Atherosclerosis Risk in Communities Study

NCS Stages 2/3

DERIVED VARIABLE DICTIONARY
DERIVE_NCS51 SAS DATASET
VERSION 51
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Prepared by the Collaborative Studies Coordinating Center

ARIC NCS Stages 2/3 Derived Variable Dictionary

1. ADMINISTRATIVE

1.1 SUBJECTID (Subject ID)

Type: character; length: $7.

1.2 ID (ARIC ID - same as SUBJECTID)

The historical participant identifier from visits 1-4 is ID. The value of ID is the same value as SUBJECTID. Use ID when merging visit 5/NCS stage 1 data with datasets from previous visits necessary for longitudinal analyses.

Type: character; length: $7.

1.3 CENTER (Field Center)

Character variable with four possible values derived from the enrollment site:

F: Forsyth County, North Carolina
J: The city of Jackson, Mississippi
M: Selected northwestern suburbs of Minneapolis, Minnesota
W: Washington County, Maryland

Algorithm: First letter of the subject ID.

Type: character; length: $1.

2. SOCIO-DEMOGRAPHIC

2.1 GENDER (Sex)

Categorical variable that describes the participant's gender: M=Male, F=Female.

Algorithm:
Gender = V52

Type: character, length=$1.

Source variable(s): V52 from V5INFO.

2.2 RACEGRP (Race)

Categorical variable which describes the participant's race: A=Asian, B=Black, I=Native American, W=White.

Algorithm:
RACEGRP = V51

Type: character, length=$1.

Source variable(s): V51 from V5INFO dataset

2.3 V5AGE51 (Visit 5 Age)

Participant's age at the time of the visit 5 exam calculated from the BIRTHDAT variable.

Algorithm:
If V5DATE51>.z and BIRTHDAT>.z
then V5AGE51=floor((intck('month', BIRTHDAT,V5DATE51)-(day(V5DATE51) < day(BIRTHDAT)))/12);

Type: numeric.

Source variable(s): BIRTHDAT (Date of Birth), V5DATE51

3. NCS STAGE 2/3 SAMPLING WEIGHTS

3.1 Stage_2_complete (Stage 2 Complete (1=Yes,0=No))

Categorical variable indicating completion of stage 2.

Algorithm: Stage 2 is complete if the PNE form is present in data management system including those forms where FormStatus=Permanently Missing OR where the Dementia Classification Committee has reviewed the PPTs neurocognitive data and returned a diagnosis (REVIEWERSYND51>missing).

Type: numeric; valid values: 1= Yes 0=No

3.2 Stage_3_complete (Stage 3 Complete MRI data present)

Categorical variable indicating completion of stage 3 based on the presence of MRI data.

Type: numeric; valid values: 1= Yes 0=No

Sampling Weights for NCS Stages 2/3

ARIC Cohort Visit 5 participants were selected to Stages 2/3 under a stratified random sampling plan designed to oversample for participants with evidence of cognitive impairment ("atypical"). Details of the selection process and the definition of atypical are provided in Manual 17. In brief, 100% of atypical participants (low MMSE score, or low Z-score on any of 5 cognitive domains and definite cognitive decline) as well as 100% of ARIC Brain MRI participants were invited to Stage 2. A random sample of the remaining participants was also invited. Sampling fractions varied by field center and age group (<80, ≥80 years) and were selected to achieve a sample size of 2000 Stage 3 participants. The final sampling fractions are provided in the table. The weights were calculated from the empirical sampling fractions.

Sampling Fractions for Stage 3 Participants

Center	Age Group	
	< 80	**≥80**
Forsyth	0.18	0.36
Jackson	0.65	1.0
Minneapolis	0.23	0.46
Washington	0.39	0.78

3.3 S2BASEWT51 (NCS Stage 2 sampling base weight)
The Stage 2 base weight is the inverse of the empirical sampling fractions.

Type: numeric

3.4 S2REFADJ51 (NCS Stage 2 sampling weight adjustment for refusal)
The Stage 2 adjustment for refusal is the inverse of the probability that a sampled participant agrees to participate and completes the exam. These field-center specific probabilities may be estimated by the observed probability of exam completion.

Type: numeric

3.5 S2SAMWT51 (NCS Stage 2 sampling weight)
The Stage 2 sampling weights are the product of a base weight (S2BASEWT51) and an adjustment for refusal (S2REFADJ51).

Type: numeric

3.6 S3BASEWT51 (NCS Stage 3 sampling base weight)
The base weights for Stage 3 are the inverse of the proportion of participants completing clinic visits who were selected to Stage 2. The weights were then normalized to the number of participants completing clinic visits.

Type: numeric

3.7 S3REFADJ51 (NCS Stage 3 sampling weight adjustment for refusal)
The Stage 3 adjustment for refusal is the inverse of the field center-specific probability of completing the exam.

