Occurrence: An occurrence refers to a single hospitalization, fatal or non-fatal, or an out-of-hospital death with a unique ID.

<table>
<thead>
<tr>
<th>Occurrence</th>
<th>Forms</th>
<th>Comment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Non-fatal Hospitalization</td>
<td>HRA, SXI, ECG forms and CEL (if surveillance eligible cohort)</td>
<td>A unique ID will be assigned to all related forms</td>
</tr>
<tr>
<td>Fatal Hospitalization</td>
<td>HRA, SXI, ECG forms, DTH, and CEL (if surveillance eligible cohort)</td>
<td>A unique ID will be assigned to all related forms. Fatal hospitalizations include all non-fatal hospitalized materials in addition to death related forms.</td>
</tr>
<tr>
<td>Out of Hospital Death</td>
<td>HRA (if ER/DOA or no Vital sign death), SXI, DTH, PHQ (up to two), IFI (up to three), COR and CEL (if surveillance eligible cohort)</td>
<td>A unique ID will be assigned to all related forms.</td>
</tr>
</tbody>
</table>
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</thead>
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</tr>
<tr>
<td>C_CHD (Cohort Surveillance CHD Eligibility)</td>
<td>20</td>
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<tr>
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<td>16</td>
</tr>
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<td>CPAINDX (Pain Diagnosis – cohort surv)</td>
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<td>CPAINDX2 (Downgraded Pain Diagnosis – cohort surv)</td>
<td>12</td>
</tr>
<tr>
<td>DDATE (Death/Discharge Date)</td>
<td>30</td>
</tr>
<tr>
<td>DDATE0 (Earliest Date for an Occurrence)</td>
<td>31</td>
</tr>
<tr>
<td>DTHDATE (Death Date)</td>
<td>32</td>
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<tr>
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<td>1</td>
</tr>
<tr>
<td>ENZDX (Enzyme Diagnosis – comm surv)</td>
<td>2</td>
</tr>
<tr>
<td>ENZDX2 (Downgraded Enzyme Diagnosis – comm surv)</td>
<td>3</td>
</tr>
<tr>
<td>EVTYPE01 (Event Type)</td>
<td>29</td>
</tr>
<tr>
<td>HSPDATE (Hospitalization Date)</td>
<td>33</td>
</tr>
<tr>
<td>I_410 (Community Surveillance Code Eligibility)</td>
<td>21</td>
</tr>
<tr>
<td>I_411 (Community Surveillance Code Eligibility)</td>
<td>22</td>
</tr>
<tr>
<td>I_412_14 (Community Surveillance Code Eligibility)</td>
<td>23</td>
</tr>
<tr>
<td>I_C410 (Cohort Surveillance Code Eligibility)</td>
<td>24</td>
</tr>
<tr>
<td>I_C411 (Cohort Surveillance Code Eligibility)</td>
<td>25</td>
</tr>
<tr>
<td>I_C412_14 (Cohort Surveillance Code Eligibility)</td>
<td>26</td>
</tr>
<tr>
<td>I_COTHER (Cohort Surveillance Code Eligibility)</td>
<td>27</td>
</tr>
<tr>
<td>I_OTHERS (Community Surveillance Code Eligibility)</td>
<td>28</td>
</tr>
<tr>
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<td>34</td>
</tr>
<tr>
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<td>4</td>
</tr>
<tr>
<td>PAINDX2 (Downgraded Pain Diagnosis – comm surv)</td>
<td>5</td>
</tr>
<tr>
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<td>19</td>
</tr>
<tr>
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<td>18</td>
</tr>
</tbody>
</table>
ECGDX

Purpose
To determine ECG diagnosis for a hospitalization in community surveillance.

Values
'1' '2' '3' '4' '5' or ' '

Description
ECGDX is a character variable determined by selected variables in the Surveillance ECG (SECA) forms. One ID may have up to three SECA records noted as first (SECAFFLG), last (SECALFLG) or third (SECATFLG). ECGDX takes values according to Section 4.2.6 of Manual 3 (Surveillance Component Procedures). ECGDX is set to missing (' ') for occurrences where no ECG's forms are expected.

Type
Occurrence

Algorithm

<table>
<thead>
<tr>
<th>ECGDX</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>'5'</td>
<td>Evolving Diagnostic</td>
</tr>
<tr>
<td>'4'</td>
<td>Diagnostic ECG pattern</td>
</tr>
<tr>
<td>'3'</td>
<td>Evolving ST-T Pattern</td>
</tr>
<tr>
<td>'2'</td>
<td>Equivocal</td>
</tr>
<tr>
<td>'1'</td>
<td>Absent, Uncodable or Other</td>
</tr>
<tr>
<td>' '</td>
<td>Otherwise (Out-of-hospital death, Skip out, missing HRAA form)</td>
</tr>
</tbody>
</table>

Related Variables
ARICDX, ARICDX2, SECAFFLG, SECATFLG, SECALFLG, CEAAFLG, CEABFLG, CEBAFLG, CEBBFLG
ENZDX

Purpose
To determine an enzyme diagnosis (before downgrading) in community surveillance.

Values
'1' '2' '3' '4' or ' ' (missing)

Description
ENZDX is a character variable determined by selected variables in the HRAA form. See Section 4.2.7 of Manual 3 (Surveillance Component Procedures, version 4.0) for details.

Type
Occurrence

Remarks
If the occurrence does not have a HRAA form or skips out prior to enzyme responses (HRAA41) then ENZDX is set to missing (' ').

