Atherosclerosis Risk in Communities Study

---

# Cohort Exam Visit 5 NCS

# Derive Variable Dictionary Version 54 (DERIVE54_np)

**February 2024**

Prepared by the Collaborative Studies Coordinating Center

# ARIC NCS Visit 5 Derived Variable Dictionary

The DERIVE51 dataset has 6,538 records; one for each participant who completed Stage 1 at Visit 5. The purpose of this dataset is to provide ARIC collaborators widely used, verified derived variables, many of which are consistent with variables derived at prior visits.

The dataset naming conventions are as follows: The dataset name retains the retrieval date (ex: DERIVE51_yymmdd) until the dataset is considered final, frozen. After a dataset is frozen, the retrieval date is dropped from the dataset name (ex: DERIVE54). The first digit in the dataset name refers to the visit number. The second digit in the dataset name is incremented in number when the current dataset undergoes significant changes. The variable naming convention is similar: Across-visit variables have identical names except for the second to last digit in the variable name, which represents the visit number (ex: GENDER41 at Visit 4 vs. GENDER51 at Visit 5). The last digit in the variable name identifies the definition version of a variable.

Most of the variables are derived directly from the data collected at the visit. However, some variables use ARIC cohort surveillance and ARIC follow-up data in their definitions.

---

# Table of Contents

## NEW OR CHANGED FROM DERIVE53 DISTRIBUTION

This table describes the changes/updates to the previously distributed DERIVE54 datasets.

| Modification Date | Variable Name | Reason(s) for Change |
|---|---|---|
| February 2024 | V5DATE51<br>LASTFUINTERVIEW_DATE51<br>ALL “DO NOT USE” versions of the medication use variables | DERIVE54 has undergone the no PHI transformation which means the date variables have been transformed to days since V1 enrollment.<br><br>The ”DO NOT USE” versions of the medication use variables have been dropped from the dataset.<br><br>The dataset will undergo another change when the longitudinal lab file is created; the lab derived variables will be removed from DERIVE54 and moved to LONGLABV1V9. **The EGFR variables should not be used from this dataset without vetting. The race-specific variables have “DO NOT USE” in their label.** |
| December 2020 | SPPB51 (V5 Short Physical Performance Summary Battery Score) | The summary score is calculated when three components are measured: chair stands, balance, and 4-meter walk. When any of the components are not measured, the summary score is NULL. |

<table>
<tr><td>August 2019</td><td>Added ALL SF12 variables:<br>SF12PF51, SF12RP51, SF12BP51, SF12GH51, SF12VT51, SF12SF51, SF12RE51, SF12MH51, SF12PFZ51, SF12RPZ51, SF12BPZ51, SF12GHZ51, SF12VTZ51, SF12SFZ51, SF12REZ51, SF12MHZ51, SF12PFT51, SF12RPT51, SF12BPT51, SF12GHT51, SF12VTT51, SF12SFT51, SF12RET51, SF12MHT51, SF12AGGPHYS51, SF12AGGMENT51, SF12AGGPHYST51, SF12AGGMENTT51</td><td>The company that holds the license has instructed us to include the statement "a modified version of the SF-12v2 was used" in ALL manuscripts using SF-12 data.<br><br>Note that the modifications are very minor, things like underlining certain words or phrases in the questions, and largely irrelevant because the instrument was interviewer-administered.</td></tr>
<tr><td>August 2019</td><td>Added new frailty variables.</td><td></td></tr>
<tr><td>August 2019</td><td>Add new EGFR variables (EGFRCR51, EGFRCYSC51, EGFR51).</td><td></td></tr>
<tr><td>October 2018</td><td>PREVHF52</td><td>Correction made to the variable derivation and data dictionary entry for part 2 and part 4a so that both use “before 2005” rather than “on or before Visit 5 exam date”. Changed BNP to NT-proBNP to clarify that NT-proBNP is used in this derivation.<br><table><tr><td></td><td>Corrected Distribution (Oct 2018)</td></tr></table></td></tr>
</table>

| | | |
|---|---|---|
| | | <table><tr><th>Original Distribution (Mar 2018)</th><th>Prev HF</th><th>No Prev HF</th><th>Total</th></tr><tr><td>PrevHF</td><td>907</td><td>73</td><td>980</td></tr><tr><td>No PrevHF</td><td>0</td><td>5558</td><td>5558</td></tr><tr><td>Total</td><td>907</td><td>5631</td><td>6538</td></tr></table> |
| March 2018 | Removed ALL SF12 variables: SF12PF51, SF12RP51, SF12BP51, SF12GH51, SF12VT51, SF12SF51, SF12RE51, SF12MH51, SF12PFZ51, SF12RPZ51, SF12BPZ51, SF12GHZ51, SF12VTZ51, SF12SFZ51, SF12REZ51, SF12MHZ51, SF12PFT51, SF12RPT51, SF12BPT51, SF12GHT51, SF12VTT51, SF12SFT51, SF12RET51, SF12MHT51, SF12AGGPHYS51, SF12AGGMENT51, SF12AGGPHYST51, SF12AGGMENTT51 | All SF12 variables were removed from this dataset and should not be used by any investigators. Please refer to ARIC MEMO 074.2017 for additional details. |
| March 2018 | Added PREVHF52 (Visit 5 Prevalent Heart Failure (HFRC Recommended Definition as of 2018)), the new Visit 5 Prevalent Heart Failure variable. | The ARIC heart failure research committee (HFRC) has developed this revised dichotomous definition of prevalent heart failure at Visit 5 (February 2018). This new definition integrates the two previous “definite” and “definite or probable” prevalent heart failure definitions and refines them. The HFRC recommends using this definition of prevalent heart failure at Visit 5. |

## 1. ADMINISTRATIVE

### 1.1 SUBJECTID (Subject ID)

Type: character; length: $7.

### 1.2 ID (ARIC ID - same as SUBJECTID)

Description: 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)

Description: 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.

### 1.4 V5CENTER (Visit 5 Field Center)

Description: The value of V5CENTER is the same as CENTER unless the ARIC study participant has relocated geographically and moved into another field center at visit 5. In that instance, the value of V5CENTER is the value of the field center where the participant was seen.

### 1.5 V5DATE51_FollowUpDays (Days of follow up from visit 1 to Visit 5 Date, NCS Stage 1)

Description: Variable calculated as the days between V1 enrollment and the V5 clinic visit date. The visit date is determined as the earlier of the

date from the Anthropometry form (ANT) or the date from the Sitting Blood Pressure form (SBP). In the instance where 1 of those 2 form dates is missing, the other non-missing date is used.

Type: numeric

Source variable(s): ANT0a, SBP0a

### 1.6 V5DATE51_year (Year of Visit 5 Date, NCS Stage 1)

Algorithm: Year determined from MIN(ANT0a, SBP0a)

Type: numeric

Source variable(s): ANT0a, SBP0a

### 1.7 RES_OTH (Restrictions on Other Procedures)

Description: The derived informed consent file, ICTDER05, includes information and dates of final consents for ARIC participants. Change in consent status is recorded in ARIC follow-up and visit 5 using the ICT form. RES_OTH indicates the types of restriction on other procedures. We request that the investigators exclude appropriate records with partial restrictions prior to data analysis.

Algorithm: RES_OTH=RES_OTH from the ICTDER05 dataset. When a non-permanently-missing ICT is found then update the value of RES_OTH according to the following:
If ICT3=1 and ICT4=1 then RES_OTH='Full Consent'
else if ICT3=1 and ICT4=0 then RES_OTH='ARIC Only'
else if ICT3=0 and ICT4=0 then RES_OTH='No Consent'

Type: character; length: $130.

Source variable(s): ICT3, ICT4

### 1.8 RES_DNA (Restrictions on DNA Storage and Use)

Description: The derived informed consent file, ICTDER05, includes information and dates of final consents for ARIC participants. Change in consent status is recorded in ARIC follow-up and visit 5 using the ICT form. The variable RES_DNA indicates the type of restriction

on DNA use. We request that the investigators exclude appropriate records with partial restrictions prior to data analysis.

Algorithm: RES_DNA=RES_DNA from the ICTDER05 dataset. When a non-permanently-missing ICT is found then update the value of RES_DNA according to the following:
If ICT5=1 and ICT6=1 and ICT7=1 then RES_DNA='Full Consent'
else if ICT5=1 and ICT6=0 and ICT7=0 then RES_DNA='ARIC Only'
else if ICT5=0 and ICT6=0 and ICT7=0 then RES_DNA='No use/storage DNA'
else if ICT5=1 and ICT6=1 and ICT7=0 then RES_DNA='Not for Profit'
else if ICT5=1 and ICT6=0 and ICT7=1 then RES_DNA='ARIC and Commercial'

Type: character; length: $130.

Source variable(s): ICT5, ICT6, ICT7

### 1.9 LASTFUINTERVIEW_DATE51_FUDays (Days of follow up from visit 1 to Date of last completed follow-up interview)

Description: Variable calculated as the days between V1 enrollment and the last AFU follow-up interview where an actual contact was made, prior to August 30, 2013.

Algorithm: LASTFUINTERVIEW_DATE51=the max value of AFUcomp1_A in the composite follow-up dataset among the records for a single ID where AFUcomp2_A indicates that the interview was accomplished (AFUcomp2_A in ('A','C','D')) and the date preceded August 30, 2013.

Type: numeric

Source variable(s): AFUcomp1_A, AFUcomp2_A

### 1.10 LASTFUINTERVIEW_DATE51_year (Year of Date of last completed follow-up interview)

Algorithm: Year determined from LASTFUINTERVIEW_DATE51

Type: numeric

Source variable(s): AFUcomp1_A, AFUcomp2_A

## 1.11 STAGE_1_TYPE (V5 Type of Stage 1 Exam)

Description: Categorical variable which describes the participant's type of Stage 1 exam. A=Full, B=Abbreviated, C=Home, D=Long Term Care Facility.

Algorithm: Stage_1_type=RTS3

Type: character, length=$1.

Source variable(s): RTS3

## 2. SOCIO-DEMOGRAPHIC

### 2.1 GENDER (Sex)

Description: 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 GENDER51 (Corrected Gender (V1CORGE1))

Description: Categorical variable that describes the participant's gender: M=Male, F=Female. Incorrect values for the variable GENDER were identified following the initial data collection on the ARIC cohort. The ARIC Executive Committee has recommended continuing to use the uncorrected variable (GENDER) for Visit 1 and longitudinal analyses. The corrected version could be used for cross-sectional analyses other than Visit 1 and should be decided by the Investigator.

Algorithm: Gender51 = V1CORGE1

Type: character, length=$1.

### 2.3 RACEGRP (Race)

Description: 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

### 2.4 RACEGRP51 (Corrected Race (V1CORRA1))

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

for the variable RACEGRP were identified following the initial data collection on the ARIC cohort. The ARIC Executive Committee has recommended continuing to use the uncorrected variable (RACEGRP) for Visit 1 and longitudinal analyses. The corrected version could be used for cross-sectional analyses other than Visit 1 and should be decided by the Investigator.

Algorithm: RACEGRP51 = V1CORRA1

Type: character, length=$1.

Source variable(s): V1CORRA1

### 2.5 BIRTHDAT (Date of Birth)

Description: SAS date variable which documents the originally reported date of birth for the participant.

Type: date

Source variable(s): BIRTHDAT from DERIVE47

### 2.6 BIRTHDAT51 (Corrected Birthdate (V1CORBIR))

Description: SAS date variable which corrects known errors in the BIRTHDAT variable. Incorrect values for the variable BIRTHDAT were identified following the initial data collection on the ARIC cohort. The ARIC Executive Committee has recommended continuing to use the uncorrected variable (BIRTHDAT) for Visit 1 and longitudinal analyses. The corrected version could be used for cross-sectional analyses other than Visit 1 and instances where appropriate should be decided by the Investigator.

Algorithm: BIRTHDAT51 = V1CORBIR

Type: date

### 2.7 V5AGE51 (Visit 5 Age)

Description: 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

## 2.8 V5AGE52 (Corrected Visit 5 Age)

Description: Participant's age at the time of the visit 5 exam calculated from the BIRTHDAT51 variable. This variable is based on the corrected birthdate. The ARIC Executive Committee has recommended continuing to use the uncorrected variable (V5Age51) for Visit 1 and longitudinal analyses. The corrected version could be used for cross-sectional analyses other than Visit 1 and should be decided by the Investigator.

Algorithm: If V5DATE51>.z and BIRTHDAT51>.z
then V5AGE51=floor((intck('month', BIRTHDAT51,V5DATE51)-(day(V5DATE51) < day(BIRTHDAT51)))/12);

Type: numeric.

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

## 3. ANTHROPOMETRY AND BLOOD PRESSURE

### 3.1 BMI51 (V5 Body Mass Index in Kg/m2)

Description: Body mass index

Algorithm: [Weight (kg)] / [Height (cm) / 100]$^2$
If missing (ANT3) or missing (ANT4) then BMI51=missing;
Else BMI51= ANT4/(ANT3/100)$^2$

Type: numeric.

Source variable(s): ANT3, ANT4

### 3.2 WSTHPR51 (V5 Waist-to-Hip Ratio)

Description: Ratio of waist girth to hip girth

Algorithm: If missing (ANT10a) or missing (ANT10b) or ANT10b=0 then WSTHPR51=missing;
Else WSTHPR51= (ANT10a/ANT10b)

Type: numeric.

Source variable(s): ANT10a, ANT10b

### 3.3 SYSTOLIC51 (V5 Mean Systolic BP of 2nd and 3rd Measurements)

Description: Mean of 2nd and 3rd systolic blood pressure measurements, consistent with V1 through V4

Algorithm: SYSTOLIC51=mean of SBP8 and SBP11
If SYSTOLIC51=. then SYSTOLIC51=SBP14

Type: numeric.

Source variable(s): SBP8, SBP11, SBP14

### 3.4 DIASTOLIC51 (V5 Mean Diastolic BP of 2nd and 3rd Measurements)

Description: Mean of 2nd and 3rd diastolic blood pressure measurements, consistent with V1 through V4

Algorithm: DIASTOLIC51=mean of SBP9 and SBP12
If DIASTOLIC51=. then DIASTOLIC51=SBP15

Type: numeric.

Source variable(s): SBP9, SBP12

### 3.5 PULSE51 (V5 Mean Pulse of 2nd and 3rd Measurements)

Description: Mean of 2nd and 3rd pulse measurements, consistent with V1 through V4

Algorithm: PULSE51=mean of SBP10 and SBP13
If PULSE51=. then PULSE51=SBP16

Type: numeric.

Source variable(s): SBP10, SBP13, SBP16

## 4. ALCOHOL USE

### 4.1 DRNKR51 (V5 Drinker Status)

Format:
1=Current Drinker
2=Former Drinker
3=Never Drinker
4=Unknown

Algorithm:
Use the 1st not-permanently missing occurrence of ALC form if more than one.
If ALC2 in ('Y', missing) and ALC3='Y' then DRNKR51=1;
Else if (ALC2='Y' and ALC3='N') then DRNKR51=2;
Else if (ALC2='N' and ALC3 in ('N', missing)) then DRNKR51=3;
Else if (ALC2=missing and ALC3='N') or (ALC2='Y' and ALC3=missing) then DRNKR51=4;
Else DRNKR51=missing.

Source variable(s): ALC2, ALC3

### 4.2 ETHANL51 (V5 Usual Ethanol Intake (g/wk))

Format:
continuous numeric variable

Algorithm:
Use the 1st not-permanently missing occurrence of ALC form if more than one.

If (DRNKR51 in (2,3) or ALC3='N') then ETHANL51=0;
Else if (DRNKR51 in (4, missing) or missing(ALC5) or missing(ALC6) or missing(ALC7) ) then ETHANL51=missing;
Else ETHANL51=(ALC5 x 10.8) + (ALC6 x 13.2)+(ALC7 x 15.1);

Source variable(s): ALC3, ALC5, ALC6, ALC7, DRNKR51

### 4.3 CURDRK51 (V5 Current Drinker)

Format:
0=No,
1=Yes,
.T=missing (keeping .T for historical purposes).

Algorithm:
Use the 1st not-permanently missing occurrence of ALC form if more than one.

If (ALC2 in ('Y', missing) and ALC3='Y') then CURDRK51=1;

Else if ALC3='N' or (ALC2='N' and ALC3=missing) then CURDRK51=0;
Else CURDRK51=.T

Source variable(s): ALC2, ALC3

### 4.4 FORDRK51 (V5 Former Drinker)

Format: 0=No,
1=Yes,
.T=missing.