Type: numeric

3.8 S3SAMWT51 (NCS Stage 2 sampling weight (normalized to clinic visits))
The Stage 3 sampling weights are the product of a base weight (S3BASEWT51) and an adjustment for refusal (S3REFADJ51).

Type: numeric

4. MCI/DEMENTIA REVIEW

Manual 17 from the ARIC web site contains information about the MCI/dementia review process (https://www2.cscc.unc.edu/aric/aric-NCS-manuals). The classifications were done by either a 1-person or 2-person review. Each reviewer could select a primary etiology and up to 2 secondary etiologies. In the instance where two reviewers did not agree on syndromic or primary etiology or the presence of CVD, an adjudicator was assigned to the classification. The adjudicator's diagnoses superseded the initial review diagnoses. The table below describes the possible categories for etiologic diagnoses.

Etiologic Diagnoses

1. Alzheimer Disease MCI/Dementia – The diagnosis of Alzheimer's disease as an etiologic diagnosis of MCI or Dementia in ARIC NCS as a primary diagnosis is a clinical one and is based on the presence of the cognitive syndrome that is not of abrupt onset and includes memory impairment, and the absence of features of other specific diagnoses sufficient to cause the cognitive impairment, such as those detailed below. The criteria are those of McKhann et al 2011.
2. Cerebrovascular disease (CVD) related MCI/Dementia – The elements ARIC will use for this diagnosis include (1) History of stroke temporally related to an abrupt onset of the cognitive disorder, (2) bilateral or multiple infarcts or extensive white matter hyperintensities on imaging and (3) physical examination evidence of a typical stroke pattern. These elements are defined below:
   a. As per NINDS-AIREN criteria, the lag between the onset or stepwise decline in cognition and the stroke event should be <6 months to diagnose cognitive impairment temporally related to a stroke. We will not have that level of detail, but "history of stroke" plus "abrupt onset" of cognitive impairment as recorded in the Hachinski Ischemic Scale.
   b. The criteria for "bilateral or multiple" infarcts is unfortunately not easy to define further, but erring on the side of conservatism, only the most flagrant cases (at least 2 distinct large or lacunar infarcts) plus a history of stroke will be considered as per the Table on the next page.
   c. Similarly, the NINDS-AIREN criteria for severe white matter hyperintensity (WMH) burden is neither precisely defined nor empirically validated. To be conservative, we will require the amount of WMH to involve >50% of the circumference of the coronal radiata – see Figure below. Note that we have classified WMH in the same category as a "single" infarct for the purposes of classification in the Table on the next page
   d. Positive physical examination findings are those that demonstrate an asymmetric corticospinal tract pattern of weakness + reflex changes, or another pattern typical of cerebrovascular disease.

3. Lewy Body Disease – A diagnosis of Lewy Body disease as a primary diagnosis should be made when there are at least 2 of the following: Diagnosed Parkinson's disease (by history or exam; or on anti-Parkinson medications), REM sleep behavior disorder or excessive daytime sleepiness, or hallucinations. If only one of the features is present a diagnosis of AD primary and Lewy Body disease secondary should be made.
4. Depression - If 11-item CES-D > 8 (major depression), cognitive disorder could be attributed to depression (See Kohout FJ, Berkman LF, Evans DA, Cornoni-Huntley. Two shorter forms of the CES-D (Center for Epidemiological Studies Depression) depression symptoms index. J Aging Health 1993; 5:179-193.
5. Other major psychiatric disorders – if clinician believes that schizophrenia, bipolar disease could be the cause of cognitive disorder
6. Alcohol-related: although this diagnosis is notoriously difficult, instances of documented Wernicke encephalopathy or Korsakoff syndrome would fit this diagnosis. Heavy alcohol use with documented complications of DUI, alcoholic blackouts, withdrawal seizures, as well as a DSMIV diagnosis of chronic alcohol abuse would be the minimum features necessary to apply this diagnosis.
7. Medication-related – if reviewing clinician believes that a medication could be contributing to or the sole cause of cognitive impairment
8. Other Neurodegenerative disorder. This should be reserved for cases with certain diagnoses such as PSP, corticobasal syndrome, Huntington disease, HIV dementia, i.e. other than AD or LBD.
9. Trauma related – In situations where the history reveals a major instance of head trauma with loss of consciousness and clear documentation of cognitive decline coincident with the trauma, this diagnosis could be used.
10. Systemic disorder with major impact on brain function - e.g. severe heart failure, active cancer, severe connective tissue disease
11. Cognitive disorder of uncertain etiology.

4.1 DEMRVTYPE51 (NCS MCI Dementia Review Type)

Identifies the MCI/dementia review type.