Algorithm

<table>
<thead>
<tr>
<th>ENZDX</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>'4'</td>
<td>Abnormal</td>
</tr>
<tr>
<td>'3'</td>
<td>Equivocal</td>
</tr>
<tr>
<td>'2'</td>
<td>Incomplete</td>
</tr>
<tr>
<td>'1'</td>
<td>Normal</td>
</tr>
<tr>
<td>' '</td>
<td>Otherwise (Out-of-hospital deaths or HRAA forms that skip out prior to answering HRAA23 or missing HRAA forms)</td>
</tr>
</tbody>
</table>

Related Variables
ENZDX2, ARICDX, ARICDX2
ENZDX2

Purpose
To determine an Enzyme diagnosis for hospitalized occurrences that have been downgraded in community surveillance.

Values
'1' '2' '3' '4' or ' '

Description
ENZDX2 is a character variable determined by ENZDX and downgrading criteria. Downgrading (only for occurrences with ENZDX=4) was done by a Special Reviewer to re-classify ("downgrade") the enzyme diagnosis if certain criteria met. Later in study downgrading was evaluated by computer algorithm.

Type
Occurrence

Remarks
ENZDX2 equals ENZDX for all occurrences that did not meet the criteria for downgrading.

Algorithm

<table>
<thead>
<tr>
<th>ENZDX2</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>'4'</td>
<td>Abnormal</td>
</tr>
<tr>
<td>'3'</td>
<td>Equivocal</td>
</tr>
<tr>
<td>'2'</td>
<td>Incomplete</td>
</tr>
<tr>
<td>'1'</td>
<td>Normal</td>
</tr>
<tr>
<td>' '</td>
<td>Otherwise (Out-of-hospital deaths or HRAA forms that skip out prior to answering HRAA23 or missing HRAA forms)</td>
</tr>
</tbody>
</table>

Related Variables
ENZDX, ARICDX, ARICDX2
PAINDX

Purpose
To determine a diagnosis for cardiac pain in community surveillance.

Values
'1' '2' or '' (missing)

Description
PAINDX is a character variable determined by HRAA25a. PAINDX=1 if pain is absent, =2 if pain is present. HRAA25a records the response to "Was there acute episodes of pain or discomfort anywhere in the chest, left arm or jaw, either within 72 hrs prior to arrival to this hospital or in conjunction with the in-hospital CHD event defined in 24b"?

Type
Occurrence

Remarks
If the HRAA form is missing or skips out prior to HRAA23 then PAINDX is set to missing ''

Algorithm

<table>
<thead>
<tr>
<th>PAINDX</th>
<th>HRAA25a</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>'1'</td>
<td>N, U</td>
<td>Pain is absent</td>
</tr>
<tr>
<td>'2'</td>
<td>Y</td>
<td>Pain is present and may be of non-cardiac origin</td>
</tr>
<tr>
<td>' '</td>
<td></td>
<td>If HRAAFLG ≠ 'Y' or PARTHRA in {1 2 3 4 5 .I} (HRAA form not present or a skip out)</td>
</tr>
</tbody>
</table>

Related Variables
HRAAFLG, PAINDX2
PAINDX2

Purpose
To determine a diagnosis for cardiac pain for occurrences that have been reviewed for possible downgrading in community surveillance.

Values
'1' '2' or ' ' (missing)

Description
PAINDX2 is a character variable determined by PAINDX and HRA25d and/or downgrading result. Downgrading (only for occurrences that have cardiac pain present but of possibly non-cardiac origin) was done by a Special Reviewer to re-classify ("downgrade") the cardiac pain to absent. Later in study downgrading was evaluated by computer algorithm. HRAA25d records the response to "Was the discomfort or pain diagnosed as having a non-cardiac origin"?

PAINDX2=1 if cardiac pain is absent, =2 if present, =missing if out-of-hospital deaths or HRAA forms that skip out prior to answering HRAA23 or missing HRAA forms.

Type
Occurrence

Remarks
PAINDX2 equals PAINDX for all occurrences that did not meet criteria for downgrading review.

Algorithm

<table>
<thead>
<tr>
<th>PAINDX2</th>
<th>HRAA25a</th>
<th>HRAA25d</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>'1'</td>
<td>N, U</td>
<td>Skipped</td>
<td>Pain is absent</td>
</tr>
<tr>
<td>'1'</td>
<td>Y</td>
<td>Y</td>
<td>Pain is present and Special Reviewer/computer algorithm determined to be of non-cardiac origin (Downgraded)</td>
</tr>
<tr>
<td>'2'</td>
<td>Y</td>
<td>Y</td>
<td>Pain is present and Special Reviewer determined to be of cardiac origin (Not Downgraded)</td>
</tr>
<tr>
<td>'2'</td>
<td>Y</td>
<td>N/U</td>
<td>Pain is present and possibly of cardiac origin (Not Downgraded)</td>
</tr>
<tr>
<td>' '</td>
<td></td>
<td></td>
<td>If HRAAFLG ≠ 'Y' or PARTHRA in {1 2 3 4 5 .1} (HRAA form not present or a skip out)</td>
</tr>
</tbody>
</table>

Related Variables
HRAAFLG, PAINDX
ARICDX

Purpose
To determine a MI diagnosis for hospitalized occurrences in community surveillance.

Values
'1' '2' '3' '4' '5' or '' (missing)

Description
ARICDX is a character variable determined by the value of cardiac pain, ECG and enzymes.

Type
Occurrence

Remarks
ARICDX is determined by computer algorithm, and is defined only for Hospitalized occurrences that did not skip out prior to HRA22.

Algorithm

<table>
<thead>
<tr>
<th>ARICDX</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>'5'</td>
<td>Definite MI</td>
</tr>
<tr>
<td>'4'</td>
<td>Probable MI</td>
</tr>
<tr>
<td>'3'</td>
<td>Suspect MI</td>
</tr>
<tr>
<td>'2'</td>
<td>No MI</td>
</tr>
<tr>
<td>'1'</td>
<td>No MI</td>
</tr>
<tr>
<td>''</td>
<td>missing pain, ECG and/or enzyme diagnosis</td>
</tr>
</tbody>
</table>

Related Variables
PAINDX, ECGDX, ENZDX
ARICDX2

Purpose
To determine a MI diagnosis for hospitalized occurrences in community surveillance using downgraded pain and enzyme diagnosis.