Algorithm: Use the 1st not-permanently missing occurrence of ALC form if more than one.

If (ALC2='Y' and ALC3='N') then FORDRK51=1;
Else if (ALC2 in ('Y', missing) and ALC3='Y') or (ALC2='N' and ALC3 in ('N', missing) ) then FORDRK51=0;
Else FORDRK51=.T

Source variable(s): ALC2, ALC3

### 4.5 EVRDRK51 (V5 Ever Drinker)

Format: 0=No,
1=Yes,
.T=missing.

Algorithm: Use the 1st not-permanently missing occurrence of ALC form if more than one.

If ALC2='Y' or (ALC2=missing and ALC3='Y') then EVRDRK51=1;
Else if (ALC2='N' and ALC3 in ('N', missing) ) then EVRDRK51=0;
Else EVRDRK51=.T

Source variable(s): ALC2, ALC3

## 5. SMOKING

The following definitions are temporary variables used in the algorithms of the smoking derived variables and not found on the DERIVE51_yymmdd.sas7bdat dataset.

**Temporary CURRENT_SMOKER –** derived from V5 Smoking and Alcohol Use Form**:**

Algorithm: =1 if ALC1='Y'
=0 if ALC1='N'
=missing if ALC1 is missing

**Temporary V4V5smokecig –** derived from composite (AFU) dataset**:**

Algorithm: =1 if any AFUcomp30_G='Y' and AFUcomp1_A is between v4date41 (located in derive47.sas7bdat) and min(ANT0a,SBP0a)

=0 if no AFUcomp30_G='Y' and at least one AFUcomp30_G='N' and AFUcomp1_A is between v4date41 (located in derive47.sas7bdat) and min(ANT0a,SBP0a)

=missing if all AFUcomp30_G is missing or if v4date41 and/or v5date51 is missing

### 5.1 CIGT52 (V5 Cigarette Smoking Status)

Description: The cigarette smoking variables combine responses from the ALC form and ARIC follow-up data.

Format: 1=Current smoker,
2=Former smoker,
3=Never smoker,
4=Unknown, but one of the above categories may be ruled out
. =missing.

Algorithm: If CURRENT_SMOKER=1 then CIGT52=1
Else if CURRENT_SMOKER=0 and (CIGT41=1 OR CIGT41=2 OR V4V5SMOKECIG=1) then CIGT52=2
Else if CURRENT_SMOKER=0 and CIGT41=3 AND V4V5SMOKECIG=0 then CIGT52=3
Else if (CURRENT_SMOKER=. and (CIGT41=1 OR CIGT41=2 OR V4V5SMOKECIG=1)
OR
(CURRENT_SMOKER=0 and CIGT41 is missing and V4V5SMOKECIG is missing) then CIGT52=4
Else if ALL variables CURRENT_SMOKER, CIGT41, AND V4V5SMOKECIG are missing then CIGT52=.

Source variable(s): CURRENT_SMOKER, CIGT41, V4V5SMOKECIG

### 5.2 CURSMK52 (V5 Current cigarette smoker)

Description: Same as CURRENT_SMOKER.

Format: 0=No,
1=Yes,
.T=missing.

Algorithm: =1 if ALC1='Y'
=0 if ALC1='N'
=missing if ALC1 is missing

Source variable(s): ALC1

### 5.3 FORSMK52 (V5 Former cigarette smoker)

Format: 0=No,
1=Yes,
.T=missing.

Algorithm: If CURRENT_SMOKER=0 and (CIGT41=1 OR CIGT41=2 OR V4V5SMOKECIG=1) then FORSMK52=1
Else if CURRENT_SMOKER=1
OR
CURRENT_SMOKER=0 and CIGT41=3 AND V4V5SMOKECIG=0 then FORSMK52=0

Else if CURRENT_SMOKER is missing and (CIGT41=1 OR CIGT41=2 OR V4V5SMOKECIG=1)
OR
(CURRENT_SMOKER=0 and CIGT41 is missing and V4V5SMOKECIG is missing) then FORSMK52=.T

Else if ALL variables CURRENT_SMOKER, CIGT41, AND V4V5SMOKECIG are missing then FORSMK52=.

Source variable(s): CURRENT_SMOKER, CIGT41, V4V5SMOKECIG

### 5.4 EVRSMK52 (Ever smoked cigarettes)

Format: 0=No,

1=Yes,
.T=missing.

Algorithm: If (CURRENT_SMOKER=1 or CIGT41=1 or CIGT41=2 OR V4V5SMOKECIG=1) then EVRSMK52=1
Else if (CURRENT_SMOKER=0 and CIGT41=3 and V4V5SMOKECIG=0) then EVRSMK52=0
Else if (CURRENT_SMOKER=0 AND CIGT41 NE 1 AND 2 and V4V5SMOKECIG is missing)
OR
(CURRENT_SMOKER=0 AND CIGT41 is missing and V4V5SMOKECIG NE 1)
OR
(CURRENT_SMOKER =. and CIGT41=. and V4V5SMOKECIG=0)
OR
(CURRENT_SMOKER =. and CIGT41=3 and V4V5SMOKECIG NE 1) then EVRSMK52=.T;

Else if ALL variables CURRENT_SMOKER, CIGT41, AND V4V5SMOKECIG are missing then EVRSMK52=.

Source variable(s): CURRENT_SMOKER, CIGT41, V4V5SMOKECIG

**Temporary EAT_TIME:**

Algorithm: EAT_TIME=BIO7a;
if substr(BIO7a,1,2)='12' then eat_time=eat_time-12*3600;

**Temporary DRAW_TIME:**

Algorithm: DRAW_TIME=BIO8a;
if substr(BIO8a,1,2)='12' then draw_time=draw_time-12*3600;

**Temporary FASTING_TIME:**

Algorithm: if missing(BIO7b) or missing(BIO8b) then fasting-time=.;
else if bio7b=bio8b then do;
fasting_time=(draw_time-eat_time)/3600;
if fasting_time<=0 then fasting_time=fasting_time+24;
end;
else do; fasting-time=(draw_time-eat_time)/3600+12;end;

## 6.1 FAST0851 (V5 8 Hours or More of Fasting Time)

Format: 0=No,
1=Yes,
.T=missing.

Algorithm:

1. Create 2 intermediate variables:
   eat_time – time when a PPT last ate, from BIO7a and BIO7b;
   draw_time – time of the blood draw, from BIO8a and BIO8b.
   Use the last non-permanently missing occurrence of BIO, when more than one.
2. Compute the fasting_time = time elapsed between eat_time and draw_time. Since we do not have the date when a PPT last ate, we'll have to make some assumptions:

a) The first event was always the eat_time, the second – always the draw-time, so the fasting_time should always be positive;
b) If both eat_time and draw_time are AM, or both are PM, and eat_time is less that draw_time, then we assume that both events happened on the same day and the fasting time is within 12 hours:
c) If both eat_time and draw_time are AM, or both are PM, but the eat_time is greater than the draw_time, then we assume that the eat_time was the day before than the draw_time, and the fasting time is more than 12 hours but less than 24 hours;
d) If the eat_time is AM and the draw_time is PM, then we assume that a PPT ate in the AM, and then had a blood draw in the PM of the same calendar day;

e) If the eat_time is PM and the draw_time is AM, then we assume that a PPT ate in the PM of the previous day, and then had a blood draw in the AM of the visit day.

3. If fasting_time = missing, then FAST0851=.T;
Else if .z<fasting_time<8 hours then FAST0851=0;
Else FAST0851=1.

Source variable(s): BIO7a, BIO7b

### 6.2 FAST1251 (V5 12 Hours or more of Fasting Time)

Format: 0=No,
1=Yes,
.T=missing.

Algorithm: Use fasting_time defined for FAST0851 variable.

If fasting_time = missing, then FAST1251=.T;
Else if .z<fasting_time<12 hours then FAST1251=0;
Else FAST1251=1.

Source variable(s): BIO7a, BIO7b

### 6.3 TGLEFH51 (V5 Triglycerides less than or equal to 400 mg/dL)

Format: 0=No,
1=Yes,
. =missing.

Algorithm: If .<LIP8<=400 then TGLEFH51 = 1;
Else if LIP8>400 then TGLEFH51=0;
Else if LIP8=. then TGLEFH51=.;

Source variable(s): LIP8

### 6.4 TCHSIU51 (V5 Total Cholesterol in SI Units)

Format: numeric continuous variable.

Algorithm: Create intermediate variables for use in SI unit changes.
CF_chol=0.02586;

TCHSIU51=LIP3*CF_chol.

Source variable(s): LIP3, CF_chol

### 6.5 HDLSIU51 (V5 HDL Cholesterol in SI Units)

Format: numeric continuous variable.

Algorithm: Create intermediate variables for use in SI unit changes.
CF_chol=0.02586;

HDLSIU51=LIP13*CF_chol

Source variable(s): LIP13, CF_chol

### 6.6 LDLSIU51 (V5 LDL Cholesterol in SI Units)

Format: numeric continuous variable.

Algorithm: Create intermediate variables for use in SI unit changes.
CF_chol=0.02586;

LDLSIU51=LIP18*CF_chol

Source variable(s): LIP18, CF_chol

### 6.7 TRGSIU51 (V5 Triglycerides in SI Units)

Format: numeric continuous variable.

Algorithm: Create intermediate variables for use in SI unit changes.
CF_trig=0.01129;

TRGSIU51=LIP8*CF_trig

Source variable(s): LIP8, CF_chol

### 6.8 GLUSIU51 (V5 Fasting Glucose in SI Units)

Format: numeric continuous variable.

Algorithm: Create intermediate variables for use in SI unit changes.
CF_gluc=0.05551;

GLUSIU51=LIP23*CF_gluc

Source variable(s): LIP23, CF_chol

### 6.9 LDL51 (V5 Recalculated LDL Cholesterol)

Format: continuous numeric variable

Algorithm: If (any of LIP3, LIP8, LIP13 is missing OR LIP8>400) then LDL51=missing;
Else LDL51=LIP3-LIP13-(LIP8/5)
If .z<LDL51<0 then LDL51=0 (set negative values to zero).

Source variable(s): LIP3, LIP8, LIP13

### 6.10 EGFRCR51 ("DO NOT USE" Estimated glomerular filtration rate (mL/min/1.73m$^2$) (CKD-EPI creatinine 2009))

Format: continuous variable

Type: Numeric

Algorithm: If CHEM6>missing Then do:
IF GENDER="M" AND RACEGRP="A, I, or W" then EGFRCR51 = $141 * \min(CHEM6/0.9,1)^{(-0.411)} * \max(CHEM6/0.9,1)^{(-1.209)} * 0.993^{AGE}$

ELSE IF GENDER="M" AND RACEGRP="B" then EGFRCR51 = $141 * \min(CHEM6/0.9,1)^{(-0.411)} * \max(CHEM6/0.9,1)^{(-1.209)} * 0.993^{AGE} * 1.159$

ELSE IF GENDER="F" AND RACEGRP="A, I, or W" then EGFRCR51 = $141 * \min(CHEM6/0.7,1)^{(-0.329)} * \max(CHEM6/0.7,1)^{(-1.209)} * 0.993^{AGE} * 1.018$

ELSE IF GENDER="F" AND RACEGRP="B" then EGFRCR51 = $141 * \min(CHEM6/0.7,1)^{(-0.329)} * \max(CHEM6/0.7,1)^{(-1.209)} * 0.993^{AGE} * 1.018 * 1.159$

where AGE = age at lab draw (CHEM6b).

Source variable(s): BIRTHDAT, RACEGRP, GENDER, CHEM6, CHEM6b

## 6.11 EGFRCYSC51 (Estimated glomerular filtration rate (mL/min /1.73m$^2$) (CKD-EPI cystatin equation 2012))

Format: continuous variable

Type: Numeric

Algorithm: If CHEM12>missing Then do:
IF GENDER=”M” then EGFRCYSC51 = 133*min(CHEM12/0.8,1)$^{(-0.499)}$ * max(CHEM12/0.8,1)$^{(-1.328)}$ * 0.996$^{(AGE)}$

ELSE IF GENDER=”F” then EGFRCYSC51 = 133*min(CHEM12/0.8,1)$^{(-0.499)}$ * max(CHEM12/0.8,1)$^{(-1.328)}$ * 0.996$^{(AGE)}$ * 0.932

where AGE = age at lab draw (CHEM12b).

Source variable(s): AGE, GENDER, CHEM12, CHEM12b

## 6.12 EGFR51 (“DO NOT USE” Estimated glomerular filtration rate (mL/min/1.73m2) (CKD-EPI creatinine-cystatin equation 2012))

Format: continuous variable

Type: Numeric

Algorithm: If chem6>. and chem12>. Then do:

if GENDER=”M” AND RACEGRP=”A, I, or W”
=135 * min(CHEM6/0.9,1)**(-0.207) * max(CHEM6/0.9,1)**(-0.601) *min(CHEM12/0.8,1)**(-0.375) * max(CHEM12/0.8,1)**(-0.711) * 0.995**(AGE)

ELSE IF GENDER=”M” AND RACEGRP=”B”
=135 * min(CHEM6/0.9,1)** (-0.207) * max(CHEM6/0.9,1)**(-0.601) * min(CHEM12/0.8,1)**(-0.375) * max(CHEM12/0.8,1)**(-0.711) * 0.995**(AGE) * 1.08

ELSE IF GENDER=”F” AND RACEGRP=” A, I, or W”
=135 * min(CHEM6/0.7,1)**(-0.248) * max(CHEM6/0.7,1)**(-0.601) * min(CHEM12/0.8,1)**(-0.375) * max(CHEM12/0.8,1)**(-0.711) * 0.995**(AGE) * 0.969

ELSE IF GENDER=”F” AND RACEGRP=”B”

=135 * min(CHEM6/0.7,1)**(-0.248) * max(CHEM6/0.7,1)**(-0.601) * min(CHEM12/0.8,1)**(-0.375) * max(CHEM12/0.8,1)**(-0.711) * 0.995**(AGE) * 0.969 * 1.08

where AGE = age at lab draw (min(CHEM6b,CHEM12b)).

Source variable(s): BIRTHDAT, RACEGRP, GENDER, CHEM6, CHEM6b, CHEM12, CHEM12b

## 7. DISEASE PREVALENCE

There are a number of variables in the Disease Prevalence section that utilize cohort surveillance information, through event year 2013, to derive disease prevalence.

**Diabetes Prevalence Variables**

A temporary variable was created for use in the algorithms of the diabetes derived variables. MDDX_DIAB=1 if a participant reported being diagnosed during ARIC Follow-Up interviews with diabetes prior to the visit 5 data (V5DATE51). The composite dataset variables considered are AFUCOMP1_A, AFUCOMP7D_G, and AFUCOMP15_M.

### 7.1 DIABTS53 (V5 Diabetes - Lower Cutpoint 140 mg/dL)

Description: Diabetes variable defined as present if glucose value>=140 or non-fasting glucose value>=200 or using medication for diabetes or self-report diagnosis of diabetes.

Format:
0=No,
1=Yes,
.T=missing.

Algorithm: DIABTS53=1 if ( lowcase(strip(LIP25))^='not fasting' and LIP23>=140) or (lowcase(strip(LIP25)) ='not fasting' and LIP23>=200 ) or ( MSRF2 ne 'T' and MSRF33c = 'Y') or MDDX_DIAB=1

Else DIABTS53=0 if (.z<LIP23< 140) and not MDDX_DIAB and MSRF33c ne 'Y'

Else DIABTS53=.T

### 7.2 DIABTS54 (V5 Diabetes - Lower Cutpoint 126 mg/dL)

Description: Diabetes variable defined as present if glucose value>=126 or non-fasting glucose value>=200 or using medication for diabetes or self-report diagnosis of diabetes.

Format:
0=No,
1=Yes,
.T=missing.

Algorithm: DIABTS54=1 if (lowcase(strip(LIP25))^='not fasting' and LIP23>=126) or (lowcase(strip(LIP25)) ='not fasting' and

LIP23>=200 ) or (MSRF2 ne 'T' and MSRF33c = 'Y') or MDDX_DIAB=1

Else DIABTS54=0 if (.z<LIP23< 126) and not MDDX_DIAB and MSRF33c ne 'Y'

Else DIABTS54=.T

### 7.3 DIABTS55 (V5 Diabetes - Lab and Meds Only, Cutpoint 126 mg/dL)

Description: Diabetes variable defined as present if glucose value>=126 or non-fasting glucose value>=200 or using medication for diabetes.

