6 | Yes (Female) |
| . | Did not attend core exam or out of bounds |

DLVH_FSRP_CORE1 – DLVH_FSRP_CORE3

Variable name: dlvh_fsrp_core1 – dlvh_fsrp_core3

Description: Ventricular hypertrophy component for FSRP at exam 1 – 3

| Code or Value | Description |
|----------------------|---|
| 0 | No |
| 4 | Yes (Female) |
| 6 | Yes (Male) |
| . | Did not attend core exam or out of bounds |

FSRP_CORE1 – FSRP_CORE3**Variable name:** fsrp_core1 – fsrp_core3**Description:** FSRP at exam 1 – 3
$$\text{fsrp_core} = \text{age_fsrp_core} + \text{sbp_fsrp_core} + \text{hrx_fsrp_core} + \text{dm_fsrp_core} + \text{smoking_fsrp_core} + \text{precvd_fsrp_core} + \text{preaf_fsrp_core} + \text{dlvh_fsrp_core}$$

| Code or Value | Description |
|---------------|---|
| 0 – 44 | Range of values |
| . | Did not attend core exam or out of bounds |

Note: This derived variable is only available when all components of the FSRP are available. Refer to publication for more information

REVISED_FSRP_CORE1 – REVISED_FSRP_CORE3**Variable name:** revised_fsrp_core1 – revised_fsrp_core3**Description:** Revised FSRP at exam 1 – 3
$$\text{revised_fsrp_core} = \text{age_fsrp_core} + \text{sbp_fsrp_core} + \text{hrx_fsrp_core} + \text{dm_fsrp_core} + \text{smoking_fsrp_core} + \text{precvd_fsrp_core} + \text{preaf_fsrp_core}$$

| Code or Value | Description |
|---------------|---|
| 0 – 44 | Range of values |
| . | Did not attend core exam or out of bounds |

Note: This derived variable is only available when all components of the FSRP are available. Refer to publication for more information

CESD_CORE1_1 — CESD_CORE3_1

Variable name: CESD_core1_1 — CESD_core3_1

Description: CESD: I was bothered by things that usually don't bother me (at exam 1 — 3)

| Code or Value | Description |
|---------------|-------------|
| 0 | <1 day |
| 1 | 1 – 2 days |
| 2 | 3 – 4 days |
| 3 | 5 – 7 days |
| . | Unknown |

CESD_CORE1_2 — CESD_CORE3_2

Variable name: CESD_core1_2 — CESD_core3_2

Description: CESD: I did not feel like eating: my appetite was poor (at exam 1 — 3)

| Code or Value | Description |
|---------------|-------------|
| 0 | <1 day |
| 1 | 1 – 2 days |
| 2 | 3 – 4 days |
| 3 | 5 – 7 days |
| . | Unknown |

CESD_CORE1_3 — CESD_CORE3_3

Variable name: CESD_core1_3 — CESD_core3_3

Description: CESD: I felt that I could not shake off the blues, even with the help of family and friends (at exam 1 — 3)

| | |
|---|------------|
| 0 | <1 day |
| 1 | 1 – 2 days |
| 2 | 3 – 4 days |
| 3 | 5 – 7 days |
| . | Unknown |

CESD_CORE1_4 — CESD_CORE3_4

Variable name: CESD_core1_4 — CESD_core3_4

Description: CESD: I felt that I was just as good as other people (at exam 1 — 3)

Center for Epidemiologic Studies Depression Scale (CES-D)

| | |
|---|------------|
| 0 | <1 day |
| 1 | 1 – 2 days |
| 2 | 3 – 4 days |
| 3 | 5 – 7 days |
| . | Unknown |

CESD_CORE1_5 — CESD_CORE3_5

Variable name: CESD_core1_5 — CESD_core3_4

Description: CESD: I had trouble keeping my mind on what I was doing (at exam 1 — 3)

| | |
|---|------------|
| 0 | <1 day |
| 1 | 1 – 2 days |
| 2 | 3 – 4 days |
| 3 | 5 – 7 days |
| . | Unknown |

CESD_CORE1_6 — CESD_CORE3_6

Variable name: CESD_core1_6 — CESD_core3_6

Description: CESD: I felt depressed (at exam 1 — 3)

| | |
|---|------------|
| 0 | <1 day |
| 1 | 1 – 2 days |
| 2 | 3 – 4 days |
| 3 | 5 – 7 days |
| . | Unknown |