Values
'1' '2' '3' '4' '5' or ' ' (missing)

Description
ARICDX2 is a character variable determined by the value of downgraded cardiac pain (PAINDX2), ECG (ECGDX) and downgraded enzymes (ENZDX2).

Type
Occurrence

Remarks
If neither the pain dx or the enzyme dx is downgraded, ARICDX2 will always equal to ARICDX.

Algorithm

<table>
<thead>
<tr>
<th>ARICDX2</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>'5'</td>
<td>Definite MI</td>
</tr>
<tr>
<td>'4'</td>
<td>Probable MI</td>
</tr>
<tr>
<td>'3'</td>
<td>Suspect MI</td>
</tr>
<tr>
<td>'2'</td>
<td>No MI</td>
</tr>
<tr>
<td>'1'</td>
<td>No MI</td>
</tr>
<tr>
<td>''</td>
<td>missing downgraded pain, enzyme or missing ECG diagnosis</td>
</tr>
</tbody>
</table>

Related Variables
PAINDX2 (downgraded pain dx), ECGDX, ENZDX2 (downgraded enzyme dx)
CECGDXX

Purpose
To determine a ECG diagnosis for hospitalized occurrences among cohort participants.

Values
'1' '2' '3' '4' '5' or ''

Description
CECGDXX is a character variable determined by the adjudicated Cohort ECG values. CECGDXX takes values according to Section 4.2.6 of Manual 3 (Surveillance Component Procedures). CECGDXX is set to missing ('' ) for occurrences where no ECG's are expected.

Type
Occurrence

Remarks
CECGDXX (for cohort surveillance) is an analogy to ECGDX (for community surveillance).

Algorithm

<table>
<thead>
<tr>
<th>CECGDXX</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>'5'</td>
<td>Evolving Diagnostic</td>
</tr>
<tr>
<td>'4'</td>
<td>Diagnostic ECG pattern</td>
</tr>
<tr>
<td>'3'</td>
<td>Evolving ST-T Pattern</td>
</tr>
<tr>
<td>'2'</td>
<td>Equivocal</td>
</tr>
<tr>
<td>'1'</td>
<td>Absent, Uncodable or Other</td>
</tr>
<tr>
<td>''</td>
<td>Otherwise (Out-of-hospital death, Skip out, missing HRAA form : PARTHRA ≠ 0)</td>
</tr>
</tbody>
</table>

Related Variables
CARCDX, ECGDX
CENZDX

Purpose
To determine an Enzyme diagnosis for hospitalized occurrences among cohort participants before downgrading.

Values
'1' '2' '3' '4' or ' ' (missing)

Description
CENZDX is a character variable determined by selected variables in the HRAA form. See Section 4.2.7 of Manual 3 (Surveillance Component Procedures) for details.

Type
Occurrence

Remarks
CENZDX (for cohort surveillance) is an analogy to ENZDX (for community surveillance).

Algorithm

<table>
<thead>
<tr>
<th>CENZDX</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>'4'</td>
<td>Abnormal</td>
</tr>
<tr>
<td>'3'</td>
<td>Equivocal</td>
</tr>
<tr>
<td>'2'</td>
<td>Incomplete</td>
</tr>
<tr>
<td>'1'</td>
<td>Normal</td>
</tr>
<tr>
<td>' '</td>
<td>Otherwise (Out-of-hospital deaths or HRAA forms that skip out prior to answering HRAA23 or missing HRAA forms)</td>
</tr>
</tbody>
</table>

Related Variables
ENZDX, CARCDX
CENZDX2

Purpose
To determine an Enzyme diagnosis for hospitalized occurrences among cohort participants that have been downgraded.

Values
'1' '2' '3' '4' or ''

Description
CENZDX2 is the possibly downgraded values of CENZDX. Downgrading was only for occurrences with CENZDX=4, which was done by a Special Reviewer who may re-classify ("downgrade") the enzyme diagnosis. Later in study downgrading was evaluated by computer algorithm.

Remarks
CENZDX2 equals CENZDX for all occurrences that did not meet the criteria for downgrading.

Type
Occurrence

Algorithm

<table>
<thead>
<tr>
<th>CENZDX2</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>'4'</td>
<td>Abnormal</td>
</tr>
<tr>
<td>'3'</td>
<td>Equivocal</td>
</tr>
<tr>
<td>'2'</td>
<td>Incomplete</td>
</tr>
<tr>
<td>'1'</td>
<td>Normal</td>
</tr>
<tr>
<td>''</td>
<td>Otherwise (Out-of-hospital deaths or HRAA forms that skip out prior to answering HRAA23 or missing HRAA forms)</td>
</tr>
</tbody>
</table>

Related Variables
CENZDX
CPAINDX

Purpose
To determine a diagnosis for cardiac pain for hospitalized occurrences among cohort participants.

Values
'1' '2' or '' (missing)

Description
CPAINDX is a character variable determined by HRAA25a. HRAA25a records the response to the following "Was there acute episodes of pain or discomfort anywhere in the chest, left arm or jaw, either within 72 hrs prior to arrival to this hospital or in conjunction with the in-hospital CHD event defined in 24b"? CPAINDX=1 if pain is absent, =2 if present.

Type
Occurrence

Remarks
CPAINDX (for cohort surveillance) is an analogy to PAINDEX (for community surveillance).

