ARIC Public Use Data  
Modified Variable Dictionary - Surveillance  

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*Year YY will be 95 for 1995, 96 for 1996, 97 for 1997 etc.*
1. Introduction

The purpose of this dictionary is to provide definitions of modified variables for the Surveillance Component of the ARIC Study. The following three approaches have been taken to modify original variables:

- ICD-9 codes other than the screen codes are set to blank. Decimal points of the screen codes are dropped except where decimal points are part of the screen codes.

- Selected categorical variables have been grouped to assure each category has at least 20 counts, by race-sex.

- Selected date variables have been modified to follow up days since baseline.

All of the modified variables are renamed: Top/bottom coded or grouped form variables are renamed by replacing the fourth letter as follows: A -> Z, B->Y, C->X, etc. Follow up days are named by placing “FU” in the beginning of the variable names. For example, HRAZ02 is modified from HRAA02, and FUSTR12 is follow up days modified from STRC12.

Note that the Surveillance Component combines data from all versions of forms into form-specific files (not version-specific). For example, S93HRA93 includes data from version A and B of HRA (Hospital Abstraction) form. All of the variables in S93HRA93 are named as HRAAxx for convenience. Unlike the Cohort Component, the fourth letter “A” does not mean version A of the form. Variable FORMVER in each data file indicates the source of the version of forms.

2. CSTRPSYY (Stroke Abstraction)

Note: all of the follow-up time variables (FUSTRxx) are defined for current hospitalization. V1DATE01=Baseline Date.

2.1 FUSTR12 (Follow up days to current hospitalization since baseline)
FUSTR12=STRC12-V1DATE01
Where STRC12=Date of arrival at hospital

2.2 FUSTR14 (Follow up days to discharge/death since baseline)
FUSTR12=STRC14-V1DATE01
Where STRC14=Date of discharge or death

2.3 FUSTR21 (Follow up days to current neurological event since baseline)
FUSTR21=STRC21-V1DATE01
Where STRC21=Date of onset of current neurological event

2.4 FUSTR47B (Follow up days to lumbar puncture since baseline)
FUSTR47B=STRC47B-V1DATE01
Where STRC47B=Date of first lumbar puncture
2.5 FUSTR48B (Follow up days to cerebral angiography since baseline)
FUSTR48B=STRC48B-V1DATE01
Where STRC48B=Date of first lumbar puncture

2.6 FUSTR49B (Follow up days to first CT scan since baseline)
FUSTR49B=STRC49B-V1DATE01
Where STRC49B=Date of first CT scan

2.7 FUSTR50C (Follow up days to last CT scan since baseline)
FUSTR50C=STRC50C-V1DATE01
Where STRC50C=Date of last CT scan

2.8 FUSTR51C (Follow up days to pre-admission CT scan since baseline)
FUSTR51C=STRC51C-V1DATE01
Where STRC51C=Date of last CT scan

2.9 FUSTR52C (Follow up days to MRI scan since baseline)
FUSTR52C=STRC52C-V1DATE01
Where STRC52C=Date of MRI

2.10 FUSTR53D (Follow up days to carotid ultrasound since baseline)
FUSTR53D=STRC53D-V1DATE01
Where STRC53D=Date of B-Mode and/or Doppler Ultrasound on carotid

2.11 FUSTR54B (Follow up days to craniotomy scan since baseline)
FUSTR54B=STRC54B-V1DATE01
Where STRC54B=Date of craniotomy

2.12 STRX6A-STRX6U (Modified hospital discharge codes for stroke cases)
Modified from STRC6A-STRC6U (discharge diagnosis and procedure ICD-9 codes), respectively. Discharge codes other than the stroke screen codes, 430-438, are set to blank. In addition, decimal points of the screen codes are dropped.