Type: character; S=single reviewer, D=two reviewers, and A=adjudicated review

Source variable(s): DCF1

4.2 DEMETIO51 (NCS MCI Dementia Etiology Determined by Review)

Identifies the etiology from the MCI/dementia review. This variable combines information about primary and secondary etiologies.

Type: numeric; AD=Alzheimer's disease, CVD=cerebrovascular disease, LBD=Lewy Body disease

1=Pure AD
2=AD with CVD identified from either Adjudicator or 1 reviewer
3=AD with LBD (no CVD) identified from either Adjudicator or 1 reviewer
4=AD with other (no CVD, LBD) identified from either Adjudicator or 1 reviewer
5=Pure CVD
6=CVD with AD identified from either Adjudicator or 1 reviewer
7=CVD with LBD (no AD) identified from either Adjudicator or 1 reviewer
8=CVD with other (no AD, LBD) identified from either Adjudicator or 1 reviewer
9=Other
10=Unknown
11=N/A

Source variable(s): DCF11

4.3 REVIEWERSYND51 (Reviewer syndromic dx)

Identifies the syndromic diagnosis by the MCI/dementia reviewer.

Type: character; N=normal, M=mild cognitive impairment, D=dementia, and U=undetermined.

Source variable(s): DCF3

4.4 REVIEWERPRIM51 (Primary etiologic dx)

Identifies the primary etiologic diagnosis by the MCI/dementia reviewer. The valid values are 1-11, listed in the table above. Primary diagnosis must be in agreement for reviews by 2-reviewers.

Type: numeric, 1-11.

Source variable(s): DCF11

4.5 SECETIODX151 (First secondary etiologic dx)

Identifies the secondary etiologic diagnosis by the MCI/dementia reviewer (primary reviewers or adjudicators). The table describes the alternatives for the secondary etiologies; valid values are 1-10. This variable is completed when a first secondary etiologic diagnosis is selected and there is either a single reviewer, 2 reviewers who agree, or an adjudicator.

Type: numeric, 1-10.

Source variable(s): DCF11

4.6 SECETIODX251 (Second secondary etiologic dx)

Identifies the secondary etiologic diagnosis by the MCI/dementia reviewer (primary reviewers or adjudicators). The table describes the alternatives for the secondary

etiologies; valid values are 1-10. This variable is completed when a second secondary etiologic diagnosis is selected and there is either a single reviewer, 2 reviewers who agree, or an adjudicator.

Type: numeric, 1-10.

Source variable(s): DCF11

4.7 SECETIODX351 (Third secondary etiologic dx)

Identifies the secondary etiologic diagnosis by the MCI/dementia reviewer (primary reviewers). The table describes the alternatives for the secondary etiologies; valid values are 1-10. This variable is completed when a first secondary etiologic diagnosis is selected and the 2 reviewers disagree.

Type: numeric, 1-10.

Source variable(s): DCF11

4.8 SECETIODX451 (Fourth secondary etiologic dx)

Identifies the secondary etiologic diagnosis by the MCI/dementia reviewer (primary reviewers). The table describes the alternatives for the secondary etiologies; valid values are 1-10. This variable is completed when a second secondary etiologic diagnosis is selected and the 2 reviewers disagree.

Type: numeric, 1-10.

Source variable(s): DCF11

4.9 DEMSEAD51 (NCS MCI Dementia Secondary Etiology – Alzheimer's disease)

Identifies the secondary etiologic diagnosis by the MCI/dementia reviewers. A non-missing value indicates Alzheimer's disease (AD) was identified in the review. The value of the variable gives information about which reviewer identified the etiology.

Type: character, SR=single reviewer identified AD, DR=one of 2 reviewers identified AD, DRR=both reviewers identified AD, A=adjudicator identified AD, NA=case reviewed but AD not identified, missing if case not reviewed.

Source variable(s): DCF11

4.10 DEMSECVD51 (NCS MCI Dementia Secondary Etiology – Cerebrovascular disease)

Identifies the secondary etiologic diagnosis by the MCI/dementia reviewers. A non-missing value indicates cerebrovascular disease (CVD) was identified in the review. The value of the variable gives information about which reviewer identified the etiology.

Type: character, SR=single reviewer identified CVD, DR=one of 2 reviewers identified CVD, DRR=both reviewers identified CVD, A=adjudicator identified CVD, NA=case reviewed but CVD not identified, missing if case not reviewed.

Source variable(s): DCF11

4.11 DEMSELBD51 (NCS MCI Dementia Secondary Etiology – Lewy Body disease)

Identifies the secondary etiologic diagnosis by the MCI/dementia reviewers. A non-missing value indicates Lewy Body disease (LBD) was identified in the review. The value of the variable gives information about which reviewer identified the etiology.