Algorithm

<table>
<thead>
<tr>
<th>CPAINDX</th>
<th>HRAA25a</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>'1'</td>
<td>N, U</td>
<td>Pain is absent</td>
</tr>
<tr>
<td>'2'</td>
<td>Y</td>
<td>Pain is present</td>
</tr>
<tr>
<td>''</td>
<td></td>
<td>If HRAAFLG ≠ 'Y' or PARTHRA in {I 2 3 4 5 .I} (HRAA form not present or a skip out)</td>
</tr>
</tbody>
</table>

Related Variables
HRAAFLG, CPAINDX2
CPAINDX2

Purpose
To determine a diagnosis for cardiac pain for occurrences among cohort participants that have been reviewed for possible downgrading.

Values
'1' '2' or '' (missing)

Description
CPAINDX2 is the possibly downgraded values of CPAINDX. Downgrading was done only for occurrences that have cardiac pain present but of possibly non-cardiac origin, which was done by a Special Reviewer who may re-classify ("downgrade") the cardiac pain to absent. Later in study downgrading was evaluated by computer algorithm.

Type
Occurrence

Remarks
CPAINDX2 equals CPAINDX for all occurrences that did not meet criteria for downgrading review. CPAINDX2 (for cohort surveillance) is an analogy to PAINDEX2 (for community surveillance).

Algorithm

<table>
<thead>
<tr>
<th>CPAINDX2</th>
<th>HRAA25a</th>
<th>HRAA25d</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>'1'</td>
<td>N, U</td>
<td>Skipped</td>
<td>Pain is absent</td>
</tr>
<tr>
<td>'1'</td>
<td>Y</td>
<td>Y</td>
<td>Pain is present and Special Reviewer/computer algorithm determined to be of non-cardiac origin (Downgraded)</td>
</tr>
<tr>
<td>'2'</td>
<td>Y</td>
<td>Y</td>
<td>Pain is present and Special Reviewer determined to be of cardiac origin (Not Downgraded)</td>
</tr>
<tr>
<td>'2'</td>
<td>Y</td>
<td>N/U</td>
<td>Pain is present and possibly of cardiac origin (Not Downgraded)</td>
</tr>
<tr>
<td>''</td>
<td></td>
<td></td>
<td>If HRAAFLG ≠ 'Y' or PARTHRA in {1 2 3 4 5 .I} (HRAA form not present or a skip out)</td>
</tr>
</tbody>
</table>

Related Variables
CPAINDX, CARCDXX2
CARCDXX

Purpose
To determine a MI Diagnosis for hospitalized occurrences among cohort participants.

Values
'1' '2' '3' '4' '5' or '' (missing)

Description
CARCDXX is a character variable determined by the adjudicated values of ECG, cardiac pain, and enzymes.

Type
Occurrence

Remarks
CARCDXX (for cohort surveillance) is an analogy to ARICDX (for community surveillance).

Algorithm

<table>
<thead>
<tr>
<th>CARCDXX</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>'5'</td>
<td>Definite MI</td>
</tr>
<tr>
<td>'4'</td>
<td>Probable MI</td>
</tr>
<tr>
<td>'3'</td>
<td>Suspect MI</td>
</tr>
<tr>
<td>'2'</td>
<td>No MI</td>
</tr>
<tr>
<td>'1'</td>
<td>No MI</td>
</tr>
<tr>
<td>''</td>
<td>missing pain, ECG and/or enzyme diagnosis</td>
</tr>
</tbody>
</table>

Related Variables
CPAINDX, CECGDX, CENZDX
CARCDXX2

Purpose
To determine a MI diagnosis for hospitalized occurrences among cohort participants using downgraded pain and enzyme diagnosis.

Values
'1' '2' '3' '4' '5' or '' (missing)

Description
CARCDXX2 is a character variable determined by the adjudicated value of ECG (CECGDXX), downgraded cardiac pain (CPAINDX2) and downgraded enzymes (CENZDX2).

Type
Occurrence

Remarks
CARCDXX2 (for cohort surveillance) is an analogy to ARICDX2 (for community surveillance).

Algorithm

<table>
<thead>
<tr>
<th>CARCDXX2</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>'5'</td>
<td>Definite MI</td>
</tr>
<tr>
<td>'4'</td>
<td>Probable MI</td>
</tr>
<tr>
<td>'3'</td>
<td>Suspect MI</td>
</tr>
<tr>
<td>'2'</td>
<td>No MI</td>
</tr>
<tr>
<td>'1'</td>
<td>No MI</td>
</tr>
<tr>
<td>''</td>
<td>missing downgraded pain, enzyme or missing ECG diagnosis</td>
</tr>
</tbody>
</table>

Related Variables
CPAINDX2 (downgraded pain dx), CECGDXX, CENZDX2 (downgraded enzyme dx)
AGE

**Purpose**
To determine age at hospitalization or death.

**Values**
Numerical

**Type**
Occurrence

**Description**
AGE is the age at admission for hospitalized occurrences, or age at death for fatal events without hospitalizations.

**Algorithm**
AGE is calculated using the followings.

\[
AGE = \text{year of HDATE} - \text{year of BDATE} -\text{PREBDAY}
\]

where

- HDATE assumes the following non-missing years in the listing order: HRAA11A, DDATE.
- BDATE assumes the following non-missing years in the listing order: DTHA08, HRAA10, and IDNA11.
- PREBDAY = 1 if (month of HDATE < month of BDATE) or (month of HDATE = month of BDATE & day of HDATE < day of BDATE)
- PREBDAY = 0 otherwise

**Related Variables**
DDATE
C_EVTID

Purpose
To determine an event ID for Cohort Surveillance.

Values
7-digit, e.g. 1568265

Type
Event

Description
C_EVTID is the ID from the most recent occurrence within an event. C_EVTID is the same for all occurrences within an event. If an event contains only one ID, then C_EVTID=ID.

Remarks
C_EVTID (for cohort surveillance) is an analogy to EVENT_ID (for community surveillance).

Related Variables
C_LINK, EVENT_ID
**CHRT_ID**

**Purpose**
To map a surveillance ID to the Cohort participant ID.

**Values**
Character

**Description**
CHRT_ID is the cohort participant ID from CELB02. CHRT_ID is the same for all occurrences within a person, and is missing for occurrences not from cohort participants.