CESD_CORE1_7 — CESD_CORE3_7

Variable name: CESD_core1_7 — CESD_core3_7

Description: CESD: I felt that everything I did was an effort (at exam 1 — 3)

| | |
|---|------------|
| 0 | <1 day |
| 1 | 1 – 2 days |
| 2 | 3 – 4 days |
| 3 | 5 – 7 days |
| . | Unknown |

CESD_CORE1_8 — CESD_CORE3_8

Variable name: CESD_core1_8 — CESD_core3_8

Description: CESD: I felt hopeful about the future (at exam 1 — 3)

| | |
|---|------------|
| 0 | <1 day |
| 1 | 1 – 2 days |
| 2 | 3 – 4 days |
| 3 | 5 – 7 days |
| . | Unknown |

CESD_CORE1_9 — CESD_CORE3_9

Variable name: CESD_core1_9 — CESD_core3_9

Description: CESD: I thought my life had been a failure (at exam 1 — 3)

| | |
|---|------------|
| 0 | <1 day |
| 1 | 1 – 2 days |
| 2 | 3 – 4 days |
| 3 | 5 – 7 days |
| . | Unknown |

CESD_CORE1_10 — CESD_CORE3_10

Variable name: CESD_core1_10 — CESD_core3_10

Description: CESD: I felt fearful (at exam 1 — 3)

| | |
|---|------------|
| 0 | <1 day |
| 1 | 1 – 2 days |
| 2 | 3 – 4 days |
| 3 | 5 – 7 days |
| . | Unknown |

CESD_CORE1_11 — CESD_CORE3_11

Variable name: CESD_core1_11 — CESD_core3_11

Description: CESD: My sleep was restless (at exam 1 — 3)

| | |
|---|------------|
| 0 | <1 day |
| 1 | 1 – 2 days |
| 2 | 3 – 4 days |
| 3 | 5 – 7 days |

Center for Epidemiologic Studies Depression Scale (CES-D)

| | |
|---|---------|
| . | Unknown |
|---|---------|

CESD_CORE1_12 — CESD_CORE3_12

Variable name: CESD_core1_12 — CESD_core3_12

Description: CESD: I was happy (at exam 1 — 3)

| | |
|---|------------|
| 0 | <1 day |
| 1 | 1 – 2 days |
| 2 | 3 – 4 days |
| 3 | 5 – 7 days |
| . | Unknown |

CESD_CORE1_13 — CESD_CORE3_13

Variable name: CESD_core1_13 — CESD_core3_13

Description: CESD: I talked less than usual (at exam 1 — 3)

| | |
|---|------------|
| 0 | <1 day |
| 1 | 1 – 2 days |
| 2 | 3 – 4 days |
| 3 | 5 – 7 days |
| . | Unknown |

CESD_CORE1_14 — CESD_CORE3_14

Variable name: CESD_core1_14 — CESD_core3_14

Description: CESD: I felt lonely (at exam 1 — 3)

| | |
|---|------------|
| 0 | <1 day |
| 1 | 1 – 2 days |
| 2 | 3 – 4 days |
| 3 | 5 – 7 days |
| . | Unknown |

CESD_CORE1_15 — CESD_CORE3_15

Variable name: CESD_core1_15 — CESD_core3_15

Description: CESD: People were unfriendly (at exam 1 — 3)

| | |
|---|--------|
| 0 | <1 day |
|---|--------|

Center for Epidemiologic Studies Depression Scale (CES-D)

| | |
|---|------------|
| 1 | 1 – 2 days |
| 2 | 3 – 4 days |
| 3 | 5 – 7 days |
| . | Unknown |

CESD_CORE1_16 — CESD_CORE3_16

Variable name: CESD_core1_16 — CESD_core3_16

Description: CESD: I enjoyed life (at exam 1 — 3)

| | |
|---|------------|
| 0 | <1 day |
| 1 | 1 – 2 days |
| 2 | 3 – 4 days |
| 3 | 5 – 7 days |
| . | Unknown |

CESD_CORE1_17 — CESD_CORE3_17

Variable name: CESD_core1_17 — CESD_core3_17

Description: CESD: I had crying spells (at exam 1 — 3)

| | |
|---|------------|
| 0 | <1 day |
| 1 | 1 – 2 days |
| 2 | 3 – 4 days |
| 3 | 5 – 7 days |
| . | Unknown |

CESD_CORE1_18 — CESD_CORE3_18

Variable name: CESD_core1_18 — CESD_core3_18

Description: CESD: I felt sad (at exam 1 — 3)

| | |
|---|------------|
| 0 | <1 day |
| 1 | 1 – 2 days |
| 2 | 3 – 4 days |
| 3 | 5 – 7 days |
| . | Unknown |

