Atherosclerosis Risk in Communities Study

EXAM 4

Derived Variable Dictionary
Version 46
September 2010

Table of Contents
Variables are in DERIVE46 unless otherwise noted.

1. Alcohol Use

1.1. DRNKR41 (V4 Drinker Status)

DRNKR41		*Drinker Status Variable*
N	*Value*	*Description*
5668	1	Current drinker
3466	2	Former drinker
2410	3	Never drinker
1	4	Unknown
111		Missing

Note: This variable includes a historical component, but no use of Visit 1 and Visit 2 data has been made.

Table of assignment of values to DRNKR31

PHXB14: HAVE YOU EVER CONSUMED ALCOHOLIC BEVERAGES?	PHXB15: DO YOU PRESENTLY DRINK ALCOHOLIC BEVERAGES?		
	Y	N	MISSING
Y	1	2	4 (d)
N	Missing (a)	3	3 (b)
Missing	1	4(c)	Missing

(a) Bad data (contradictory answers)

(b) Even though Q15 is not answered, Q14 clearly defines the person as a never drinker

(c) Could be either former or never drinker

(d) Could be either former or current drinker

1.2. ETHANL41 (V4 usual Ethanol Intake in g/wk)

ETHANL41		*Usual Alcohol Intake In Grams/Week*
N	*Value*	*Description*
11535	Range	0 - 1293.6 (median=0 mean=32.8 std=80.9)
121		Missing

i. Current drinker (DRNKR41 =1)

Note: This variable includes a historical component, but no use of Visits 1 & 2 & 3 data has been made.

Algorithm:

ETHANL41 = [(PHXB17A) x 10.8]
+ [(PHXB18A) x 13.2]
+ [(PHXB19A) x 15.1]

ii. Former or never drinker
[(DRNKR41 = 2) or (DRNKR41 =3]

ETHANL41 = 0

iii. Any of the following could not be determined:

a. Drinking status
b. Amount of wine
c. Amount of beer
d. Amount of hard liquor

ETHANL41 = missing

PHXB17A: Number of glasses of wine per week
{4 oz. glasses; round down}

PHXB18A: Number of bottles/cans of beer per week
{12 oz. bottles/cans; round down}

PHXB19A: Number of drinks of hard liquor per week
{1.5 oz. shots; round down]

1.3. CURDRK41 (Current Drinker)

CURDRK41		*Current Drinker*
N	*Value*	*Description*
112	T	Missing
5876	0	No
5668	1	Yes

CURDRK41 is a categorical variable that takes values according to the definition table below:

CURDRK41	PHXB14	PHXB15
1	Y or Missing	Y
0	Any	N
	N	Missing
T	N	Y
	Not N	Missing

PHXB14: Have you ever consumed alcoholic beverages: Yes, No
PHXB15: Do you presently drink alcoholic beverages? Yes, No

1.4. FORDRK41 (Former Drinker)

FORDRK41		*Former Drinker*
N	*Value*	*Description*
112	T	Missing
8078	0	No
3466	1	Yes

FORDRK31 is a categorical variable that takes values according to the definition table below:

FORDRK41	PHXB14	PHXB15
1	Y	N
0	Y or Missing	Y
	N	N or Missing
T	Missing	N
	N	Y
	Y or Missing	Missing

PHXB14: Have you ever consumed alcoholic beverages? Yes, No
PHXB15: Do you presently drink alcoholic beverages? Yes, No

1.5. EVRDRK41 (Ever Drinker)

EVRDRK41		*Ever Drinker*
N	*Value*	*Description*
111	T	Missing
2410	0	No
9135	1	Yes

EVRDRK41 is a categorical variable that takes values according to the definition table below:

EVRDRK41	PHXB14	PHXB15
1	Missing	Y
	Y	Any
0	N	not Y
T	N	Y
	Missing	not Y

PHXB14: Have you ever consumed alcoholic beverages? Yes, No
PHXB15: Do you presently drink alcoholic beverages? Yes, No

2. Anthropometry

2.1. BMI41 (V4 Body Mass Index in Kg/m^2)

BMI41		*Body Mass Index In Kg/M**2*
N	*Value*	*Description*
11618	Range	13.52009 - 59.23432 (median=28.01354 mean=28.820700 std=5.624270)
38		Missing

Algorithm:

Body Mass Index =
[Weight (lbs) / 2.20] / [Height (cm) / 100]^2

BMI41 = (ANTD2/ 2.20) / (ANTD1 / 100)^2

= missing, if either or both measure is missing

ANTD2 is weight to nearest pound at Visit 4.
ANTD1 is the standing height in Visit 4.

2.2. WSTHPR41 (V4 Waist-to-Hip Ratio)

WSTHPR41		*Waist-To-Hip Ratio*
N	*Value*	*Description*
11623	Range	0.463636 - 1.90566 (median=0.959677 mean=0.9486696 std=0.0729115)
33		Missing

WSTHPR41 = ANTD3A / ANTD3B

ANTD3A: Girth of Waist in cm

ANTD3B: Girth of Hip in cm

3. Disease Prevalence

3.1. DIABTS41 (Diabetes - Lower Cutpoint 140 mg/dL)

DIABTS41		*Diabetes Using Lower Cutpoint 140 Mg/dL*
N	*Value*	*Description*
102	T	Missing
9861	0	No
1652	1	Yes
41		Missing

Table of assignment of values to DIABTS41

	LIPD4A	FAST0841	PHXB6C	MSRD2	MSRD24G
DIABTS41 = 1	200	any	any	any	any
	140	1	any	any	any
	Any	any	Y	any	any
	Any	any	any	not T	Y
DIABTS41 = 0	not missing and <140	any	N or U	any	not Y
DIABTS41 = .T	Any	0	not Y	any	not Y
	not 140	any	missing	any	not Y
	not 140	any	not Y	not T	missing

LIPD4A: Blood Glucose Level in mg/dL

FAST0841: 8 hours or more of fasting time

PHXB6C: Diabetes (Sugar in Blood)? Y, N, U (Unsure).

MSRD2*: Took no medications in past 2 weeks? T (no meds) F

MSRD24G: Were any of the medications you took for Diabetes or high blood sugar? Y, N, U (Unknown)

*A value of T on this item skips the patient over MSRD24G.

3.2. DIABTS42 (Diabetes - Lower Cutpoint 126 mg/dL)

DIABTS42		*Diabetes Using Lower Cutpoint 126 Mg/dL*
N	*Value*	*Description*
105	T	Missing
9567	0	No
1943	1	Yes
41		Missing

Table of assignment of values to DIABTS42

	LIPD4A	FAST0841	PHXB6C	MSRD2	MSRD24G
DIABTS42 = 1	≥200	any	any	any	any
	≥126	1	any	any	any
	Any	any	Y	any	any
	Any	any	any	not T	Y
DIABTS42 = 0	not missing and <126	any	N or U	any	not Y
DIABTS42 = .T	Any	0	not Y	any	not Y
	not ≥ 126	any	missing	any	not Y
	not ≥ 126	any	not Y	not T	missing

LIPD4A: Glucose in mg/dL

FAST0841: 8 hours or more of fasting time

PHXB6C: Diabetes (Sugar in Blood)? Y, N, U (Unsure).

MSRD2*: Took no medications in past 2 weeks? T (no meds) F

MSRD24G: Were any of the medications you took for Diabetes or high blood sugar? Y, N, U (Unknown)

*A value of T on this item skips the patient over MSRD24G

3.3. QWAVE44A (V4 Diagnostic Q-wave present from Adjudicated ECG Data)

QWAVE44A		*Diagnostic Q-Wave Present*
N	*Value*	*Description*
27	T	Missing
11359	0	No
187	1	Yes
83		Missing

In this definition, diagnostic Q-wave corresponds to Minnesota codes in 1-1-x to 1-2-x, but without ST-T changes (Minnesota codes 4 or 5). This numeric Visit 4 variable does not correspond with definitions provided in the ARIC ECG manual. The variable assumes the following values according to the table below.

Table of assignment of values to QWAVE44A

	ECGMDFLG	ECGMD09*	ECGMD10*	ECGMD11*
QWAVE44A = 1	1	11-25 OR 27	any	any
		any	11-25 OR 27	any
		any	any	11-25 or 27
QWAVE44A = 0	1	nonmiss & not 11-25 & not 27	nonmiss & not 11-25 & not 27	nonmiss & not 11-25 & not 27
QWAVE44A = .T	0	any	any	any
QWAVE44A = .	Any other combination of values			

The values for these variables in this table correspond to the last two digits of the Minnesota codes: that is, the initial 1 contained in the Minnesota codes has been dropped.

Variable	**Description**	**Range of Possible Values**
ECGMDFLG	Whether ECG Form present or not	
ECGMD09	Q-Q.S. Pattern I, aVL, V6	1-1-x, 1-2-x, 1-3-x
ECGMD10	Q-Q.S. Pattern II, III, aVF	1-1-x, 1-2-x, 1-3-x
ECGMD11	Q-Q.S. Pattern V1-V5	1-1-x, 1-2-x, 1-3-x

3.4. QWAVE47A (Major Q-Wave present with no 7-1-1, 7-1-2, or 7-4, from Adjudicated ECG Records)

QWAVE47A		*Major Q-Wave Present Without Codes 711 Or 74*
N	*Value*	*Description*
27	M	Missing
16	T	Missing
11459	0	No
70	1	Yes
84		Missing

In this definition, major Q-waves correspond to Minnesota codes 1-1-x. This numeric Visit 4 variable is based on definition A in the ARIC ECG Manual and assumes the following values according to the table below.

Table of assignment of values to QWAVE47A

	ECGMDFLG	ECGMD09*	ECGMD10*	ECGMD11*	ECGMD24**
QWAVE47A = 1	1	11-17	any	any	nonmiss & not (1, 4, or 11)
		any	11-17	any	
		any	any	11-17	
QWAVE47A = 0	1	nonmiss & not 11-17	nonmiss & not 11-17	nonmiss & not 11-17	any
QWAVE47A = .T	1	11-17	any	any	1 or 4 or 11 or missing
		any	11-17	any	
		any	any	11-17	
QWAVE47A = .M	0	any	any	any	any
QWAVE47A = .	Any other combination of values				

The values for these variables in this table correspond to the last two digits of the Minnesota codes: that is, the initial 1 contained in the Minnesota codes has been dropped.

** A value of 1 for this variable corresponds to Minnesota codes 7-1-1 or 7-1-2. A value of 4 corresponds to Minnesota code 7-4.

Variable	**Description**	**Range of Possible Values**
ECGMDFLG	Whether composite ECG Record with Adjudicated Values is present or not	
ECGMD09	Q-Q.S. Pattern I, aVL, V6	1-1-x, 1-2-x, 1-3-x
ECGMD10	Q-Q.S. Pattern II, III, aVF	1-1-x, 1-2-x, 1-3-x

ECGMD11	Q-Q.S. Pattern V1-V5	1-1-x, 1-2-x, 1-3-x
ECGMD24	Ventricular Conduction Defect	7-1-1 through 7-8

3.5. QWAVEM47 (V4 Major Q-wave present with no 7-1-1, 7-1-2, or 7-4, from Original Machine Coded ECG Records)

QWAVEM47		*Same As QWAVE47A But Uses Machine Code*
N	*Value*	*Description*
23	T	Missing
11427	0	No
92	1	Yes
114		Missing

In this definition, major Q-waves correspond to Minnesota codes 1-1-x. This numeric Visit 4 variable is based on definition A in the ARIC ECG Manual and assumes the following values according to the table below.

Table of assignment of values to QWAVEM47

	ECGEFLAG	ECGE09*	ECGE10*	ECGE11*	ECGE24*
QWAVEM47 = 1	1	11-17	any	any	nonmiss & not (1,4, or 11)
		any	11-17	any	
		any	any	11-17	
QWAVEM47 = 0	1	nonmiss & not 11-17	nonmiss & not 11-17	nonmiss & not 11-17	any
QWAVEM47 = .T	1	11-17	any	any	1, 4, 11, Or missing
		any	11-17	any	
		any	any	11-17	
QWAVEM47 = .M	0	any	any	any	any
QWAVEM47 = .	Any other combination of values				

The values for these variables in this table correspond to the last two digits of the Minnesota codes: that is, the initial 1 contained in the Minnesota codes has been dropped.

** A value of 1 for this variable corresponds to Minnesota codes 7-1-1 or 7-1-2. A value of 4 corresponds to Minnesota code 7-4.

Variable	Description	Range of possible values
ECGEFLAG	Whether composite ECG Record with Adjudicated Values is present or not	
ECGE09	Q-Q.S. Pattern I, aVL, V6	1-1-x, 1-2-x, 1-3-x
ECGE10	Q-Q.S. Pattern II, III, aVF	1-1-x, 1-2-x, 1-3-x
ECGE11	Q-Q.S. Pattern V1-V5	1-1-x, 1-2-x, 1-3-x
ECGE24	Ventricular Conduction Defect	7-1-1 through 7-8

3.6. QWAVE48B (V4 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)

QWAVE48B		*Minor Q-Wave With S Or ST & No Codes 711/74*
N	*Value*	*Description*
27	M	Missing
11507	0	No
35	1	Yes
87		Missing

In this definition, minor Q-wave corresponds to Minnesota codes 1-2-x, ST segment corresponds to codes 4-x, and T-wave corresponds to definition B in the ARIC ECG Manual. The variable assumes the following values according to the table below.

Table of assignment of values to QWAVE48B

	ECGMDFLG	ECGMD09, 10, 11*	ECGMD12 - ECGMD17**	ECGMD24+
QWAVE48B = 1	1	ECGMD09= (21-25, 27, or 28) or ECGMD10= (21-25, 27, or 28) or ECGMD11= (21-25, 27, or 28)	ECGMD12 = 2, 11, or 12	nonmiss & not (1, 4, or 11)
			ECGMD13 = 2, 11 or 12	
			ECGMD14 = 2, 11, or 12	
			ECGMD15 = 1 or 2	
			ECGMD16 = 1 or 2	
			ECGMD17 = 1 or 2	
QWAVE48B = 0	1	nonmiss & not (21-25, 27, or 28)	any	any
		any	(ECGMD12, ECGMD13, and ECGMD14 not missing) and not (2, 11, or 12) and (ECGMD15, ECGMD16, and ECGMD17 not 1 & 2 and not missing)	any
QWAVE48B = .T	1	Values of ECGMD09-11 and ECGMD12-17 that would give QWAVE48B = 1		1, 4, 11, or missing
QWAVE48B = .M	0	any	any	any
QWAVE48B = .	Any other combination of values			

The values for these variables in this table correspond to the last two digits of the Minnesota codes: that is, the initial 1 contained in the Minnesota codes has been dropped.

** The values for these variables correspond to the last one or two digits of the Minnesota codes: that is, for variables ECGMD12-ECGMD14, the initial 4 contained in the Minnesota codes has been dropped, and for variables ECGMD15-ECGMD17, the initial 5 contained in the Minnesota codes has been dropped.

[+] A value of 1 for this variable corresponds to Minnesota codes 7-1-1 or 7-1-2. A value of 4 corresponds to Minnesota code 7-4.

Variable	Description	Range of Possible Values
ECGMDFLG	Whether composite ECG Record with Adjudicated Values is present or not	
ECGMD09	Q-Q.S. Pattern I, aVL, V6	1-1-x, 1-2-x, 1-3-x
ECGMD10	Q-Q.S. Pattern II, III, aVF	1-1-x, 1-2-x, 1-3-x
ECGMD11	Q-Q.S. Pattern V1-V5	1-1-x, 1-2-x, 1-3-x
ECGMD12	ST Junction & Segment Depression I, aVL, V6	4-1-1 through 4-4
ECGMD13	ST Junction & Segment Depression II, III, aVF	4-1-1 through 4-4
ECGMD14	ST Junction & Segment Depression V1-V5	4-1-1 through 4-4
ECGMD15	T Wave I, aVL, V6	5-1 through 5-4
ECGMD16	T Wave II, III, aVF	5-1 through 5-4
ECGMD17	T Wave V1-V5	5-1 through 5-4
ECGMD24	Ventricular Conduction Defect	7-1-1 through 7-8

3.7. QWVEM48B (Minor Q-wave present with ST or T codes and no 7-1-1. 7-1-2, or 7-4 codes, from Original Machine Coded ECG Records)

QWVEM48B		*Same As QWAVE48B But Uses Machine Code*
N	*Value*	*Description*
27	M	Missing
11500	0	No
42	1	Yes
87		Missing

In this definition, minor Q-wave corresponds to Minnesota codes 1-2-x, ST segment corresponds to codes 4-x, and T-wave corresponds to codes 5-1 or 5-2. This numeric Visit 4 variable is based on definition B in the ARIC ECG Manual. The variable assumes the following values according to the table below.