**Type**
Occurrence

**Related variables**
EVT_ID2, C_EVTID, ID
SAMP

Purpose
To determine the sampling probabilities for occurrences in Community Surveillance.

Values
Numeric (≤1)

Description
SAMP is a numeric variable determined by the ICD-9 codes and the date of discharge. Please refer to Section 2.2 of Manual 3 for sampling fractions. Note that SAMP is calculated based on the actual length of each month.

Type
Occurrence

Remarks
SAMP assigns a missing (.) value for occurrences that are ineligible or eligible from transfer (which may not be date eligible).
S_ELIG2

Purpose
To determine whether an occurrence is surveillance eligible (code, date and age all checked).

Values
Numeric
0, 1

Type
Occurrence

Algorithm
S_ELIG2=1 if discharge/death age is in 35-74 and has eligible ICD codes, and date of discharge/death is within the sampling frame; OR if transferred from/to an eligible occurrence and had eligible ICD codes; OR if linked to eligible OHD.

S_ELIG2=0 otherwise
C_CHD

Purpose
To determine whether a cohort hospitalization is CHD eligible.

Values
1, 0, .U

Type
Occurrence

Algorithm

<table>
<thead>
<tr>
<th>C_CHD</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>CELB11A='Y' or CELB11D='Y' or CEL14A contains a valid death code</td>
</tr>
<tr>
<td>0</td>
<td>if not above, and if (CELB08B='N' and no HRAA form) OR CEL14A does not have a valid death code OR {CELB11A='N' &amp; [CELB11D='N' or (CEL11B='N' &amp; CELB11C='N' &amp; CELB11D ≠ 'Y')]}</td>
</tr>
<tr>
<td>.U</td>
<td>otherwise</td>
</tr>
</tbody>
</table>
I_410

**Purpose**
To identify code eligible Surveillance HRAA forms with a 410 code recorded in HRAA02 (or HRAA15). Note that this variable has a value of 1 if the discharge code is 410 even if there is also a 411 or 412-414. To get disjoint categories in priority order, see the variables in the events file/dictionary.

**Values**
0 1 or . (missing)

**Description**
I_410 is a numeric variable determined by the responses to the Hospital Record Abstraction form (HRA) version A items 2a through 2z (or items 15a through 15z). HRAA02 records the ICD9-CM diagnosis codes from the hospital discharge index or Eligibility Form. HRAA15 records the ICD9-CM diagnosis codes from the hospital medical record.

**Type**
Occurrence

**Remarks**
If the hospitalization is eligible using HRAA02 responses then HRAA15 is not considered.

**Algorithm**

I_410  Algorithm (based on COL 5 in the table below)

1  If ONE of the responses on the selected HRAA item (02 or 15) identified in 
   below have integer value = 410
   
2  0 If none of the responses on the selected HRAA item (HRAA02 or HRAA15) 
   identified in 
   column 5 below have integer value = 410 but have other eligible codes 

.  Otherwise

<table>
<thead>
<tr>
<th></th>
<th>HRAA02</th>
<th>HRAA15</th>
<th>COL (5)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Code</td>
<td>Code and sampling date</td>
<td>Code</td>
<td>Code and sampling date</td>
</tr>
<tr>
<td>eligible</td>
<td>eligible</td>
<td>eligible</td>
<td>eligible</td>
</tr>
<tr>
<td>Y</td>
<td>NA</td>
<td>any</td>
<td>NA</td>
</tr>
<tr>
<td>N</td>
<td>NA</td>
<td>Y</td>
<td>NA</td>
</tr>
<tr>
<td>N</td>
<td>NA</td>
<td>N</td>
<td>NA</td>
</tr>
</tbody>
</table>

NA= Not applicable Related Variables H02_MISS  H15_MISS  HRAAFLG  I_411  I_412_14  I_OTHERS
**I_411**

**Purpose**
To identify code eligible Surveillance HRAA forms with a 411 code recorded in HRAA02 (or HRAA15). Note that this variable has a value of 1 if the discharge code is 411 even if there is also a 410 or 412-414. To get disjoint categories in priority order, see the variables in the events file/dictionary.

**Values**
0 1 or . (missing)

**Description**
I_411 is a numeric variable determined by the responses to the Hospital Record Abstraction form (HRA) version A items 2a through 2z (or items 15a through 15z). HRAA02 records the ICD9-CM diagnosis codes from the hospital Discharge index or Eligibility Form. HRAA15 records the ICD9-CM diagnosis codes from the hospital medical record.

**Remarks**
If the hospitalization is eligible using HRAA02 responses then HRAA15 is not considered.

**Algorithm**

<table>
<thead>
<tr>
<th>COL (5)</th>
<th>HRAA variable used in the algorithm</th>
</tr>
</thead>
<tbody>
<tr>
<td>Y Y N N</td>
<td>HRAA02</td>
</tr>
<tr>
<td>Y N N N</td>
<td>HRAA02</td>
</tr>
<tr>
<td>Y N Y N</td>
<td>HRAA02</td>
</tr>
<tr>
<td>Y N N N</td>
<td>HRAA02</td>
</tr>
<tr>
<td>N N Y Y</td>
<td>HRAA02</td>
</tr>
<tr>
<td>N N Y N</td>
<td>HRAA02</td>
</tr>
<tr>
<td>N N N N</td>
<td>Not used (I_411 = .)</td>
</tr>
</tbody>
</table>

**Algorithm** (based on COL 5 in the table below)

1  If an of the responses on the selected HRAA item (02 or 15) identified in COL 5 below have integer value = 411

0  If none of the responses on the selected HRAA item (HRAA02 or HRAA15) identified in column 5 below have integer value = 411 but have other eligible codes

.  Otherwise

**Related Variables**
H02_MISS  H15_MISS  HRAAFLG  I_410  I_412_14  I_OTHERS
I_412_14

**Purpose**
To identify code eligible Surveillance HRAA forms with a 412_14 code recorded in HRAA02 (or HRAA15). Note that this variable has a value of 1 if the discharge code is 412-414 even if there is also a 410 or 411. To get disjoint categories in priority order, see the variables in the events file/dictionary.