Format: 0=No,
1=Yes,
.T=missing.

Algorithm: DIABTS55=1 if (lowcase(strip(LIP25))^='not fasting' and LIP23>=126) or (lowcase(strip(LIP25)) ='not fasting' and LIP23>=200 ) or (MSRF2 ne 'T' and MSRF33c = 'Y')

Else DIABTS55=0 if (.z<LIP23< 126) and MSRF33c ne 'Y'

Else DIABTS55=.T

### 7.4 DIABTS56 (V5 Diabetes - Hemoglobin A1C, Cutpoint 6.5%)

Description: Diabetes variable defined as present if hemoglobin A1C value>=6.5 % or using medication for diabetes or self-report diagnosis of diabetes.

Format: 0=No,
1=Yes,
.T=missing.

Algorithm: DIABTS56=1 if (CHM15>=6.5) or (MSRF2 ne 'T' and MSRF33c = 'Y') or MDDX_DIAB=1

Else if (.z<chm15<6.5) and not MDDX_DIAB and MSRF33c ne 'Y'

Else DIABTS56=.T

### 7.5 DIABTS57 (V5 Diabetes (DM medications or DM reported on AFU))

Description: Diabetes variable defined as present if participant is using medication for diabetes or self-report diagnosis of diabetes.

Format: 0=No,
1=Yes,
.T=missing.

Algorithm: DIABTS57=1 if (MSRF2 ne 'T' and MSRF33c='Y') or INCSELFREPDM51=1 or DIABMDCODE51=1

Else DIABTS57=0 if not INCSELFREPDM51 and MSRF33c ne 'Y' and not DIABMDCODE51

Else DIABTS57=.

Source data: MSR, STATUS51, DERIVE51 (DIABMDCODE51)

**ECG QWAVE Variables**

Create temporary variables for use in the ECGMI algorithm.

ECGPRESENT:
If ECG is present, ECGPRESENT=1;
Else ECGPRESENT=0.

### 7.6 QWAVE54A (V5 Diagnostic Q-wave present from Adjudicated ECG Data)

Format: 0=No,
1=Yes,
.T=missing,
. =missing.

Algorithm: If ECGPRESENT=1 and (ECG62 IN('1.1.1','1.1.2','1.1.3','1.1.4','1.1.5','1.1.6','1.1.7','1.1.8','1.1.9','1.2.0','1.2.1','1.2.2','1.2.3','1.2.4','1.2.5','1.2.7') or ECG63 IN('1.1.1','1.1.2','1.1.3','1.1.4','1.1.5','1.1.6','1.1.7','1.1.8','1.1.9','1.2.0','1.2.1','1.2.2','1.2.3','1.2.4','1.2.5','1.2.7') or ECG64 IN('1.1.1','1.1.2','1.1.3','1.1.4','1.1.5','1.1.6','1.1.7','1.1.8','1.1.9','1.2.0','1.2.1','1.2.2','1.2.3','1.2.4','1.2.5','1.2.7')) then QWAVE54A=1;

Else if ECGPRESENT=1 and ECG62>missing and ECG62 NOTIN('1.1.1','1.1.2','1.1.3','1.1.4','1.1.5','1.1.6','1.1.7','1.1.8','1.1.9','1.2.0','1.2.1','1.2.2','1.2.3','1.2.4','1.2.5','1.2.7') and ECG63 >" and ECG63 NOTIN('1.1.1','1.1.2','1.1.3','1.1.4','1.1.5','1.1.6','1.1.7','1.1.8','1.1.9','1.2.0','1.2.1','1.2.2','1.2.3','1.2.4','1.2.5','1.2.7') and ECG64> missing

and ECG64
NOTIN('1.1.1','1.1.2','1.1.3','1.1.4','1.1.5','1.1.6','1.1.7','1.1.8','1.1.9','
1.2.0','1.2.1','1.2.2','1.2.3','1.2.4','1.2.5','1.2.7')) then QWAVE54A=0;

Else ECGPRESENT=0 then QWAVE54A=.M;

Else QWAVE54A = . ;

Source variable(s): ECGPRESENT, ECG62, ECG63, ECG64

### 7.7 QWAVE57A (V5 Major Q-Wave present with no 7-1-1, 7-1-2, or 7-4, from Adjudicated ECG Records)

Format:
0=No,
1=Yes,
.T=missing,
.M=missing,
. =missing.

Algorithm:
If ECGPRESENT=1 and (ECG79>'' and ECG79 NOT IN ('7.1','7.4')) and (ECG62
IN('1.1.1','1.1.2','1.1.3','1.1.4','1.1.5','1.1.6','1.1.7') or ECG63
IN('1.1.1','1.1.2','1.1.3','1.1.4','1.1.5','1.1.6','1.1.7') or ECG64
IN('1.1.1','1.1.2','1.1.3','1.1.4','1.1.5','1.1.6','1.1.7')) then
QWAVE57A=1;

Else ECGPRESENT=1 and ECG62>'' and ECG62
NOTIN('1.1.1','1.1.2','1.1.3','1.1.4','1.1.5','1.1.6','1.1.7') and ECG63
>'' and ECG63
NOTIN('1.1.1','1.1.2','1.1.3','1.1.4','1.1.5','1.1.6','1.1.7') and
ECG64>''  and ECG64
NOTIN('1.1.1','1.1.2','1.1.3','1.1.4','1.1.5','1.1.6','1.1.7') then
QWAVE57A=0;

Else if ECGPRESENT=1 and (ECG79='' or ECG79 IN ('7.1','7.4')) and (ECG62
IN('1.1.1','1.1.2','1.1.3','1.1.4','1.1.5','1.1.6','1.1.7') or ECG63
IN('1.1.1','1.1.2','1.1.3','1.1.4','1.1.5','1.1.6','1.1.7') or ECG64
IN('1.1.1','1.1.2','1.1.3','1.1.4','1.1.5','1.1.6','1.1.7')) then
QWAVE57A=.T;

Else if ECGPRESENT=0 then QWAVE57A=.M;

Else QWAVE57A= . ;

Note: The V4 data dictionary states that a value of (7).1 for this variable corresponds to Minnesota codes 7-1-1 or 7-1-2. A value of (7.)4 corresponds to Minnesota code 7-4.

Source variable(s): ECGPRESENT, ECG62, ECG63, ECG64

### 7.8 QWAVE58B (V5 Minor Q-Wave present with ST or T codes and no 7-1-1, 7-1-2, or 7-4 codes, from Adjudicated ECG Records)

Format:
0=No,
1=Yes,
.T=missing
.M=missing,
. =missing.

Algorithm:
If ECGPRESENT=1 and (ECG62 IN ('1.2.1','1.2.2','1.2.3','1.2.4','1.2.5','1.2.7', '1.2.8') or ECG63 IN ('1.2.1','1.2.2','1.2.3','1.2.4','1.2.5','1.2.7', '1.2.8') or ECG64 IN ('1.2.1','1.2.2','1.2.3','1.2.4','1.2.5','1.2.7', '1.2.8') ) and (ECG67 IN ('4.2', '4.1.1','4.1.2') or ECG68 IN ('4.2', '4.1.1','4.1.2') or ECG69 IN ('4.2',4.1.1,'4.1.2') or ECG70 IN ('5.1','5.2') or ECG71 IN ('5.1','5.2') or ECG72 IN ('5.1','5.2')) and ECG79>missing and ECG79 NOT IN ('7.1','7.4') then QWAVE58B =1;

Else if ECGPRESENT=1 and ((ECG62>missing and ECG63>missing and ECG64> missing and ECG62 NOT IN ('1.2.1','1.2.2','1.2.3','1.2.4','1.2.5','1.2.7', '1.2.8') and ECG63 NOT IN ('1.2.1','1.2.2','1.2.3','1.2.4','1.2.5','1.2.7', '1.2.8') and ECG64 NOT IN ('1.2.1','1.2.2','1.2.3','1.2.4','1.2.5','1.2.7', '1.2.8'))
OR
(ECG67>missing and ECG68>missing and ECG69>missing and ECG70>missing and ECG71>missing and ECG72>missing and ECG67 NOT IN ('4.2', '4.1.1','4.1.2') and ECG68 NOT IN ('4.2', '4.1.1','4.1.2') and ECG69 NOT IN ('4.2',4.1.1,'4.1.2') and ECG70 NOT IN ('5.1','5.2') and ECG71 NOT IN ('5.1','5.2') and ECG72 NOT IN ('5.1','5.2')) then QWAVE58B =0;

Else if ECGPRESENT=1 and (ECG62 IN ('1.2.1','1.2.2','1.2.3','1.2.4','1.2.5','1.2.7', '1.2.8') or ECG63 IN ('1.2.1','1.2.2','1.2.3','1.2.4','1.2.5','1.2.7', '1.2.8') or ECG64 IN ('1.2.1','1.2.2','1.2.3','1.2.4','1.2.5','1.2.7', '1.2.8') ) and (ECG67 IN ('4.2', '4.1.1','4.1.2') or ECG68 IN ('4.2', '4.1.1','4.1.2') or ECG69 IN ('4.2',4.1.1,'4.1.2') or ECG70 IN ('5.1','5.2 ') or ECG71 IN ('5.1','5.2 ') or ECG72 IN ('5.1','5.2 ')) and (ECG79 IN (missing,'7.1','7.4')) then QWAVE58B =.T;

Else if ECGPRESENT=0 then QWAVE58B =.M;

Else QWAVE58B = . ;

Source variable(s): ECGPRESENT, ECG62, ECG63, ECG64

## Myocardial Infarction (MI) Prevalence Variables

### 7.9 ECGMI51 (Prevalent Myocardial Infarction from Adjudicated Electrocardiograms)

Format:

0=No,
1=Yes,
.T=missing
.M=missing
. =missing.

Algorithm: If QWAVE57A=1 or QWAVE58B=1 then ECGMI51=1;

Else if QWAVE57A=0 and QWAVE58B=0 then ECGMI51=0;
Else if (QWAVE57A=. and QWAVE58B NE 1) OR (QWAVE57A NE 1 and QWAVE58B=.) then ECGMI51=.T;

Else if ECGPRESENT=0 then ECGMI51 =.M;

Else ECGMI51 = . (missing)

Source variable(s): QWAVE57A, QWAVE58B, ECGPRESENT

### 7.10 MDDXMI52 (V5 MD Diagnosed Myocardial Infarction)

Description: This variable is derived from ARIC Follow-Up questions that ask if the participant was told by a doctor whether or not they'd had a heart attack between visit 4 and visit 5.

Format:

0=No,
1=Yes,
.T=missing.

Algorithm: MDDXMI52=1 if any one (AFUCOMP7a_G=Y OR AFUCOMP11a_M=Y) AND AFU DATE (AFUCOMP1_A) falls between visit 4 date and visit 5 date

Else MDDXMI52=.T if all values of (AFUCOMP7a_G, AFUCOMP11a_M) for records between visit 4 date and visit 5 date are one of the following combinations (’’,U), (‘’,’’), (U,’’)

Else MDDXMI52=0

Source variable(s): AFUCOMP7a_G, AFUCOMP11a_M, AFUCOMP1_A

### 7.11 HXOFMI52 (V5 History of Myocardial Infarction)

Description: This variable is derived from ARIC Follow-Up questions that ask if the participant was told by a doctor whether or not they’d had a heart attack as well as questions asking the participant if they’d been hospitalized for heart attack. The follow-up records from the ARIC Follow-Up composite dataset (uc623201_compafu_safu_cy2_cy23.sas7bdat) considered for this variable were collected before the end of V5 data collection (30AUG2013).

Format: 0=No,
1=Yes,
.T=missing.

Algorithm: HXOFMI52=1 if MDDXMI52=1 or (AFUcomp7_V1=’Y’) or (AFUcomp30_deceased_A=’Y’) or (AFUcomp30non_deceased_A=’Y’)

else HXOFMI52=.T if over all records for a single ID the following value combinations are found for (MDDXMI52,AFUcomp7_V1, AFUcomp30_deceased_A,AFUcomp30non_deceased_A): (.T,’’,’’,’’), (.T,’’,’U’,’’), (.T,’’,’’,’U’)

else HXOFMI52=0

Source variable(s): MDDXMI52, AFUcomp7_V1, AFUcomp30_deceased_A, AFUcomp30non_deceased_A

## Coronary Heart Disease (CHD) Prevalence Variables

### 7.12 PRVCHD51 (V5 Prevalent CHD before Visit 5)

Description: This variable is derived from the baseline status of CHD (PRVCHD05) and the closed event years of ARIC Cohort Surveillance data through 2013, where the event occurred prior to

the participant's Visit 5. The variables used to compute this derived variable are in the INCBY13 cohort surveillance dataset and the DER13 (or DER13-MOD?) dataset.

Format: 0=No,
1=Yes,
.T=missing.

Algorithm: PRVCHD51 = 1 if PRVCHD05=1 or (C7_IN_13SP=1 and missing<C7DATEISP<v5date51) or (C7_IN_13SP=1 and V5DATE51=. and C7DATEISP <="01JUN2011"d)

PRVCHD51 = 0 if PRVCHD05=0 and ((C7_IN_13SP=0 or C7DATEISP>=V5date51>missing) or (V5DATE51=. And C7DATEISP>"01JUN2011"d))

Else PRVCHD51 = . (missing)

Source variable(s): PRVCHD05, C7_IN_13SP, C7DATEISP, v5date51

### 7.13 PRVCHD53 (V5 Prevalent CHD by end of Visit 5)

Description: This variable is derived from the baseline status of CHD (PRVCHD05) and the closed event years of ARIC Cohort Surveillance data through 2013, where the event occurred prior to 30AUG2013.

Format: 0=No,
1=Yes,
.T=missing.

Algorithm: PRVCHD53 = 1 if PRVCHD05=1 or (C7_IN_13SP=1 and missing < C7DATEISP <="30AUG2013"d)

PRVCHD53 = 0 if PRVCHD05=0 and (C7_IN_13SP=0 or C7DATEISP>"30AUG2013"d)

Else PRVCHD53 = . (missing)

Source variable(s): PRVCHD05, C7_IN_13SP, C7DATEISP, v5date51

### 7.14 PRVCHD54 (V5 Prevalent CHD-unverified)

Description: This variable is derived from ECG data and self-reported ARIC Follow-Up data including questions on doctor told participant about heart attack, coronary bypass, and coronary angioplasty on records collected up through 30AUG2013.

Format: 0=No,
1=Yes,
.T=missing.

Algorithm: PRVCHD54=1 if ECGMI51=1 or MDDXMI52=1 or (AFUcomp13a_G='Y') or (AFUcomp15a_G='Y')
else PRVCHD54=. if over all records for a single ID the following value combinations are found for (ECGMI51,MDDXMI52,AFUcomp13a_G, AFUcomp15a_G):(.T, (.M or .), ('' or 'U'), ('' or 'U'))

else PRVCHD54=0

Source variable(s): ECGMI51, MDDXMI52, AFUcomp13a_G, AFUcomp15a_G

## Heart Failure (HF) Prevalence Variables

The heart failure (HF) variables included in this derived variable dictionary define HF prevalence at Visit 5. When conducting analyses of incident HF, it is important to note that the incident variable is available in the ARIC Cohort Surveillance dataset. The variable C7_INCHFxx uses V1 as the baseline and considers an event as a hospitalization with an ICD-9 discharge diagnosis code of 428.x in any position.

### 7.15 PREVHF52 (Visit 5 Prevalent Heart Failure (HFRC Recommended Definition as of 2018))

Description: The ARIC heart failure research committee (HFRC) has developed this revised dichotomous definition of prevalent heart failure at Visit 5 (February 2018). This new definition integrates the two previous "definite" and "definite or possible" prevalent heart failure definitions and refines them. The HFRC recommends using this definition of prevalent heart failure at Visit 5.

Format: 0=No,
1=Yes.