Type: character, SR=single reviewer identified LBD, DR=one of 2 reviewers identified LBD, DRR=both reviewers identified LBD, A=adjudicator identified LBD, NA=case reviewed but LBD not identified, missing if case not reviewed.

Source variable(s): DCF11

4.12 DEMSEOND51 (NCS MCI Dementia Secondary Etiology – Other neurodegenerative disorder)

Identifies the secondary etiologic diagnosis by the MCI/dementia reviewers. A non-missing value indicates other neurodegenerative disorder (OND) was identified in the review. The value of the variable gives information about which reviewer identified the etiology.

Type: character, SR=single reviewer identified OND, DR=one of 2 reviewers identified OND, DRR=both reviewers identified OND, A=adjudicator identified OND, NA=case reviewed but OND not identified, missing if case not reviewed.

Source variable(s): DCF11

4.13 DEMSEDCI51 (NCS MCI Dementia Secondary Etiology – Depression-related cognitive impairment)

Identifies the secondary etiologic diagnosis by the MCI/dementia reviewers. A non-missing value indicates depression-related cognitive impairment (DCI) was identified in the review. The value of the variable gives information about which reviewer identified the etiology.

Type: character, SR=single reviewer identified DCI, DR=one of 2 reviewers identified DCI, DRR=both reviewers identified DCI, A=adjudicator identified DCI, NA=case reviewed but DCI not identified, missing if case not reviewed.

Source variable(s): DCF11

4.14 DEMSEOMPDCI51 (NCS MCI Dementia Secondary Etiology – – Other major psychiatric disorder-related cognitive impairment)

Identifies the secondary etiologic diagnosis by the MCI/dementia reviewers. A non-missing value indicates other major psychiatric disorder-related cognitive impairment (OMPDCI) was identified in the review. The value of the variable gives information about which reviewer identified the etiology.

Type: character, SR=single reviewer identified OMPDCI, DR=one of 2 reviewers identified OMPDCI, DRR=both reviewers identified OMPDCI, A=adjudicator identified OMPDCI, NA=case reviewed but OMPDCI not identified, missing if case not reviewed.

Source variable(s): DCF11

4.15 DEMSEALCI51 (NCS MCI Dementia Secondary Etiology – Alcohol-related cognitive impairment)

Identifies the secondary etiologic diagnosis by the MCI/dementia reviewers. A non-missing value indicates alcohol-related cognitive impairment (ALCI) was identified in the review. The value of the variable gives information about which reviewer identified the etiology.

Type: character, SR=single reviewer identified ALCI, DR=one of 2 reviewers identified ALCI, DRR=both reviewers identified ALCI, A=adjudicator identified ALCI, NA=case reviewed but ALCI not identified, missing if case not reviewed.

Source variable(s): DCF11

4.16 DEMSEMRCI51 (NCS MCI Dementia Secondary Etiology – Medication-related cognitive impairment)

Identifies the secondary etiologic diagnosis by the MCI/dementia reviewers. A non-missing value indicates medication-related cognitive impairment (MRCI) was identified in the review. The value of the variable gives information about which reviewer identified the etiology.

Type: character, SR=single reviewer identified MRCI, DR=one of 2 reviewers identified MRCI, DRR=both reviewers identified MRCI, A=adjudicator identified MRCI, NA=case reviewed but MRCI not identified, missing if case not reviewed.

Source variable(s): DCF11

4.17 DEMSESDRCI51 (NCS MCI Dementia Secondary Etiology – Systemic disease-related cognitive impairment)

Identifies the secondary etiologic diagnosis by the MCI/dementia reviewers. A non-missing value indicates systemic disease-related cognitive impairment (SDRCI) was identified in the review. The value of the variable gives information about which reviewer identified the etiology.

Type: character, SR=single reviewer identified SDRCI, DR=one of 2 reviewers identified SDRCI, DRR=both reviewers identified SDRCI, A=adjudicator identified SDRCI, NA=case reviewed but SDRCI not identified, missing if case not reviewed.

Source variable(s): DCF11

4.18 DEMSEHTRCI51 (NCS MCI Dementia Secondary Etiology – Head trauma-related cognitive impairment)

Identifies the secondary etiologic diagnosis by the MCI/dementia reviewers. A non-missing value indicates head trauma-related cognitive impairment (HTRCI) was identified in the review. The value of the variable gives information about which reviewer identified the etiology.

Type: character, SR=single reviewer identified HTRCI, DR=one of 2 reviewers identified HTRCI, DRR=both reviewers identified HTRCI, A=adjudicator identified HTRCI, NA=case reviewed but HTRCI not identified, missing if case not reviewed.