**Values**
0 1 or . (missing)

**Description**
I_412_14 is a numeric variable determined by the responses to the Hospital Record Abstraction form (HRA) version A items 2a through 2z (or items 15a through 15z). HRAA02 records the ICD9-CM diagnosis codes from the hospital Discharge index or Eligibility Form. HRAA15 records the ICD9-CM diagnosis codes from the hospital medical record.

**Type**
Occurrence

**Remarks**
If the hospitalization is eligible using HRAA02 responses then HRAA15 is not considered.

**Algorithm**

<table>
<thead>
<tr>
<th>HRAA02</th>
<th>HRAA15</th>
<th>COL (5)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Code eligible</td>
<td>Code and sampling date eligible</td>
<td>Code eligible</td>
</tr>
<tr>
<td>Y</td>
<td>Y</td>
<td>any</td>
</tr>
<tr>
<td>Y</td>
<td>N</td>
<td>Y</td>
</tr>
<tr>
<td>Y</td>
<td>N</td>
<td>Y</td>
</tr>
<tr>
<td>Y</td>
<td>N</td>
<td>N</td>
</tr>
<tr>
<td>N</td>
<td>N</td>
<td>Y</td>
</tr>
<tr>
<td>N</td>
<td>N</td>
<td>Y</td>
</tr>
<tr>
<td>N</td>
<td>N</td>
<td>N</td>
</tr>
</tbody>
</table>

NA= Not applicable

Related Variables: H02_MISS H15_MISS HRAAFLG I_410 I_411 I_OTHERS
I_C410

**Purpose**
To identify code eligible cohort CELB forms with a 410 code in CELB10. Note that this variable has a value of 1 if the discharge code is 410 even if there is also a 411 or 412-414. To get disjoint categories in priority order, see the variables in the events file/dictionary.

**Values**
Numeric
0 1

**Description**
I_C410 is a numeric variable determined by the response to the Cohort Event Eligibility Form (CEL) items 10a through 10z. CELB10 records the hospital discharge diagnosis and procedure codes.

**Type**
Occurrence

**Algorithm**
I_C410=1 if any response on CELB10a-z has integer value = 410
I_C410=0 otherwise
**I_C411**

**Purpose**
To identify code eligible cohort CELB forms with a 411 code in CELB10. Note that this variable has a value of 1 if the discharge code is 411 even if there is also a 410 or 412-414. To get disjoint categories in priority order, see the variables in the events file/dictionary.

**Values**
Numeric
0 1

**Description**
I_C411 is a numeric variable determined by the response to the Cohort Event Eligibility Form (CEL) items 10a through 10z. CELB10 records the hospital discharge diagnosis and procedure codes.

**Type**
Occurrence

**Algorithm**
I_C411=1 if any response on CELB10a-z has integer value = 411
I_C411=0 otherwise
**I_C412_4**

**Purpose**
To identify code eligible cohort CELB forms with a 412_4 code in CELB10. Note that this variable has a value of 1 if the discharge code is 412-414 even if there is also a 410 or 411. To get disjoint categories in priority order, see the variables in the events file/dictionary.

**Values**
Numeric
0 1

**Description**
I_C412_4 is a numeric variable determined by the response to the Cohort Event Eligibility Form (CEL) items 10a through 10z. CELB10 records the hospital discharge diagnosis and procedure codes.

**Type**
Occurrence

**Algorithm**
I_C412_4=1 if any response on CELB10a-z has integer value = 412_4
I_C412_4=0 otherwise
I_COTHER

Purpose
To identify code eligible cohort CELB forms with a 402, 427, 428, OR 518.4 code in CELB10.  
Note that this variable has a value of 1 if the discharge code is 402, 427, 428, OR 518.4 , even if there is also a 410 or 411 or 412-414. To get disjoint categories in priority order, see the variables in the events file/dictionary.

Values
Numeric
0 1

Description
I_COTHER is a numeric variable determined by the response to the Cohort Event Eligibility Form (CEL) items 10a through 10z.  CELB10 records the hospital discharge diagnosis and procedure codes.

Type
Occurrence

Algorithm
I_COTHER=1      if any response on CELB10a-z has integer value = 402, 427, 428 or =
                  518.4

I_COTHER=0      otherwise
I_OTHERS

Purpose
To identify code eligible Surveillance HRAA forms with a 402 427 428 or 518.4 code recorded in HRAA02 (or HRAA15). Note that this variable has a value of 1 if the discharge code is 402, 427, 428, OR 518.4 , even if there is also a 410 or 411 or 412-414. To get disjoint categories in priority order, see the variables in the events file/dictionary.

Values
0 1 or . (missing)

Description
I_OTHERS is a numeric variable determined by the responses to the Hospital Record Abstraction form (HRA) version A items 2a through 2z (or items 15a through 15z). HRAA02 records the ICD9-CM diagnosis codes from the hospital Discharge index or Eligibility Form. HRAA15 records the ICD9-CM diagnosis codes from the hospital medical record.

Type
Occurrence

Remarks
If the hospitalization is eligible using HRAA02 responses then HRAA15 is not considered.