CESD_CORE1_19 — CESD_CORE3_19

Variable name: CESD_core1_19 — CESD_core3_19

Center for Epidemiologic Studies Depression Scale (CES-D)

Description: CESD: I felt that people disliked me (at exam 1 — 3)

| | |
|---|------------|
| 0 | <1 day |
| 1 | 1 – 2 days |
| 2 | 3 – 4 days |
| 3 | 5 – 7 days |
| . | Unknown |

CESD_CORE1_20 — CESD_CORE3_20

Variable name: CESD_core1_20 — CESD_core3_20

Description: CESD: I could not "get going" (at exam 1 — 3)

| | |
|---|------------|
| 0 | <1 day |
| 1 | 1 – 2 days |
| 2 | 3 – 4 days |
| 3 | 5 – 7 days |
| . | Unknown |

CESD_TOTAL_CORE1 — CESD_TOTAL_CORE3

Variable name: CESD_total_core1 — CESD_total_core3

Description: CESD total score at exam 1 — 3

Note: The total CES-D scores are calculated for participants who answered all 20 questions.

NEUROPATH_AVAIL

Variable name: neuropath_avail

Description: Availability of brain autopsy data

| Code or Value | Description |
|---------------|-------------|
| 0 | No |
| 1 | Yes |

NPBRAAK_NEUROPATH

Variable name: NPBRAAK_NEUROPATH

Description: Braak stage for neurofibrillary degeneration (B score). Use standard blocks to assign phase.

| Code or Value | Description |
|---------------|--|
| 0 | Stage 0: AD-type neurofibrillary degeneration not present (B0) |
| 1 | Stage I (B1) |
| 2 | Stage II (B2) |
| 3 | Stage III (B3) |
| 4 | Stage IV (B4) |
| 5 | Stage V (B5) |
| 6 | Stage VI (B6) |
| . | Missing |

NIA_REAGAN_NEUROPATH

Variable name: NIA_REAGAN_NEUROPATH

Description: Derived NIA-Reagan Criteria

| Code or Value | Description |
|---------------|--|
| 1 | High likelihood dementia due to AD |
| 2 | Intermediate likelihood dementia due to AD |
| 3 | Low likelihood dementia due to AD |
| 4 | Criteria not met |
| . | Missing |

AD_NEUROPATH

Variable name: AD_NEUROPATH

Description: Neuropathological presence of Alzheimer's disease

| Code or Value | Description |
|---------------|-------------|
| 0 | No |
| 1 | Yes |
| . | Missing |

RELATAUO_NEUROPATH

Variable name: RELATAUO_NEUROPATH

Description: Primary age-related tauopathy (PART; requires NFTs present with Braak stage <= IV, usually III or lower)

| Code or Value | Description |
|---------------|--------------------------|
| 0 | Not present |
| 1 | Yes (Crary et al., 2014) |
| . | Missing |

LBD_NEUROPATH

Variable name: LBD_NEUROPATH

Description: Neuropathological presence of Lewy body disease

| Code or Value | Description |
|---------------|---------------------------|
| 0 | Not present |
| 1 | LBD Brainstem predominant |
| 2 | LBD limbic/neocortical |
| . | Missing |

MND_NEUROPATH

Variable name: MND_NEUROPATH

Description: Neuropathological presence of ALS/Motor neuron disease

| Code or Value | Description |
|---------------|--|
| 0 | Not present |
| 1 | Yes, with TDP-43 inclusions in motor neurons |
| 2 | Yes, with FUS inclusions in motor neurons |
| 3 | Yes, with SOD1 inclusions in motor neurons |
| 4 | Yes, with other inclusions |
| 5 | Yes, with no specific inclusions |
| 8 | Not assessed |
| . | Missing |

Appendix

| Generation 3 Cohort (idtype =3) | | | | |
|---------------------------------|-----------------|-----------|----------|-------------------------|
| Exam # | Exam Date Range | Age Range | Mean Age | Total # of Participants |
| 1 | 2002-2005 | 19-71 | 40 | 4095 |
| 2 | 2008-2011 | 24-78 | 47 | 3411 |
| 3 | 2016-2019 | 32-84 | 54 | 3171 |

| New Offspring Spouse Cohort (idtype=2) | | | | |
|--|-----------------|-----------|----------|-------------------------|
| Exam # | Exam Date Range | Age Range | Mean Age | Total # of Participants |
| 1 | 2002-2005 | 47-85 | 65 | 103 |
| 2 | 2008-2011 | 53-90 | 70 | 68 |
| 3 | 2016-2019 | 60-93 | 75 | 56 |