Source variable(s): DCF11

4.19 SECETIOREV1 (NCS MCI Dementia Secondary Etiology selected by Revr 1)

Identifies the secondary etiologic diagnoses by the MCI/dementia reviewer #1. A non-missing value indicates secondary etiologies were identified in the review. The value of the variable gives information about one or two diagnoses selected. Designation of Reviewer 1 and Reviewer 2 is arbitrary.

Algorithm: 2-letter character code for 1st secondary etiology concatenated to the 2-letter code for the 2nd secondary etiology. Example: if reviewer #1 selected AD and CVD then SECETIOREV1=ADCV.

Type: character

2-letter codes:
AD=Alzheimer's disease
CV=cerebrovascular disease
LB=Lewy Body disease
OD=other neurodegenerative disorder
DE= depression-related cognitive impairment
PD=other major psychiatric disorder-related cognitive impairment
AL=alcohol-related cognitive impairment
ME=medication-related cognitive impairment
SD=systemic disease-related cognitive impairment
HT=head trauma-related cognitive impairment

Source variable(s): DCF11

4.20 SECETIOREV2 (NCS MCI Dementia Secondary Etiology selected by Revr 2)

Identifies the secondary etiologic diagnoses by the MCI/dementia reviewer #2. A non-missing value indicates secondary etiologies were identified in the review. The value of the variable gives information about one or two diagnoses selected. Designation of Reviewer 1 and Reviewer 2 is arbitrary.

Algorithm: 2-letter character code for 1st secondary etiology concatenated to the 2-letter code for the 2nd secondary etiology. Example: if reviewer #2 selected AD and CVD then SECETIOREV2=ADCV.

Type: character

2-letter codes:
AD=Alzheimer's disease
CV=cerebrovascular disease
LB=Lewy Body disease
OD=other neurodegenerative disorder
DE= depression-related cognitive impairment
PD=other major psychiatric disorder-related cognitive impairment
AL=alcohol-related cognitive impairment
ME=medication-related cognitive impairment
SD=systemic disease-related cognitive impairment
HT=head trauma-related cognitive impairment

Source variable(s): DCF11

4.21 SECETIOREVA (NCS MCI Dementia Secondary Etiology selected by Adjudicator)

Identifies the secondary etiologic diagnoses by the MCI/dementia adjudicator. A non-missing value indicates secondary etiologies were identified in the review. The value of the variable gives information about one or two diagnoses selected.

Algorithm: 2-letter character code for 1st secondary etiology concatenated to the 2-letter code for the 2nd secondary etiology. Example: if the adjudicator selected AD and CVD then SECETIOREVA=ADCV.

Type: character

2-letter codes:
AD=Alzheimer's disease
CV=cerebrovascular disease
LB=Lewy Body disease
OD=other neurodegenerative disorder
DE= depression-related cognitive impairment
PD=other major psychiatric disorder-related cognitive impairment
AL=alcohol-related cognitive impairment
ME=medication-related cognitive impairment

SD=systemic disease-related cognitive impairment
HT=head trauma-related cognitive impairment

Source variable(s): DCF11

5. MRI

5.1 MRFdrop51 (PPT dropped from infarction dataset (MRF))

Numeric variable indicating if participant was dropped from the infarction dataset (MRF).
Format: 1=dropped from infarction dataset
.=participant still in infarction dataset

Algorithm:

If subjectID found in list then MRFdrop=1:
F210285 F263152 F282093 F311841 J168735 M175257 M182552 M210257 M227133
else MRFdrop=.

Type: Numeric

5.2 MRMdrop51 (PPT dropped from microhemorrhage infarction dataset (MRM))

Numeric variable indicating if participant was dropped from the infarction dataset (MRM).
Format: 1=dropped from infarction dataset
.=participant still in infarction dataset

Algorithm:

If subjectID found in list then MRMdrop=1:
F173868 F192328 F194883 F208205 F210285 F251917 F265542 F282093 F300080 J151291 J168735 J191979 J349817 M175257 M182552 M210257 M227133 M293693 W144559 W173672 W279291 W298108 W304408

else MRMdrop=.

Type: Numeric

5.3 MRSdrop51 (PPT dropped from freesurfer dataset (MRS))

Numeric variable indicating if participant was dropped from the freesurfer dataset (MRF).
Format: 1=dropped from freesurfer dataset
.=participant still in freesurfer dataset

Algorithm:

If subjectID found in list then MRSdrop=1:
F163366 F210285 F250386 J122515 J168735 J229308 J284984 J308085 J327218 M123869 M162907 M182552 M273101

else MRSdrop=.

Type: Numeric

5.4 MRWdrop51 (PPT dropped from WMH dataset)

Numeric variable indicating if participant was dropped from the WMH dataset
Format: 1=dropped from WMH dataset
.=participant still in WMH dataset

Algorithm: If subjectID found in list then MRWdrop=1:
F210285 F263152 F282093 F307650 F311841 J168735 M175257 M182552 M210257 M227133

else MRWdrop=.