Algorithm

I_OTHERS

Algorithm (based on COL 5 in the table below)

1  If an of the responses on the selected HRAA item (02 or 15) identified in COL 5 below have integer value = 402, 427, 428 or = 518.4

0  If none of the responses on the selected HRAA item (HRAA02 or HRAA15) identified in column 5 below have integer value = 402, 427, 428 or equal to 518.4 but have other eligible codes

.  Otherwise

<table>
<thead>
<tr>
<th>Code eligible</th>
<th>Code and sampling date eligible</th>
<th>Code eligible</th>
<th>Code and sampling date eligible</th>
<th>COL (5)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Y</td>
<td>Y</td>
<td>any</td>
<td>Any</td>
<td>HRAA02</td>
</tr>
<tr>
<td>Y</td>
<td>N</td>
<td>Y</td>
<td>Y</td>
<td>HRAA15</td>
</tr>
<tr>
<td>Y</td>
<td>N</td>
<td>Y</td>
<td>N</td>
<td>HRAA02</td>
</tr>
<tr>
<td>Y</td>
<td>N</td>
<td>N</td>
<td>N</td>
<td>HRAA02</td>
</tr>
<tr>
<td>N</td>
<td>N</td>
<td>Y</td>
<td>Y</td>
<td>HRAA15</td>
</tr>
<tr>
<td>N</td>
<td>N</td>
<td>Y</td>
<td>N</td>
<td>HRAA15</td>
</tr>
<tr>
<td>N</td>
<td>N</td>
<td>N</td>
<td>N</td>
<td>Not used</td>
</tr>
</tbody>
</table>

NA= Not applicable

Related Variables: H02_MISS H15_MISS HRAAFLG I_410 I_411 I_412-14
**EVTYPE01**

**Purpose**
To determine the event type classification of individual occurrences in our database

**Values**
'O' 'N' 'I'

**Description**
EVTYPE01 is a character variable determined by the responses to the following selected HRAA DTHA, SXIA and CELB (if cohort) form items as follows:

<table>
<thead>
<tr>
<th>Form</th>
<th>Item</th>
</tr>
</thead>
<tbody>
<tr>
<td>DTHA</td>
<td>DTHA12, DTHA13</td>
</tr>
<tr>
<td>HRAA</td>
<td>HRAA17 HRAA19a HRAA19b HRAA19d</td>
</tr>
<tr>
<td>SXIA</td>
<td>SXIA03</td>
</tr>
<tr>
<td>CELB</td>
<td>CELB06 CELB12</td>
</tr>
</tbody>
</table>

**Type**
Occurrence

**Remarks**
If the form items disagree as to the event type classification then the discrepancy is identified and sent to the FC for investigation. If the discrepancy remains irresolvable then SXIA03 is used as the arbitrator and as the source of the variable EVTYPE01.
An ER/DOA or a no vital sign death is treated as an Out-of-hospital death (EVTYPE01='O') regardless of the presence of a HRAA form.

**Algorithm**

<table>
<thead>
<tr>
<th>EVTYPE01</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>'I'</td>
<td>In Hospital death</td>
</tr>
<tr>
<td>'O'</td>
<td>Out of Hospital death (HRAA may be present)</td>
</tr>
<tr>
<td>'N'</td>
<td>Non-fatal Hospitalization</td>
</tr>
</tbody>
</table>

**Related Variables**
DTHAFLG, HRAAFLG, SXIAFLG, CELBFLG
DDATE

Purpose
To determine a death date for a death occurrence or a discharge date for each non-fatal hospitalization.

Values
A date in mm/dd/yy or . (missing)

Type
Occurrence

Remark
If a date of death/discharge is not available, DDATE takes the value of first ECG date if available.

Algorithm
DDATE assumes one of the following non-missing dates in the listing order: DTH09, HRAA14, CELB04, SXIA04, SXIA03b, CORA01, SECA03, CEAD02, CEBD02. If all the nine dates listed above are missing, then DDATE takes missing value.

Related Variables
DDATE0
DDATE0

Purpose
To determine an earliest recorded date for all occurrences.

Values
A date in mm/dd/yy or . (missing)

Type
Occurrence

Remark
DDATE0 takes the value of date of arrival (DOA), or date of death/discharge if DOA is not available, or date of the first ECG recorded if none of above dates is present.

Algorithm
DDATE0 takes the value of HRAA11A if it is not missing. If HRAA11A is missing then DDATE0 takes the value of DDATE.

Related Variables
DDATE
DTHDATE

Purpose
To determine a death date for fatal occurrences.

Values
A date in mm/dd/yy format, .N if person is not deceased, .U unknown

Type
Occurrence

Description
DTHDATE will assume one of the following dates: DTH09, HRAA14, CELB04, or DDATE as indicated on the table below if the person is deceased. DTH09 records the date of death from the death Certificate, HRAA14 records the date of discharge or death from the hospital medical record, CELB04 records the date of death or discharge looking at a series of forms, and CELB06 asks if it is a death. Non-fatal occurrences have DTHDATE = .N. If EVTYPE01 cannot be determined, DTHDATE=.U.

Remarks
DTHDATE may contain non-validated death dates obtained from information other than the death certificates. To use only validated death date, DTH09 is the variable to use.

Algorithm

<table>
<thead>
<tr>
<th>DTHDATE</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>DTH09</td>
<td>If (EVTYPE01='I' or 'O') and DTH09 is non-missing</td>
</tr>
<tr>
<td>HRAA14</td>
<td>If (EVTYPE01='I' or 'O') and DTH09 is missing and (HRAA17=D and HRAA14 is not missing)</td>
</tr>
<tr>
<td>CELB04</td>
<td>IF (EVTYPE01='I' or 'O') and DTH09 and HRAA14 are both missing and CELB04 is not missing and CELB06 = 'Y'</td>
</tr>
<tr>
<td>DDATE</td>
<td>If (EVTYPE01='I' or 'O') and (DTH09, HRAA14, and CELB04 are all missing)</td>
</tr>
<tr>
<td>.N</td>
<td>If EVTYPE01 = 'N' (Non-Fatal occurrence)</td>
</tr>
<tr>
<td>.U</td>
<td>Otherwise</td>
</tr>
</tbody>
</table>

Related Variables
EVTYPE01, DDATE
**HSPDATE**

**Purpose**
To determine a date for each hospitalization. HSPDATE is used to determine linkage among multiple occurrences as well as MIDATE algorithm.