Table of assignment of values to QWVEM48B

<table>
<tr><th></th><th>ECGEFLAG</th><th>ECGE09, 10, 11*</th><th>ECGE12 - ECGE17**</th><th>ECGE24+</th></tr>
<tr><td rowspan="7">QWVEM48B = 1</td><td rowspan="7">1</td><td rowspan="7">ECGE09= (21-25, 27, or 28)
or
ECGE10= (21-25, 27, or 28)
or
ECGE11= (21-25, 27, or 28)</td><td>ECGE12 = 2, 11 or 12</td><td rowspan="7">nonmiss & not (1,4,or 11)</td></tr>
<tr><td>ECGE13 = 2, 11 or 12</td></tr>
<tr><td>ECGE14 = 2, 11 or 12</td></tr>
<tr><td>ECGE15 = 1 or 2</td></tr>
<tr><td>ECGE16 = 1 or 2</td></tr>
<tr><td>ECGE17 = 1 or 2</td></tr>
<tr><td rowspan="2">QWVEM48B = 0</td><td rowspan="2">1</td><td>nonmiss & not (21-25, 27, or 28)</td><td>any</td><td>any</td></tr>
<tr><td>any</td><td>(ECGE12, ECGE13, and ECGE14 not missing & not 2, 11, or 12) and (ECGE15, ECGE16, and ECGE17 not missing & not 1 or 2)</td><td>any</td></tr>
<tr><td>QWVEM48B = .T</td><td>1</td><td colspan="2">Values of ECGE09-11 and ECGE12-17 that would give QWVEM48B = 1</td><td>1,4, 11, or missing</td></tr>
<tr><td>QWVEM48B = .M</td><td>0</td><td>any</td><td>any</td><td>any</td></tr>
<tr><td>QWVEM48B = .</td><td colspan="4">Any other combination of values</td></tr>
</table>

* The values for these variables in this table correspond to the last two digits of the Minnesota codes: that is, the initial 1 contained in the Minnesota codes has been dropped.

** The values for these variables correspond to the last one or two digits of the Minnesota codes: that is, for variables ECGE12-ECGE14, the initial 4 contained in the Minnesota codes has been dropped, and for variables ECGE15-ECGE17, the initial 5 contained in the Minnesota codes has been dropped.

+ A value of 1 for this variable corresponds to Minnesota codes 7-1-1 or 7-1-2. A value of 4 corresponds to Minnesota code 7-4.

Variable	Description	Range of Possible Values
ECGEFLAG	Whether original machine coded ECGis present or not	
ECGE09	Q-Q.S. Pattern I, aVL, V6	1-1-x, 1-2-x and 1-3-x
ECGE10	Q-Q.S. Pattern II, III, aVF	1-1-x, 1-2-x and 1-3-x
ECGE11	Q-Q.S. Pattern V1-V5	1-1-x, 1-2-x and 1-3-x
ECGE12	ST Junction & Segment Depression I, aVL, V6	4-1-1 through 4-4
ECGE13	ST Junction & Segment Depression II, III, aVF	4-1-1 through 4-4
ECGE14	ST Junction & Segment Depression V1-V5	4-1-1 through 4-4
ECGE15	T Wave I, aVL, V6	5-1 through 5-4
ECGE16	T Wave II, III, aVF	5-1 through 5-4
ECGE17	T Wave V1-V5	5-1 through 5-4
ECGE24	Ventricular Conduction Defect	7-1-1 through 7-8

3.8. PRVCHD42 (V4 Prevalent CHD-unverified) (UC3508.04)

Table of assignment of values to PRVCHD42

<table>
<tr><th>PRVCHD42</th><th>ECGMI41</th><th>HXOFMI41</th><th>HHXD4</th><th>HHXD5A</th><th>HHXD6</th><th>HHXD7A</th></tr>
<tr><td rowspan="4">1</td><td>1</td><td>any</td><td>any</td><td>any</td><td>any</td><td>any</td></tr>
<tr><td>any</td><td>1</td><td>any</td><td>any</td><td>any</td><td>any</td></tr>
<tr><td>any</td><td>any</td><td>not N</td><td>Y</td><td>any</td><td>any</td></tr>
<tr><td>any</td><td>any</td><td>any</td><td>any</td><td>not N</td><td>Y</td></tr>
<tr><td rowspan="4">0</td><td rowspan="4">0</td><td rowspan="4">0</td><td rowspan="2">any</td><td rowspan="2">N</td><td>any</td><td>N</td></tr>
<tr><td>N</td><td>not Y</td></tr>
<tr><td rowspan="2">N</td><td rowspan="2">not Y</td><td>any</td><td>N</td></tr>
<tr><td>N</td><td>not Y</td></tr>
<tr><td rowspan="6">.T</td><td>missing</td><td>not 1</td><td>any</td><td>not Y</td><td>any</td><td>not Y</td></tr>
<tr><td>not 1</td><td>missing</td><td>any</td><td>not Y</td><td>not N</td><td>not Y</td></tr>
<tr><td rowspan="2">not 1</td><td rowspan="2">not 1</td><td>N</td><td>Y</td><td rowspan="2">any</td><td rowspan="2">not Y</td></tr>
<tr><td>Y</td><td>missing</td></tr>
<tr><td rowspan="2">not 1</td><td rowspan="2">not 1</td><td rowspan="2">any</td><td rowspan="2">not Y</td><td>N</td><td>Y</td></tr>
<tr><td>Y</td><td>missing</td></tr>
<tr><td>missing</td><td colspan="5">Any other combination of values</td></tr>
</table>

ECGMI41: V4 MI According to Adjudicated ECG.
MDDXMI41: V4 MD Diagnosed Myocardial Infarction.
HHXD4: Heart, neck or leg surgery? Y, N
HHXD5A: Coronary Bypass. Y, N
HHXD6: Balloon angioplasty on heart or legs? Y, N
HHXD7A: Angioplasty of Coronary Artery (ies). Y, N

3.9. MDDXMI41 (V4 MD Diagnosed Myocardial Infarction)

MDDXMI41		*V4 MD Diagnosed Myocardial Infarction*
N	*Value*	*Description*
10909	0	No
747	1	Yes

This is a numeric Visit 4 variable which assumes the following values according to the table below.

Table of assignment of values to MDDXMI41

		CONSIDER CONTACT YEARS 8, 9, 10			
MDDXMI41	PHXB6A	AFUx07	AFUx17	AFUx18	AFUx19
1	any	Y	Y	Y	H
	Y	any	any	any	any
0		Y	Y	Y	0
		Y	Y	N	missing
		Y	N	N or missing	missing
		N	N or missing	missing	missing
.T		missing	any	any	any
		Y	missing	any	any
		Y	Y	Y	missing
		Y	Y	missing	any
		Y	N	Y	any
		Y	N	missing	H or O
		N	Y	any	any
		N	missing	Y or N	any
		N	missing	missing	H or O

MDDXMI41 = . Any other pattern of response

PHXB6A: Has a doctor ever told you that you had a heart attack? Y, N, U
AFUx07: Have you ever had any pain or discomfort in your chest? Y, N
AFUx17: Have you ever had a severe pain across the front of your chest lasting for half an hour or more? Y, N
AFUx18: Did you see a doctor because of this pain? Y, N
AFUx19: What did he say it was? H (Heart Attack), O (Other Disorder)

Note: The algorithm below requires use of Annual Follow-up (AFUx) variables from contact years 8, 9, 10 (afd0802, afe0802, aff0802, afd0902, afe0902, aff0902, aff1002).

Algorithm:

1. If PHXB6A = Y or

   ((AFUx07 =Y) and (AFUx17 = Y) and (AFUx18 = Y) and (AFUx19 = H))

   then set MDDXMI41 = 1 (Positive)

2. If [(AFUx07 = Y and AFUx17 =Y) and (AFUx18 = Y and AFUx19 = O)] or
   [(AFUx07 = Y and AFUx17 = Y) and
   (AFUx18 = N and AFUx19 = missing)] or

   [(AFUx07 = Y and AFUx17 = N) and
   (AFUx18 = missing and AFUx19 = missing)] or

   [(AFUx07 = N and AFUx17 = missing) and
   (AFUx18 = missing and AFUx19 = missing) and
   then set MDDXMI41 = 0. (Negative)

3. If [(AFUx07 = missing)] or
   [(AFUx07 = Y) and (AFUx17 = missing)] or
   [(AFUx07 = Y) and (AFUx17 = Y) and
   (AFUx18 = Y) and (AFUx19 = missing)] or
   [(AFUx07 = Y) and (AFUx17 = Y) and (AFUx18 = missing)] or
   [(AFUx07 = Y) and (AFUx17 = N) and
   (AFUx18 = Y or AFUx18 = N)] or
   [(AFUx07 = Y) and (AFUx17 = N) and
   (AFUx18 = missing) and (AFUx19 = H or AFUx19 = 0)] or
   [(AFUx07 = N) and (AFUx17 = Y or AFUx17 = N)] or
   [(AFUx07 = N) and (AFUx17 = missing) and
   (AFUx18 = Y or AFUx18 = N)] or
   [(AFUx07 =N) and (AFUx17 = missing) and
   (AFUx18 = missing) and (AFUx19 = H or AFUx19 = 0)]
   then set MDDXMI41 to missing.

3.10. HXOFMI41 (V4 History of Myocardial Infarction)

HXOFMI41		*V4 History Of Myocardial Infarction*
N	*Value*	*Description*
10817	0	No
839	1	Yes

Table of assignment of values to HXOFMI41

HXOFMI41	MDDXMI41	AFUX30
1	1	any
	any	Y
0	0	N or U
.T	Not 1	missing
	missing	N or U

HXOFMI41 = **.**Any other combination of values

MDDXMI41: MD Diagnosed Myocardial Infarction.

AFUx30: Have you been hospitalized for a heart attack? Y, N, U (Unknown)

Note: Definition requires use of Annual Follow-up (AFUx) variables from contact years 8, 9, 10 (afd0802, afe0802, aff0802, afd0902, afe0902, aff0902, aff1002).

3.11. ECGMI41 (Prevalent Myocardial Infarction from Adjudicated Electrocardiograms)

ECGMI41		*Prevalent Myocardial Infarction from Adjudicated ECG*
N	*Value*	*Description*
127	T	Missing
11432	0	Yes
97	1	No

Table of assignment of values to ECGMI41

	QWAVE47A	QWAVE48B
ECGMI41 = 1	1	any
	any	1
ECGMI41 = 0	0	0
ECGMI41 = .T	missing	not 1
	not 1	missing
ECGMI41 = .	Any other combination of values	

QWAVE47A: Major Q-Wave present with no 7-1-1 or 7-4.

QWAVE48B: Minor Q-Wave present with S or ST and no 7-1-1 or 7-4.

3.12. MACHMI41 (Prevalent Myocardial Infarction from Original Machine Coded Electrocardiograms)

MACHMI41		*Pre Myocard Infarction From Machine Coded ECG*
N	*Value*	*Description*
137	T	Missing
11386	0	No
133	1	Yes

Table of assignment of values to MACHMI41

	QWAVEM47	QWVEM48B
MACHMI41 = 1	1	any
	any	1
MACHMI41 = 0	0	0
MACHMI41 = .T	missing	not 1
	not 1	missing
MACHMI41 = .	Any other combination of values	

QWAVEM47: Major Q-wave present with no 7-1-1 or 7-4.

QWVEM48B: Minor Q-wave present with S or ST and no 7-1-1 or 7-4.

3.13. PRVCHD43 (Prevalent CHD at Visit 4, definition 3)

PRVCHD43		*Prevalent Coronary Heart Disease At V4, Definition 3*
N	*Value*	*Description*
10446	0	No
983	1	Yes
227		Missing

PRVCHD43= 1 if PRVCHD05=1 or (IN_00SP=1 and .<DATISP<=V4DATE41) or (IN_00SP=1 and V4DATE41=. and DATEISP<=V1DATE01 +9*365.25).

PRVCHD43= 0 if PRVCHD05=0 and (IN_00SP=0 or DATISP>V4DATE41>.) or (V4DATE41=. and DATEISP>V1DATE01 +9*365.25)

Else PRVCHD43=. (missing)

3.14. PRVSTR41 (Prevalent Stroke at Visit 4)

PRVSTR41		*Prevalent Stroke At V4*
N	*Value*	*Description*
11360	0	No
271	1	Yes
25		Missing

PRVSTR43= 1 if HOM10D=1 or (IN00DP=1 and .<ED00DP<=V4DATE41) or (IN00DP=1 and V2DATE21=. and ED00DP<=V1DATE01 +9*365.25).

PRVSTR43= 0 if HOM10D=0 and (IN00DP=0 or ED00DP>V4DATE41>.) or (V4DATE41=. and ED00DP>V1DATE01 +9*365.25).

Else PRVSTR43=. (missing)

4. Hypertension

4.1. HYPERT44 (V4 Hypertension, definition 4)

HYPERT44		*Hypertension, Definition 4*
N	*Value*	*Description*
7113	0	No
4470	1	Yes
73		Missing

HYPERT44 = 1 if (SBPD20 ≥ 90) OR
[(MSRD24A = Y) and (MSRD2 not equal T)]

= 0 if (0 # SBPD20 < 90) AND {MSRD24A = N or
[(MSRD24A = missing) and (MSRD2 = T)] }

= missing Otherwise

Table of assignment of values to HYPERT44

HYPERT44	SBPD20	MSRD24A	MSRD2
1	≥90	any	any
	any	Y	Not T
0	(0,90)	N	any
		missing	T
missing	otherwise		

SBPD20: 1st and 2nd diastolic BP average

MSRD24A: Were any of the medications you took during the past two weeks for high blood pressure? Y, N, U (Unknown)

MSRD2: Reason why did not bring all medications

4.2. HYPERT45 (V4 Hypertension, definition 5)

HYPERT45		*Hypertension, Definition 5*
N	*Value*	*Description*
6043	0	No
5557	1	Yes
56		Missing

HYPERT45	=	1	if (SBPD20 ≥ 90) or (SBPD19 ≥ 140) or [(MSRD24A = Y) and (MSRD2 = T)]
	=	0	if (0 # SBPD20 < 90) and (0 < SBPD19 < 140) and {MSRD24A = N or [(MSRD24A = missing) and (MSRD2 = T)]}
	=	missing	Otherwise

Table of assignment of values to HYPERT45

HYPERT45	SBPD20	SBPD19	MSRD24A	MSRD2
1	≥90	any	any	any
	any	≥140	any	any
	any	any	Y	not T
0	(0,90)	(0,140)	N	any
			missing	T
missing	otherwise			

SBPD19: 1st and 2nd systolic BP average

SBPD20: 1st and 2nd diastolic BP average

MSRD24A: Were any of the medications you took during the past two weeks for high blood pressure? Y, N, U (Unknown)

MSRD2: Reason why did not bring all medications

4.3. HYPERT46 (V4 Hypertension, definition 6)

HYPERT46		*Hypertension, Definition 6*
N	*Value*	*Description*
7017	0	No
4570	1	Yes
69		Missing

HYPERT46 = 1 if (SBPD20 ≥ 95) or (SBPD19 ≥ 160) or [(MSRD24A = Y) and (MSRD2 = T)]

= 0 if (0 # SBPD20 < 95) and (0 < SBPD19 < 160) and {MSRD24A = N or [(MSRD24A = missing) and (MSRD2 = T)]}

= missing Otherwise

Table of assignment of values to HYPERT46

HYPERT46	SBPD20	SBPD19	MSRD24A	MSRD2
1	≥95	any	any	any
	any	≥160	any	any
	any	any	Y	not T
0	(0,95)	(0,160)	N	any
			missing	T
missing	otherwise			

SBPD19: 1st and 2nd systolic BP average

SBPD20: 1st and 2nd diastolic BP average

MSRD24A: Were any of the medications you took during the past two weeks for high blood pressure? Y, N, U (Unknown)

MSRD2: Reason why did not bring all medications

5. Lipids Recalculated

5.1. LDL41 (V4 Recalculated LDL Cholesterol)

LDL41		*Re-Calibrated LDL Cholesterol In mg/dL*
N	*Value*	*Description*
11374	Range	7.4 - 434 (median=120.8 mean=122.63 std=33.47)
282		Missing

Algorithm:

LDL41 = LIPD1A - LIPD3A - (LIPD2A/5).

1. If (LIPD1A = missing) or
   (LIPD2A = missing) or
   (LIPD3A = missing) or
   (LIPD2A > 400)

   then set LDL41 = missing. (Missing)

2. If LDL41 = negative

   then set LDL41 = 0. (Negative)

SAS Code:

```
LDL41 = LIPD1A - LIPD3A - LIPD2A/5;
if LIPD2A > 400 then LDL41 = .;
if .z < LDL41 < 0 then LDL41 = 0;
```

LIPD1A : Total cholesterol in mg/dL.
LIPD2A : Total triglycerides in mg/dL.
LIPD3A : HDL cholesterol in mg/dL.