Type: Numeric

5.5 FRFSCVOL51 (Freesurfer total frontal cortical volume (mm^3))

Numeric variable for the freesurfer total frontal cortical volume (mm^3)

Algorithm: FRFSCVOL51= mrs13 + mrs16 + mrs40 + mrs46 + mrs55 + mrs58 + mrs61 + mrs64 + mrs76 + mrs82 + mrs85 + mrs88 + mrs100

Source variables: mrs13, mrs16, mrs40, mrs46, mrs55, mrs58, mrs61, mrs64, mrs76, mrs82, mrs85, mrs88, mrs100

Type: Numeric

5.6 TEFSCVOL51 (Freesurfer total temporal cortical volume (mm^3))

Numeric variable for the freesurfer total temporal cortical volume (mm^3)

Algorithm: TEFSCVOL51= mrs10 + mrs22 + mrs25 + mrs31 + mrs49 + mrs52 + mrs94 + mrs103 + mrs106 + mrs124 + mrs127;

Source variables: mrs10, mrs22, mrs25, mrs31, mrs49, mrs52, mrs94, mrs103, mrs106, mrs124, mrs127;

Type: Numeric

5.7 OCFSCVOL51 (Freesurfer occipital cortical volume (mm^3))

Numeric variable for the freesurfer occipital cortical volume (mm^3)

Algorithm: OCFSCVOL51= mrs19 + mrs37 + mrs43 + mrs67;

Source variables: mrs19, mrs37, mrs43, mrs67;

Type: Numeric

5.8 PAFSCVOL51 (Freesurfer parietal cortical volume (mm^3))

Numeric variable for the freesurfer parietal cortical volume (mm^3)

Algorithm: PAFSCVOL51 = mrs28 + mrs34 + mrs70 + mrs73 + mrs79 + mrs91 + mrs97;

Source variables: mrs28, mrs34, mrs70, mrs73, mrs79, mrs91, mrs97;

Type: Numeric

5.9 DGWFSCVOL51 (Freesurfer deep grey cortical volume (mm^3))

Numeric variable for the freesurfer deep grey white cortical volume (mm^3)

Algorithm: DGWFSCVOL51 = mrs109 + mrs112 + mrs115 + mrs118 + mrs121;

Source variables: mrs109, mrs112, mrs115, mrs118, mrs121;

Type: Numeric

5.10 VENTVOL51 (VentVol lobe volume (mm^3))

Numeric variable for the VentVol lobe volume (mm^3)

Algorithm: VENTVOL51= mrs128;

Source variables: mrs128;

Type: Numeric

5.11 ETIV51 (Estimated total intracranial volume (mm^3))

Numeric variable for the estimated total intracranial volume (mm^3)

Algorithm: ETIV51 = mrs129;

Source variables: mrs129;

Type: Numeric

5.12 ADSIGREGVOL51 (Total AD signature region volume (mm^3))

Numeric variable for total AD signature region volume (mm^3)

Algorithm: ADSIGREGVOL51 = mrs124 + mrs52 + mrs22 + mrs28 + mrs79 + mrs19;

Source variables: mrs124, mrs52, mrs22, mrs28, mrs79, mrs19;

Type: Numeric

5.13 MRIINELIGIBLE51 (Ineligible for MRI)

Categorical variability indicating ineligibility for MRI

Type: Numeric

5.14 MRIREFUSAL51 (Refused MRI)

Categorical variability indicating participant refused MRI

Type: Numeric

5.15 CMHFREQ51 (Frequency of definite microhemorrhage)

Numeric variable providing frequency of definite microhemorrhages.

Algorithm: Count (MRM6=MCH AND MRM7='definite')

Source Variables: MRM6, MRM7

Type: Numeric

5.16 SUPERSIDFREQ51 (Frequency of superficial siderosis)

Numeric variable providing frequency of superficial siderosis.

Algorithm: Count (MRM6=SS AND MRM7='definite')

Source Variables: MRM6, MRM7

Type: Numeric

5.17 NOFINDMRM51 (1=No MCH/SS 0=MCH/SS found)

Indicator variable for the lack of microhemorrhages or superficial siderosis.
Format: 1= no microhemorrhage or superficial siderosis present, 0=microhemorrhage or superficial siderosis present

Algorithm: if (MRM6='mch' and MRM7='definite') or (MRM6='ss' and MRM7='definite') then NOFINDMRM51=0
ELSE NOFINDMRM51=1

Source Variables: MRM6, MRM7

Type: Numeric

5.18 CMHPRES51 (Microhemorrhage presence)

Indicator variable for presence of microhemorrhage.
Format: 1=microhemorrhage present, 0= no microhemorrhage present.