**Values**
A date in mm/dd/yy format or . (missing)

**Type**
Occurrence

**Remark**
HSPDATE assumes one of the following dates: HRAA11a, HRAA24c or HRAA44a as indicated below.

**Algorithm**
The HSPDATE algorithm may be summarized as follows.

<table>
<thead>
<tr>
<th>Onset before arrival (HRAA23a)</th>
<th>Onset after arrival (HRAA24b)</th>
<th>HSPDATE (in order as listed below)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Any</td>
<td>N</td>
<td>HRAA11a, HRAA44a</td>
</tr>
<tr>
<td>Y</td>
<td>Y</td>
<td>HRAA44a, HRAA11a, HRAA24c</td>
</tr>
<tr>
<td>not Y</td>
<td>Y</td>
<td>HRAA24c, HRAA44a, HRAA11a</td>
</tr>
</tbody>
</table>

If DOA/ER, no vital sign death or no MI occurrences, then HSPDATE=HRAA11a.

If no HRAA form, or Chart not found, then HSPDATE=missing.
**LINK**

**Purpose**
To determine if multiple eligible occurrences for a single person are linked "within 28 days" using hospitalization date or death date.

**Values**
1, 0

**Type**
Occurrence

**Description**
Occurrences that are "linked" (LINK=1) are considered an event and have the same EVENT_ID.

**Remarks**
Non-fatal hospitalizations that skip-out of the HRAA before a HSPDATE can be determined will be assigned hospital date from the following variables in order listed: CELB04 SXIA04 CORA01 SECA03 CEAA02 CEBA02 CEAB02 CEBB02. For non-hospitalized fatal events, death date is used for "hospital date".

**Algorithm**

<table>
<thead>
<tr>
<th>Number of Occurrence(s)</th>
<th>LINK</th>
<th>ALGORITHM</th>
</tr>
</thead>
<tbody>
<tr>
<td>ONE</td>
<td>0</td>
<td>LINK = 0 for individual occurrence</td>
</tr>
<tr>
<td></td>
<td>1</td>
<td>If the difference between the two hospital dates is &lt; 29 days (LINK=1 for Both Occurrences)</td>
</tr>
<tr>
<td>TWO</td>
<td>0</td>
<td>If the difference between the two hospital dates is ≥ 29 days (LINK=0 for Both Occurrences)</td>
</tr>
<tr>
<td></td>
<td>1</td>
<td>If the difference between the first and the last hospital date is &lt; 29 days (LINK=1 for All occurrences)</td>
</tr>
<tr>
<td>More than TWO</td>
<td>1 or 0</td>
<td>If each pair of occurrences has hospital dates ≤ 28 days of each other, but the difference between the first and last hospital dates is &gt; 28 days then Special Reviewer assigns LINK to all the occurrences</td>
</tr>
</tbody>
</table>

**Example**
Given the following occurrences for one person:

<table>
<thead>
<tr>
<th>Occurrence ID</th>
<th>HSPDATE</th>
<th>EVTYPE01</th>
<th>LINK</th>
<th>EVENT_ID</th>
</tr>
</thead>
<tbody>
<tr>
<td>1031900</td>
<td>11/13/87</td>
<td>'N'</td>
<td>1</td>
<td>1016494</td>
</tr>
<tr>
<td>1140635</td>
<td>12/03/87</td>
<td>'N'</td>
<td>1</td>
<td>1016494</td>
</tr>
<tr>
<td>1016494</td>
<td>12/10/87</td>
<td>'N'</td>
<td>1</td>
<td>1016494</td>
</tr>
<tr>
<td>1019572</td>
<td>12/14/88</td>
<td>'I'</td>
<td>0</td>
<td>1019572</td>
</tr>
</tbody>
</table>

then EVENT_ID = 1016494 (from the most current occurrence within an EVENT) for all occurrences that make up the event.

**Related Variables**
EVTYPE01, HSPDATE, DTHDATE, EVENT_ID, ID
C_LINK

**Purpose**
To determine if the cohort participants have multiple eligible occurrences that are "within 28 days" using hospital date or death date.

**Values**
1, 0

**Type**
Occurrence

**Description**
Occurrences that are "linked" (C_LINK=1) are considered an event and have the same cohort event ID (C_EVTID).

**Remarks**
C_LINK (for cohort surveillance) is an analogy to LINK (for community surveillance). Please refer to LINK for details.

**Algorithm**

<table>
<thead>
<tr>
<th>Number of Occurrences</th>
<th>C_LINK</th>
<th>ALGORITHM</th>
</tr>
</thead>
<tbody>
<tr>
<td>ONE</td>
<td>0</td>
<td>C_LINK = 0 for individual occurrence</td>
</tr>
<tr>
<td>TWO</td>
<td>1</td>
<td>If the difference between the two hospital dates is &lt; 29 days (C_LINK=1 for Both Occurrences)</td>
</tr>
<tr>
<td></td>
<td>0</td>
<td>If the difference between the two hospital dates is ≥ 29 days (C_LINK=0 for Both Occurrences)</td>
</tr>
<tr>
<td>More than TWO</td>
<td>1</td>
<td>If the difference between the first and the last hospital date is &lt; 29 days (C_LINK=1 for All occurrences)</td>
</tr>
<tr>
<td></td>
<td>1 or 0</td>
<td>If each pair of occurrences has hospital dates ≤ 28 days of each other, but the difference between the first and last hospital dates is &gt; 28 days then a <strong>Special Reviewer assigns C_LINK to all the occurrences</strong></td>
</tr>
</tbody>
</table>

**Related Variables**
LINK, C_EVTID