6. Medication Use

Medication records were collected at each clinic visit. Participants were reminded to bring all medications used in the previous two weeks. Names of the medications were transcribed and coded by the ARIC medication coding system, developed by a pharmacist at UNC. The ARIC medication codes were then mapped to Medi-Span Therapeutic Classification (MTC) codes and American Hospital formulary Service Classification Compilation (AHFSCC) codes. Variable names for the MTC codes are MSRMTC1-MSRMTC17, and MSRAHF1-MSRAHF17 for AHFSCC codes (in file MSRCOD41 for Visit 4). Definitions of the MTC and AHFSCC codes are given in Appendices A and B.

6.1. CHOLMD41 (Discontinued: Replaced by CHOLMDCODE41)

6.2. CHOLMDCODE41: (Cholesterol Lowering Medication in past 2wks- Using 2004 Med Code (UC4735)

CHOLMDCODE41		*Cholesterol Lowering Medication Within 2wks: Using 2004 Med Code -V3*
N	*Value*	*Description*
48	T	Missing
9939	0	No
1669	1	Yes

Algorithm.

If CODE1-CODE17 have at least one of the following: 771030, 390000--399999, then FOUND1 = 1. Else FOUND1 =0. If all CODE1-CODE17 = missing then ALLMISS = 1. Else ALLMISS = 0.

1. If (MSRD2 = F or MSRD2 = missing) and ALLMISS=1 then CHOLMDCODE41 = .T .
2. Else if [MSRD2 NE T] and FOUND1=1 then set CHOLMDCODE41 = 1.
3. Else if [MSRD2 = T and ALLMISS=1] or FOUND1=0 then set CHOLMDCODE41 = 0.
4. Otherwise, set CHOLMDCODE41 = .

	FOUND1	ALLMISS	MSRD2
CHOLMDCODE41 = 1	1	0	Not T
CHOLMDCODE41 = 0	0	Any	Any
	Any	1	T
CHOLMDCODE41 = .T	Any	1	F or missing

CODE1--17: Updated Medication Code number.

MSRD2: Reason why did not bring all medications.

T (Took no medications),
F (Forgot or was unable to bring medications).

6.3. CHOLMD42 (Discontinued: Replaced by CHOLMDCODE42)

6.4. CHOLMDCODE42: Medications Which Secondarily Affect Cholesterol-Using 2004 Med Code (UC4735)

CHOLMDCODE42		*Medications Which Secondarily Affect Cholesterol: Using 2004 Med Code -V4*
N	*Value*	*Description*
48	T	Missing
7475	0	No
4133	1	Yes

Algorithm:

If CODE1-CODE17 have at least one of the following: 331000, 332000, 340000, 363000, 369920, 372000, 376000, 379900 and 379910, then FOUND2 = 1. Else FOUND2 =0.

If all CODE1-CODE17 = missing then ALLMISS = 1. Else ALLMISS = 0.

1. If (MSRD2 = F or MSRD2 = missing) and ALLMISS=1 then CHOLMDCODE42 = .T .
2. Else if [MSRD2 NE T] and FOUND2=1 then CHOLMDCODE42 = 1.
3. Else if [MSRD2 = T and ALLMISS=1] or FOUND2=0 then CHOLMDCODE42 = 0.
4. Otherwise, set CHOLMDCODE42 = .

	FOUND2	ALLMISS	MSRD2
CHOLMDCODE42 = 1	1	0	Not T
CHOLMDCODE42 = 0	0	Any	Any
	Any	1	T
CHOLMDCODE42 = .T	Any	1	F or missing

CODE1--17: Updated Medication Code number.

MSRD2: Reason why did not bring all medications.
T (Took no medications),
F (Forgot or was unable to bring medications).

6.5. HYPTMD41 (V4 Hypertension Medications in Past 2 Weeks: Self-reported)

HYPTMD41		*V3 Hypertension Medications, Definition 1*
N	*Value*	*Description*
72	T	Missing
7323	0	No
4261	1	Yes

Table of assignment of values to HYPTMD41

	MSRD2	MSRD24A
HYPTMD41 = 1	Not T	Y
HYPTMD41 = 0	T	missing
	any	N
HYPTMD41 = .T	Not T	U or missing
	T	Non-missing

MSRD2: Reason why did not bring all medications.
T (Took no medications).
F (Forgot or was unable to bring medications).

MSRD24A: High blood pressure medications in past 2 weeks.
Y, N, U (Unknown).

Algorithm:

1. If (MSRD2 NE T)] and (MSRD24A = Y)
then set HYPTMD41 = 1.

2. If (MSRD2 = T and MSRD24A = missing) or (MSRD24A = N)
then set HYPTMD41 = 0.

3. If [(MSRD2 NE T) and (MSRD24A = U or MSRD24A = missing)] or
[(MSRD2 = T) & (MSRD24A = Y or U)]
then set HYPTMD41 to missing.

6.6. HYPTMDCODE41 (Hypertension Lowering Meds w/in past 2 wks using 2004 med code) (UC4688)

HYPTMDCODE41		*Hypertension Lowering Medication Within Past 2 Weeks (V4)*
N	*Value*	*Description*
6548	0	No
5108	1	Yes

Definition:

If participants are on medications and reported to have taken an antihypertensive medications within the last two weeks or taking a medication which is classified as an antihypertensive then set HYPTMDCODE41=1.

If participants did not bring any medications because no medications were being taken, and subsequently confirmed they had not taken any medication to lower blood pressure in the last two weeks or confirmed they had no medications listed, or participants who were taking medications but did not report having taken an antihypertensive within the last two weeks/did not know if they were taking an antihypertensive medication within the last two weeks and none of their listed medications could be classified as an antihypertensive then HYPTMDCODE41=0.

Classify all other participants who meet neither the criteria for 1 or 0 as missing.

Algorithm:

I. Create variable ALLMISS: ALLMISS= 1 if all the CODE1-17 are blank. Otherwise, ALLMISS=0.

II. Create variables HBPMED
   a. HBPMED=1 if ALLMISS=0 AND at least one of the CODE1-17= 330000-339999 or 340000-349999 or 360000-369999 or 370000-379999
   b. HBPMED=0 if ALLMISS=1 or [ALLMISS=0 AND none of the CODE1-17=330000-339999 or 340000-349999 or 360000-369999 or 370000-379999]

III. Create HYPTMDCODE41
   HYPTMDCODE41=1
   If (MSRD2 ^T & Msrd24a = Y) or (MSRD2^T & HBPMED=1)

   HYPTMDCODE41 = 0
   If MSRD2 = T & Msrd24a=N
   Or
   If MSRD2=T & Msrd24a=Blank & ALLMISS=1
   Or
   If MSRD2^=T & Msrd24a^=Y & HBPMED= 0

   HYPTMDCODE41= Missing otherwise

Table of Assignment

	MSRD2	MSRD24A	HBPMED	ALLMISS
Hyptmdcode41 = 1	Not T	Y	Any	Any
		Any	1	Any
Hyptmdcode41 = 0	T	N	Any	Any
		Blank	Any	1
	Not T	N, U, Blank	0	Any
Hyptmdcode41 = Missing	Any other combinations			

MSRD2: Reason why did not bring all medications.
T (Took no medications),
F (Forgot or was unable to bring medications).

CODE1--17: Updated Medication Code number.

MSRD24A: High blood pressure medications in past two weeks.
Y, N, U (Unknown)

6.7. STATINCODE41 (Statin use in the past 2 weeks based on 2004 medication codes) UC4892

STATINCODE41		*Used Statin (At Visit 4) Last 2 weeks (0=no, 1=yes) Based On 2004 Med Code*
N	*Value*	*Description*
10286	0	No
1321	1	Yes
49		Missing

Definition:
If at least one of the 17 medication code variables from the Medication Survey Form (MSRC: Q4M01B, Q4M02B, …, Q4M17B; termed CODE1-CODE17) contained "3940"then the Statin flag would have a value of 1, otherwise, the Statin flag would contain a 0.

If a participant brought all or some of their medication to the clinic or if they forgot their medication (but stated that they do take medication) and the Statin flag has a value of 1 then STATINCODE41=1 for "Statin medication found".

STATINCODE41=0 for "No Statin medication found" if a participant has at least one medication in the 17 medication code variables, but none of them contain "3940". STATINCODE41 takes a missing value for any other combination not mentioned.

Table of assignment of values to STATINCODE41

	MSRD1	MSRD2	ANYMED	STATIN_FLAG
STATINCODE41=1	N	F	1	1
	Y, S	missing		
STATINCODE41=0	N	missing	1	0
	N	F	1	0
	N	T	0	0
	Y, S	missing	1	0
	S	F	1	0

MSRD1: Bring all medication from last 2 weeks?
Y Yes, brought all medication
S brought some medication
N No, brought no medication

MSRD2: Reason why did not bring all medications.

T Took no medications
F Forgot or was unable to bring medications

ANYMED
1 any medications recorded in CODE1-CODE17
0 no medications recorded in CODE1-CODE17

STATIN_FLAG
1 ANYMED=1 AND value of “3940” found in CODE1-CODE17
0 ANYMED=0 or ANYMED=1 and no “3940” found in CODE1-CODE17

Algorithm:

1. Create variable ANYMED.
   ANYMED=1 if any medication codes are recorded in CODE1-CODE17.
   ANYMED=0 if no medication codes are present.
   ANYMED= missing if no MSRC is present.
2. Create variable STATIN_FLAG. STATIN_FLAG=1 if ANYMED=1 and CODE1-CODE17 contains the first four numbers “3940”. STATIN_FLAG=0 otherwise.

3. Create variable STATINCODE41.
   STATINCODE41=1
   If MSRD1=’N’ and MSRD2= ‘F’ and STATIN_FLAG=1
   Or
   If (MSRD1= ‘Y’ or ‘S’) and STATIN_FLAG=1

   STATINCODE41=0
   If MSRD1=’N’ and MSRD2=missing and ANYMED=1 and STATIN_FLAG=0
   Or
   If MSRD1=’N’ and MSRD2=’F’ and ANYMED=1 and STATIN_FLAG=0
   Or
   If MSRD1=’N’ and MSRD2=’T’ and ANYMED=0 and STATIN_FLAG=0
   Or
   If MSRD1=’Y’, ‘S’ and MSRD2=missing and ANYMED=1 and STATIN_FLAG=0
   Or
   If MSRD1=’S’ and MSRD2=’F’ and ANYMED=1 and STATIN_FLAG=0

STATINCODE41=Missing for all other combinations.

6.8. ANTICOAGCODE41 (anticoagulant use in the past 2 weeks based on 2004 medication codes) UC4892

Definition:

If at least one of the 17 medication code variables from the Medication Survey Form (MSRC: Q4M01B, Q4M02B, …, Q4M17B; termed CODE1-CODE17) contained "83"then the anticoagulant flag would have a value of 1, otherwise, the anticoagulant flag would contain a 0.

If a participant brought all or some of their medication to the clinic or if they forgot their medication (but stated that they do take medication) and the anticoagulant flag has a value of 1 then ANTICOAGCODE41=1 for "Anticoagulant medication found".

ANTICOAGCODE41=0 for "No Anticoagulant medication found" if a participant has at least one medication in the 17 medication code variables, but none of them contain "83". ANTICOAGCODE41 takes a missing value for any other combination not mentioned.

Table of assignment of values to ANTICOAGCODE41

	MSRD1	MSRD2	ANYMED	ANTICOAG_FLAG
ANTICOAGCODE41=1	N	F	1	1
	Y, S	missing		
ANTICOAGCODE41=0	N	missing	1	0
	N	F	1	0
	N	T	0	0
	Y, S	missing	1	0
	S	F	1	0

MSRD1: Bring all medication from last 2 weeks?
Y Yes, brought all medication
S brought some medication
N No, brought no medication

MSRD2: Reason why did not bring all medications.
T Took no medications
F Forgot or was unable to bring medications

ANYMED
1 any medications recorded in CODE1-CODE17
0 no medications recorded in CODE1-CODE17

ANTICOAG_FLAG
1 ANYMED=1 AND value of “83” found in CODE1-CODE17
0 ANYMED=0 or ANYMED=1 and no “83” found in CODE1-CODE17

Algorithm:

1. Create variable ANYMED.

ANYMED=1 if any medication codes are recorded in CODE1-CODE17.
ANYMED=0 if no medication codes are present.
ANYMED= missing if no MSRC is present.

2. Create variable ANTICOAG_FLAG. ANTICOAG_FLAG=1 if ANYMED=1 and CODE1-CODE17 contains the first two numbers “83”. ANTICOAG_FLAG=0 otherwise.

3. Create variable ANTICOAGCODE41.

ANTICOAGCODE41=1
If MSRD1=’N’ and MSRD2= ‘F’ and ANTICOAG_FLAG=1
Or
If (MSRD1= ‘Y’ or ‘S’) and ANTICOAG_FLAG=1

ANTICOAGCODE41=0
If MSRD1=’N’ and MSRD2=missing and ANYMED=1 and ANTICOAG_FLAG=0
Or
If MSRD1=’N’ and MSRD2=’F’ and ANYMED=1 and ANTICOAG_FLAG=0
Or
If MSRD1=’N’ and MSRD2=’T’ and ANYMED=0 and ANTICOAG_FLAG=0
Or
If MSRD1=’Y’, ‘S’ and MSRD2=missing and ANYMED=1 and ANTICOAG_FLAG=0
Or
If MSRD1=’S’ and MSRD2=’F’ and ANYMED=1 and ANTICOAG_FLAG=0

ANTICOAGCODE41=Missing for all other combinations.

6.9. ASPIRINCODE41 (aspirin use in the past 2 weeks based on 2004 medication codes) UC4892

ASPIRINCODE41		*Used Aspirin-Containing Analgesics (At Visit 4) In Last 2 Weeks (0=no, 1=yes), Based On 2004 Med Code*
N	*Value*	*Description*
5023	0	No
6583	1	Yes
50		Missing

Definition:
If at least one of the 17 medication code variables from the Medication Survey Form (MSRC: Q4M01B, Q4M02B, …, Q4M17B; termed CODE1-CODE17) contained: "6410", "6499", "6599", or "6420" then the aspirin flag would have a value of 1, otherwise, the aspirin flag would contain a 0.

If a participant brought all or some of their medication to the clinic or if they forgot their medication (but stated that they do take medication) and the aspirin flag has a value of 1 then ASPIRINCODE41=1 for "Aspirin containing medication found".

ASPIRINCODE41=0 for "No aspirin containing medication found" if a participant has at least one medication in the 17 medication code variables, but none of them contain "6410", "6499", "6599", or "6420". ASPIRINCODE41 takes a missing value for any other combination not mentioned.

Table of assignment of values to ASPIRINCODE41

	MSRD1	MSRD2	ANYMED	ASPIRIN_FLAG
ASPIRINCODE41=1	N	F	1	1
	Y, S	missing		
ASPIRINCODE41=0	N	missing	1	0
	N	F	1	0
	N	T	0	0
	Y, S	missing	1	0
	S	F	1	0

MSRD1: Bring all medication from last 2 weeks?
Y Yes, brought all medication
S brought some medication
N No, brought no medication

MSRD2: Reason why did not bring all medications.

T Took no medications
F Forgot or was unable to bring medications
ANYMED
1 any medications recorded in CODE1-CODE17
0 no medications recorded in CODE1-CODE17

ASPIRIN_FLAG
1 ANYMED=1 AND value of “6410”, “6499”, “6599”, or “6420” found in CODE1-CODE17
0 ANYMED=0 or ANYMED=1 and no “6410”, “6499”, “6599”, or “6420” found in CODE1-CODE17

Algorithm:
1. Create variable ANYMED.

ANYMED=1 if any medication codes are recorded in CODE1-CODE17. ANYMED=0 if no medication codes are present. ANYMED= missing if no MSRC is present.

2. Create variable ASPIRIN_FLAG. ASPIRIN_FLAG=1 if ANYMED=1 and CODE1-CODE17 contains the first four numbers “6410”, “6499”, “6599”, or “6420”. ASPIRIN_FLAG=0 otherwise.