Algorithm: PREVHF52=1, if at least one of the following are true:
1. Any adjudicated HF event (Category A/B/C)

2. Any first position ICD code of 428.x before 2005
3. Any physician report of HF is Yes on or prior to Visit 5 exam date (PHF1 or PHFA1="Y")
4. Only using data collected AFTER the most current physician report is "No" HF, or using all data if no physician report has ever been completed:
a. A non-1st position ICD code of 428.x before 2005
b. An initial instance of self-reported HF or self-reported HF meds AND at least one subsequent self-report of HF or self-report of HF meds on or before Visit 5 exam date, but after the first self-report date
c. An initial instance of self-reported HF or self-reported HF meds reported on or before Visit 5 exam date AND an elevated NT-proBNP value >125 from Visit 4 OR Visit 5
PREVHF52=0, otherwise

Type: Numeric

Source variable(s): This definition utilizes data from cohort surveillance, follow-up, and visit data collection components.

### 7.16 PREVDEFHF51 (V5 Prevalent Definite Heart Failure for Closed Event Years)

Format:
0=No,
1=Yes,
.=missing.

Algorithm:

1. Prior hospitalization (01/01/2005 onward but before V5 visit) classified as Definite (A), Probable (B), or Chronic (C) HF

2. Physician Heart Failure (PHF) Survey with HF onset date prior to V5 (from those with self-reported HF) in which the physician answers YES to "has this patient ever had HF or CM?"

3. Hospitalization with an ICD code 428.x in first position (before 01/01/2005)

### 7.17 PREVDEFPOSSHF51 (V5 Prevalent Definite OR Possible Heart Failure for Closed Event Years)

Format:
0=No,
1=Yes,
.=missing.

Algorithm:

1. Prior hospitalization (01/01/2005 onward but before V5 visit) classified as Definite (A), Probable (B), or Chronic (C) HF

2. Physician Heart Failure Survey with HF onset date prior to V5 (from those with self-reported HF) in which the physician answers YES to "has this patient ever had HF or CM?"

3. Hospitalization with an ICD code 428.x in first position (before 01/01/2005)

4. Hospitalization with an ICD code 428.x in any position other than the first position (any time before 01/01/2005)

5. Self-report of HF at AFU prior to V5 or at visits 3-4*, not refuted by the physicians health survey (temporal association will need to be considered)

6. Self-report of treatment for HF from any study visit or AFU prior to V5
*Self-reported HF at V1, V2 and V5 not asked

## Stroke Prevalence Variables

### 7.18 PRVSTR51 (V5 Prevalent Stroke by the end of Visit 5)

Description: This variable is derived from the baseline status of stroke (HOM10D) and the closed event years of ARIC Surveillance data on the cohort.

Format:
0=No,
1=Yes,
.T=missing.

Algorithm: PRVSTR51= 1 if HOM10D='Y' or (C7_IN13DP=1 and missing<C7_ED13DP<=V5DATE51) or (C7_IN13DP=1 and V5DATE51=. and C7_ED13DP<=”30AUG2013”d).

PRVSTR51= 0 if HOM10D='N' and ((C7_IN13DP=0 or C7_ED13DP>V5DATE51>missing) or (V5DATE51=. and C7_ED13DP>”30AUG2013”d))

Else PRVSTR51=. (missing)

Source variable(s): HOM10D, C7_IN13DP, V5DATE51

### 7.19 PRVSTR52 (V5 Prevalent Stroke-unverified)

Description: This variable is derived from self-reported ARIC Follow-Up data including questions that doctor told participant about stroke or TIA or participant hospitalized for stroke on records collected up through 30AUG2013.

Format:

0=No,
1=Yes,
.T=missing.

Algorithm: PRVSTR52=1 if any record within a single ID has a Y value is found either AFUcomp29_A or AFUcomp8b_K

else PRVSTR52=missing if over all records within a single ID the following value combinations are found for (AFUcomp29_A, AFUcomp8b_K): (‘’,’’), (‘’,U), (U,’’),

else PRVSTR52=0

Source variable(s): AFUcomp29_A, AFUcomp8b_K

## Atrial Fibrillation/Flutter (AF) Prevalence Variables

### 7.20 PRVAF51 (V5 Prevalent Atrial Fibrillation/Flutter before Visit 5)

Format:

0=No,
1=Yes,
.T=missing.

Algorithm: If (AFINCBY11=1 and (missing<DATEAFINC<="01JUN2011"d)) OR (AFLINCBY11=1 and (missing<DATEAFLINC<="01JUN2011"d)) then PRVAF51= 1;

Else if (AFINCBY11=0 and AFLINCBY11=0) OR (DATEAFLINC=. AND (DATEAFINC>"01JUN2011"d)) OR (DATEAFINC=missing AND (DATEAFLINC>"01JUN2011"d)) OR ((DATEAFINC>"01JUN2011"d) AND (DATEAFLINC>"01JUN2011"d)) then PRVAF51= 0;

Else PRVAF51=.;

Source variable(s): AFINCBY11, DATEAFINC

### 7.21 PRVAF52 (V5 Prevalent Atrial Fibrillation/Flutter by end of Visit 5)

Format: 0=No,
1=Yes,
.T=missing.

Algorithm: If (AFINCBY11=1 and (missing<DATEAFINC<="30AUG2013"d)) OR (AFLINCBY11=1 and (missing<DATEAFLINC<="30AUG2013"d)) then PRVAF52= 1;

Else if (AFINCBY11=0 and AFLINCBY11=0) OR (DATEAFLINC=missing AND (DATEAFINC>"30AUG2013"d)) OR (DATEAFINC=. AND (DATEAFLINC>"30AUG2013"d)) OR ((DATEAFINC>"30AUG2013"d) and (DATEAFLINC>"30AUG2013"d)) then PRVAF52= 0;

Else PRVAF52=. (missing)

Source variable(s): AFINCBY11, DATEAFINC

## Hypertension Prevalence Variables

### 7.22 HYPERT54 (V5 Hypertension, definition 4 (DIASTOLIC51 ge 90 or HTN med))

Description: Hypertension definition defined as diastolic blood pressure (mean of 2nd and 3rd measures) >=90 or medication is being taken for high blood pressure.

Format: 0=No,
1=Yes,
.=missing.

Algorithm: If (DIASTOLIC51 >= 90) or (MSRF2 ne ‘T’ and MSRF33d=’Y’) then HYPERT54=1;

Else if (0<DIASTOLIC51<90) and (MSRF33d=’N’ or (MSRF33d=missing and MSRF2=’T’)) then HYPERT54=0;

Else HYPERT54=. (missing)

Source variable(s): DIASTOLIC51, MSRF2, MSRF33d

### 7.23 HYPERT55 (V5 Hypertension, definition 5 (SYSTOLIC51 GE 140 or DIASTOLIC51 GE 90 or HTN medication))

Description: Hypertension is defined as systolic blood pressure (mean of 2nd and 3rd measures) >=140 or diastolic blood pressure (mean of 2nd and 3rd measures) >=90 or medication is being taken for high blood pressure.

Format: 0=No,
1=Yes,
.=missing.

Algorithm: If (DIASTOLIC51 >= 90) or (SYSTOLIC51>=140) or (MSRF2 ne 'T' and MSRF33d='Y') then HYPERT55=1;

Else if (0<DIASTOLIC51<90) and (0<SYSTOLIC51<140) and (MSRF33d='N' or (MSRF33d=missing and MSRF2='T')) then HYPERT55=0;

Else HYPERT55=. (missing)

Source variable(s): DIASTOLIC51, MSRF2, MSRF33d

### 7.24 HYPERT56 (V5 Hypertension, definition 6 (SYSTOLIC51 GE 160 or DIASTOLIC51 GE 95 or HTN medication)

Description: Hypertension is defined as systolic blood pressure (mean of 2nd and 3rd measures) >=160 or diastolic blood pressure (mean of 2nd and 3rd measures) >=95 or medication is being taken for high blood pressure.

Format: 0=No,
1=Yes,
.=missing.

Algorithm: If (DIASTOLIC51 >= 95) or (SYSTOLIC51>=160) or (MSRF2 ne 'T' and MSRF33d='Y') then HYPERT56=1;

Else if (0<DIASTOLIC51<95) and (0<SYSTOLIC51<160) and (MSRF33d='N' or (MSRF33d=missing and MSRF2='T')) then HYPERT56=0;

Else HYPERT56=. (missing)

Source variable(s): DIASTOLIC51, MSRF2, MSRF33d

### 7.25 HYPERT57 (V5 Hypertension, definition 7 (SYSTOLIC51 GE 150 or DIASTOLIC51 GE 90 or HTN medication)

Description: Hypertension is defined as systolic blood pressure (mean of 2nd and 3rd measures) >=150 or diastolic blood pressure (mean of 2nd and 3rd measures) >=90 or medication is being taken for high blood pressure.

Format: 0=No,
1=Yes,
.=missing.

Algorithm: If (DIASTOLIC51 >= 90) or (SYSTOLIC51>=150) or (MSRF2 ne 'T' and MSRF33d='Y') then HYPERT57=1;

Else if (0<DIASTOLIC51<90) and (0<SYSTOLIC51<150) and (MSRF33d='N' or (MSRF33d=missing and MSRF2='T')) then HYPERT57=0;

Else HYPERT57=. (missing)

Source variable(s): DIASTOLIC51, MSRF2, MSRF33d

## 8. CORNELL VOLTAGE LVH

### 8.1 LVHSCR51 (V5 Cornell Voltage In UV (S In V3+r In AVL))

Format: continuous; min 100

Algorithm: LVHSCR51 = ABS(ECG357) + ECG281
If ABS(ECG357) + ECG281 < 100 then LVHSCR51 = .

Source variable(s): ECG357, ECG281

### 8.2 NLVHSC51 (V5 Cornell Voltage In mm)

Format: continuous; min 1

Algorithm: NLVHSC51 = LVHSCR51 / 100

Source variable(s): LVHSCR51

## 8.3 CLVH51 (V5 LVH Present By Cornell Definition)

Format: 0=No,
1=Yes,
. =missing.

Algorithm: If (GENDER='M' and NLVHSC5 >28) or (GENDER='F' and NLVHSC5 >22)
then CLVH51 =1
Else if (GENDER='M' and .<NLVHSC5<=28) or (GENDER='F' and .< NLVHSC5<=22)
then CLVH51=0
Else CLVH51=.

Source variable(s): GENDER, NLVHSC5

## 9. MEDICATION USE

The following definitions are temporary variables for use in the algorithms of the medication use derived variables. Most are not included in DERIVE52_yymmdd, except for MSRF#a2_sub6 (# goes from 5 to 29).

**Temporary ALLMISS:**
Algorithm: Do over MSRF#a2 where # = 5 to 29:
If any MSRF#a2>'' then ALLMISS=0, else ALLMISS=1

**Temporary MSRF#a2_sub10:**
Algorithm: Do over MSRF#a2 where # = 5 to 29:
MSRF#a2_sub10=substr(MSRF#a,1,10)

**Temporary MSRF#a2_sub8:**
Algorithm: Do over MSRF#a2 where # = 5 to 29:
MSRF#a2_sub8=substr(MSRF#a,1,8)

**Temporary MSRF#a2_sub6:**
Algorithm: Do over MSRF#a2 where # = 5 to 29:
MSRF#a2_sub6=substr(MSRF#a,1,6)

**Temporary MSRF#a2_sub4:**
Algorithm: Do over MSRF#a2 where # = 5 to 29:
MSRF#a2_sub4=substr(MSRF#a,1,4)

**Temporary MSRF#a2_sub2:**
Algorithm: Do over MSRF#a2 where # = 5 to 29:
MSRF#a2_sub2=substr(MSRF#a,1,2)

**Temporary FOUNDCHOL53:**
Algorithm: Do over **MSRF#a2_sub** where # = 5 to 29:
If **MSRF#a2_sub in (279930, 40100025, 409225, 771030, 781044, 96428049, 9646564700,** 9652504244, 96782839, and 390000-399999 -> EXCLUDING 39500045, 399990**)** then FOUNDCHOL53=1, else FOUNDCHOL53=0.

**Temporary FOUNDCHOL54:**
Algorithm: Do over **MSRF#a2_sub** where # = 5 to 29:
If **MSRF#a2_sub in (**121030-121045, 12105005, 121085, 121099 (EXCLUDING 1210990250), 2400001500, 2400001600, 2400001700, 2400003000, 2400003500, 2400003504, 2400005500, 24991002, 24993002, 24995002, 2599, 33100010, 33100025, 33200020, 33200021, 33200022, 33200025, 33200030,

363000,369920,37200010, 376000, 379900, 379910, 590700-594000**)** then FOUNDCHOL54=1, else FOUNDCHOL54=0.

**Temporary FOUNDHYPT52:**

Algorithm: Do over **MSRF#a2_sub** where # = 5 to 29:
If **MSRF#a2_sub in (**330000-339999 or 340000-349999 or 360000-369999 or 370000-379999 (EXCLUDING 37400010, 379920), 4099**)** then FOUNDHYPT52=1, else FOUNDHYPT52=0.

**Temporary FOUNDSTAT52:**

Algorithm: Do over **MSRF#a2_sub** where # = 5 to 29:
If **MSRF#a2_sub in (**279930, 3940 (EXCLUDING 39409908), 399940, 409925, 96428049, 96785839**)** then FOUNDSTAT52=1, else FOUNDSTAT52=0.

**Temporary FOUNDACOAG51:**

Algorithm: Do over MSRF#a2_sub2 where # = 5 to 29:
If MSRF#a2_sub2 equal 83 then FOUNDACOAG51=1, else FOUNDACOAG51=0.

**Temporary FOUNDASP52:**

Algorithm: Do over **MSRF#a2_sub** where # = 5 to 29:
If **MSRF#a2_sub IN (**4399100232, 4399590415, 4399590419, 6030990225, 6410, 6499000220, 6499000221, 6499000225, 6499000320, 6499000321, 6499000340, 6499000450, 6499000460, 6499100222, 6499100330, 6599000222, 6599100430, 6599130310 ,7599000210, 7599000310, 7599000320, 8515001000, 851599022**)** then FOUNDASP52=1, else FOUNDASP52=0.

**Temporary FOUNDANTIANX52:**

Algorithm: Do over **MSRF#a2_sub** where # = 5 to 29:
If **MSRF#a2_sub in (57)** then FOUNDANTIANX52=1, else FOUNDANTIANX52=0.

**Temporary FOUNDANTIPSYCH52:**

Algorithm: Do over **MSRF#a2_sub** where # = 5 to 29:
If **MSRF#a2_sub in (59, 6200003000)** then FOUNDANTIPSYCH52=1, FOUNDANTIPSYCH52=0.

**FOUNDHYPNOT52:**

Algorithm: Do over **MSRF#a2_sub** where # = 5 to 29:
If **MSRF#a2_sub in (**600000-602500, 604000-609985**)** then FOUNDHYPNOT52=1, FOUNDHYPNOT52=0.

**Temporary FOUNDANTICONV52:**
Algorithm: Do over **MSRF#a2_sub** where # = 5 to 29:
If **MSRF#a2_sub in (**49109904, 59400015, 60100060, 72, 9672561675**)** then FOUNDANTICONV52=1, FOUNDANTICONV52=0.

**Temporary FOUNDANTIDEM52:**
Algorithm: Do over **MSRF#a2_sub** where # = 5 to 29:
If **MSRF#a2_sub in (**62000001, 6205**)** then FOUNDANTIDEM52=1, FOUNDANTIDEMT52=0.

**Temporary FOUNDCNSALT52:**
Algorithm: Do over **MSRF#a2_sub** where # = 5 to 29:
If **MSRF#a2_sub in (**49109904, 57 - 60, 613540, 6140, 62206040, 6299, 72, 932000, 96426631, 9652646380, 9672561675**)** then FOUNDCNSALT 52=1, FOUNDCNSALT 52=0.

**Temporary FOUNDDIAB51:**
Algorithm: Do over MSRF#a2_sub2 where # = 5 to 29:
If MSRF#a2_sub2=27 then FOUNDDIAB51=1, FOUNDDIAB51=0.

**Temporary FOUNDBETA52:**
Algorithm: Do over **MSRF#a2_sub and MSRF#a2** where # = 5 to 29:
If **MSRF_a2_sub in (**33 (EXCLUDING 3310005010), 369920,369927, 369988**)** then FOUNDBETA52=1, else FOUNDBETA52=0.

**Temporary FOUNDANGINH52:**
Algorithm: Do over **MSRF#a2_sub** where # = 5 to 29:
If **MSRF_a2_sub in (**361000, 369918, 369985,96645857**)** then FOUNDANGINH52=1; else FOUNDANGINH52=0.