Algorithm: if MRM6=”MCH” and MRM7=”DEFINITE” then MCHPRES51=1,

ELSE MCHPRES51=0

Source Variables: MRM6, MRM7

Type: Numeric

5.19 SUPERSIDPRES51 (Superficial siderosis presence)

Indicator variable for presence of superficial siderosis.
Format: 1=superficial siderosis present, 0= no superficial siderosis present.

Algorithm: if MRM6=”SS” and MRM7=”DEFINITE” then MCHPRES51=1,

ELSE MCHPRES51=0

Source Variables: MRM6, MRM7

Type: Numeric

5.20 WMHVOL51 (Volume of white matter hyperintensities)

Numeric variable for the volume of white matter hyperintensities.

Algorithm: If mrw5=”total”, then WMHVOL51=mrw6

Source Variables: mrw5, mrw6

Type: Numeric

5.21 WMHPCT51 (Percentage of white matter hyperintensities)

Numeric variable for the percentage of white matter hyperintensities.

Algorithm: WMHPCT51=mrw7

Source Variables: mrw7

Type: Numeric

5.22 WMATR51 (White matter at risk)
Numerical variable for white matter at risk.

Algorithm: if mrw6>0 and mrw7>0 THEN WMATR=mrw6/WMHpct

Source Variable: MRW6, MRW7, WMHpct

Type: Numeric

5.23 WMHPRES51 (White matter hyperintensity presence)
Indicator variable for the presence of white matter hyperintensities.
Format: 1=white matter hyperintensities present, 0=no white matter hyperintensities present.

Algorithm: If WMHVOL51>0, then WMATR51=1
ELSE WMATR51=0;

Source Variable: WHMVOL51

Type: Numeric

5.24 LARGECORTFREQ51 (Frequency of large cortical infarction)
Numeric variable providing frequency of large cortical infarcts.

Algorithm: Count (MRF6=”Large cortical”)

Source Variables: MRF6

Type: Numeric

5.25 SMALLCORTFREQ51 (Frequency of small cortical infarction)
Numeric variable providing frequency of small cortical infarcts.

Algorithm: Count (MRF6=”Small cortical”)

Source Variables: MRF6

Type: Numeric

5.26 SUBCORTFREQ51 (Frequency of subcortical infarction)
Numeric variable providing frequency of subcortical infarcts.

Algorithm: Count (MRF6=”Subcortical”)

Source Variables: MRF6

Type: Numeric

5.27 NOFINDINF51 (1=No Infarction 0=Infarction found)

Indicator variable for the lack of subcortical, small cortical and large cortical infarctions.
Format: 1= no subcortical, small cortical or large cortical infarctions, 0= subcortical, small cortical or large cortical infarction present

Algorithm: if MRF6='large cortical' or MRF6='small cortical' or MRF6='subcortical') then NOFINDINF51=0
ELSE NOFINDMRM51=1

Source variables: MRF6

Type: Numeric

5.28 LARGECORTINFpres51 (Large cortical infarction presence)

Indicator variable for the presence of large cortical infarctions.
Format: 1=large cortical infarctions present, 0=no large cortical infarctions present.

Algorithm: if MRF6="large cortical" then LARGECORTINFpres51=1
ELSE LARGECORTINFpres51=0

Source Variable: MRF6

Type: Numeric

5.29 SMALLCORTINFpres51 (Small cortical infarction presence)

Indicator variable for the presence of small cortical infarctions.
Format: 1=small cortical infarctions present, 0=no small cortical infarctions present.

Algorithm: if MRF6="small cortical" then SMALLCORTINFpres51=1
ELSE SMALLCORTINFpres51=0

Source Variable: MRF6

Type: Numeric

5.30 SUBCORTINFpres51 (Subcortical infarction presence)

Indicator variable for the presence of small cortical infarctions.
Format: 1=subcortical infarctions present, 0=no subcortical infarctions present.

Algorithm: if MRF6="subcortical" then SUBCORTINFpres51=1
ELSE SUBCORTINFpres51=0

Source Variable: MRF6

Type: Numeric

5.31 TOTBRAINVOL51 (Total Brain Volume mm^3)

Type: Numeric

Source: MRB4

5.32 MRIWASTE51 (eTIV-TotBVol)

Algorithm: ETIV51-TOTBRAINVOL51

Type: Numeric

5.33 DEEPCMH51 (Deep cerebral microhemorrhage)

Can be found in dataset MRM_FINAL

Indicator variable for the presence of deep cerebral microhemorrhage.
Format: 1=Yes, 0=No, .=Missing

Algorithm: if MRM6 ^= “MCH” or MRM7 ^= “DEFINITE” then DEEPCMH51=.