2.13 STRX10 (Modified race)
Modified from STRC10 (Race) where STRX10 has been grouped as 'B' for blacks and 'N' for Non-blacks.
3. CCELPSYY (Cohort Eligibility)

3.1 CEL2Y10A-CEL2Y10Z (Modified hospital discharge codes for CHD cases)
These have been modified from CELB10A-CELB10Z (discharge diagnosis and procedure ICD-9 codes) according to NIH guidelines given May 2004.

1. Celb10a-z discharge codes are placed in the groups given in the table below if they are codes of: 042-044, 090-099, 290-310, 312-319, 965, 967, 969, E950-978, E990-E999 and V60-V61, V71.0, V79.
2. If the frequency of all other codes was ≥50 overall a thru z, then the code that was recorded on the CEL form was left as is.
3. When decimals are deleted from remaining codes (so that we are left with a 3 digit code or a4 digits if begins with E) and the frequency of codes was ≥20, the 3 digit code (or 4 digits if first digit is E) was kept as was recorded on the CEL form.
4. For all remaining codes, they were grouped in the table below:

International Classification of Diseases, 9th Revision, Major Disease Groups and broad group coding key for Hospitalization discharge diagnoses

<table>
<thead>
<tr>
<th>CEL2y10a-z</th>
<th>Description (Codes in parenthesis)</th>
</tr>
</thead>
<tbody>
<tr>
<td>INFPD</td>
<td>Infectious and Parasitic Diseases (001-139)</td>
</tr>
<tr>
<td>NEOP</td>
<td>Neoplasms (140-239)</td>
</tr>
<tr>
<td>ENMI</td>
<td>Endocrine, Nutritional, and Metabolic Diseases and Immunity Disorders (240-279)</td>
</tr>
<tr>
<td>BLOOD</td>
<td>Diseases of Blood and Blood Forming Organs (280-289)</td>
</tr>
<tr>
<td>MENDIS</td>
<td>Mental Disorders (290-319)</td>
</tr>
<tr>
<td>NERVSY</td>
<td>Diseases of the Nervous System and Sense Organs (320-389)</td>
</tr>
<tr>
<td>CIRC</td>
<td>Diseases of the Circulatory System (390-459)</td>
</tr>
<tr>
<td>RESP</td>
<td>Diseases of the Respiratory System (460-519)</td>
</tr>
<tr>
<td>DIGSYS</td>
<td>Diseases of the Digestive System (520-579)</td>
</tr>
<tr>
<td>GENUR</td>
<td>Diseases of the Genitourinary System (580-629)</td>
</tr>
<tr>
<td>SKIN</td>
<td>Diseases of the Skin and Subcutaneous Tissue (680-709)</td>
</tr>
<tr>
<td>MUSKEL</td>
<td>Diseases of the Musculoskeletal System and Connective Tissue (710-739)</td>
</tr>
<tr>
<td>PREG</td>
<td>Complications of Pregnancy, Childbirth, and Puerperium; Congenital Anomalies; Conditions originating in the Perinatal Period (630-676, 740-759, 760-779)</td>
</tr>
<tr>
<td>NOS</td>
<td>Symptoms, Signs, and Ill-defined Conditions (780-799)</td>
</tr>
<tr>
<td>INJURY</td>
<td>Injury and Poisonings (800-999)</td>
</tr>
<tr>
<td>EXTRNL</td>
<td>External Causes of Injury and Poisoning (E codes)</td>
</tr>
<tr>
<td>HEALTH</td>
<td>Factors influencing Health Status and Contact with Health Services (V codes)</td>
</tr>
</tbody>
</table>
1. **CelB10a-z procedure codes** were placed in the groups given in the table below if they are in this group: 69.51, 69.52, 69.01, 69.02, 69.92, 74.91, 75.0, 96.49.

2. If the frequency of code was \( \geq 50 \), the code was kept as recorded on the CEL form.

3. When the decimals were deleted from all remaining codes (so that 2 digits were left) and the frequency of the code after decimals were removed was \( \geq 20 \), then the 2 digit code was kept as recorded on the CEL form.