**Temporary FOUNDANGIANT52:**
Algorithm: Do over **MSRF#a2_sub** where # = 5 to 29:
If **MSRF_a2_sub in (**361500, 369930-369945, 369965**)** then FOUNDANGIANT52=1; else FOUNDANGIANT52=0.

**Temporary FOUNDALDANT52:**

Algorithm: Do over **MSRF#a2** where # = 5 to 29:
If **MSRF_a2 in (**362500, 3750002000, 3799000220**)** then FOUNDALDANT52=1; else FOUNDALDANT52=0.

**Temporary FOUNDLOOPDIU51:**

Algorithm: Do over MSRF#a2_sub6 where # = 5 to 29:
If MSRF_a2_sub6{i}=372000 then FOUNDLOOPDIU51=1; else FOUNDLOOPDIU51=0.

**Temporary FOUNDDIG52:**

Algorithm: Do over **MSRF#a2** where # = 5 to 29:
If **MSRF_a2 in (**31200010, 96485821**)** then FOUNDDIG52=1; else FOUNDDIG52=0.

## 9.1 CHOLMDCODE53 (V5 Cholesterol Lowering Medication in past 4 weeks - Using Medi-Span GPI Code)

Format: 0=No,
1=Yes,
.T=missing.

Algorithm: (From UC4735 – V4)
If FOUNDCHOL53=1 then CHOLMDCODE53=1

Else if FOUNDCHOL53=0 AND ((ALLMISS=1 AND MSRF2='T') OR (ALLMISS=0)) then CHOLMDCODE53=0

Else if ALLMISS=1 AND (MSRF2='F' OR MSRF2='') then CHOLMDCODE53=.T

Else CHOLMDCODE53=.

Source variable(s): FOUNDCHOL53, MSRF2, ALLMISS

## 9.2 CHOLMDCODE54 (V5 Medications Which Secondarily Affect Cholesterol in past 4 weeks - Using Medi-Span GPI Code)

Format: 0=No,
1=Yes,
.T=missing.

Algorithm: (From UC4735 – V4)
If FOUNDCHOL54=1 then CHOLMDCODE54=1

Else if FOUNDCHOL54=0 AND ((ALLMISS=1 AND MSRF2='T') OR (ALLMISS=0)) then CHOLMDCODE54=0

Else if ALLMISS=1 AND (MSRF2='F' OR MSRF2='') then CHOLMDCODE54=.T

Else CHOLMDCODE54=.

Source variable(s): FOUNDCHOL54, MSRF2, ALLMISS

### 9.3 HYPTMD51 (V5 Hypertension Medications in Past 4 Weeks: Self-reported)

Format: 0=No,
1=Yes,
.T=missing.

Algorithm: If (MSRF2 NE 'T') and (MSRF33D='Y') then HYPTMD51=1;
Else if (MSRF2='T' and MSRF33D='') OR MSRF33D='N' then HYPTMD51 = 0;

Else If ((MSRF2 NE 'T') and (MSRF33D='U' or MSRF33D = '')) or ((MSRF2='T') and (MSRF33D = 'Y' or MSRF33D='U')) then HYPTMD51=.T;

Source variable(s): MSRF2, MSRF33D

### 9.4 HYPTMDCODE52 (V5 Hypertension Lowering Medication in Past 4 weeks - Using Medi-Span GPI Code)

Format: 0=No,
1=Yes,
.T=missing.

Algorithm: (From UC4688 – V4)
If FOUNDHYPT52=1 OR (MSRF2 NE 'T') and (MSRF33D='Y')) then HYPTMDCODE52=1

Else if FOUNDHYPT52=0 AND ((ALLMISS=1 AND MSRF2='T') OR (ALLMISS=0) OR (MSRF2='T' and MSRF33D='') OR (MSRF33D='N')) then HYPTMDCODE52=0

Else if ALLMISS=1 AND (MSRF2='F' OR MSRF2='') then HYPTMDCODE52=.T

Else HYPTMDCODE52=.

Source variable(s): FOUNDHYPT52, MSRF2, MSRF33D

### 9.5 STATINCODE52 (V5 Statin Use in past 4 weeks - Using Medi-Span GPI Code)

Format: 0=No,
1=Yes,
.T=missing.

Algorithm: (From UC4892 – V4)
If FOUNDSTAT52=1 then STATINCODE52=1

Else if FOUNDSTAT52=0 AND ((ALLMISS=1 AND MSRF2='T') OR (ALLMISS=0)) then STATINCODE52=0

Else if ALLMISS=1 AND (MSRF2='F' OR MSRF2='') then STATINCODE52=.T

Else STATINCODE52=.

Source variable(s): FOUNDSTAT52, MSRF2, ALLMISS

### 9.6 ASPIRINCODE52 (V5 Aspirin Use in past 4 weeks - Using Medi-Span GPI Code)

Format: 0=No,
1=Yes,
.T=missing.

Algorithm: (From UC4892 – V4)
If FOUNDASP52=1 then ASPIRINCODE521=1

Else if FOUNDASP52=0 AND ((ALLMISS=1 AND MSRF2='T') OR (ALLMISS=0)) then ASPIRINCODE52=0

Else if ALLMISS=1 AND (MSRF2='F' OR MSRF2='') then ASPIRINCODE52=.T

Else ASPIRINCODE52=.

Source variable(s): FOUNDASP52, ALLMISS, MSRF2

### 9.7 ANTIANXMDCODE52 (V5 Antianxiety Medication in past 4 weeks - Using Medi-Span GPI Code)

Format: 0=No,
1=Yes,
.T=missing.

Algorithm: (From UC4735 – V4)
If FOUNDANTIANX52=1 then ANTIANXMDCODE52=1

Else if FOUNDANTIANX52=0 AND ((ALLMISS=1 AND MSRF2='T') OR (ALLMISS=0)) then ANTIANXMDCODE52=0

Else if ALLMISS=1 AND (MSRF2='F' OR MSRF2='') then ANTIANXMDCODE52=.T

Else ANTIANXMDCODE52=.

Source variable(s): FOUNDANTIANX52, ALLMISS, MSRF2

### 9.8 ANTIPSYCHMDCODE52 (V5 Antipsychotic Medication in past 4 weeks - Using Medi-Span GPI Code)

Format: 0=No,
1=Yes,
.T=missing.

Algorithm: (From UC4735 – V4)
If FOUNDANTIPSYCH52=1 then ANTIPSYCHMDCODE52=1

Else if FOUNDANTIPSYCH52=0 AND ((ALLMISS=1 AND MSRF2='T') OR (ALLMISS=0)) then ANTIPSYCHMDCODE52=0

Else if ALLMISS=1 AND (MSRF2='F' OR MSRF2='') then ANTIPSYCHMDCODE52=.T

Else ANTIPSYCHMDCODE52=.

Source variable(s): FOUNDANTIPSYCH52, ALLMISS, MSRF2

### 9.9 HYPNOTMDCODE52 (V5 Hypnotic/Sedative Medication in past 4 weeks - Using Medi-Span GPI Code)

Format: 0=No,
1=Yes,
.T=missing.

Algorithm: (From UC4735 – V4)
If FOUNDHYPNOT52=1 then HYPNOTMDCODE52=1

Else if FOUNDHYPNOT52=0 AND ((ALLMISS=1 AND MSRF2='T') OR (ALLMISS=0)) then HYPNOTMDCODE52=0

Else if ALLMISS=1 AND (MSRF2='F' OR MSRF2='') then HYPNOTMDCODE52=.T

Else HYPNOTMDCODE52=.

Source variable(s): FOUNDHYPNOT52, ALLMISS, MSRF2

### 9.10 ANTICONVMDCODE52 (V5 Anticonvulsant Medication in past 4 weeks - Using Medi-Span GPI Code)

Format: 0=No,
1=Yes,
.T=missing.

Algorithm: (From UC4735 – V4)
If FOUNDANTICONV52=1 then ANTICONVMDCODE52=1

Else if FOUNDANTICONV52=0 AND ((ALLMISS=1 AND MSRF2='T') OR (ALLMISS=0)) then ANTICONVMDCODE52=0

Else if ALLMISS=1 AND (MSRF2='F' OR MSRF2='') then ANTICONVMDCODE52=.T

Else ANTICONVMDCODE52=.

Source variable(s): FOUNDANTICONV52, ALLMISS, MSRF2

### 9.11 ANTIDEMMDCODE52 (V5 Antidementia/Nootropic Medication in past 4 weeks - Using Medi-Span GPI Code)

Format: 0=No,

1=Yes,
.T=missing.

Algorithm: (From UC4735 – V4)
If FOUNDANTIDEM52=1 then ANTIDEMMDCODE52=1

Else if FOUNDANTIDEM52=0 AND ((ALLMISS=1 AND MSRF2='T') OR (ALLMISS=0)) then ANTIDEMMDCODE52=0

Else if ALLMISS=1 AND (MSRF2='F' OR MSRF2='') then ANTIDEMMDCODE52=.T

Else ANTIDEMMDCODE52=.

Source variable(s): FOUNDANTIDEM52, ALLMISS, MSRF2

### 9.12 CNSALTMDCODE52 (V5 CNS Altering Medication in past 4 weeks - Using Medi-Span GPI Code)

Format: 0=No,
1=Yes,
.T=missing.

Algorithm: (From UC4735 – V4)
If FOUNDCNSATL52=1 then CNSALTMDCODE52=1

Else if FOUNDCNSATL52=0 AND ((ALLMISS=1 AND MSRF2='T') OR (ALLMISS=0)) then CNSALTMDCODE52=0

Else if ALLMISS=1 AND (MSRF2='F' OR MSRF2='') then CNSALTMDCODE52=.T

Else CNSALTMDCODE52=.

Source variable(s): FOUNDCNSATL52, ALLMISS, MSRF2

### 9.13 DIABMDCODE51 (V5 Diabetic Medications in past 4 weeks - Using Medi-Span GPI Code)

Format: 0=No,
1=Yes,
.T=missing.

Algorithm: If FOUNDDIAB51=1 then DIABMDCODE51=1

Else if FOUNDDIAB51=0 AND ((ALLMISS=1 AND MSRF2=’T’) OR (ALLMISS=0)) then DIABMDCODE51=0

Else if ALLMISS=1 AND (MSRF2=’F’ OR MSRF2=’’) then DIABMDCODE51=.T

Else DIABMDCODE51=.

Source variable(s): FOUNDDIAB51, ALLMISS, MSRF2

### 9.14 BETAMDCODE52 (V5 Beta-Blocker in past 4 weeks - Using Medi-Span GPI Code)

Format: 0=No,
1=Yes,
.T=missing.

Algorithm: If FOUNDBETA52=1 then BETAMDCODE52=1

Else if FOUNDBETA52=0 AND ((ALLMISS=1 AND MSRF2='T') OR (ALLMISS=0)) then BETAMDCODE52=0

Else if ALLMISS=1 AND (MSRF2='F' OR MSRF2='') then BETAMDCODE52=.T

Else BETAMDCODE52=.

Source variable(s): FOUNDBETA52, ALLMISS, MSRF2

### 9.15 ANGINHMDCODE52 (V5 Angiotensin converting enzyme inhibitor in past 4 weeks - Using Medi-Span GPI Code)

Format: 0=No,
1=Yes,
.T=missing.

Algorithm: If FOUNDANGINH52=1 then ANGINHMDCODE52=1

Else if FOUNDANGINH52=0 AND ((ALLMISS=1 AND MSRF2='T') OR (ALLMISS=0)) then ANGINHMDCODE52=0

Else if ALLMISS=1 AND (MSRF2='F' OR MSRF2='') then ANGINHMDCODE52=.T

Else ANGINHMDCODE52=.

Source variable(s): FOUNDANGINH52, ALLMISS, MSRF2

### 9.16 ANGIANTMDCODE52 (V5 Angiotensin II receptor antagonists in past 4 weeks - Using Medi-Span GPI Code)

Format: 0=No,
1=Yes,
.T=missing.

Algorithm: If FOUNDANGIANT52=1 then ANGANTMDCODE52=1

Else if FOUNDANGIANT52=0 AND ((ALLMISS=1 AND MSRF2='T') OR (ALLMISS=0)) then ANGANTMDCODE52=0

Else if ALLMISS=1 AND (MSRF2='F' OR MSRF2='') then ANGANTMDCODE52=.T

Else ANGANTMDCODE52=.

Source variable(s): FOUNDANGIANT52, ALLMISS, MSRF2

### 9.17 ALDANTMDCODE52 (V5 Aldosterone Antagonist in past 4 weeks - Using Medi-Span GPI Code)

Format: 0=No,
1=Yes,
.T=missing.

Algorithm: If FOUNDALDANT52=1 then ALDANTMDCODE52=1

Else if FOUNDALDANT52=0 AND ((ALLMISS=1 AND MSRF2='T') OR (ALLMISS=0)) then ALDANTMDCODE52=0

Else if ALLMISS=1 AND (MSRF2='F' OR MSRF2='') then ALDANTMDCODE52=.T

Else ALDANTMDCODE52=.

Source variable(s): FOUNDALDANT52, ALLMISS, MSRF2

### 9.18 LOOPDIUMDCODE51 (V5 Loop Diuretic in past 4 weeks - Using Medi-Span GPI Code)

Format: 0=No,

1=Yes,
.T=missing.

Algorithm: If FOUNDLOOPDIU51=1 then LOOPDIUMDCODE51=1

Else if FOUNDLOOPDIU51=0 AND ((ALLMISS=1 AND MSRF2='T') OR (ALLMISS=0)) then LOOPDIUMDCODE51=0

Else if ALLMISS=1 AND (MSRF2='F' OR MSRF2='') then LOOPDIUMDCODE51=.T

Else LOOPDIUMDCODE51=.

Source variable(s): FOUNDLOOPDIU51, ALLMISS, MSRF2

### 9.19 DIGMDCODE52 (V5 Digoxin in past 4 weeks - Using Medi-Span GPI Code)

Format: 0=No,
1=Yes,
.T=missing.

Algorithm: If FOUNDDIG52=1 then DIGMDCODE52=1

Else if FOUNDDIG52=0 AND ((ALLMISS=1 AND MSRF2='T') OR (ALLMISS=0)) then DIGMDCODE52=0

Else if ALLMISS=1 AND (MSRF2='F' OR MSRF2='') then DIGMDCODE52=.T

Else DIGMDCODE52=.

Source variable(s): FOUNDDIG52, ALLMISS, MSRF2

### 9.20 MORISKY51 (V5 Medication Adherence, Morisky Score)

Format: numeric integer variable; (range: 0-4)

Algorithm: This is the Morisky score of medication adherence that is based on questions Q40-Q43 from the MSR form which was administered at Visit 5. The Morisky score of medication adherence is based on dichotomous responses to 4 questions (all 4 questions NONMISSING).

When (MSRF40>'') AND (MSRF41>'') AND (MSRF42>'') AND (MSRF43>''))
Then MORISKY51=SUM (OF (MSRF40='Y'), (MSRF41='Y'), (MSRF42='Y'),(MSRF43='Y'))

**Source variable(s):** **MSRF40, MSRF41, MSRF429.21 MEDAD51 (V5 Medication Adherence, Morisky Scale)**

Format: numeric integer variable; (range: 1-3)
1 = 'high'
2 = 'intermediate'
3 = 'low';

Algorithm: Medication adherence is based on the Morisky scale and can be classified into the following categories: "low", "intermediate", and "high". If the person only responds to three questions but they clearly have low adherence, then MEDAD51 = "low".

If MORISKY51=0 then MEDAD51=1
If 1<=MORISKY51<=2 then MEDAD51=2
If 3<=MORISKY51<=4 then MEDAD51=3

If ((MSRF40>'')+(MSRF41>'')+(MSRF42>'')+(MSRF43>''))=3 AND SUM (OF (MSRF40='Y'), (MSRF41='Y'), (MSRF42='Y'), (MSRF43='Y'))=3 THEN
MEDAD51=3

Source variable(s): MSRF40, MSRF41, MSRF42, MORISKY51

## 10. PHYSICAL ACTIVITY

### 10.1 SPRT_I51 (V5 Sport during Leisure Time)

This index is a composite score of sport during leisure time.