3. Create variable ASPIRINCODE01.

ASPIRINCODE41=1
If MSRD1=’N’ and MSRD2= ‘F’ and ASPIRIN_FLAG=1
Or
If (MSRD1= ‘Y’ or ‘S’) and ASPIRIN_FLAG=1

ASPIRINCODE41=0
If MSRD1=’N’ and MSRD2=missing and ANYMED=1 and ASPIRIN_FLAG=0
Or
If MSRD1=’N’ and MSRD2=’F’ and ANYMED=1 and ASPIRIN_FLAG=0
Or
If MSRD1=’N’ and MSRD2=’T’ and ANYMED=0 and ASPIRIN_FLAG=0
Or
If MSRD1=’Y’, ‘S’ and MSRD2=missing and ANYMED=1 and ASPIRIN_FLAG=0
Or
If MSRD1=’S’ and MSRD2=’F’ and ANYMED=1 and ASPIRIN_FLAG=0

ASPIRINCODE41=Missing for all other combinations.

7. Nutrition Derived Variables

Nutrition Derived Variables are NOT available at Visit 4.

8. Plaque Derived Variables

8.1. BIFSHD41 (Shadowing in either carotid bifurcation)

Algorithm

1. If [LBIFSHAD ≥y=] or [RBIFSHAD ≥y=]
   then set BIFSHD41 to 1.

2. Else if [LBIFSHAD ≥n=] or [RBIFSHAD ≥n=]
   then set BIFSHD41 to 0.

3. Else set BIFSHD41 to missing (.T).

   LBIFSHAD: Shadowing in the left carotid bifurcation.
   RBIFSHAD: Shadowing in the right carotid bifurcation.

8.2. INTSHD41 (Shadowing in either internal carotid artery)

INTSHD41 is derived in a similar manner to BIFSHD41 using the following variables:
LINTSHAD: Shadowing in the left internal carotid artery.
RINTSHAD: Shadowing in the right internal carotid artery.

8.3. COMSHD41 (Shadowing in either common carotid artery)

COMSHD41		*Shadowing In Either Common Carotid*
N	*Value*	*Description*
2	T	Missing
6834	0	No
46	1	Yes
4774		Missing

Algorithm

1. If [LOPTSHAD ≥y=] or [ROPTSHAD ≥y=]
   then set COMSHD41 to 1.

2. Else if [LOPTSHAD ≥n=] or [ROPTSHAD ≥n=]
   then set COMSHD41 to 0.

3. Else set COMSHD41 to missing (.T)

LOPTSHAD: Shadowing in the left common carotid artery measured from the optimal angle.

ROPTSHAD: Shadowing in the right common carotid artery measured from the optimal angle.

8.4. BIFPLQ41 (Plaque in either carotid bifurcation)

BIFPLQ41		*Plaque In Either Carotid Bifurcation*
N	*Value*	*Description*
35	T	Missing
4491	0	No
2356	1	Yes
4774		Missing

Algorithm

1. If [LBIFPLAQ ≥y=] or [RBIFPLAQ ≥y=]
   then set BIFPLQ41 to 1.

2. Else if [LBIFPLAQ ≥n=] or [RBIFPLAQ ≥n=]
   then set BIFPLQ41 to 0.

1. Else set BIFPLQ41 to missing (.T).

LBIFPLAQ: Plaque in the left carotid bifurcation.
RBIFPLAQ: Plaque in the right carotid bifurcation.

8.5. INTPLQ41 (Plaque in either internal carotid artery)

INTPLQ41		*Plaque In Either Internal Carotid*
N	*Value*	*Description*
136	T	Missing
5538	0	No
1208	1	Yes
4774		Missing

INTPLQ41 is derived in a similar manner to BIFPLQ41 using the following variables:

LINTPLAQ: Plaque in the left internal carotid artery.
RINTPLAQ: Plaque in the right internal carotid artery.

8.6. COMPLQ41 (Plaque in either common carotid artery)

COMPLQ41		*Plaque In Either Common Carotid*
N	*Value*	*Description*
2	T	Missing
6296	0	No
584	1	Yes
4774		Missing

Algorithm

1. If [LOPTPLAQ ≥y=] or [ROPTPLAQ ≥y=]
   then set COMPLQ41 to 1.
2. Else if [LOPTPLAQ ≥n=] or [ROPTPLAQ ≥n=]
   then set COMPLQ41 TO 0.
3. Else set COMPLQ41 to missing (.T).

LOPTPLAQ: Plaque in the left common carotid artery measured from the optimal angle.
ROPTPLAQ: Plaque in the right common carotid artery measured from the optimal angle.

8.7. LCOMPS41 (Plaque/shadowing (both, 1 w/o other, neither) in the left common carotid)

LCOMPS41		*Plaque/Shadowing In Left Common Carotid*
N	*Value*	*Description*
159	T	Missing
18	1	Plaque and shadowing
277	2	Plaque only
3	3	Shadowing only
6425	4	No plaque or shadow
4774		Missing

Algorithm

1. If [LOPTSHAD = A≅] or [LOPTPLAQ = A≅]
   then set LCOMPS41 to missing (.T).

2. Else if [[LOPTSHAD ≥y=] and [LOPTPLAQ ≥y=]]
   then set LCOMPS41 to 1.

3. Else if [LOPTPLAQ ≥y=]
   then set LCOMPS41 to 2.

4. Else if [LOPTSHAD ≥y=]
   then set LCOMPS41 to 3.

5. Else if [LOPTSHAD ≥n=] and [LOPTPLAQ ≥n=]
   then set LCOMPS41 to 4.

LOPTSHAD: Shadowing in the left common carotid artery measured from the optimal angle.
LOPTPLAQ: Plaque in the left common carotid artery measured from the optimal angle.

The following are derived in a similar manner using the variables indicated:

8.8. RCOMPS41 (Plaque/shadowing (both, 1 w/o other, neither) in the right common carotid)

RCOMPS41		*Plaque/Shadowing In Right Common Carotid*
N	*Value*	*Description*
104	T	Missing
30	1	Plaque and shadowing
335	2	Plaque only
1	3	Shadowing only
6412	4	No plaque or shadow
4774		Missing

ROPTSHAD: Shadowing in the right common carotid artery measured from the optimal angle.
ROPTPLAQ: Plaque in the right common carotid artery measured from the optimal angle.

8.9. LBIFPS41 (Plaque/shadowing (both, 1 w/o other, neither) in the left carotid bifurcation)

LBIFPS41		*Plaque/Shadowing In Left Carotid Bifurcation*
N	*Value*	*Description*
330	T	Missing
288	1	Plaque and shadowing
1185	2	Plaque only
15	3	Shadowing only
5064	4	No plaque or shadow
4774		Missing

LBIFSHAD: Shadowing in the left carotid bifurcation.
LBIFPLAQ: Plaque in the left carotid bifurcation.

8.10. RBIFPS41 (Plaque/shadowing (both, 1 w/o other, neither) in the right carotid bifurcation)

RBIFPS41		*Plaque/Shadowing In Right Carotid Bifurcation*
N	*Value*	*Description*
206	T	Missing
288	1	Plaque and shadowing
1286	2	Plaque only
12	3	Shadowing only
5090	4	No plaque or shadow
4774		Missing

RBIFSHAD: Shadowing in the right carotid bifurcation.
RBIFPLAQ: Plaque in the right carotid bifurcation.

8.11. LINTPS41 (Plaque/shadowing (both, 1 w/o other, neither) in the left internal carotid

LINTPS41		*Plaque/Shadowing In Left Internal Carotid*
N	*Value*	*Description*
447	T	Missing
93	1	Plaque and shadowing
595	2	Plaque only
5	3	Shadowing only
5742	4	No plaque or shadow
4774		Missing

LINTSHAD: Shadowing in the left internal carotid.
LINTPLAQ: Plaque in the left internal carotid.

8.12. RINTPS41 (Plaque/shadowing (both, 1 w/o other, neither) in the right internal carotid)

RINTPS41		*Plaque/Shadowing In Right Internal Carotid*
N	*Value*	*Description*
529	T	Missing
133	1	Plaque and shadowing
604	2	Plaque only
12	3	Shadowing only
5604	4	No plaque or shadow
4774		Missing

RINTSHAD: Shadowing in the right internal carotid.
RINTPLAQ: Plaque in the right internal carotid.

8.13. COMPS41 (Plaque/shadowing (both, 1 w/o other, neither) in either common carotid)

COMPS41		*Plaque/Shadowing In Either Common*
N	*Value*	*Description*
2	T	Missing
42	1	Plaque and shadowing (same side)
542	2	Plaque only
4	3	Shadowing only
6292	4	No plaque or shadow (on either side)
4774		Missing

Algorithm

1. If [LCOMPS41 = 1] or [RCOMPS41 = 1]
   then set COMPS41 to 1.
2. Else if [LCOMPS41 = 2] or [RCOMPS41 =2]
   then set COMPS41 to 2.
3. Else if [LCOMPS41 = 3] or [RCOMPS41 = 3]
   then set COMPS41 to 3.
4. Else if [LCOMPS41 = 4] or [RCOMPS41 = 4]
   then set COMPS41 to 4.
5. Else set COMPS41 to missing (.T).

LCOMPS41: Plaque/shadowing in the left common carotid.
RCOMPS41: Plaque/shadowing in the right common carotid.

The following are derived in a similar manner using the variables indicated:

8.14. BIFPS41 (Plaque/shadowing (both, 1 w/o other, neither) in either carotid bifurcation)

BIFPS41		*Plaque/Shadowing In Either Bifurcation*
N	*Value*	*Description*
35	T	Missing
497	1	Plaque and shadowing (same side)
1859	2	Plaque only
15	3	Shadowing only
4476	4	No plaque or shadow (on either side)
4774		Missing

LBIFPS: Plaque/shadowing in the left carotid bifurcation.
RBIFPS: Plaque/shadowing in the right carotid bifurcation.

8.15. INTPS41 (Plaque/shadowing (both, 1 w/o other, neither) in either internal carotid)

INTPS41		*Plaque/Shadowing In Either Internal Carotid*
N	*Value*	*Description*
136	T	Missing
206	1	Plaque and shadowing (same side)
1002	2	Plaque only
12	3	Shadowing only
5526	4	No plaque or shadow (on either side)
4774		Missing

LINTPS41: Plaque/shadowing in the left internal carotid.
RINTPS41: Plaque/shadowing in the right internal carotid.

8.16. LPLQSD41 (Plaque/shadowing (both, 1 w/o other, neither) in any left carotid site)

LPLQSD41		*Plaque/Shadowing In Any Left Carotid Site*
N	*Value*	*Description*
570	T	Missing
325	1	Plaque and shadowing (any site)
1399	2	Plaque only
15	3	Shadowing only
4573	4	No plaque or shadow (at both sites)
4774		Missing

Algorithm

1. If [LCOMPS41 = .T] or [LBIFPS41 = .T] or [LINTPS41 = .T]
   then set LPLQSD41 to missing (.T).

2. Else if [LCOMPS41 = 1] or [LBIFPS41 = 1] or [LINTPS41 =1]
   then set LPLQSD41 to 1.

3. Else if [[LCOMPS41 = 2] or [LBIFPS41 =2] or [LINTPS41 = 2]
   then set LPLQSD41 to 2.

4. Else if [LCOMPS41 = 3] or [LBIFPS41 = 3] or [LINTPS41 = 3]
   then set LPLQSD41 to 3.

5. Else if [LCOMPS41 = 4] and [LBIFPS41 = 4] and [LINTPS41 = 4]
   then set LPLQSD41 to 4.

LCOMPS41: Plaque/shadowing in the left common carotid.
LBIFPS41: Plaque/shadowing in the left bifurcation carotid.
LINTPS41: Plaque/shadowing in the left internal carotid.

8.17. RPLQSD41 (Plaque/shadowing (both, 1 w/o other, neither) in any right carotid site)

RPLQSD41		*Plaque/Shadowing In Any Right Carotid Site*
N	*Value*	*Description*
585	T	Missing
348	1	Plaque and shadowing (any site)
1497	2	Plaque only (any site)
21	3	Shadowing only (any site)
4431	4	No plaque or shadow (at both sites)
4774		Missing

RPLQSD41 is created in a similar manner to LPLQSD41 using the following variables:

RCOMPS41: Plaque/shadowing in the right common carotid.
RBIFPS41: Plaque/shadowing in the right bifurcation carotid.
RINTPS41: Plaque/shadowing in the right internal carotid.

8.18. PLQSHD41 (Plaque/shadowing (both, 1 w/o other, neither) in any carotid site)

PLQSHD41		*Plaque/Shadowing In Any Carotid Site*
N	*Value*	*Description*
980	T	Missing
531	1	Plaque and shadowing (any site)
1918	2	Plaque only (any site)
22	3	Shadowing only (any site)
3431	4	No plaque or shadow (at both sites)
4774		Missing

Algorithm

1. If [LPLQSD41 = .T] or [RPLQSD41 = .T]
   then set PLQSHD41 to missing (.T).
2. Else if [LPLQSD41 = 1] or [RPLQSD41 =1]

then set PLQSHD41 to 1.

3. Else if [LPLQSD41 =2] or [RPLQSD41 = 2]
   then set PLQSHD41 to 2.
4. Else if [LPLQSD41 = 3] or [RPLQSD41 = 3]
   then set PLQSHD41 to 3.
5. Else if [LPLQSD41 = 4] and [RPLQSD41 = 4]
   then set PLQSHD41 to 4.

LPLQSD41: Plaque/shadowing (both, 1 w/o other, neither) in any left carotid site.
RPLQSD41: Plaque/shadowing (both, 1 w/o other, neither) in any right carotid site.

8.19. PLAQUE41 (Plaque (with or without shadowing) in any carotid site)

PLAQUE41		*Plaque In Any Site*
N	*Value*	*Description*
980	T	Missing
3453	0	No
2449	1	Yes
4774		Missing

Algorithm
1. If [PLQSHD41 = .T]
   then set PLAQUE41 to missing (.T).
2. Else if [PLQSHD41 = 1] or [PLQSHD41 = 2]
   then set PLAQUE41 to 1.
3. Else set PLAQUE41 to 0.

PLQSHD41: Plaque/shadowing (both, 1 w/o other, neither) in any carotid site.

8.20. PLAQUE42 (Plaque in any carotid site - alternative definition)

PLAQUE42		*Alternate Definition Plaque In Any Site*
N	*Value*	*Description*
4157	0	No
2725	1	Yes
4774		Missing

Algorithm
1. If [LOPTPLAQ ≥y=] or [LBIFPLAQ ≥y=] or [LINTPLAQ ≥y=] or
   [ROPTPLAQ ≥y=] or [RBIFPLAQ ≥y=] or [RINTPLAQ ≥y=]
   then set PLAQUE42 =1.
2. Else if [LOPTPLAQ ≥n=] or [LBIFPLAQ ≥n=] or [LINTPLAQ ≥n=] or
   [ROPTPLAQ ≥n=] or [RBIFPLAQ ≥n=] or [RINTPLAQ ≥n=]
   then set PLAQUE42 =0.
3. Else set PLAQUE42 = .T.

9. Retinal Variables

9.1. GRADE41 (Photo Gradable) UC5284

GRADE41		*Photo Gradable: 1=yes, 0=no*
N	*Value*	*Description*
938	1	Yes
10718		Missing

Variables from the Visit 4 Retinal Image Processing dataset (RLBB) are used.

9.2. GRADE42 (Gradeability of Photo, Definition #2) UC5284

GRADE42		*Gradeability Of Photo, Definition #2*
N	*Value*	*Description*
161	0	No
937	1	Yes
10558		Missing

Variables from the Visit 4 Retinal Image Processing dataset (RLBB) are used.

9.3. ARTSS41 (Arterial Sum of Squares) UC5284

ARTSS41		*Arterial Sum Of Squares*
N	*Value*	*Description*
938	Range	20660 - 72205 (median=41658 mean=42106.6 std=7968.1)
10718		Missing

Variables from the Visit 4 Retinal Image Processing dataset (RLBB) are used.

9.4. VEINSS41 (Vein Sum of Squares) UC5284

VEINSS41		*Vein Sum Of Squares*
N	*Value*	*Description*
938	Range	28356 - 112673 (median=56296.5 mean=57482.27 std=11556.77)
10718		Missing

Variables from the Visit 4 Retinal Image Processing dataset (RLBB) are used.

9.5. CRVE41 (Derived CRVE41) UC5284

CRVE41		*Derived CRVE41*
N	*Value*	*Description*
938	Range	139.1 - 253.6 (median=188.1 mean=189.24 std=17.01)
10718		Missing

Variables from the Visit 4 Retinal Image Processing dataset (RLBB) are used.

9.6. CRAE_B41 (Derived CRAE_B41) UC5284

CRAE_B41		*Derived CRAE_B41*
N	*Value*	*Description*
938	Range	113 - 213.4 (median=157.9 mean=158.21 std=16.23)
10718		Missing

Variables from the Visit 4 Retinal Image Processing dataset (RLBB) are used.