4. All remaining codes were placed into the groups in the table below:

---

**International Classification of Diseases, 9th Revision, Major Procedure Groups and broad group coding key for in-hospital procedures**

<table>
<thead>
<tr>
<th>CEL2Y10a-z</th>
<th>Description (codes in parenthesis)</th>
</tr>
</thead>
<tbody>
<tr>
<td>OPN</td>
<td>Operations on the Nervous System (01-05)</td>
</tr>
<tr>
<td>OPN</td>
<td>Operations on the Endocrine System (06-07)</td>
</tr>
<tr>
<td>OPN</td>
<td>Operations on the Ear (18-20)</td>
</tr>
<tr>
<td>OPN</td>
<td>Operations on the Nose, Mouth, and Pharynx (21-29)</td>
</tr>
<tr>
<td>OPN</td>
<td>Operations on the Respiratory System (30-34)</td>
</tr>
<tr>
<td>OPN</td>
<td>Operations on the Cardiovascular System (35-39)</td>
</tr>
<tr>
<td>OPN</td>
<td>Operations on the Hemic and Lymphatic System (40-41)</td>
</tr>
<tr>
<td>OPN</td>
<td>Operations on the Digestive System (42-54)</td>
</tr>
<tr>
<td>OPN</td>
<td>Operations on the Urinary System (55-59)</td>
</tr>
<tr>
<td>OPN</td>
<td>Operations on the Male Genital Organs (60-64)</td>
</tr>
<tr>
<td>OPN</td>
<td>Operations on the Female Genital Organs (65-71)</td>
</tr>
<tr>
<td>OPN</td>
<td>Obstetrical Procedures (72-75)</td>
</tr>
<tr>
<td>OPN</td>
<td>Operations on the Musculoskeletal System (76-84)</td>
</tr>
<tr>
<td>OPN</td>
<td>Operations on the Integumentary System (85-86)</td>
</tr>
<tr>
<td>OPN</td>
<td>Miscellaneous Diagnostic and Therapeutic Procedures (87-99)</td>
</tr>
</tbody>
</table>
3.2 CEL2Y14A (Modified underlying cause of death for CHD cases)
These have been modified from CELB14A (underlying cause of death, ICD-9 or ICD10) according to NIH guidelines given May 2004.

Death codes found in CELB14a were re-coded into the values given below, regardless of frequencies.