Format: Continuous variable between 1 and 5

Algorithm:

- Create temporary variables I2_1, I2_2, I2_3, I2_4 (sport score corresponding to each of the 4 recorded sports or exercises reported by the participant)

| | | PAC variables being used in temporary variable | | | |
|---|---|---|---|---|---|
| | Sport Count | Activity | Time | Proportion | Remark |
| I2_1 | 1 | PAC2 | PAC3 | PAC4 | |
| I2_2 | 2 | PAC6 | PAC7 | PAC8 | 0 if PAC5='N' |
| I2_3 | 3 | PAC10 | PAC11 | PAC12 | 0 if PAC9='N' |
| I2_4 | 4 | PAC14 | PAC15 | PAC16 | 0 if PAC13='N' |

- An intensity level is assigned to each of the activity codes

| Intensity | Activity Codes (PAC2, PAC6, PAC10, PAC14) |
|---|---|
| Light | 1,31,43,55,60,61,73,76,79,97,121,125,136,142,154,169,178,208, 229,244,286,304,322,328,403,412,415,418,421,448,499 |
| Moderate | 2,3,4,7,10,16,25,28,37,40,49,52,70,82,94,100,118,124,130,139, 145,146,148,160,163,175,181,187,190,193,199,205,211,217,232, 235,238,247,249,350,333,498,259,262,265,271,289,292,295,301, 310,313,319,325,331,340,352,355,358,364,376,385,388,391,397, 400,404,406,409,427,430,436,451 |
| Heavy | 13,19,22,46,58,67,85,88,91,109,112,115,127,133,151,157,166,172, 184,196,202,214,220,223,226,241,250,253,268,274,277,280,283, 298,316,334,337,343,346,349,361,367,370,373,379,382,394,424, 433,437,439,442 |

- Calculate sport score for each activity using the following formula, intensity(**X**)*hours_weeks(**Y**)*months_year(**Z**) where X, Y, and Z are assigned values according to the following:

| Intensity | **X** |
|---|---|
| Light | 0.76 |
| Moderate | 1.26 |
| Heavy | 1.76 |

| Hours (per week) | Variable value | **Y** |
|---|---|---|
| Less than one hour | A | .5 |

| | | |
|---|---|---|
| At least 1 but not quite 2 | B | 1.5 |
| At least 2 but not quite 3 | C | 2.5 |
| At least 3 but not quite 4 | D | 3.5 |
| 4 or more | E | 4.5 |

| Months (per year) | Variable value | **Z** |
|---|---|---|
| Less than 1 | A | 0.04 |
| At least 1 but not quite 4 | B | 0.17 |
| At least 4 but not quite 7 | C | 0.42 |
| At least 7 but not quite 10 | D | 0.67 |
| 10 or more | E | 0.92 |

**I2 Summary sports score**

- Calculate I_2=I2_1+ I2_2 +I2_3+I2_4: sum of four simple sports scores.
  Note:
  If PAC5='N' then I2_2=0
  If PAC9='N' then I2_3=0
  If PAC13='N' then I2_4=0

  This sum score is then recoded to a score of 1 to 5 based on the following criteria:

  If PAC1='N' then I2=1 else
  If 0<=I_2<0.01 then I2=1
  If 0.01<=I_2<4 then I2=2
  If 4<=I_2<8 then I2=3
  If 8<=I_2<12 then I2=4
  If 12<=I_2 then I2=5

**I3 Leisure sport exercise activity versus peers, recoded**

- PAC19 was recoded as follows:

| Format | PAC19 value | Recoded value for algorithm |
|---|---|---|
| Much less | A | 1 |
| Less | B | 2 |
| The same | C | 3 |
| More | D | 4 |
| Much more | E | 5 |

**I4 Sweat during leisure time, recoded**

- PAC20 was recoded as follows:

| Format | PAC20 value | Recoded value for algorithm |
|---|---|---|

| | | |
|---|---|---|
| Never | A | 1 |
| Seldom | B | 2 |
| Sometimes | C | 3 |
| Often | D | 4 |
| Very often | E | 5 |

**I5 Sports/exercise during leisure activity, recoded**

- PAC18 was recoded as follows:

| Format | PAC18 value | Recoded value for algorithm |
|---|---|---|
| Never | A | 1 |
| Seldom | B | 2 |
| Sometimes | C | 3 |
| Often | D | 4 |
| Very often | E | 5 |

SPRT_I51= (I2+I3+I4+I5)/4
If I2 or I3 or I4 or I5 is missing then SPRT_I51=.T

### 10.2 LISR_I52 (V5 Physical Activity during Leisure Time Excluding Sport)

This index is a composite score of leisure time activity that includes frequency of TV viewing, frequency of walking, and frequency of bicycling. The question about the number of minutes walked or bicycled per day to and from work or shopping was not included in the battery so the variable is not exactly defined as was in previous visits

Format: Continuous variable between 1 and 5

Algorithm:

**I6 Leisure time television watching, recoded**

- PAC21 was recoded as follows:

| Format | PAC21 value | Recoded value for algorithm |
|---|---|---|
| Never | A | 5 |
| Seldom | B | 4 |
| Sometimes | C | 3 |
| Often | D | 2 |
| Very often | E | 1 |

**I7 Leisure time walking frequency, recoded**

- PAC22 was recoded as follows:

| Format | PAC22 | Recoded value for algorithm |
|---|---|---|
| Never | A | 1 |
| Seldom | B | 2 |

| | | |
|---|---|---|
| Sometimes | C | 3 |
| Often | D | 4 |
| Very often | E | 5 |

**I8 Leisure time cycling frequency, recoded**

- PAC23 was recoded as follows:

| Format | PAC23 value | Recoded value for algorithm |
|---|---|---|
| Never | A | 1 |
| Seldom | B | 2 |
| Sometimes | C | 3 |
| Often | D | 4 |
| Very often | E | 5 |

LISR_I52= (I6+I7+I8+ ((I7+I8)/2))/4
If I6 or I7 or I8 is missing then LISR_I52=.T

## 11. PHYSICAL FUNCTION

### 11.1 SPPBCS51 (V5 Physical Function Chair Stand)

Format: numeric integer variable; (0-4 possible points)

Algorithm: If (PFX1 in (2,3,4)) OR (PFX2 in (2,3)) OR (PFX2b_DER>=60) then SPPBCS51=0;
Else if (16.70<= PFX2b_DER <60) then SPPBCS51=1;
Else if (13.70<= PFX2b_DER <16.70) then SPPBCS51=2;
Else if (11.20<= PFX2b_DER <13.70) then SPPBCS51=3;
Else if (. <PFX2b_DER <11.20) then SPPBCS51=4;
Else SPPBCS51=. ;

Source variable(s): PFX1, PFX2, PFX2b_DER

### 11.2 SPPBST51 (V5 Physical Function Semi Tandem Stand)

Format: numeric integer variable

Algorithm: If (PFX3 in (2,3,4)) then SPPBST51=0;
Else if (PFX3=5) then SPPBST51=1;
Else SPPBST51=. ;

Source variable(s): PFX3

### 11.3 SPPBSBS51 (V5 Physical Function Side-by-Side Stand)

Format: numeric integer variable

Algorithm: If (PFX4 in (2,3,4)) then SPPBSBS51=0;
Else if (PFX3=5 OR PFX4=5) then SPPBSBS51=1;
Else SPPBSBS51=. ;

Source variable(s): PFX4, PFX3

### 11.4 SPPBTS51 (V5 Physical Function Tandem Stand)

Format: numeric integer variable

Algorithm: If (max(PFX5, PFX6) in (2,3)) OR (PFX3 in (2,3,4)) then SPPBTS51=0;

else if (max(PFX5,PFX6)=4) and (1<= max(PFX5a_DER, PFX6a_DER)<3) then SPPBTS51=0;
else if (max(PFX5,PFX6)=4) AND (3 <= max(PFX5a_DER, PFX6a_DER) <10) then SPPBTS51=1;
else if max(PFX5, PFX6) =5 then SPPBTS51 = 2;
else SPPBTS51=NULL;

Source variable(s): PFX3, PFX5, PFX5a_DER, PFX6, PFX6a_DER

### 11.5 SPPBBAL51 (V5 Physical Function Summary Balance Score)

Format: numeric integer variable

Algorithm: SPPBBAL51= SPPBST51+SPPBSBS51+SPPBTS51

Source variable(s): SPPBST51,SPPBSBS51,SPPBTS51

### 11.6 WALKAID51 (V5 Physical Function 4 Meter Walk: Used Walking Aid)

Format: 0=No,
1=Yes,
.T=missing,
.=missing.

Algorithm: This indicator variable will be set to 1 when a patient used a walking aid during the 4 meter walk. The walk is performed twice and in the instance where a patient uses an aid in one trial, but not in the other, this variable will be set according to the presence or absence of a walking aid that goes with the fastest time of the 2 trials.
If WALK4M51>.T then WALKAID51 = (WALK4M51 IN (PFX7a_der,PFX8a_der));
Else WALKAID51=.T;

Source variable(s): WALK4M51, PFX7a_der, PFX8a_der

### 11.7 WALK4M51 (V5 Physical Function 4 Meter Walk, Fastest Time of 2 Trials)

Format: numeric continuous variable (f4.2.)

Algorithm: The better of (1) PFX7a and PFX8a if walking aid is used OR the better of (2) PFX7b and PFX8b if no walking aid is used. There are some instances where a walking aid is used in one trial and not in

the other trial. The variable will be the fastest time walked regardless of using the aid or not. All participants at the clinic visits should have a timed walk. Any who did not do the test due to ""not attempted/unable" will have a missing value for this variable If only one trial completed, use the results from that trial.

If .<max(pfx7,pfx8)<=2 then WALK4M51=.T;
Else WALK4M51 = min(PFX7a_der, PFX7b_der, PFX8a_der, PFX8b_der)

Source variable(s): pfx7, pfx8, PFX7a_der, PFX7b_der, PFX8a_der, PFX8b_der

### 11.8 WALKAID52 (V5 Physical Function 4 Meter Walk: Used Walking Aid in both trials (USE WITH WALK4M52))

Format: 0=No,
1=Yes,
.T=missing.

Algorithm: if WALK4M52>. Then WALKAID52=((PFX7=3) AND (PFX8=3))
else WALKAID52=.T

Source variable(s): PFX7, PFX8

### 11.9 WALK4M52 (V5 Physical Function 4 Meter Walk, Average Time of 2 Trials (BOTH TRIAL WITH AID OR BOTH TRIALS WITHOUT AID))

Format: numeric continuous variable (f4.2.)

Algorithm: WALK4M52 =MAX((PFX7A_DER + PFX8A_DER)/2, (PFX7B_DER+PFX8B_DER)/2)

Source variable(s): PFX7A_DER, PFX7B_DER, PFX8A_DER, PFX8B_DER

### 11.10 SPPB4M51 (V5 Physical Function 4 Meter Walk Score)

Format: numeric integer variable

Algorithm: If max(PFX7,PFX8) = 2 then SPPB4M51 = 0;
Else if (WALK4M51> 8.70) SPPB4M51 = 1;
else if (6.21 <= WALK4M51<= 8.70) then SPPB4M51 = 2;
else if (4.82 <= WALK4M51< 6.21) then SPPB4M51= 3;
else if (.z < WALK4M51< 4.82) then SPPB4M51 = 4;

else SPPB4M51= .T ;

Source variable(s): PFX7, PFX8, WALK4M51

### 11.11 SPPB51 (V5 Short Physical Performance Summary Battery Score)

Format: numeric integer variable

Algorithm: The SPPB total score is calculated when all three of its subcomponent tasks are not missing. If any of SPPBCS51, SPPBAL51, or SPPB4M51 are missing, then SPPB51 is missing.

SPPB51= SPPBCS51+SPPBBAL51+SPPB4M51

Source variable(s): SPPBCS51,SPPBBAL51,SPPB4M51

### 11.12 GRIPBEST51 (V5 Physical Function Grip, Best of 2 Trials)

Format: numeric continuous variable; (0-99)

Algorithm: Max of PFX11b and PFX11c. Only participants who respond "Both" to PFX10a should be excluded (i.e. surgery on both hands). Less than 2% are missing grip strength as of May 2012, likely to have little impact on inferences. Standard approaches to missing data such as sensitivity analyses with multiple imputations can be employed if inappropriate to ignore missingness.

If PFX10a NE . and PFX10a NE ‘B’ then GRIPBEST51=max(PFX11b,PFX11c);

Source variable(s): PFX10a, PFX11b, PFX11c

### 11.13 GRIPMEAN51 (V5 Physical Function Grip, Mean of 2 Trials)

Format: numeric continuous variable; (0-99)

Algorithm: Mean of PFX11b and PFX11c. Only participants who respond "Both" to PFX10a should be excluded (i.e. surgery on both hands). The variable will be missing if less than 2 trials are completed. Less than 2% are missing grip strength as of May 2012, likely to have little impact on inferences. Standard approaches to missing data

such as sensitivity analyses with multiple imputations can be employed if inappropriate to ignore missingness.

If PFX10a NE . and PFX10a NE ‘B’ then GRIPMEAN51=(PFX11b+PFX11c)/2;

Source variable(s): PFX10a, PFX11b, PFX11c

### 11.14 EXHAUSTCOMP (Responded 2 or 3 on CES3 or CES11 (CESD) – frailty exhaustion component)

Description: The EXHAUSTCOMP variable is being used in determining the PPT’s frailty level.

Type: numeric, valid values: 1, 0, missing

Algorithm: If the PPT responded 2 or 3 to CES3 or CES11 then EXHAUSTCOMP=1, or if the PPT responded otherwise to CES3 and CES11 then EXHAUSTCOMP=0, otherwise EXHAUSTCOMP=missing.

Source variable(s): CES3, CES11

### 11.15 GRIPCOMP (Frailty Component: Grip Strength)

Description: The GRIPCOMP variable is being used in determining the PPT’s frailty level

Format: 0=No
1=Yes
.=Missing

Type: Numeric

Algorithm: GRIPCOMP=1:

Males:
IF gender = 'M' AND BMI51 <= 24 AND .<MAX(pfx11b, pfx11c) <= 29 OR
IF gender = 'M' AND 24 < BMI51 <= 26 AND .<MAX(pfx11b, pfx11c) <= 30 OR
IF gender = 'M' AND 26 < BMI51 <= 28 AND .<MAX(pfx11b, pfx11c) <= 30 OR

IF gender = 'M' AND BMI51 > 28 AND .<MAX(pfx11b, pfx11c) <= 32 OR

Females:
IF gender = 'F' AND BMI51 <= 23 AND .<MAX(pfx11b, pfx11c) <= 17 OR
IF gender = 'F' AND 23 < BMI51 <= 26 AND .<MAX(pfx11b, pfx11c) <= 17.3 OR
IF gender = 'F' AND 26 < BMI51 <= 29 AND .<MAX(pfx11b, pfx11c) <= 18 OR
IF gender = 'F' AND BMI51 > 29 AND .<MAX(pfx11b, pfx11c) <= 21

GRIPCOMP=1=NULL:
IF gender=NULL or BMI51 =NULL or (pfx11b and pfx11c)=NULL

GRIPCOMP=1=0:
Otherwise

Source variable(s): gender, BMI51, pfx11b, pfx11c

### 11.16 PACCOMP20 (Frailty Component: Physical Activity)

Description: The PACCOMP20 variable is being used in determining the PPT's frailty level

Format: 0=No
1=Yes
.=Missing

Type: Numeric

Algorithm: IF ((.<sprt_i51 < 1.75) AND (gender = 'F')) OR

((.<sprt_i51 < 2.00) AND (gender = 'M')) THEN Paccomp20=1;

IF sprt_i51 = . OR sprt_i51 = .T THEN Paccomp20=.;

Source variable(s): sprt_i51, gender

### 11.17 EXHAUST51 (Responded 2 or 3 on CES3 or CES11 (CESD) – frailty exhaustion component)

Format: 1=Yes
0=No
.=Missing

Type: numeric

Algorithm: Exhaust51=1
IF (CES3=2 OR CES3=3) OR (CES11=2 OR CES11=3)

ELSE Exhaust51=. IF CES3=. AND CES11=.

ELSE Exhaust51=0

Source variable(s): CES3, CES11

### 11.18 V4V5WTDELTAP51 (% of V4 weight change from V4 to V5 (neg val means loss) – frailty weight loss component)

Description: The change in weight from visit 4 to visit 5 is calculated and presented as the % of visit 4 weight.