9.7. AV_B41 (V4 AVR Branch) UC5284

AV_B41		*V4 AVR Branch*
N	*Value*	*Description*
938	Range	0.608716 - 1.097113 (median=0.832443 mean=0.8385241 std=0.0776642)
10718		Missing

Variables from the Visit 4 Retinal Image Processing dataset (RLBB) are used.

10. SI Unit Change

10.1. TCHSIU41 (V4 Total Cholesterol in SI Units)

TCHSIU41		*V4 Total Cholesterol In SI Units*
N	*Value*	*Description*
11560	Range	1.99122 - 15.80046 (median=5.12028 mean=5.193715 std=0.959257)
96		Missing

This variable expresses total cholesterol in the System International (SI) unit system.

Present System	Conversion factor (CF)	SI Unit System
mg/dL	0.02586	mmol/L

TCHSIU41 = LIPD1A x CF
LIPD1A : Total Cholesterol in mg/dL.

10.2. HDLSIU41 (V4 HDL Cholesterol in SI Units)

HDLSIU41		*Re-Calibrated HDL Cholesterol In mmol/L*
N	*Value*	*Description*
11560	Range	0.2586 - 4.5255 (median=1.21542 mean=1.292233 std=0.427331)
96		Missing

This variable expresses HDL cholesterol level in the System International (SI) unit system.

Present System	Conversion factor (CF)	SI Unit System
mg/dL	0.02586	mmol/L

HDLSIU41 = LIPD3A x CF
LIPD3A: HDL Cholesterol in mg/dL

10.3. LDLSIU41 (V4 LDL Cholesterol in SI Units)

LDLSIU41		*Re-Calibrated LDL Cholesterol In mmol/L*
N	*Value*	*Description*
11374	Range	0.191364 - 11.22324 (median=3.123888 mean=3.1712791 std=0.8655191)
282		Missing

This variable expresses LDL cholesterol level in the System International (SI) unit system.

Present System	Conversion factor (CF)	SI Unit System
mg/dL	0.02586	mmol/L

LDLSIU41 = LDL41 x CF
LDL41: LDL re-calculated Cholesterol in mg/dL

10.4. TRGSIU41 (V4 Triglycerides in SI Units)

TRGSIU41		*V4 Triglycerides In SI Units*
N	*Value*	*Description*
11560	Range	0.2258 - 24.81542 (median=1.37738 mean=1.623189 std=0.985275)
96		Missing

This variable expresses Total Triglycerides in the System International (SI) unit system.

Present System	Conversion factor (CF)	SI Unit System
mg/dL	0.01129	mmol/L

TRGSIU41 = LIPD2A x CF
LIPD2A : Total Triglycerides in mg/dL

10.5. GLUSIU41 (V4 Fasting Glucose in SI Units)

GLUSIU41		*V4 Fasting Glucose In SI Units*
N	*Value*	*Description*
11560	Range	1.99836 - 39.52312 (median=5.551 mean=6.1607 std=2.1335)
96		Missing

This variable expresses blood glucose level in the System International (SI) unit system.

Present System	Conversion factor (CF)	SI Unit System
mg/dL	0.05551	mmol/L

GLUSIU41 = LIPD4a x CF
LIPD4a: Blood Glucose Level in mg/dL

10.6. GL2SIU41 (V4 Two Hour Glucose in SI Units)

GL2SIU41		*V4 Two Hour Glucose In SI Units*
N	*Value*	*Description*
9042	Range	1.72081 - 35.35987 (median=7.04977 mean=7.730028 std=3.025086)
2614		Missing

This variable expresses blood glucose level in the System International (SI) unit system.

Present System	Conversion factor (CF)	SI Unit System
mg/dL	0.05551	mmol/L

GLUSIU41 = LIPD5a x CF
LIPD5a: Blood Glucose Level in mg/dL

11. Smoking

11.1. CIGT41 (V4 Cigarette smoking status)

CIGT41		*Cigarette Smoking Status*
N	*Value*	*Description*
1716	1	Current smoker
5034	2	Former smoker
4792	3	Never smoker
5	4	Unknown, but one of the above 3 categories may be ruled out
109		Missing

Note: This variable includes a historical component, but no use of Visit 1 & 2data has been made.

Table of assignment of values to CIGT41

PHXB7: HAVE YOU EVER SMOKED CIGARETTES?	PHXB8: DO YOU NOW SMOKE CIGARETTES?		
	Y	N	Missing
Y	1	2	4 (d)
N	Missing (a)	3	3
Missing	1 (b)	4 (c)	Missing

Footnotes to the table:

(a) Bad data (contradictory answers)
(b) Even though Q44 is not answered, Q45 defines the person as a current smoker
(c) Could be either former or never smoker
(d) Could be either former or current smoker

11.2. CURSMK41 (Current cigarette smoker)

CURSMK41		*Current Cigarette Smoker*
N	*Value*	*Description*
113	T	Missing
9827	0	No
1716	1	Yes

CURSMK41 is a categorical variable that takes values according to the definition table below:

CURSMK41	PHXB7	PHXB8
1	Y OR MISSING	Y
0	N	Not Y
	Y or Missing	N
.T	N	Y
	not N	Missing

PHXB7: Have you ever smoked cigarettes? Yes, No
PHXB8: Do you now smoke cigarettes? Yes, No

11.3. FORSMK41 (Former cigarette smoker)

FORSMK41		*Former Cigarette Smoker*
N	*Value*	*Description*
114	T	Missing
6508	0	No
5034	1	Yes

FORSMK41 is a categorical variable that takes values according to the definition table below:

FORSMK41	PHXB7	PHXB8
1	Y	N
0	N	N or Missing
	Y or Missing	Y
.T	N	Y
	Y	Missing
	Missing	Missing or N

PHXB7: Have you ever smoked cigarettes? Yes, No
PHXB8: Do you now smoke cigarettes? Yes, No

11.4. EVRSMK41 (Ever smoked cigarettes)

EVRSMK41		*Ever Smoked Cigarettes*
N	*Value*	*Description*
110	T	Missing
4792	0	No
6754	1	Yes

EVRSMK41 is a categorical variable that takes values according to the definition table below:

EVRSMK41	PHXB7	PHXB8
1	Y	any
	Missing	Y
0	N	not Y
T	N	Y
	Missing	not Y

PHXB7: Have you ever smoked cigarettes? Yes, No
PHXB8: Do you now smoke cigarettes? Yes, No

12. TIA/Stroke (In files STROKE41)

12.1. Description of the TIA/Stroke Variables

The diagnostic computer algorithm creates variables for each of six symptoms:

Symptom	**Variable Name**
speech	SPCDIA41
vision	VISDIA41
double vision	DBLDIA41
numbness	NUMDIA41
paralysis	PARDIA41
dizziness	DIZDIA41

For simplicity, this group of variables will be referred to in this document as *DIA41.

The values of the *DIA41 variables indicate whether a TIA or stroke occurred in what arterial distribution. The arterial distributions include left carotid artery (LC), right carotid artery (RC), and vertebrobasilar system (VBI or VB). Thus, the possible values for the *DIA41 variables are: TIALC, TIARC, TIAVBI, STROKELC, STROKERC, STROKEVB, UNKNOWN, MISSING.

12.2. Creation of TIA Intermediate Variables

If one or more of the *DIA41 variables are equal to TIALC, then the intermediate categorical variable TIALC41 is set to Y. If no *DIA41 variable has a value of TIALC and one or more of the *DIA41 variables have the value UNKNOWN, then TIALC41 is set to U. If no *DIA41 variable has a value of TIALC or UNKNOWN and one or more of the *DIA41 variables are MISSING or blank, then TIALC41 is set to M. If none of the preceding conditions is satisfied then TIALC41 is set to N.

Similar logic is used to create intermediate variables for the other two arterial distributions: right carotid artery (TIARC41) and vertebrobasilar system (TIAVB41).

12.3. Creation of STROKE Intermediate Variables

Three intermediate variables for stroke (STKLC41, STKRC41, and STKVB41) are created in much the same manner as the variables for TIA described in Section 2 above; that is, the STROKE variables are defined by replacing TIA with STROKE in the description above.

12.4. Creation of TIA/STROKE Intermediate Variables

Three intermediate variables STIAC41, STIARC41, and STIAVB41, are created based on the values of the TIA and STROKE intermediate variables defined above.

	TIALC41	STKLC41
STIALC41 = Y	Y	ANY
	ANY	Y
STIALC41 = N	N	N
STIALC41 = M	N	MISSING
	MISSING	N
	MISSING	MISSING

	TIARC41	STKRC41
STIARC41 = Y	Y	ANY
	ANY	Y
STIARC41 = N	N	N
STIARC41 = M	N	MISSING
	MISSING	N
	MISSING	MISSING

	TIAVB41	STKVB41
STIAVB41 = Y	Y	ANY
	ANY	N
STIAVB41 = N	N	N

STIAVB41 = M	N	MISSING
	MISSING	N
	MISSING	MISSING

12.5. Creation of Variable TIA41

	TIALC41	TIARC41	TIAVB41
TIA41 = Y	Y	ANY	ANY
	ANY	Y	ANY
	ANY	ANY	Y
TIA41 = N	N	N	N
TIA41 = U	U	Not Y	Not Y
	Not Y	U	Not Y
	Not Y	Not Y	U

TIA41 = M if other combinations

12.6. Creation of Variable STROKE41

	STKLC41	STKRC41	STKVB41
STROKE41 = Y	Y	ANY	ANY
	ANY	Y	ANY
	ANY	ANY	Y
STROKE41 = N	N	N	N
STROKE41 = U	U	Not Y	Not Y
	Not Y	U	Not Y
	Not Y	Not Y	U

STROKE41 = M if other combinations

12.7. Creation of Variable STIA41

	TIA41	STROKE41
STIA41 = Y	Y	Any
	Any	Y
STIA41 = N	N	N
STIA41 = U	U	Not Y
	Not Y	U

STIA41 = M if other combinations

13. Other Variables

13.1. GENDER (Sex)

GENDER		*Sex (From FTRA22)*
N	*Value*	*Description*
6508	F	Female
5148	M	Male

During the closure of the AFU Medical History Data, it comes to our attention that there are two ARIC Ids with gender incorrectly identified in our consolidated database. Both Ids(J252435 & J327948) involve female participants who were incorrectly identified as male in our database. The uncorrected gender variable(GENDER) stays in DERIVE42 and the corrected gender viable(CORGEND1) stays in UNOFF23. Since many analyses were already done using the UNCORRECTED gender variable, the Executive Committee has recommended to use the uncorrected gender variable (GENDER) for Visit1 and longitudinal analyses. The corrected version could be used for cross-sectional analyses other than Visit1.

13.2. RACEGRP (Race)

RACEGRP		*Race (From FTRA23)*
N	*Value*	*Description*
24	A	
2664	B	Black
7	I	
8961	W	White

While we have been tracking all known errors, we found there are two Ids with race group incorrectly identified in our consolidated database. Both Ids (F134145 & F158363) were incorrectly identified as Whites in our database. Now F134145 is Asian and F158363 is Black. The uncorrected race variable (RACEGRP) stays in DERIVE42 and the corrected race variable (CORRACE1) stays in UNOFF23. Since many analyses were already done using the uncorrected race variable, the Executive Committee has recommended to use the uncorrected race variable (RACEGRP) for Visit 1 and longitudinal analyses. The corrected version could be used for cross-sectional analyses other than Visit 1.

13.3. BIRTHDAT (Date of Birth)

BIRTHDAT		*Date Of Birth Of Subject Q11*
N	*Value*	*Description*
11656	Range	02/25/1920 - 03/17/1945

While we have been tracking all known errors, we found that 49 Ids had birth date incorrectly specified in our consolidated database. The uncorrected birth-date variable (BIRTHDAT) stays in DERIVE42 and the corrected birth-date variable(CORBIRT2) stays in UNOFF23. Since many analyses were already done using the uncorrected variable, the Executive Committee has recommended to use the uncorrected variable, the Executive Committee has recommended to use the uncorrected birth-date variable (BIRTHDAT) for Visit1 and longitudinal analyses. The corrected version could be used for cross-sectional analyses other than Visit 1.

13.4. V4DATE41 (Visit 4 Date)

Search the Visit 4 dates on Visit 4 forms in the following order:

FTRD1, SBPD21, ANTD9
V4DATE41 is the first non-missing date that is found.

Notes:

a. V4DATE41 = FTRD1
=SBPD21

b. Consistency checks among the dates are not performed.

13.5. V4AGE41 (Age at Visit 4)

V4AGE41 is calculated as the difference in years between IDNA11 (Birth date) and V4DATE41 (Derived Visit 4 date).

i. Birthday is prior to the visit 4 day:

   a. (birth month) < (month of visit)
   b. (birth month) = (month of visit) and (birth day) < (day of visit)

V4AGE41 = (year of visit) - (birth year)

ii. Birthday is on or after the visit 4 day:

   a. (birth month) > (month of visit)
   b. (birth month) = (month of visit) and (birth day) > (day of visit)

iii. Any of the following cannot be determined:

   a. Relationship between birthday and visit 4 day.
   b. Year of visit.
   c. Birth year.

   V4AGE41 = missing.

Notes:

a. Birth month, day, and year are determined from IDNA11M, IDNA11D, and IDNA11Y, respectively.

b. Visit month, day, and year are determined from the derived variable, V4DATE41, for visit date.

13.6. FAST0841 (8 Hours or More of Fasting Time)

FAST0841		*Fasting Time Of 8 Hours Or More*
N	*Value*	*Description*
109	T	Missing
495	0	No
11052	1	Yes

Definition of FAST084A based on LABA form:

If either the FTRD or LABA form (or both) is missing or either form has a missing date (FTRD2 or LABA3 = missing), then

A. Set FAST084A to missing.

If both dates are present and equal (FTRD2 = LABA3), then

A. Compute CLINTIME, the time between the FTRD interview time (FTRD3A) and venipuncture time (LABA4A). Convert FTRD interview time and/or venipuncture time to a 24-hour clock value if the hour value (FTRD3AH, LABA4AH) falls in the range 1-11 and the time of day (FTRD3B, LABA4B) is PM. Do this by adding 12 to the hour value.

B. If time of consumption of last meal is >before yesterday= (FTRD4A = B) or the total time between consumption of last meal and blood draw is $\geq$ 8 hours, then set FAST084A to 1 if blood draw is before consumption of the snack (LABA5 = Y or blank).

C. If the snack was consumed before blood draw (LABA5 = N) or the total time between consumption of last meal and blood draw is not missing and < 8 hours, then set FAST084A to 0.

D. If neither B nor C above is met, set FAST084A to missing if either FTRD5 or CLINTIME is missing.

If both dates are present and FTRD visit occurred before LABA visit (FTRD2 < LABA3) then

A. In this case, the clinic is assumed to have changed the fasting information, so that FTRD4A and FTRD5 refer to the LABA visit day. If time of consumption of last meal is >before yesterday= (FTRD4A = B) or FTRD5 $\geq$ 8, then set FAST084A to 1 if blood draw is before consumption of the snack (LABA5 = Y or blank).

B. If the snack was consumed before blood draw (LABA5 = N) or FTRD5 is nonmissing and < 8, then set FAST084A to 0.

If both dates are present and FTRD visit occurred after LABA visit (FTRD2 > LABA3) then

A. Set FAST084A to missing.

Definition of FAST084B based on LABB form:

Definition of FAST084B is the same as FAST084A except using LABB instead of LABA for venipuncture data.

Definition of FAST0841:

If FAST084A >= 0 then FAST0841=FAST084A;
Else if FAST084B >=0 then FAST0841=FAST084B;
Else if FTRDFLAG=1 then FAST0841=.T;
Else FAST0841=.;

CLINTIME: A temporary variable to determine the total elapsed times since the participant provided their fasting information and when venipuncture was performed.

FTRD1:	Date of visit in mmddyy.
FTRD2:	Date of fasting determination.
FTRD3AH:	Time of fasting determination hour component.
FTRD3AM:	Time of fasting determination minute component.
FTRD3B:	Time of visit: AM or PM.
FTRD4A:	Day last consumed. T (Today), Y (Yesterday), B (Before yesterday)
FTRD5:	Computed fasting time in hours.
FTRDFLAG:	Indicator of presence of FTRD form.
LABA3, LABB3:	Date of blood drawing in mmddyy.
LABA4B, LABB4B:	Time of blood drawing: AM or PM.
LABA 4AH, LABB 4AH:	Time of blood drawing hour component.
LABA4AM, LABB4AM:	Time of blood drawing minute component.
LABA5, LABB5:	Was blood drawn before the snack? Y, N

13.7. FAST1241 (12 Hours or more of Fasting Time)

FAST1241		*Fasting Time Of 12 Hours Or More*
N	*Value*	*Description*
109	T	Missing
943	0	No
10604	1	Yes

Definition of FAST124A based on LABA form:

If either the FTRD or LABA form (or both) is missing or either form has a missing date (FTRD2 or LABA3 = missing), then

A. Set FAST124A to missing.

If both dates are present and equal (FTRD2 = LABA3), then

A. Compute CLINTIME, the time between the FTRD interview time (FTRD3A) and venipuncture time (LABA4A). Convert FTRD interview time and/or venipuncture time to a 24-hour clock value if the hour value (FTRD3AH, LABA4AH) falls in the range 1-11 and the time of day (FTRD3B, LABA4B) is PM. Do this by adding 12 to the hour value.