Else if MRM18=MAX(MRM16,MRM17,MRM18) and REGION NOT IN (1,2,3,4,5,6,13,14,15,16,19,20,21,22) then DEEPCMH51=.E

Else if (MRM16 > MRM17 and REGION IN (3,4,21)) or (MRM18=MAX(MRM16,MRM17,MRM18) and REGION IN (3,4,21)) then DEEPCMH51=1

Else DEEPCMH51=0

Type: Numeric

5.34 LAC20PRES51 (Lacunar infarct)

Indicator variable for the presence of lacunar infarct (standard definition of 20mm).
Format: 1=Yes, 0=No, .=Missing

Algorithm: if LACUNE51=1 on any 1 record for each unique ID then LAC20PRES51=1

Else if all non-missing LACUNE51=0 then LAC20PRES51=0

Else LAC20PRES51=.

Type: Numeric

5.35 LAC20FREQ51 (Frequency of lacunes)

Variable created on the frequency of lacunes (standard definition of 20mm).

Algorithm: LAC20FREQ51 = sum of LACUNES51 over each subjectID

Type: Numeric

5.36 LAC15PRES51 (Lacunar infarct)

Indicator variable for the presence of lacunar infarct using cutpoint of 15mm.
Format: 1=Yes, 0=No, .=Missing

Algorithm: if LACUNE52=1 on any 1 record for each unique ID then LAC15PRES51=1

Else if all non-missing LACUNE52=0 then LAC15PRES51=0

Else LAC15PRES51=.

Type: Numeric

5.37 LAC15FREQ51 (Frequency of lacunes)

Variable created on the frequency of lacunes using cutpoint of 15mm.

Algorithm: LAC15FREQ51 = sum of LACUNES52 over each subjectID

Type: Numeric

5.38 LOBARCMHPRES51 (Lobar microhemorrhage presence)

Indicator variable on the presence of lobar microhemorrhage.
Format: 1=Yes, 0=No, .=Missing

Algorithm: if MCHLOBAR51=1 on any 1 record for each unique ID then LOBARCMHPRES51=1

Else if all non-missing MCHLOBAR51=0 then LOBARCMHPRES51=0

Else LOBARCMHPRES51=.

Type: Numeric

5.39 LOBARCMHFREQ51 (Frequency of lobar microhemorrhage)

Variable created on the frequency of lobar microhemorrhage

Algorithm: LOBARCMHFREQ51= number of records for each unique ID where MCHLOBAR51=1

Type: Numeric

5.40 SUBCORTICALCMHPRES51 (Subcortical microhemorrhage presence)

Indicator variable on the presence of subcortical microhemorrhage.
Format: 1=Yes, 0=No, .=Missing

Algorithm: if MCHLOBAR51=0 on any 1 record for each unique ID then SUBCORTICALCMHPRES51=1

Else if all non-missing MCHLOBAR51=1 then SUBCORTICALCMHPRES51=0

Else SUBCORTICALCMHPRES51=.

Type: Numeric

5.41 SUBCORTICALCMHFREQ51 (Frequency of subcortical microhemorrhage)

Variable created on the frequency of subcortical microhemorrhage

Algorithm: SUBCORTICALCMHFREQ51= number of records for each unique ID where MCHLOBAR51=0

Type: Numeric

5.42 DEEPCMHPRES51 (Deep cerebral microhemorrhage presence)

Indicator variable on the presence of deep cerebral microhemorrhage.
Format: 1=Yes, 0=No, .=Missing

Algorithm: if DEEPCMH51=1 on any 1 record for each unique ID then DEEPCMHPRES51=1

Else if all non-missing DEEPCMH51=0 then DEEPCMHPRES51=0

Else DEEPCMH51PRES51=.

Type: Numeric

5.43 DEEPCMHFREQ51 (Frequency of deep cerebral microhemorrhage)

Variable created on the frequency of deep cerebral microhemorrhage

Algorithm: DEEPCMHFREQ51=number of records for each unique ID where DEEPCMH51=1

Type: Numeric

5.44 INFRATCMHPRES51 (Infratentorial microhemorrhage presence)

Indicator variable on the presence of infratentorial microhemorrhage.
Format: 1=Yes, 0=No, .=Missing

Algorithm: if =1 on any 1 record for each unique ID then INFRATCMHPRES51=1

Else if all non-missing =0 then INFRATCMHPRES51=0

Else INFRATCMHPRES51=.

Type: Numeric

5.45 INFRATCMHFREQ51 (Frequency of infratentorial microhemorrhage)

Variable created on the frequency of infratentorial microhemorrhage

Algorithm: INFRATCMHFREQ51FREQ51=number of records for each unique ID where =1

Type: Numeric