Type: numeric

Algorithm: (ant4-(antd2/2.2)/(antd2/2.2)*100

Source variable(s): ANT4, ANTD2

### 11.19 WALKCOMP (Frailty Component: Walking Speed)

Description: The WALKCOMP variable is being used in determining the PPT's frailty level.

Format: 0=No
1=Yes
.=Missing

Type: Numeric

Algorithm: WALKCOMP=1:

Males:
IF (gender = 'M' AND ant3 <=173 AND Walkspeed15ft51>= 7) OR
IF (gender = 'M' AND ant3 > 173 AND Walkspeed15ft51>= 6) OR

Females:
IF (gender = 'F' AND ant3 <=159 AND Walkspeed15ft51>= 7) OR
IF (gender = 'F' AND ant3 > 159 AND Walkspeed15ft51>= 6)

WALKCOMP =NULL:
IF gender=NULL or ant3 =NULL or Walkspeed15ft51= NULL
ELSE WALKCOMP =0

Source variable(s): gender, ant3, Walkspeed15ft51

### 11.20 WALKSPEED15FT51 (Time in seconds used to walk 15ft – frailty slowness component)

Description: The physical function form collects data on times to walk 4 meters. The WALKSPEED15FT51 variable uses the 4m walk rate to calculate the time in seconds needed to walk 15ft.

Type: numeric

Algorithm: WALKSPEED15FT51=MIN((15/3.28084)*(pfx7a_der/4), (15/3.28084)*(pfx7b_der/4),(15/3.28084)*(pfx8a_der/4), (15/3.28084)*(pfx8b_der/4))

Source variable(s): PFX7A_DER, PFX7B_DER, PFX8A_DER, PFX8B_DER

### 11.21 WTLOSSCOMP10 (Frailty Component: Weight Loss)

Description: The WTLOSSCOMP10 variable is being used in determining the PPT's frailty level based on more restrictive weight loss greater than 10% or low BMI.

Format: 0=No
1=Yes
.=Missing

Type: Numeric

Algorithm: WTLOSSCOMP10=1, if (.<V4V5WTDELTAP51<=-10) OR (.<BMI51<18.5)

WTLOSSCOMP10=0, if (V4V5WTDELTAP51>-10) AND (BMI51>=18.5)

WTLOSSCOMP10=NULL, if V4V5WTDELTAP51 and BMI51 are NULL

Source variable(s): V4V5WTDELTAP51 BMI51

## 11.22 FRAILTY51 (ARIC Physical Function WG Frailty Definition 1)

Description: 5 components are considered in deriving the frailty variable: weight loss, exhaustion, low energy expenditure, slowness, and weakness. Indicators for these components are defined below. If 3 or more of the components are present, then frailty51=1 (frail). If 1 or 2 of the components are present, then frailty51=2 (prefrail). If none of the components are present, then frailty51=3 (robust) and there is data for each component (no component has a missing value). Reference values for slowness and weakness come from the Cardiovascular Health Study (**CHS**).

- Weight loss: If PPT lost more than 10% of their Visit 4 weight then criterion is met (V4V5WTDELTAP51) OR if non-missing BMI51 <18.5.
- Exhaustion: If PPT felt weak or couldn't get going the criterion is met (EXHAUSTCOMP).
- Low energy expenditure: if sprt_i51 < 1.70 AND gender='F' OR if sprt_i51<2.00 AND gender='M'. Variables sprt_i51, gender are found in DERIVE51
- Slowness: If walking speed (15ft) was higher than the specified times adjusted for PPT height and gender then the criterion is met: Female: >=7 secs for heights <=159cm or >=6 for heights >159cm; Male: >=7 secs for heights <=173cm or >=6 for heights >173cm (WALKSPEED15FT51, ANT3).
- Weakness: If grip strength was lower than the specified cutpoints (shown in table) adjusted for gender and BMI then the criterion is met (GENDER, BMI51, PFX11B, PFX11C).

| GENDER | BMI | GRIP STRENGTH | GENDER | BMI | GRIP STRENGTH |
|---|---|---|---|---|---|
| male | <=24 | <=29 | female | <=23 | <=17 |
| male | 24<BMI<=26 | <=30 | female | 23<BMI<=26 | <=17.3 |
| male | 26<BMI<=28 | <=30 | female | 26<BMI<=29 | <=18 |
| male | BMI>28 | <=32 | female | BMI>29 | <=21 |

## 11.23 FRAILTY52 (ARIC Physical Function WG Frailty Definition 2)

Description: 5 components are considered in deriving the frailty variable: weight loss, exhaustion, low energy expenditure, slowness, and weakness. Indicators for these components are defined below. If 3 or more of the components are present, then frailty51=1 (frail). If 1 or 2 of the components are present, then frailty51=2 (prefrail). If none of the components are present, then frailty52=3 (robust) and there is data for each component (no component has a missing value). Reference values for slowness and weakness come from the **ARIC** cohort.

- Weight loss: If PPT lost more than 10% of their Visit 4 weight then criterion is met (V4V5WTDELTAP51) OR if non-missing BMI51 <18.5.
- Exhaustion: If PPT felt weak or couldn't get going the criterion is met (EXHAUSTCOMP).
- Low energy expenditure: if .<sprt_i51 < 1.75 AND gender='F' OR if .<sprt_i51<2.00 AND gender='M'. Variables sprt_i51, gender are found in DERIVE51
- Slowness: If walking speed (15ft) was higher than the specified times adjusted for PPT height and gender then the criterion is met: Female: >=6.5 secs for heights <=160cm or >=6 for heights >160cm; Male: >=6 secs for heights <=174cm or >=5.5 for heights >174cm (WALKSPEED15FT51, ANT3).
- Weakness: If grip strength was lower than the specified cutpoints (shown in table) adjusted for gender and BMI then the criterion is met (GENDER, BMI51, PFX11B, PFX11C).

| GENDER | BMI | GRIP STRENGTH | GENDER | BMI | GRIP STRENGTH |
|---|---|---|---|---|---|
| male | <=25.3 | <=30 | female | <=24.5 | <=18 |
| male | 25.3<BMI<=28 | <=30 | female | 24.5<BMI<=28 | <=18 |
| male | 28<BMI<=31.2 | <=30 | female | 28<BMI<=32.1 | <=18 |
| male | BMI>31.2 | <=30 | female | BMI>32.1 | <=19 |

### 11.24 FRAILTY53 (ARIC Physical Function WG Frailty Definition – weight loss dropped)

Description: 4 components (dropped weight loss component) are considered in deriving the frailty variable (definition=53). Indicators for these components are defined below. If 3 or more of the components are present, then frailty53=1. If 1 or 2 of the components are present, then frailty51=2. If all of the components are non-NULL and all equal 0 then frailty51=3.

2. Meets exhaustion component: if EXHAUSTCOMP=1
3. Meets Low Energy component: if PACCOMP20=1
4. Meets Low Walking Speed component: if WALKCOMP=1
5. Meets Low Grip Strength component: if GRIPCOMP=1

- Weight loss: Weight loss component dropped in FRAILTY53
- Exhaustion: If PPT felt weak or couldn't get going the criterion is met (EXHAUSTCOMP).
- Low energy expenditure: if .<sprt_i51 < 1.75 AND gender='F' OR if .<sprt_i51<2.00 AND gender='M'. Variables sprt_i51, gender are found in DERIVE51
- Slowness: If walking speed (15ft) was higher than the specified times adjusted for PPT height and gender then the criterion is met: Female: >=6.5 secs for

heights <=160cm or >=6 for heights >160cm; Male: >=6 secs for heights <=174cm or >=5.5 for heights >174cm (WALKSPEED15FT51, ANT3).

- Weakness: If grip strength was lower than the specified cutpoints (shown in table) adjusted for gender and BMI then the criterion is met (GENDER, BMI51, PFX11B, PFX11C).

### 11.25 GAITSPEED51 (V5 gait speed (m/sec))

Type: Numeric

Algorithm: =4/WALK4M51, If walk4m51>0

Source variable(s) walk4m51

### 11.26 V5CANCER51 (Reported a cancer site during an ARIC follow-up interview in the time from 06-01-2011 to the V5date51 (V5 visit date))

Description: Indicator used as proxy measure for having cancer at V5.

Type: numeric, valid values: 1, 0, missing

Algorithm: The V5CANCER51 is a proxy measure derived from ARIC follow-up data. If a PPT reported a cancer site during their follow-up interview that occurred anytime between June 2011 and the PPT visit date then the variable was set to 1. If the PPT was interviewed for ARIC follow-up during that time and did not report a cancer site then the variable was set to 0, otherwise the variable was set to missing.

V5cancer51=1
IF afucomp7j_G>'' AND "01JUN2011"d<= afucomp1_A<=v5date51

ELSE if no AFU records exist BETWEEN "01JUN2011"d AND "01OCT2013"d then V5CANCER51=.

ELSE V5CANCER51=0

Source variable(s): afucomp7j_G, v5date51

## 12. SPIROMETRY

### 12.1 FVCL51 (V5 Forced vital capacity, liters)

Format: Continuous Numeric Variable

Algorithm: FVCL51= pulp27/1000

### 12.2 FEV1L51 (V5 Forced expiratory volume in 1 second, liters)

Format: Continuous Numeric Variable

Algorithm: FEV1L51 = pulp31/1000

### 12.3 FEV1FVC51 (V5 Forced expiratory ratio FEV1/FVC %)

Format: Continuous Numeric Variable Percentage (0-100%)

Algorithm: FEV1FVC51= (pulp31/pulp27)*100

### 12.4 PPFVC51 (V5 % Predicted forced vital capacity)

Format: Continuous Numeric Variable Percentage (0-100%)

Algorithm: PPFVC51= (pulp27/pulp38)*100

### 12.5 PPFEV151 (V5 % Predicted forced expiratory volume in 1 second)

Format: Continuous Numeric Variable Percentage (0-100%)

Algorithm: PPFEV151= (pulp31/pulp39)*100

### 12.6 PPFEV1FVC51 (V5 % Predicted forced expiratory ratio FEV1/FVC)

Format: Continuous Numeric Variable Percentage (0-100%)

Algorithm: PPFEV1FVC51= ((pulp31/pulp27)/(pulp41/100))*100

### 12.7 PBDFVC51 (V5 Post-bronchodilator forced vital capacity, liters)

Format: Continuous Numeric Variable

Algorithm: PBDFVC51= pulb27/1000

### 12.8 PBDFEV151 (V5 Post-bronchodilator forced expiratory volume in 1 second, liters)

Format: Continuous Numeric Variable

Algorithm: PBDFEV151 = pulb31/1000

### 12.9 PBDFEV1FVC51 (V5 Post-bronchodilator forced expiratory ratio FEV1/FVC %)

Format: Continuous Numeric Variable Percentage (0-100%)

Algorithm: PBDFEV1FVC51 = (pulb31/pulb27)*100

### 12.10 PDPBDFVC51 (V5 % Change Post-bronchodilator forced vital capacity)

Format: Continuous Numeric Variable Percentage (0-100%)

Algorithm: PDPBDFVC51 = ((pulb27-pulp27)/pulp27)*100

### 12.11 PDPBDFEV151 (V5 % Change Post-bronchodilator forced expiratory volume in 1 second)

Format: Continuous Numeric Variable Percentage (0-100%)

Algorithm: PDPBDFEV151 = (pulb31-pulp31)/pulp31)*100

## 13. NEUROCOGNITIVE STUDY

### 13.1 SELECTED_STAGE_2 (NCS Selected to Stage 2)

Description: Pages 5 through 7 in ARIC Manual 17 details the selection process for stage 2 and stage 3 participants. The ARIC data management system runs an algorithm that tells if a PPT has been selected to stage 2 following the stage 1 neurocognitive testing.
In addition, there were 57 cases reviewed by the Dementia Classification Committee that were not selected to stage 2 automatically. When the Committee provided a diagnosis for the PPT, that PPT became selected to stage 2.

Type: numeric; valid values: 1, 0, missing

Source variables: NSS12, NSS13, stage_2_complete

### 13.2 SELECTED_STAGE_3 (NCS Selected to Stage 3)

Description: All PPTs who were selected to stage 2 were automatically selected to stage 3.

Type: numeric; valid values: 1, 0, missing

Source variables: NSS12, NSS13, stage_3_complete

### 13.3 CESD51 (V5 CES-Depression Scale)

Format: Continuous Numeric Variable

Algorithm: If there are 10 mon-missing items among CES1 through CES11 then CESD51=sum of CES1 through CES11; otherwise missing.

Source variable(s): CES1-CES11

### 13.4 NEUROCOG_STATUS_V2 (Neurocognitive Status Ver.2 Matches Stage 2 Selection Criteria)

Description: Categorical variable for neurocognitive status. This is the second version and matches Stage 2 selection criteria. A=Atypical T=Typical.

Type: character, length=$1.

Algorithm: If NCS18='Yes' or (NSS6 ≥ 1 AND NSS11 ≥ 1) then Neurocog_status_v2='A';
Else if both NCS and NSS form are present and not permanently missing then Neurocog_status_v2='T';
Otherwise Neurocog_status_v2=' ' (missing).

Source variable(s): NCS18, NSS6, NSS11

### 13.5 FAQ51 (Functional Activities Questionnaire)

Description: Numeric variable for score on the Functional Activities Questionnaire. The FAQ is not calculated when some of the items have a NULL response.

Type: numeric

Algorithm: when all items are answered,
FAQ51=CDI25 + CDI26 + CDI31 + 2(CDI35) + CDI36 + CDI37 + CDI18 + CDI17 + CDI22

Source variable(s): CDI17, CDI18, CDI22, CDI25, CDI26, CDI31, CDI35, CDI36, CDI37

### 13.6 PRORATEDMMS51 (Pro-rated MMSE score)

Description: Numeric variable calculated from the Mini-Mental State Exam.

Type: numeric

Algorithm: PRORATEDMMS51=30*MME31/(30 – MME32)

Source variable(s): MME31, MME32

### 13.7 REVISEDSYNDDIAG51 (Computer algorithm syndromic dx)

Description: Categorical variable for the computer-determined MCI/dementia syndromic diagnosis where 0=normal, 1=probably normal, 2=uncertain, 3=probably mci, 4=probably dementia, 5=mild cognitive impairment, 6=dementia. The table for these diagnoses is based on Table 1 below, which is Table 6.1 on p. 16 of MOP: 17 ARIC Neurocognitive Exam (Stages 2 and 3) .