B. If time of consumption of last meal is >before yesterday= (FTRD4A = B) or the total time between consumption of last meal and blood draw is $\geq$ 12 hours, then set FAST124A to 1 if blood draw is before consumption of the snack (LABA5 = Y or blank).

C. If the snack was consumed before blood draw (LABA5 = N) or the total time between consumption of last meal and blood draw is not missing and < 12 hours, then set FAST124A to 0.

D. If neither B nor C above is met, set FAST124A to missing if either FTRD5 or CLINTIME is missing.

If both dates are present and FTRD visit occurred before LABA visit (FTRD2 < LABA3) then

A. In this case, the clinic is assumed to have changed the fasting information, so that FTRD4A and FTRD5 refer to the LABA visit day. If time of consumption of last meal is >before yesterday= (FTRD4A = B) or FTRD5 $\geq$ 12, then set FAST124A to 1 if blood draw is before consumption of the snack (LABA5 = Y or blank).

B. If the snack was consumed before blood draw (LABA5 = N) or FTRD5 is nonmissing and < 12, then set FAST124A to 0.

If both dates are present and FTRD visit occurred after LABA visit (FTRD2 > LABA3) then

A. Set FAST124A to missing.

Definition of FAST124B based on LABB form:

Definition of FAST124B is the same as FAST124A except using LABB instead of LABA for venipuncture data.

Definition of FAST1241:

If FAST124A >= 0 then FAST1241=FAST124A;

Else if FAST124B >=0 then FAST1241=FAST124B;

Else if FTRDFLAG=1 then FAST1241=.T;
Else FAST1241=.;

CLINTIME: A temporary variable to determine the total elapsed times since the participant provided their fasting information and when venipuncture was performed.

FTRD1:	Date of visit in mmddyy.
FTRD2:	Date of fasting determination.
FTRD3AH:	Time of fasting determination hour component.
FTRD3AM:	Time of fasting determination minute component.
FTRD3B:	Time of visit: AM or PM.
FTRD4A:	Day last consumed. T (Today), Y (Yesterday), B (Before yesterday)
FTRD5:	Computed fasting time in hours.
FTRDFLAG:	Indicator of presence of FTRD form.
LABA3, LABB3:	Date of blood drawing in mmddyy.
LABA4B, LABB4B:	Time of blood drawing: AM or PM.
LABA 4AH, LABB 4AH:	Time of blood drawing hour component.
LABA4AM, LABB4AM:	Time of blood drawing minute component.
LABA5, LABB5:	Was blood drawn before the snack? Y, N

13.8. TGLEFH41 (Triglycerides less than or equal to 400 mg/dL)

TGLEFH41		*Triglycerides <= 400 Mg/dL*
N	*Value*	*Description*
186	0	No
11374	1	Yes
96		Missing

Table of assignment of values to TGLEFH41

	LIPD2A (MG/DL)
TGLEFH41 = 1	Not missing and Less than or equal to 400
TGLEFH41 = 0	More than 400
TGLEFH41 = missing	Missing

LIPD2A: Total Triglycerides (mg/dL).

13.9. MENOPS41 (Menopausal Status)

MENOPS41		*Menopausal Status At Visit 4*
N	*Value*	*Description*
3	T	Missing
183	2	Premenopause
221	3	Perimenopause
4405	4	Post Natural
1134	5	Post Surgical
70	6	Unknown Ovarian
9	7	Post Radiation
29	8	Post Unknown
5602		Missing

Values are assigned according to the conditions defined below:

[Note: MENOPS02, MENOPS21, MENOPS31 are menopausal status variables at Visit 1-3, respectively.]

1. If {MENOPS02=1 or MENOPS21=1 or MENOPS31=1} and RHXC2=No then set MENOPS41=1 (Primary Amenorrhea)

2. If the above condition is not met and the following condition is met then set MENOPS41=2 (Premenopause)

   if rhxc2 = Yes & rhxc40 ≠ Both & (rhxc6=No or (rhxc5=0 & rhxc6 = missing))

3. If none of the above conditions are met and at least one of the following conditions is met then set MENOPS41=5 (Post Surgical)

   If { MENOPS02 or MENOPS21 or MENOPS31 = Post:surgery } or

   { RHXC2=No and (RHXC8=Surgery or missing) and RHXC40=Both} or

   { MENOPS31=Pre, Peri, Unknown & RHXC40=Both & RHXC2 ≠Yes & RHXC8 ≠Natural }

4. If none of the above conditions are met and the following condition is met

   then set MENOPS41=3 (Perimenopause)

   If { (MENOPS31= Pre, Peri) &

   ((RHXC2=Yes & RHXC6=Yes & RHXC40 ≠ Both) or

   (RHXC2=Yes & (RHXC6=U or (RHXC6=missing & RHXC40 ≠ Both))) }

5. If none of the above conditions are met and the following condition is met then set MENOPS41=.T (Special Missing)

   If {RHXC2=Yes & RHXC40=Both &

   (RHXC6=No or (RHXC6=missing & RHXC5=0)) }

6. If none of the above conditions are met and at least one of the following conditions is met then set MENOPS41=4 (Post Natural)

   If { (MENOPS02 or MENOPS21 or MENOPS31=Post:natural & RHXC40 ≠ Both) or

   (MENOPS02 or MENOPS21 or MENOPS31=Post:natural & RHXC40 = Both &

   age when ovaries removed > age at menopause) or

   (RHXC2=No & (RHXC8=Natural or Unknown)) or

   (RHXC2=No & RHXC37=No) or

   (RHXC2=No & RHXC40 ≠ Both & V3AGE31 ≥ 55) or

   (RHXC6=Y & RHXC8=Natural & RHXC40 ≠ Both) or

(RHXC2=No & RHXC6=Y & RHXC8 ≠ Surgery or radiation & RHXC40 = No) }

7. If none of the above conditions are met and at least one of the following conditions is met then set MENOPS41=6 (Unknown Ovarian)

   If (MENOPS31=6 & RHXC1=No & V4AGE < 55) or

   (RHXC2=No & RHXC6=Yes & RHXC8=Surgery & RHXC37=Yes &

   RHXC38=No & RHXC40=One) or

   (RHXC2=No & (RHXC8=Surgery or missing) & RHXC40=Unknown) or

   (RHXC2=No & RHXC6=Yes & RHXC8=Surgery &

   (RHXC37=Yes or Unknown) &

   (RHXC8=missing or Both or Surgery)) or

   (RHXC2=No & RHXC6=Unknown and RHXC8=missing & RHXC37=Yes &

   RHXC38=Yes & RHXC40=missing) or

   (RHXC38=Yes & RHXC04 ≠ Both & (RHXC7 ≥ RHXC39) & RHXC8 ≠ Natural) or

   (RHXC2=No & (RHXC8=Surgery, missing) & (RHXC40=No, One) &

   V4AGE < 55) or

   (MENOPS31=6 & RHXC37=Unknown and V4AGE ≥ 55) }

8. If none of the above conditions are met and the following condition is met then set MENOPS41=7 (Post Radiation)

   If MENOPS31 = 7 or (RHXC6=No & RHXC8=Radiation)

9. If none of the above conditions are met and at least one of the following conditions is met then set MENOPS41=8 (Post Unknown)

   If {(MENOPS31=2 or 3) &

   (RHXC6=Yes & RHXC8=Natural & RHXC40=Both & RHXC38=Yes) or

   (RHXC6=Yes & RHXC8=Surgery & RHXC40 ≠ Both) or

   (RHXC6=Yes & RHXC2=No & V3AGE < 55) }

10. If none of the above conditions are met

    then set MENOPS41=missing

    RHXC1: Any menstrual periods 2 years prior to last visit? Y, N, U

    RHXC2: Have you had any menstrual periods during the past two years? Y, N, U

    RHXC5: In the past 2 years how many periods did you miss?

    RHXC6: Have you reached menopause? Y, N, U

    RHXC7: Age when menopause began

    RHXC8: Was your menopause natural or the result of surgery or radiation?

    N(Natural), S (Surgery), R (Radiation), U (Unknown)

    RHXC37: Have you had surgery to have your uterus or ovaries removed? Y, N, U (Unknown)

    RHXC38: Has your uterus (womb) been removed? Y, N, U

    RHXC40: Have you had either one or both ovaries removed?

    O (Yes, One), B (Yes, Both), N (No), U (Unknown)

RHXC41: Age when ovary(ies) removed

13.10. HORMON41 (V4 Use of Hormones, Female Participants)

HORMON41		*V4 Hormone Use*
N	*Value*	*Description*
1267	1	Current Estrogen User
440	2	Current Estrogen and Progestin User
2388	3	Never Used Hormones
188	4	Former Hormone User or Former User of other medications reported by Participants as hormones
7373		Missing

This group reported having taken hormone pills since the last exam on the RHX (Reproductive History) form, but some of the hormone codes reported failed to be classified into one of the following categories: estrogen, progestin, combined (estrogen+progestin - V4 only), oral contraceptive, vaginal estrogen, androgen, estrogen+androgen, and unknown gonadal hormone. Note that this group is defined as former hormone users who possibly mistook non-hormones as hormones. We don't highly recommend use of this group.

Table of assignment of values to HORMON41

1	if CURR4 = 1 then HORMON41 = 1;
2	else if CURR4 = 2 then HORMON41 = 2;
3	else if HORMTIM4 = 3 then HORMON41 = 3;
4	else if HORMTIM4 = 4 & ((ESTROGE4 = 'Y' or PROGEST4 = 'Y' or ORALCON4 = 'Y' OR ESTRCRM4 = 'Y' OR ANDROG4 = 'Y' or ESTRAND4 = 'Y' or UNKGONA4 = 'Y' or OTHER4='Y')) then HORMON41 = 4;
.	else HORMON41 = . ;

Values of HORMON41 are assigned according to the values of the intermediate variables which indicate the use of different types of hormones at Visit 4 ('Y' = yes; 'N'= no) using data from RHXC form. Equivalent variables were defined for V2 & V3. For each hormone type, two variables are created designating Aever≅ and Acurrent≅ use.

Variable	**Description**
Variables to designate "ever used":	
ANDROG4	>Androg at v4
COMB4	>Est+Prog at v4
ESTRAND4	>Estrandr at v4'
ESTRCRM4	>Estrcrm at v4'
ESTROGE4	>Estrogen at v4
ORALCON1	>Oral Cont at v1
ORALCON2	>Oral Cont at v2
ORALCON3	>Oral Cont at v3
ORALCON4	>Oral Cont at v4
OTHER4	>Other at v4

PROGEST4	>Progest at v4
UNKGONA4	>Unkgonad at v4
CANDROG4	'Current Androg Use at v4'
CCOMB4	'Current Est+Prog Use at v4'
CESTRAN4	'Current Estrand Use at v4'
CESTRCR4	'Current Estrcrm Use at v4'
CESTROG4	'Current Estrogen Use at v4'
CORALCO1	'Current Oral Cont Use at v1'
CORALCO2	>Current Oral Cont Use at v2'
CORALCO3	'Current Oral Cont Use at v3'
CORALCO4	'Current Oral Cont Use at v4'
COTHER4	'Current Other Use at v4'
CPROGES4	'Current Progest Use at v4'
CUNKGON4	'Current Unkgonad Use at v4'

The following table shows the MTC codes and labels for the preceding intermediate variables. The MTC code is equivalent to the first six digits of the GPI code. MTC labels are from the Medispan Master Drug Data Base, Appendix E, Therapeutic Classification System.

INTERVENING VARIABLE	VARIABLE LABEL	MTC CODE	MTC LABEL
ESTROGE4	'Estrogen at v4'	240000	Estrogens
		249920	Estrogen-Antianxiety
COMB4	'Comb at v4'	249930	Estrogen-Progestin
PROGEST4	>Progest at v4'	260000	Progestins
ORALCON4	'Oral Cont at v4'	250000	Contraceptives, Oral
		259900	Combinations, OC's
		259920	Triphasic OC's
ESTRCRM4	'Estrcrm at v4'	553500	Vaginal Estrogens
ANDROG4	'Androg at v4'	231000	Androgens
ESTRAND4	'Estrandr at v4'	249910	Estrogen-Androgen
UNKGONA4	'Unkgonad at v4'	300000	Miscellaneous Endocrine
OTHER4	'Other at v4'	other	

Of course, the MTC values for the current use of hormones variables are identical to these.
Current hormone usage is summarized by the following created variable, which can take values 1-4.

CURR4 Checks for current use of specific hormones:
1 = Current estrogen user only.
2 = Current estrogen and progestin user.
3 = User of other hormones or other medications reported by participants as hormones (oral contraceptives, estrogen creams, androgens).
4 = All other participants.

Logic for CURR4 parallels that used to create CURR2 (Visit 2) and CURR3 (Visit 3) with the exception that a new code has been added for combination estrogen-progestin drugs (MTC code 249930)

Table of assignment of values to CURR4

1	if (ESTROGE4 = 'Y' & CESTROG4 = 'Y') & (CPROGES4 = 'N' & CORALCO3 = 'N' & CESTRCR4 = 'N' & CANDROG4 = 'N' & CESTRAN4 = 'N' & CUNKGON4 = 'N' & COTHER4 = 'N') then CURR4 = 1;
2	else if ((ESTROGE4 = 'Y' & CESTROG4 = 'Y' & PROGEST4 = 'Y' & CPROGES4 = 'Y') or (COMB4==Y= & CCOMB4==Y=)) & (CORALCO4 = 'N' & CESTRCR4 = 'N' & CANDROG4 = 'N' & CESTRAN4 = 'N' & CUNKGON4 = 'N' & COTHER4 = 'N') then CURR4 = 2;
3	else if (ESTROGE4 ≥N= or CESTROG4 ≥N=) & (ORALCON4 = 'Y' & CORALCO4 = 'Y') or (ESTRCRM4 = 'Y' & CESTRCR4 = 'Y') or (PROGEST4 = 'Y' & CPROGES4 = 'Y') or (ANDROG4 = 'Y' & CANDROG4 = 'Y') or (ESTRAND4='Y' & CESTRAN4 = 'Y') or (UNKGONA4 = 'Y' & CUNKGON4 = 'Y') or (OTHER4='Y' & COTHER4='Y') then CURR4 = 3;
4	else CURR4=4;

HORMTIM4 is a created variable that summarizes hormone use over time. It uses same logic as its Visit 2 and 3 equivalents (HORMTIM2, HORMTIM3).

HORMTIM4 Checks for current, past, never use of hormones.
This is a numeric variable which assumes the following values.

1 = Unknown
2 = Currently taking hormones.
3 = Never took hormones.
4 = Former hormone user or former use of other medications reported by participants as hormones.
. = Missing value.

ORALTIM4 is a created variable that checks for use of oral birth control hormones. It is derived using the same logic as its Visit 2 and 3 equivalents (ORALTIM2, ORALTIM3).

ORALTIM4 Checks for current, past, never use of oral birth control.
This is a numeric variable which assumes values shown below.
It uses datasets from Visit 1, Visit 2 and Visit 3.

1 = Never took oral contraceptives
2 = Currently taking oral contraceptives
3 = Past user of oral contraceptives
4 = Unknown

13.11. CENTER (Field Center)

CENTER		*ARIC Field Center (Cir)*
N	*Value*	*Description*
2851	F	Forsyth County, NC
2368	J	Jackson City, MS
3252	M	Minneapolis Townships, MN
3185	W	Washington County, MD

The ARIC Study collects data in four diverse communities. This design was chosen so that data could be obtained for groups which differ by geography, race, and socio-economic status. The ARIC study was not designed to select a random or representative sample of the entire U.S. population.

This is a character variable that takes on the values of:

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

13.12. V4CENTER (Visit 4 Field Center)

V4CENTER		*Center For Visit 4 Exam*
N	*Value*	*Description*
2848	F	Forsyth County, NC
2367	J	Jackson City, MS
3253	M	Minneapolis Townships, MN
3188	W	Washington County, MD

If ARIC study participants move into another field center at visit 4, V4CENTER value is assigned to that field center. If not, V4CENTER is the same as CENTER.