<table>
<thead>
<tr>
<th>CEL2Y14a or DTH2Z18</th>
<th>Description</th>
<th>ICD9 code</th>
<th>ICD10 code</th>
</tr>
</thead>
<tbody>
<tr>
<td>AA</td>
<td>Infectious &amp; Parasitic Diseases</td>
<td>001-139</td>
<td>A00-B99</td>
</tr>
<tr>
<td>BA</td>
<td>Digestive, Peritoneum Mal Neoplasms</td>
<td>150-159</td>
<td>C15-26</td>
</tr>
<tr>
<td>BB</td>
<td>Resp, Intrathoracic Mal Neoplasms</td>
<td>160-165</td>
<td>C30-39</td>
</tr>
<tr>
<td>BC</td>
<td>Female Breast Cancer(174)</td>
<td>174</td>
<td>C50</td>
</tr>
<tr>
<td>BD</td>
<td>Mal Neoplasm Lymphatic Tissue</td>
<td>200-208</td>
<td>C81-C96</td>
</tr>
<tr>
<td>BE</td>
<td>Other Neoplasms</td>
<td>140-149, 170-173, 175-199, 210-239</td>
<td>C00-C14, C40-C49, C51-C80, C97, D0-D48</td>
</tr>
<tr>
<td>CA</td>
<td>Nervous System, Mental Disorders</td>
<td>290-389</td>
<td>G00-G99, F00-F99</td>
</tr>
<tr>
<td>DA</td>
<td>Hypertensive Heart Disease</td>
<td>402, 404</td>
<td>I11, I13</td>
</tr>
<tr>
<td>DB</td>
<td>MI</td>
<td>410</td>
<td>I21-I22</td>
</tr>
<tr>
<td>DC</td>
<td>Other CHD</td>
<td>411-414, 429.2</td>
<td>I20, I23-I25</td>
</tr>
<tr>
<td>DD</td>
<td>Other Heart Disease</td>
<td>390-398, 405, 415-420, 422-423, 426, 428-429 (except 429.2)</td>
<td>I00-I02, I05-I09, I15, I26-I28, I30-I32, I44-I48, I50-I52</td>
</tr>
<tr>
<td>DE</td>
<td>Cardiomy, Endocardium, Endocarditis</td>
<td>421, 424-425</td>
<td>I33-I43</td>
</tr>
<tr>
<td>DF</td>
<td>Arrhythmias</td>
<td>427</td>
<td>I49</td>
</tr>
<tr>
<td>DG</td>
<td>Cerebrovascular Disease</td>
<td>430-438</td>
<td>I60-I69</td>
</tr>
<tr>
<td>DH</td>
<td>NOS, Circulatory System(</td>
<td>401, 403, 440-459</td>
<td>I10, I12, I17-I79, I80-I89</td>
</tr>
<tr>
<td>EA</td>
<td>COPD</td>
<td>490-496</td>
<td>J40-47,</td>
</tr>
<tr>
<td>FA</td>
<td>Disease of the Digestive System(</td>
<td>520-579</td>
<td>K00-93</td>
</tr>
<tr>
<td>GA</td>
<td>Diseases of Genitourinary System</td>
<td>580-629</td>
<td>N00-N99</td>
</tr>
<tr>
<td>KA</td>
<td>Diabetes Mellitus</td>
<td>250</td>
<td>E10-E14</td>
</tr>
<tr>
<td>LA</td>
<td>Injuries, poisoning or Ext Causes</td>
<td>800-999, *E codes</td>
<td>S00-T98, V01-Y98</td>
</tr>
<tr>
<td>XX</td>
<td>All other deaths not specified</td>
<td>Any codes not above</td>
<td>Any ICD code not above</td>
</tr>
</tbody>
</table>
4. CDTHPSYY (Death Certificates – cohort surveillance)

4.1 DTHZ05 (Grouped Race)
Modified from DTHA05 (Race) where DTHA05 has been grouped as 'B' for blacks and 'N' for Non-blacks.

4.2 DTH2Z18 (Modified underlying cause of death for CHD cases)
Modified from DTHA18 (underlying cause of death for CHD cases). ICD-9 & ICD-10 codes were re-coded as per section 3.2 above.
5. CHRMPSSY (Hospital Abstraction – cohort surveillance)

Note: all of the follow-up time variables (FUHRAxxx) are defined for current hospitalization. V1DATE01=Baseline Date.

5.1 FUHRA25B (Follow up days to onset of pain since baseline)
FUHRA25B=HRAA25B-V1DATE01
Where HRAA25B=Date of onset of pain.
Note that FUHRA25B<0 for hospitalized CHD events that occurred before baseline visit.

5.2 FUHRA30B (Follow up days to CPR/Cardioversion since baseline)
FUHRA30B=HRAA30B-V1DATE01
Where HRAA30B=Date of first onset of attempted CPR and/or cardioversion.

5.3 HRAZ09 (Grouped Race)
Modified from HRAA09 (Race) where DTHA05 has been grouped as 'B' for blacks and 'N' for Non-blacks.

5.4 HRAZ02A-HRAZ02Z (Modified hospital discharge codes for CHD cases – cohort surv)
Modified from HRAA02A-HRAA02Z (discharge diagnosis and procedure codes from hospital discharge index), respectively. Discharge codes other than the CHD screen codes in cohort surveillance (35-39, 88.5, 250, 390-459, 745-747, 794.3, 798 & 799) are set to blank. Decimal points of the screen codes are dropped except 88.5 and 794.3 where decimal points are part of the screen codes.