| Omni 2 Cohort (idtype=72) | | | | |
|---------------------------|-----------------|-----------|----------|-------------------------|
| Exam # | Exam Date Range | Age Range | Mean Age | Total # of Participants |
| 1 | 2003-2005 | 20-80 | 43 | 410 |
| 2 | 2009-2011 | 25-85 | 48 | 321 |
| 3 | 2016-2019 | 32-89 | 54 | 294 |

| Revisions | |
|------------------|--|
| 08/03/2018 | Original Draft <ul style="list-style-type: none"> • Coding Manual of Master_Dataset_2372_080318 • Dataset: Master_Dataset_2372_080318 |
| 08/13/2018 | Revision of 08/03/2018 draft <ul style="list-style-type: none"> • Minor typo/grammatical/format corrections • Addition of “Derived Variables” section with SAS code embedded • Added information to cover page of manual • Amended date of “Last Updated” • Added user advice to “Neuropsychological Test”, “Digital Clock Drawing Test” and “MRI Brain Scans” sections • Added user advice to the variable Last_Contacted_Date under “Verified Survival Status (Alive/Dead)” • Coding manual has been renamed as “Coding Manual of Master_Dataset_2372_081318” • Dataset has been renamed as “Master_Dataset_2372_081318” |
| 08/21/2018 | Revision of 08/13/2018 draft <ul style="list-style-type: none"> • Minor typo/grammatical/format corrections • Coding manual has been renamed as “Coding Manual of Master_Dataset_2372_082118” • Dataset has been renamed as “Master_Dataset_2372_082118” |
| 08/30/2018 | Revision of 08/21/2018 draft <ul style="list-style-type: none"> • Added information regarding interpretation of the range values of the “Neuropsychological Test” section in the introductory summary • Minor typo/grammatical/format corrections • Coding manual has been renamed as “Coding Manual of Master_Dataset_2372_082118 (Last Updated 083018)” • No change to dataset or dataset name |
| Feb 2021 | Revision of 08/30/2018 draft <ul style="list-style-type: none"> • Added variables “idtype” and “id” |

| | |
|------------|---|
| | <ul style="list-style-type: none"> Dataset has been renamed as "Curated_cohort2372_022021" Available in both SAS and csv files |
| Nov 2021 | <p>Revision of Feb 2021</p> <ul style="list-style-type: none"> Added selected variables from FHS core exam 3 Added dementia review data Updated neuropsychological summary scores and date-related variables up to year 2019 Dataset has been renamed as "curated2372_11_2021" Available in both SAS and csv files |
| Feb 2023 | <p>Revision of Nov 2021 draft</p> <ul style="list-style-type: none"> Included data up to year 2022 Simplify coding manual format to reduce the length Renamed all NP test related variables using suffix "_NP" for clearer annotation Added more clinical outcomes and related variables Added neuropath section Removed selected medications and biomarker data till harmonized variables are created Typo/grammatical/format corrections Provided SAS code to include list of requested datasets to generate similar curated dataset format |
| March 2023 | <p>Revision of Feb 2023 draft</p> <ul style="list-style-type: none"> Updated neuropath section Typo/grammatical/format corrections |
| April 2023 | <p>Revision of March 2023 draft</p> <ul style="list-style-type: none"> Included prevalence variables Typo/grammatical/format corrections |
| May 2023 | <p>Revision of April 2023 draft</p> <ul style="list-style-type: none"> Included FHS CVD Risk Score FSRP Updated the following section: <ul style="list-style-type: none"> NP summary scores Matching NP dates with core exam dates Dementia Review Sequence of event (CHD, Stroke) Atrial Fibrillation |

| | |
|------------|---|
| | <ul style="list-style-type: none"> ○ Prevalence ○ Survival Information • Typo/grammatical/format corrections |
| July 2023 | Revision of May 2023 draft <ul style="list-style-type: none"> • Correction of date format and missing EDDD values |
| Feb 2024 | Revision of July 2023 draft <ul style="list-style-type: none"> • Major update to outcome and mortality data <ul style="list-style-type: none"> ○ Sequence of event (CHD, Stroke) ○ Atrial Fibrillation ○ Survival Information • Added derived variable for Race • Added derived variable for Education • Added history of smoking derived variable • Typo/grammatical/format corrections |
| March 2024 | Revision of Feb 2024 draft <ul style="list-style-type: none"> • Format correction to neuropath variables • Update of neuropath variables to include data up to 2023 • Typo/grammatical/format corrections of manual |
| April 2024 | Revision of March 2024 draft <ul style="list-style-type: none"> • Update of dementia review variables to include data up to 2023 |