Type: numeric

Source variable(s): NSS6, NSS11, CDS7, FAQ51, PRORATEDMMS51, RACEGRP

**Table 1 : Computer Algorithm Determination of REVISEDSYNDDIAG51**

| Row | Decline[1] **(NSS11>=1)** | Fail domain[2] **(revised NSS6[3])** | CDRsb **(CDS7)** | FAQ **(FAQ51)** | **REVISEDSYNDDIAG** | Dx (formatted value of REVISEDSYNDDIAG) |
|---|---|---|---|---|---|---|
| 0 | PRORATEDMMSE51 score less than 21 for white participants or PRORATEDMMSE51 score less than 19 for black participants | | | | 4 | Prob Dem |
| 1 | N | 0 | 0, missing | ≤5, missing | 0 | NL |
| 2 | N | 0 | 0 | >5 | 1 | Prob NL |
| 3 | N | 0 | >0 but ≤3 | ≤5, missing | 1 | Prob NL |
| 4 | N | 0 | >0 but ≤3 | >5 | 2 | Uncert, rvu |
| 5 | N | 0 | >3 | ≤5, missing | 2 | Uncert, rvu |
| 6 | N | 0 | >3 | >5 | 2 | Uncert, rvu |
| 7 | N | 1 | 0, missing | ≤5, missing | 1 | Prob NL |
| 8 | N | 1 | 0 | >5 | 3 | Prob MCI |
| 9 | N | 1 | >0 but ≤3 | ≤5, missing | 3 | Prob MCI |
| 10 | N | 1 | >0 but ≤3 | >5 | 3 | Prob MCI |
| 11 | N | 1 | >3 | ≤5, missing | 4 | Prob Dem |
| 12 | N | 1 | >3 | >5 | 4 | Prob Dem |
| 13 | N | >1 | 0, missing | ≤5, missing | 1 | Prob NL |
| 14 | N | >1 | 0 | >5 | 3 | Prob MCI |
| 15 | N | >1 | >0 but ≤3 | ≤5, missing | 3 | Prob MCI |
| 16 | N | >1 | >0 but ≤3 | >5 | 3 | Prob MCI |
| 17 | N | >1 | >3 | ≤5 | 4 | Prob Dem |
| 18 | N | >1 | >3 | >5, missing | 4 | Prob Dem |
| 19 | y | 0 | 0, missing | ≤5, missing | 0 | NL |
| 20 | y | 0 | 0 | >5 | 2 | Uncert, rvu |
| 21 | y | 0 | >0 but ≤3 | ≤5, missing | 1 | Prob NL |
| 22 | y | 0 | >0 but ≤3 | >5 | 1 | Prob NL |
| 23 | y | 0 | >3 | ≤5, missing | 2 | Uncert, rvu |
| 24 | y | 0 | >3 | >5 | 2 | Uncert, rvu |
| 25 | y | 1 | 0, missing | ≤5, missing | 5 | MCI |
| 26 | y | 1 | 0 | >5 | 3 | Prob MCI |
| 27 | y | 1 | >0 but ≤3 | ≤5, missing | 5 | MCI |
| 28 | y | 1 | >0 but ≤3 | >5 | 3 | Prob MCI |
| 29 | y | 1 | >3 | ≤5 | 4 | Prob Dem |
| 30 | y | 1 | >3 | >5, missing | 4 | Prob Dem |
| 31 | y | >1 | 0, missing | ≤5, missing | 5 | MCI |

| Row | Decline[1] **(NSS11>=1)** | Fail domain[2] **(revised NSS6[3])** | CDRsb **(CDS7)** | FAQ **(FAQ51)** | **REVISEDSYNDDIAG** | Dx (formatted value of REVISEDSYNDDIAG) |
|---|---|---|---|---|---|---|
| 32 | y | >1 | 0 | >5 | 3 | Prob MCI |
| 33 | y | >1 | >0 but ≤3 | ≤5 | 5 | MCI |
| 34 | y | >1 | >0 but ≤3 | >5, missing | 3 | Prob MCI |
| 35 | y | >1 | >3 | ≤5 | 4 | Prob Dem |
| 36 | y | >1 | >3 | >5, missing | 6 | Dem |

1. Documented decline on DWRT (NCS3B), DSST (NCS2B), or WFT (NCS5E) defined as 10th percentile on 1 test or <= 20th percentile on 2 or more tests.
2. Number of failed domains (memory, executive, visuospatial, language, and attention) defined as age/race/education-adjusted z-score less than -1.5.
3. Revised NSS6 is defined as follows: if non-missing ZSCORE_LANGUAGE is less than -1.5 and ZSCORE_LANGUAGE_V2 is greater than/equal to -1.5 and NSS2 is "Yes", set REVISEDNSS6=NSS6 – 1 otherwise set REVISEDNSS6 to the value of NSS6.

### 13.8 REVISEDROW51 (Row from syndromic dx)

Description: Categorical variable equal to the value in the 'ROW' column in Table 1 above.

Type: numeric

Source variable(s): NSS6, NSS11, CDS7, FAQ51, PRORATEDMMS51, RACEGRP

### 13.9 COGDIAG51 (V5 NCS Cognitive Status Diagnosis)

Description: Categorical variable that combines the information from the reviewer's cognitive diagnosis and the computer-determined MCI/dementia syndromic diagnosis.

Format: N (normal), U (unknown/uncertain), M (mild cognitive impairment), and D (dementia)

Type: character

Algorithm: If REVIEWERSYND51>'' then COGDIAG51=REVIEWERSYND51;
Else if REVISEDSYNDDIAG51 in (0,1) then COGDIAG51='N';
Else if REVISEDSYNDDIAG51 in (2) then COGDIAG51='U';
Else if REVISEDSYNDDIAG51 in (3,5) then COGDIAG51='M';
Else if REVISEDSYNDDIAG51 in (4,6) then COGDIAG51='D';

Source variable(s): DERIVE_NCS51[REVIEWERSYND51] and DERIVE51[REVISEDSYNDDIAG51]

### 13.10 STRATAC51 (V5 NCS Sampling Strata (char))

Description: Categorical variable for V5 NCS sampling strata.

Type: character, length=$4.

Algorithm: The variable value is comprised of a string of single letter mnemonics where each letter identifies which group the PPT belongs. The first character indicates age group</>= 80 years old (L,G); the second character indicates ARIC center (F,J,M,W); the third indicates PPT participated in BrainMRI study (Y,N); and the final character indicates neurocognitive status (A,T). For example, an 80 year old PPT from Forsyth who participated in the BrainMRI study and has typical neurocognitive status will have a value of 'GFYT' for the variable.

Source variable(s): BrainMRIYN, BrainMRI

### 13.11 STRATAN51 (V5 NCS Sampling Strata (num))

Description: Numerical variable for V5 NCS sampling strata.

Type: numeric, valid values: 1-24

Algorithm: The variable value is a number between 1 and 24 that aligns to the character variable. The table shows the numeric value (STRATAN51) and its character counterpart (STRATAC51).

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 1 | GFNA | 7 | GJYA | 13 | LFNA | 19 | LJYA |
| 2 | GFNT | 8 | GJYT | 14 | LFNT | 20 | LJYT |
| 3 | GFYA | 9 | GMNA | 15 | LFYA | 21 | LMNA |
| 4 | GFYT | 10 | GMNT | 16 | LFYT | 22 | LMNT |
| 5 | GJNA | 11 | GWNA | 17 | LJNA | 23 | LWNA |
| 6 | GJNT | 12 | GWNT | 18 | LJNT | 24 | LWNT |

Source variable(s): STRATAN51, STRATAC51

## 14. SF-12 OUTCOMES

The proposed variables are based on the SF-12 questionnaire that was administered as part of Visit 5 using form SFE. All questions in that form will be used to derive the SF12 variables. Those missing a response on any question that is part of the SF12 scale item will be missing that scale, but not other scales for which they have non-missing responses. Those missing individual scales will have missing summary scores for which the missing scale is a component.

**The company that holds the license has instructed us to include the statement "a modified version of the SF-12v2 was used" in ALL manuscripts using SF-12 data.**

Note that the modifications are very minor, things like underlining certain words or phrases in the questions, and largely irrelevant because the instrument was interviewer-administered.

### 14.1 SF12PF51 (V5 SF-12 Physical Functioning Scale)

Format: Continuous variable (f6.2)

Type: Numeric

Algorithm: SF12PF51=100*(((SFE2a+SFE2b)-2)/4);

Source variable(s): SFE2a, SFE2b

### 14.2 SF12RP51 (V5 SF-12 Role Physical Scale)

Format: Continuous variable (f6.2)

Type: Numeric

Algorithm: SF12RP51=100*(((SFE3a+SFE3b)-2)/8);

Source variable(s): SFE3a, SFE3b

### 14.3 SF12BP51 (V5 SF-12 Bodily Pain Scale)

Format: Continuous variable (f6.2)

Type: Numeric

Algorithm: Note: SFE5 has inverse scoring scale.

SF12BP51=100*(((6-SFE5)-1)/4);

Source variable(s): SFE5

### 14.4 SF12GH51 (V5 SF-12 General Health Scale)

Format: Continuous variable (f6.2)

Type: Numeric

Algorithm: Note: SFE1 has inverse, renumbered scoring scale.

If SFE1 IN (1,4,5) then SFE1_ren=6-SFE1;
If SFE1 IN (2,3) then SFE1_ren=(6-SFE1)+0.4;
SF12GH51=100*((SFE1_ren-1)/4);

Source variable(s): SFE1

### 14.5 SF12VT51 (V5 SF-12 Vitality Scale)

Format: Continuous variable (f6.2)

Type: Numeric

Algorithm: Note: SFE6b has inverse scoring scale.

SF12VT51=100*(((6-SFE6b)-1)/4);

Source variable(s): SFE6b

### 14.6 SF12SF51 (V5 SF-12 Social Functioning Scale)

Format: Continuous variable (f6.2)

Type: Numeric

Algorithm: SF12SF51=100*((SFE7-1)/4);

Source variable(s): SFE7

### 14.7 SF12RE51 (V5 SF-12 Role Emotional Scale)

Format: Continuous variable (f6.2)

Type: Numeric

Algorithm: SF12RE51=100*(((SFE4a+SFE4b)-2)/8);

Source variable(s): SFE4a, SFE4b

### 14.8 SF12MH51 (V5 SF-12 Mental Health Scale)

Format: Continuous variable (f6.2)

Type: Numeric

Algorithm: SF12MH51=100*((((6-SFE6a)+SFE6c)-2)/8);

Source variable(s): SFE6a, SFE6c

### 14.9 SF12PFZ51 (V5 SF-12 Physical Functioning Scale Z Transformation)

Format: Continuous variable (f6.2)

Type: Numeric

Algorithm: Scale scores are transformed to Z-scores using US general population means and standard deviations, not age/gender-based.

SF12PFZ51= (SF12PF51 - 81.18122) / 29.10588 ;

Source variable(s): SF12PF51

### 14.10 SF12RPZ51 (V5 SF-12 Role Physical Scale Z Transformation)

Format: Continuous variable (f6.2)

Type: Numeric

Algorithm: Scale scores are transformed to Z-scores using US general population means and standard deviations, not age/gender-based.

SF12RPZ51= (SF12RP51 - 80.52856) / 27.13526 ;

Source variable(s): SF12RP51

### 14.11 SF12BPZ51 (V5 SF-12 Bodily Pain Scale Z Transformation)

Format: Continuous variable (f6.2)

Type: Numeric

Algorithm: Scale scores are transformed to Z-scores using US general population means and standard deviations, not age/gender-based.

SF12BPZ51= (SF12BP51- 81.74015) / 24.53019 ;

Source variable(s): SF12BP51

### 14.12 SF12GHZ51 (V5 SF-12 General Health Scale Z Transformation)

Format: Continuous variable (f6.2)

Type: Numeric

Algorithm: Scale scores are transformed to Z-scores using US general population means and standard deviations, not age/gender-based.

SF12GHZ51=(SF12GH51 - 72.19795) / 23.19041 ;

Source variable(s): SF12GH51

### 14.13 SF12VTZ51 (V5 SF-12 Vitality Scale Z Transformation)

Format: Continuous variable (f6.2)

Type: Numeric

Algorithm: Scale scores are transformed to Z-scores using US general population means and standard deviations, not age/gender-based.

SF12VTZ51=(SF12VT51- 55.59090) / 24.84380 ;

Source variable(s): SF12VT51

### 14.14 SF12SFZ51 (V5 SF-12 Social Functioning Scale Z Transformation)

Format: Continuous variable (f6.2)

Type: Numeric

Algorithm: Scale scores are transformed to Z-scores using US general population means and standard deviations, not age/gender-based.

SF12SFZ51=(SF12SF51- 83.73973) / 24.75775 ;

Source variable(s): SF12SF51

### 14.15 SF12REZ51 (V5 SF-12 Role Emotional Scale Z Transformation)

Format: Continuous variable (f6.2)

Type: Numeric

Algorithm: Scale scores are transformed to Z-scores using US general population means and standard deviations, not age/gender-based.

SF12REZ51=(SF12RE51- 86.41051) / 22.35543 ;

Source variable(s): SF12RE51

### 14.16 SF12MHZ51 (V5 SF-12 Mental Health Scale Z Transformation)

Format: Continuous variable (f6.2)

Type: Numeric

Algorithm: Scale scores are transformed to Z-scores using US general population means and standard deviations, not age/gender-based.

SF12MHZ51=(SF12MH51 - 70.18217) / 20.50597 ;

Source variable(s): SF12MH51

### 14.17 SF12PFT51 (V5 SF-12 Physical Functioning Scale T Score)

Format: Continuous variable (f6.2)

Type: Numeric

Algorithm: Scale Z-scores are transformed to T-scores.

SF12PFT51= 50+(SF12PFZ51*10);

Source variable(s): SF12PFZ51

### 14.18 SF12RPT51 (V5 SF-12 Role Physical Scale T Score)

Format: Continuous variable (f6.2)

Type: Numeric

Algorithm: Scale Z-scores are transformed to T-scores.

SF12RPT51= 50+(SF12RPZ51*10);

Source variable(s): SF12RPZ51

### 14.19 SF12BPT51 (V5 SF-12 Bodily Pain Scale T Score)

Format: Continuous variable (f6.2)

Type: Numeric

Algorithm: Scale scores are transformed to Z-scores using US general population means and standard deviations, not age/gender-based.

SF12BPT51= 50+(SF12BPZ51*10);

Source variable(s): SF12BPZ51

### 14.20 SF12GHT51 (V5 SF-12 General Health Scale T Score)

Format: Continuous variable (f6.2)

Type: Numeric

Algorithm: Scale Z-scores are transformed to T-scores.

SF12GHT51= 50+(SF12GHZ51*10);

Source variable(s): SF12GHZ51

### 14.21 SF12VTT51 (V5 SF-12 Vitality Scale T Score)

Format: Continuous variable (f6.2)

Type: Numeric

Algorithm: Scale Z-scores are transformed to T-scores.

SF12VTT51= 50+(SF12VTZ51*10);

Source variable(s): SF12VTZ51

### 14.22 SF12SFT51 (V5 SF-12 Social Functioning Scale T Score)

Format: Continuous variable (f6.2)

Type: Numeric

Algorithm: Scale Z-scores are transformed to T-scores.

SF12SFT51= 50+(SF12SFZ51*10);

Source variable(s): SF12SFZ51

### 14.23 SF12RET51 (V5 SF-12 Role Emotional Scale T Score)

Format: Continuous variable (f6.2)

Type: Numeric

Algorithm: Scale Z-scores are transformed to T-scores.

SF12RET51= 50+(SF12REZ51*10);

Source variable(s): SF12REZ51

### 14.24 SF12MHT51 (V5 SF-12 Mental Health Scale T Score)

Format: Continuous variable (f6.2)

Type: Numeric

Algorithm: Scale Z-scores are transformed to T-scores.

SF12MHT51= 50+(SF12MHZ51*10);

Source variable(s): SF12MHZ51

### 14.25 SF12AGGPHYS51 (V5 SF-12 Aggregate Physical Health Score)

Format: Continuous variable (f6.2)

Type: Numeric

Algorithm: Aggregate physical health score created by multiplying scale Z-scores by varimax-rotated factor scoring coefficients and sum the products.

```
SF12AGGPHYS51=
        (SF12PFZ51 * 0.42402) +
        (SF12RPZ51* 0.35119) +
        (SF12BPZ51* 0.31754) +
        (SF12GHZ51* 0.24954) +
        (SF12VTZ51* 0.02877) +
        (SF12SFZ51* -.00753) +
        (SF12REZ51* -.19206) +
        (SF12MHZ51* -.22069);
```

Source variable(s): SF12PFZ51, SF12RPZ51, SF12BPZ51, SF12GHZ51, SF12VTZ51, SF12SFZ51, SF12REZ51, SF12MHZ51

### 14.26 SF12AGGMENT51 (V5 SF-12 Aggregate Mental Health Score)

Format: Continuous variable (f6.2)

Type: Numeric

Algorithm: Aggregate mental health score created by multiplying scale Z-scores by varimax-rotated factor scoring coefficients and sum the products.

```
SF12AGGMENT51=
        (SF12PFZ51* -.22999) +
        (SF12RPZ51* -.12329) +
```

(SF12BPZ51* -.09731) +
(SF12GHZ51* -.01571) +
(SF12VTZ51* 0.23534) +
(SF12SFZ51* 0.26876) +
(SF12REZ51* 0.43407) +
(SF12MHZ51* 0.48581);

Source variable(s): SF12PFZ51, SF12RPZ51, SF12BPZ51, SF12GHZ51, SF12VTZ51, SF12SFZ51, SF12REZ51, SF12MHZ51

### 14.27 SF12AGGPHYST51 (V5 SF-12 Aggregate Physical Health T Score)

Format: Continuous variable (f6.2)

Type: Numeric

Algorithm: Transform Aggregate score to T-score.

SF12AGGPHYST51== 50 + (SF12AGGPHYS51* 10);

Source variable(s): SF12AGGPHYS51

### 14.28 SF12AGGMENTT51 (V5 SF-12 Aggregate Mental Health T Score)

Format: Continuous variable (f6.2)

Type: Numeric

Algorithm: Transform Aggregate score to T-score.

SF12AGGMENTT51== 50 + (SF12AGGMENT51* 10);

Source variable(s): SF12AGGMENT51