5.5 HRAZ15A-HRAZ15Z (Modified hospital discharge codes for CHD cases – cohort surv)
Modified from HRAA02A-HRAA02Z (discharge diagnosis and procedure codes from medical records), respectively. Discharge codes other than the CHD screen codes in cohort surveillance (35-39, 88.5, 250, 390-459, 745-747, 794.3, 798 & 799) are set to blank. Decimal points of the screen codes are dropped except 88.5 and 794.3 where decimal points are part of the screen codes.

5.6 HRAZ45C--HRAZ56C (Modified CK-MB values)
Modified from HRAA45C -- HRAA56C (CK-MB in day 1 through day 4) respectively. Special value .A represents “negative or absent or normal”, .B represents “weak positive or weak present or trace or high-normal or small”, .C represents “present or positive or abnormal or medium or large”.

5.7 HRAZ45K--HRAZ56K (Modified LDH1/LDH2 values)
Modified from HRAA45K -- HRAA56K (LDH1/LDH2 in day 1 through day 4) respectively. Special value .D represents “LDH1/LDH2 reported only as ≥ upper limit or positive or LDH1 > LDH2 (or flipped)”, .E represents “LDH1/LDH2 reported only as < upper limit or negative or LDH1 ≤ LDH2 (or non-flipped)”.

Note: all of the follow-up time variables (FUHRAxxx) are defined for current hospitalization. V1DATE01=Baseline Date.
6. SDTHPSYY (Death Certificates – community surveillance)

6.1 DTHZ05 (Grouped Race)
Modified from DTHA05 (Race) where DTHA05 has been grouped as 'B' for blacks and 'N' for Non-blacks.

6.2 DTHZ18 (Modified underlying cause of death for CHD cases)
Modified from DTHA18 (underlying cause of death for CHD cases). ICD-9 & ICD-10 codes were re-coded as per section 3.2 above.

7. SHRAPSYY (Hospital Abstraction – community surveillance)

7.1 HRAZ09 (Grouped Race)
Modified from HRAA09 (Race) where DTHA05 has been grouped as 'B' for blacks and 'N' for Non-blacks.

7.2 HRAZ02A-HRAZ02Z (Modified hospital discharge codes for CHD cases – community surv)
Modified from HRAA02A-HRAA02Z (discharge diagnosis and procedure codes from hospital discharge index), respectively. Discharge codes other than the CHD screen codes in community surveillance (402, 410-414, 427-428, 518.4) are set to blank. Decimal points of the screen codes are dropped except 518.4 where decimal points are part of the screen codes.

7.3 HRAZ15A-HRAZ15Z (Modified hospital discharge codes for CHD cases - community surv)
Modified from HRAA15A-HRAA15Z (discharge diagnosis and procedure codes from medical records), respectively. Discharge codes other than the CHD screen codes in community surveillance (402, 410-414, 427-428, 518.4) are set to blank. Decimal points of the screen codes are dropped except 518.4 where decimal points are part of the screen codes.

7.4 HRAZ45C--HRAZ56C (Modified CK-MB values)
Modified from HRAA45C -- HRAA56C (CK-MB in day 1 through day 4) respectively. Special value .A represents “negative or absent or normal”, .B represents “weak positive or weak present or trace or high-normal or small”, .C represents “present or positive or abnormal or medium or large”.

7.5 HRAZ45K--HRAZ56K (Modified LDH1/LDH2 values)
Modified from HRAA45K -- HRAA56K (LDH1/LDH2 in day 1 through day 4) respectively. Special value .D represents “LDH1/LDH2 reported only as \( \geq \) upper limit or positive or LDH1 > LDH2 (or flipped)”, .E represents “LDH1/LDH2 reported only as < upper limit or negative or LDH1 \( \leq \) LDH2 (or non-flipped)”. 