14. Informed Consent In File ICTA

ICTDERxx is a derived informed consent file containing variables RES_DNA and RES_OTH (described below). The derived informed consent file includes the ARIC Exam Cohort as well as those ARIC cohort consents from the ancillary studies for Carotid and Brain MRIs. The final consent for a cohort participant is the latest date consent was given.

The variable RES_DNA indicates the type of restriction on DNA use, and RES_OTH indicates the type of restriction on other procedures. We request that the investigators exclude appropriate records with partial restrictions prior to data analysis.
RES_DNA (Restrictions on DNA)

RES_DNA is a character variable which might be updated if participants call in to change the consent. For participants who didn't attend visit 4 exam, we assumed full consent on use of DNA.

RES_DNA

RES_DNA		*Restriction On Use/Storage Of DNA*
N	*Value*	*Description*
23	ARIC Only	Storage and use of DNA in ARIC only
72	CVD Research	Storage and use of DNA in studies on cardiovascular diseases only
15586	Full Consent	All conditions and all procedures were agreed to
1	ICTA2B not to Houston	Taken from notelog
46	No use/storage DNA	No use of DNA allowed
64	Not for Profit	Storage and use of DNA by not for profit ARIC collaborators only

* Ancillary studies only. Combined options for 'no use by private companies'.

Assignment of Values to RES_DNA

RES_DNA	ICTA1	ICTA2A	ICTA2B	ICTA9A	ICTA10A	ICTA10B
Full Consent	F	Any	Any	N	ANY	ANY
	P	N	Any			
	NOT F	MISSING	MISSING	MISSING	MISSING	MISSING
	ANY	ANY	ANY	Y	N	ANY
CVD Research	P	Y	C	N	ANY	ANY
	ANY	ANY	ANY	Y	Y	C
ARIC Only	P	Y	A	N	ANY	ANY
	ANY	ANY	ANY	Y	Y	A
No use/storage DNA	P	Y	N	N	ANY	ANY
	ANY	ANY	ANY	Y	Y	N
*Take Notelogs	P	Y	O	N	ANY	ANY
	ANY	ANY	ANY	Y	Y	O

ICTA1: Type of Consent (F: Full, P: Partial)
ICTA2A: Restrictions on Use of DNA
ICTA2B: Type of Restrictions on Use of DNA
(C: CVD Research, A: ARIC Only, N: No use/storage of DNA, O: Other)

ICTA9A: Consent Changed
ICTA10A: Post-Visit Restrictions on Use of DNA
ICTA10B: Post-Visit Type of Restrictions on Use of DNA
(C: CVD Research, A: ARIC Only, N: No use/storage of DNA, O: Other)

Note: * means that if v4 participant wants to apply a different type of DNA restriction (ICTB2B=O or ICTB10B=O) other than CVD Research, ARIC Only, or No use/storage of DNA, we get the specific restriction from visit 4 notelog file.

14.1. RES_OTH (Restrictions on Other Procedures)

RES_OTH is a character variable which might be updated if participants call in to change the consent. For participants who didn't attend visit 4 exam, we assumed full consent on other procedures.

RES_OTH

RES_OTH		*Restriction On Other Procedures*
N	*Value*	*Description*
7	ARIC Only	Use of data restricted to ARIC only
41	CVD Research	Use of data restricted to CVD research
15743	Full Consent	All conditions and all procedures were agreed to
1	ICTA3B no echo-no gtt	Taken from notelog

Assignment of Values to RES_OTH

RES_OTH	ICTA1	ICTA3A	ICTA3B	ICTA9A	ICTA11A	ICTA11B
Full Consent	F	Any	Any	N	ANY	ANY
	P	N	Any			
	NOT F	MISSING	MISSING	MISSING	MISSING	MISSING
	ANY	ANY	ANY	Y	N	ANY
CVD Research	P	Y	C	N	ANY	ANY
	ANY	ANY	ANY	Y	Y	C
ARIC Only	P	Y	A	N	ANY	ANY
	ANY	ANY	ANY	Y	Y	A
No use/storage DNA	P	Y	N	N	ANY	ANY
	ANY	ANY	ANY	Y	Y	N
*Take Notelogs	P	Y	O	N	ANY	ANY
	ANY	ANY	ANY	Y	Y	O

ICTA1: Type of Consent (F: Full, P: Partial)
ICTA3A: Restrictions on Other Procedures
ICTA3B: Type of Restrictions on Other Procedures
(C: CVD Research, A: ARIC Only, O: Other)
ICTA9A: Consent Changed
ICTA11A: Post-Visit Restrictions on Other Procedures
ICTA11B: Post-Visit Type of Restrictions on Other Procedures
(C: CVD Research, A: ARIC Only, O: Other)

Note: * means that if v4 participant wants to apply a different type of restriction on other procedures (ICTB3B=O or ICTB11B=O) other than CVD Research or ARIC Only, we get the specific restriction from visit 4 notelog file.

15. Cornell Voltage LVH

15.1. LVHSCR41

LVHSCR41		*Cornell Voltage In UV (S In V3+r In AVL)*
N	*Value*	*Description*
8296	Range	105 - 5376 (median=1265.5 mean=1334.08 std=563.80)
3360		Missing

LVHSCR41 is a continuous Visit 4 variable defined to be the absolute value of ECGRA198 plus ECGRA170.

LVHSCR41 = | ECGRA198 | + ECGRA170
= Missing if | ECGRA198 | + ECGRA170 < 100 uV

ECGRA198: S amplitude in V3.
ECGRA170: R amplitude in AVL.

15.2. NLVHSC41

NLVHSC41		*Cornell Voltage In mm*
N	*Value*	*Description*
8296	Range	1.05 - 53.76 (median=12.655 mean=13.3408 std=5.6380)
3360		Missing

NLVHSC41 is a continuous Visit 4 variable defined to be LVHSCR41 divided by 100.
NLVHSC41 = LVHSCR41 / 100.

15.3. CLVH41

CLVH41		*LVH Present By Cornell Definition*
N	*Value*	*Description*
8005	0	No
291	1	Yes
3360		Missing

CLVH41 is a dichotomous Visit 4 LVH variable. The algorithm for computation of CLVH41 is given in the table below.

CLVH41	GENDER	NLVHSC41
1	Male	Greater than 28
	Female	Greater than 22
0	Male	Less than or Equal to 28
	Female	Less than or Equal to 22

16. Risk Factors

16.1. CHDRISK10yr_41: (% Predicted 10 year Risk of Incident CHD at Visit 4) (UC4677)

CHDRISK10YR_41		*Predicted 10 year risk of incident coronary heart disease (CHD)*
N	*Value*	*Description*
10221	Range	0.1939 - 87.34625 (median=5.140957 mean=7.5098478 std=7.4707423)
1435		Missing

CHDRISK10yr_41 is the predicted 10 year risk of incident coronary heart disease (CHD). It is a percentage variable thus can take values from 0 to 100 or missing. The beta-coefficients used for the prediction are given below. The beta coefficients were obtained from an output found in uc467701 and were published in ARIC manuscript 661(for those without diabetes)1 and ARIC manuscript 781 (for those with diabetes)2. If a participant had prevalent CHD or had a missing value for at least one of the variables used, then predicted risk was not calculated and a missing value was assigned.

Participants were separated based on gender, race, and diabetes status. The predicted 10 year risk of incident CHD was then calculated using the following Cox regression equation:

$$CHDRISK\,10\,yr\_\,41 = 100 * \left[1 - \left(1 - P_0\right)^{(\exp(RS - RS_0))}\right]$$

Where P_0 is a constant
RS_0 is a constant
RS is a linear combination of B-coefficients times the risk factor variables (see table below).

*CHDRISK*10*yr*_41 = *Missing*
if any risk factor variable is missing
or
if PREVCHD43 ^=0

Table1: CHD Risk for those **without Diabetes**: 10 year CHD Risk Score Beta coefficents, RS0, and 1-P0 values for participants without diabetes (diabts43=0)				
Risk Factor Variables	**Beta Coefficients**			
	Black Females	**White Females**	**Black Males**	**White Males**
newage	0.31989	0.39378	0.63186	0.36528
newage_2	-0.090856	-0.22346	-0.15692	-0.27146
tccat2	0.1173	0.64727	0.33314	0.44555
tccat3	0.1173*	0.80937	0.37726	0.77279
tccat4	0.81459	0.9329	0.69569	0.77279
hdlcat1	1.07081	1.20919	0.79192	1.27295
hdlcat2	0.39727	0.91366	0.43293	0.9178
hdlcat3	0.3927	0.91366	0.43293	0.65401
hdlcat4	0.23253	0.56967	0.28026	0.61373
sbpd19	0.024899	0.015023	0.002253654	0.013634
hyptmdcode41	0.8091	0.58733	0.6937	0.12
cursmk41	1.01048	1.10297	0.63094	0.37602
$1\text{-}P_0$	0.99126	0.99391	0.97262	0.97262
RS_0	2.93014	1.74618	0.20343	0.20343

In this and other cases the repeating of a coefficient from the row above is not an error. The adjacent categories were collapsed for the particular population, for sample size reasons.

[1] Chambless LE, Folsom AR, Sharrett AR, Sorlie P, Couper D, Szklo M, Neito FJ. Coronary heart disease risk prediction in the ARIC Study. J Clin Epidemiol 2003;56:880-90.

[2] Folsom AR, Chambless LE, Duncan BB, Gilbert AC, Pankow JS. Prediction of coronary heart disease in middle-aged adults with diabetes. Diabetes Care 2003;10:2777-84.

Table 2: CHD Risk for those **with Diabetes**:) 10-year CHD risk score beta coefficents, RS0, and 1-P0 values for participants with diabetes (diabts43=1)

Risk Factor Variables	**Beta Coefficients**	
	Females	**Males**
racegrp	0.51819	0.49764
newage	0.11855	0.41088
newage_2	0.008189254	-0.26545
tccat23	0.66224	0.49266
tccat4	1.0978	1.04681
hdlcat12	0.38941	0.67931
hdlcat3	0.33487	-0.14568
Sbpd19	0.15579	0.004552397
Hyptmdcode41	0.38741	-0.019692
cursmk41	0.091353	0.18137
$1\text{-}P_0$	0.97643	0.9291
RS_0	1.84209	0.49799

Continuous Variables used:
NEWAGE= (V4AGE41-55)/10
NEWAGE_2= $(NEWAGE)^2$

Categorical Variables used:
Total Cholesterol (all measured in mg/dl)
TCCAT1= 1 if TOTCAL<200
TCCAT2= 1 if 200 <= TOTCAL < 240
TCCAT3= 1 if 240 <= TOTCAL< 280
TCCAT4=1 if TOTCAL>=280
TCAT23= 1 if 200<=TOTCAL<280 (combine tccat2 & tccat3)

High Density Lipids (all measured in mg/dl)
HDLCAT1=1 if HDL< 35
HDLCAT2=1 if 35<=LIPD3A<45
HDLCAT3=1 if 45<=LIPD3A<50
HDLCAT4=1 if 50<=LIPD3A<60
HDLCAT5=1 if LIPD3A>=60
HDLCAT12=1 if LIPD3A<45 (combine hdlcat1 & hdlcat2)

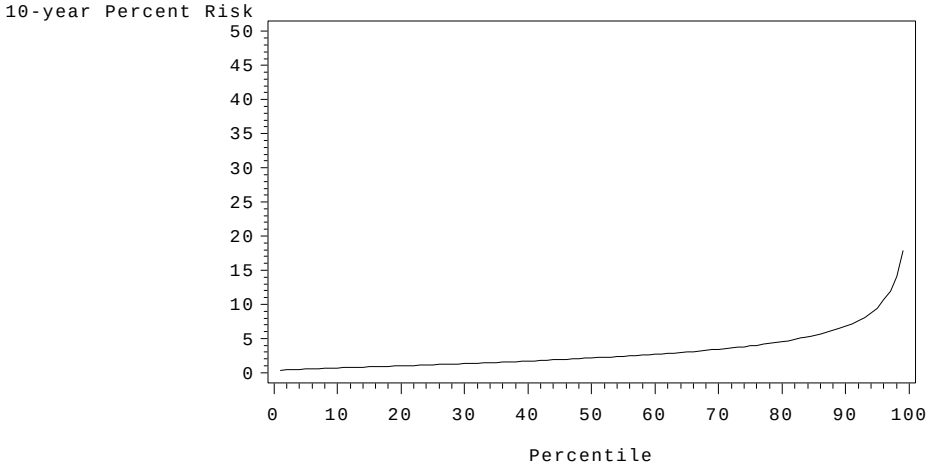
General Term	Description
PRVCHD43	Prevalent Coronary Heart Disease
RACE	Race
GENDER	Gender
CURSMK41	Current Smoker
DIABTS42	Diabetic
V4AGE41	Age a Visit 'n'
LIPD3a	HDL-High Density Lipids (mg/dL)
HYPTMDCODE41	Took Medication for hypertension w/in 2wks using 2004 medication coding
SBPD19	SBP (2^{nd} & 3^{rd} Average) (mmHg)
LIPD1a	Total Cholesterol (mg-dL)

Percentile Statistics for 10 Year CHD Risk at Visit 4 (Without Diabetes)

Gender	N	Min	1st Pctl	5th Pctl	10th Pctl	25th Pctl	50th Pctl	75th Pctl	90th Pctl	95th Pctl	99th Pctl	Max
All	8629	0.19	0.37	0.65	0.90	1.76	4.10	8.47	13.37	17.04	25.63	87.35
Females	5093	0.19	0.32	0.52	0.70	1.15	2.16	3.91	6.83	9.47	17.87	87.35
Males	3536	1.16	2.00	3.02	3.87	5.73	8.66	12.50	17.37	20.85	29.41	48.08

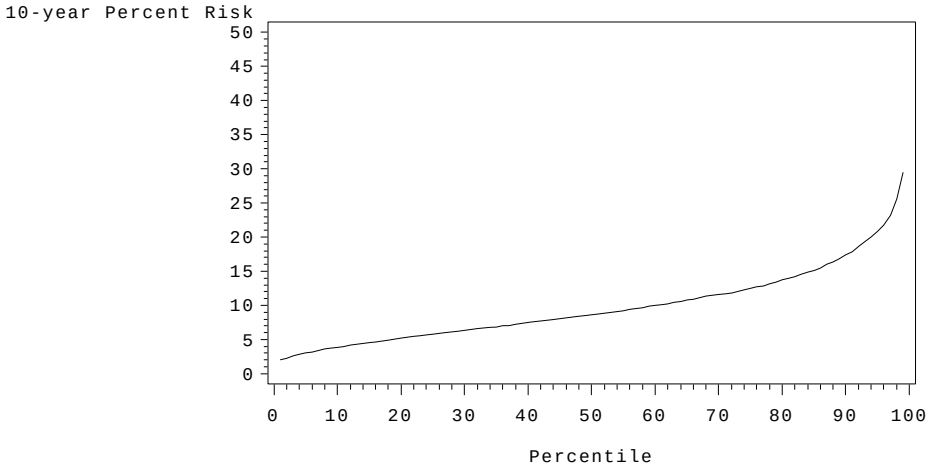
10-year CHD Risk for Females at Visit 4

(without Diabetes)



10-year CHD Risk for Males at Visit 4

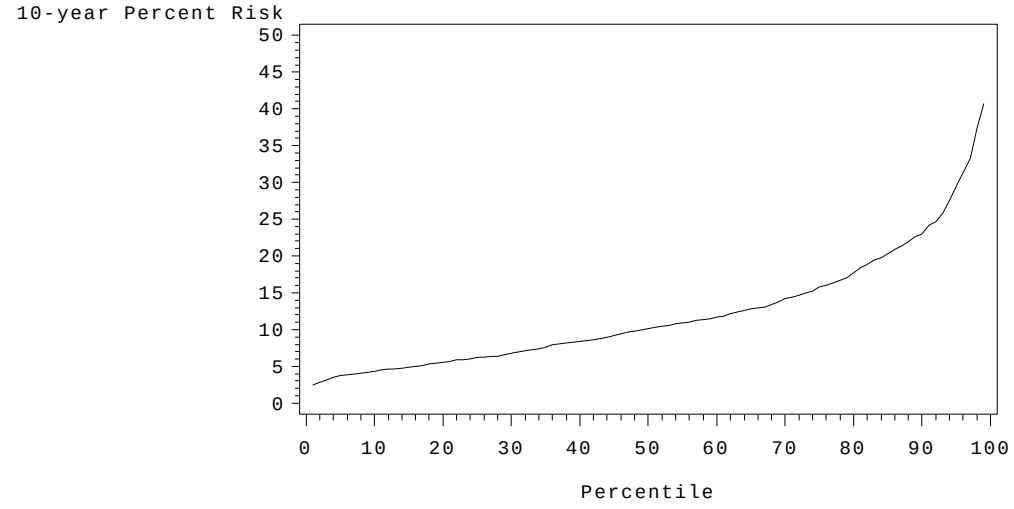
(without Diabetes)



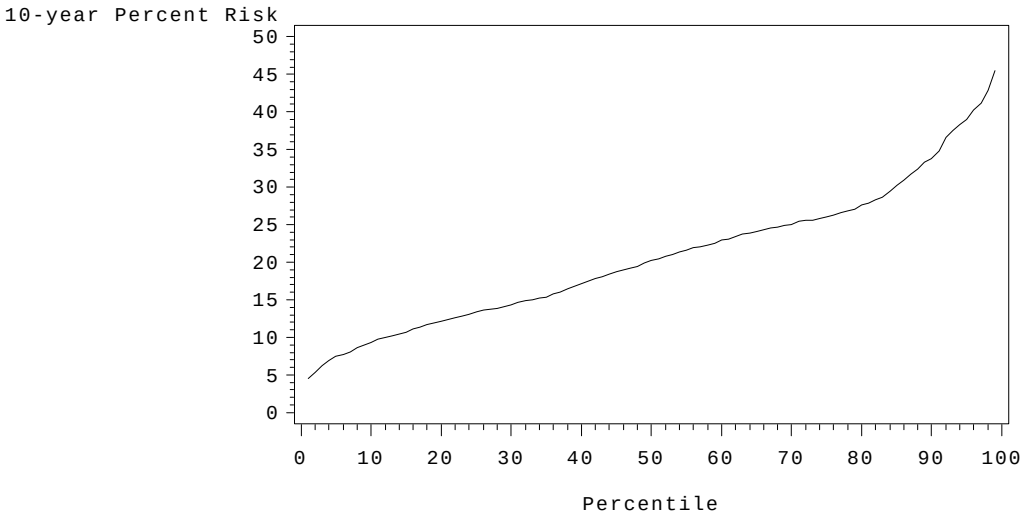
Percentile Statistics for 10 Year CHD Risk at Visit 4 (With Diabetes)

Gender	N	Min	1st Pctl	5th Pctl	10th Pctl	25th Pctl	50th Pctl	75th Pctl	90th Pctl	95th Pctl	99th Pctl	Max
All	1592	1.83	2.72	4.18	5.06	8.26	13.65	22.24	29.18	35.68	43.75	68.45
Females	893	1.83	2.48	3.75	4.30	6.19	10.13	15.77	23.00	29.46	40.76	68.45
Males	699	3.62	4.53	7.44	9.35	13.36	20.23	26.08	33.80	39.05	45.52	59.76

10-year CHD Risk for Females at Visit 4
(with Diabetes)



10-year CHD Risk for Males at Visit 4
(with Diabetes)



16.2. STROKERISK10YR_41: (% Predicted 10 year Risk of Incident Stroke at Visit 4) (UC4678)

STROKERISK10YR_41		*Predicted 10 year risk of incident Ischemic Stroke*
N	*Value*	*Description*
7779	Range	0.314295 - 87.03986 (median=2.887779 mean=5.1200157 std=6.6723094)
3877		Missing

STROKERISK10YR_41 is the predicted 10 year risk of incident Ischemic Stroke. It is a percentage variable thus can take values from 0 to 100 or missing. The beta-coefficients used for the prediction are given below. The beta coefficients were obtained from an output found in UC4077_3b[1] and were published in ARIC manuscript #824[2]. If a participant had prevalent stroke or had a missing value for at least one of the variables used, then the predicted risk was not calculated and a missing value was assigned.

Participants were separated based on gender. The 10 year predicted risk of incident Ischemic Stroke was then calculated using the following Cox regression equation:

$$\text{STROKERISK 10YR\_41} = 100 * \left[1 - \left(1 - P_0\right)^{(\exp(RS - RS_0))}\right]$$

Where P_0 is a constant
RS_0 is a constant
RS is a linear combination of B-coefficients times the risk factor variables (see table below).

STROKERISK10YR_41= Missing
if any risk factor variables are missing
or
if PRVSTR41 ^=0

Table 2: Calculating Risk: Categorical and continuous variables w/ Beta -coefficients used to calculate 10-year stroke risk.

	Female	**Male**
racegrp	0.4155701	0.3514973
cursmk41	0.8002466	0.6931732
v4age41	0.0689097	0.0807621
prvchd43	0.6298822	0.7332341
hyptmdcode41	0.4072694	0.4544168
clvh41	0.808223	0.386121
diabts42	1.1371047	0.8892109
sbpd19	0.0174648	0.0184501
RS_0	5.79944	6.55671
$1-P_0$	0.99390574	0.989928

Variables used	Description
V4DATE31	Date of Visit X
GENDER	Gender
RACE	Race
CURSMK41	Current Smoker
V4AGE41	Age at Visit X
PRVCHD43	Prevalent CHD definition 3
HYPTMDCODE41	Took Medication for hypertension w/in 2wks using 2004 medication coding
CLVH41	Left Ventricle hypertrophy
DIABTS42	Diabetes
SBP19	Systolic BP (Ave)
PREVSTR41	Prevalent Stroke

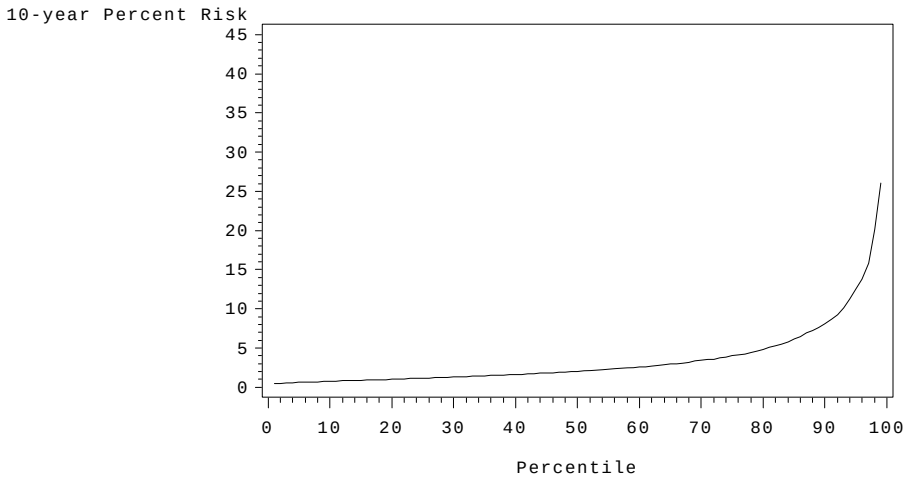
[1] J:\aric\sc\source\archive\zip\uc4077.zip

[2] Chambless LE, Heiss G, Shahar E, Earp MJ, Toole J. Ischemic stroke risk prediction in the Atherosclerosis Risk in Communities study. Am J Epidemiol 2004;160:259-269.

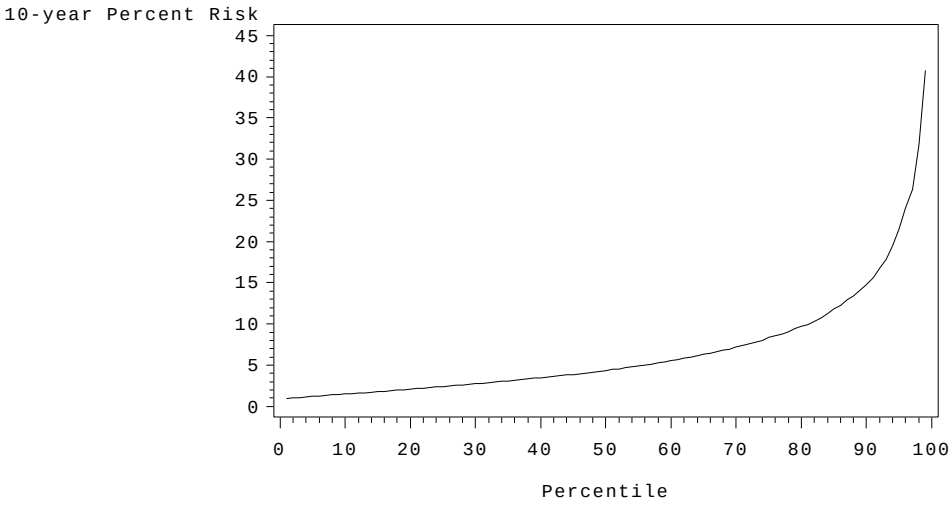
Percentile Statistics for 10 Year Stroke Risk at Visit 4

Gender	N	Min	1st Pctl	5th Pctl	10th Pctl	25th Pctl	50th Pctl	75th Pctl	90th Pctl	95th Pctl	99th Pctl	Max
All	7779	0.31	0.50	0.72	0.94	1.52	2.89	5.98	11.63	16.93	33.73	87.04
Females	4337	0.31	0.46	0.62	0.75	1.15	2.03	3.99	8.09	12.53	26.06	69.52
Males	3442	0.61	0.92	1.20	1.49	2.42	4.38	8.36	14.74	21.54	40.72	87.04

10-year Stroke Risk for Females at Visit 4



10-year Stroke Risk for Males at Visit 4



16.3. DIABETESRISK9YR_41: (% Predicted 9 year Risk of Incident Diabetes at Visit 4) (uc4679)

DIABETESRISK9YR_41		*Predicted 9 year risk of incident type two diabetes*
N	*Value*	*Description*
8734	Range	0.083026 - 91.14 (median=10.40848 mean=15.968409 std=15.640398)
2922		Missing

DIABETESRISK9YR_41 is the predicted 9 year risk of incident type two diabetes. It is a percentage variable thus can take values from 0 to 100 or missing. The beta-coefficients used for the prediction are given below. The beta coefficients were obtained from an output found in uc439216[1] and were published in ARIC manuscript 808b[2] If a participant had prevalent diabetes or had a missing value for at least one of the variables used, then the predicted risk was not calculated and a missing value was assigned.

$$DIABETES\,9yr\_41 = \frac{1}{1+e^{-RS}}$$

DIABETES9yr_41= Missing
If DIABTS42^=0
Or if any risk factor variables are missing

RS is a linear combination of B-coefficients times the risk factor variables.
RS= -9.98078+ 0.017254*(V4AGE41) + 0.44330*(BLACK)+ 0.49810*(FAMDIABETES) + 0.0880*(LIPD4a $_{[mg/dl]}$)+ 0.011097 *(SBPD19$_{[mmHg]}$)-0.032616*(ANTA01$_{[cm]}$)
+0.027316*(ANTA07a$_{[cm]}$) - 0.012227*(LIPD3a $_{[mg/dL]}$) + 0.002710939*(LIPD2d$_{[mg/dL]}$)

BLACK= 1 if RACEGRP="B"
BLACK=0 if RACEGRP="W"
BLACK=missing otherwise.

FAMDIABETES- if either participants mother or father had diabetes then FAMDIABETES=1
Neither mother nor father had diabetes then FAMDIABETES=0
FAMDIABETES=1 if HOM15B='Y' or HOM18B='Y' or HOM23B='Y' or HOM26B='Y'
FAMDIABETES =0 if (HOM15B='N' or HOM18B='N') and if (HOM23B='N' or HOM26B='N')
FAMDIABETES = . Otherwise

Visit 4 Variable	Description
V1AGE41	Age at Visit X
RACEGRP	Race
LIPD3a	High density lipids (mg/dl)
LIPD4a	Fasting Glucose Value (mg/dl) [recalibrated]
DIABTS42	Prevalent Diabetes?
SBPD19	SBP- Systolic BP 2nd & 3rd average (mmHg)
LIPD2a	Triglycerides (mg/dl)
ANTA01	Height (cm)
ANTA07a	Waist size (cm)
HOM15B	Natural Mother ever have Diabetes?
HOM18B	Natural Mother ever have Diabetes?
HOM23B	Natural Father ever have Diabetes
HOM26B	Natural Father ever have Diabetes

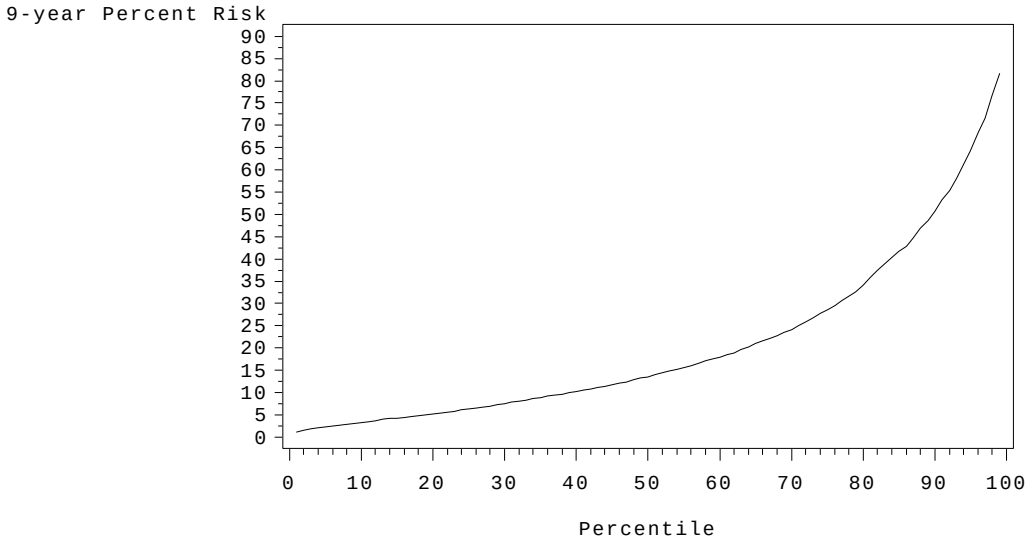
[1] j:\aric\sc\source\archive\zip\uc4392.zip

[2] Schmidt MI, Duncan BB, Bang H, Pankow J, Ballantyne CM, Golden S, Folsom AR, Chambless LE. Identifying individuals at high risk for diabetes: The Atherosclerosis Risk in Communities Study Diabetes Care 2005;28:2013-18.

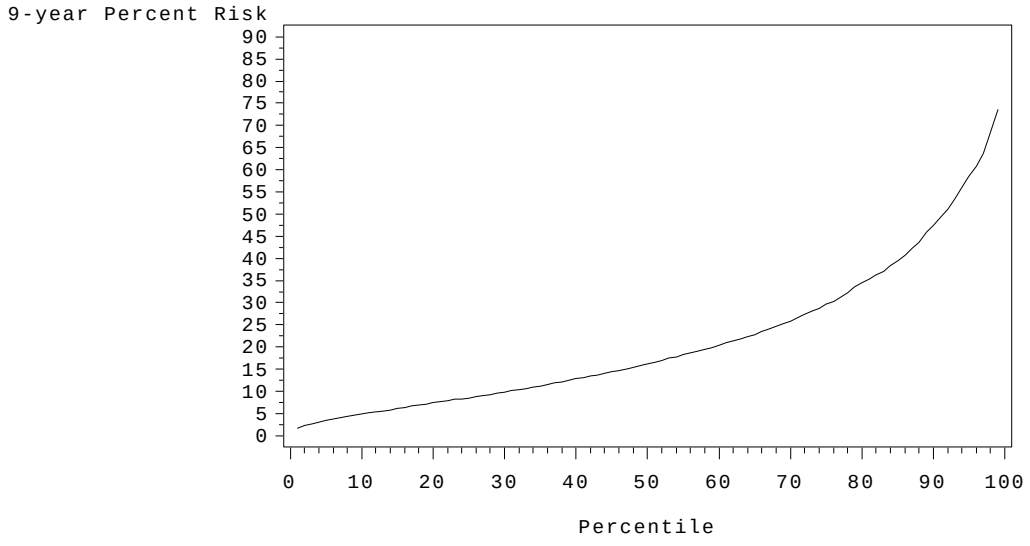
Quintile Statistics for 9 Year Diabetes Risk at Visit 4

Gender	N	Min	1st Pctl	5th Pctl	10th Pctl	25th Pctl	50th Pctl	75th Pctl	90th Pctl	95th Pctl	99th Pctl	Max
All	8734	0.08	0.95	1.84	2.70	5.06	10.41	21.23	38.58	50.41	70.75	91.14
Females	4977	0.10	0.86	1.66	2.34	4.42	9.57	20.99	40.18	53.63	73.77	91.14
Males	3757	0.08	1.15	2.32	3.32	5.83	11.25	21.52	36.76	47.68	64.00	86.79

9-year Diabetes Risk for Females at Visit 4



9-year Stroke Risk for Males at Visit 4



NOTE: The above title says “9-year STROKE…” But is meant to say “9-year Diabetes Risk for Males at Visit 4”