Atherosclerosis Risk in Communities Study

Cohort Exam Visit 9 NCS

STATUS91_np Derived Variable Dictionary

December 2024

Prepared by the Collaborative Studies Coordinating Center

ARIC STATUS91_np Derived Variable Dictionary

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NEW OR CHANGED FROM PREVIOUS DISTRIBUTION

This table describes the changes to the last published STATUS91_np_240828 dictionary. As the dataset undergoes modifications, this table will describe the updates made to the previously distributed dataset.

Modification Date	Variable Name	Reason(s) for Change

1. OVERVIEW

The final, frozen STATUS91_np dataset has 15,792 records, one record for each ARIC participant. The dataset has been updated to remove all personal health information denoted by the _np suffix. The purpose of this dataset is to provide to ARIC collaborators widely used, verified derived variables for the entire cohort. The dataset naming conventions are as follows: the dataset name retains the dataset creation date (ex: STATUS91_np_YYMMDD) until the dataset is considered final, frozen. After a dataset is frozen, the creation date is dropped from the dataset name (ex: STATUS91_np). The first digit in the dataset name refers to the current visit number. The second digit in the dataset name is incremented when the current dataset undergoes significant changes. The variable naming convention is similar: across-visit variables have identical names except for the second to last digit in the variable name, which represents the visit number (ex: GENDER71 at Visit 7 vs. GENDER81 at Visit 8). The last digit in the variable name identifies the definition version of a variable.

STATUS variables are derived from the data collected from the previous and current visits, ARIC cohort surveillance, and ARIC follow-up. STATUS91_np is final, frozen now that the surveillance datasets are complete for events in 2022.

Note: Due to lack of access to records at one large Jackson hospital in 2021-22, we excluded from the final datasets any hospitalizations for Jackson participants for 2021-22. This modification manifests itself in two different ways among the distributed cohort surveillance data.

- The hospitalization records were not available for these participants in 2021-22 which will affect Level 3 dementia.
- For files commonly used for survival analysis, the value for the administrative censoring variable (CENSDAT7) was set to be December 31, 2020 for Jackson participants, instead of the standard value of December 31, 2022 for participants from the other three field centers.

2. ADMINISTRATIVE

2.1 SUBJECTID (ARIC Subject ID (CIR))

Type: Character; length: $7.

2.2 ID (ARIC ID – same as Subject ID)

Type: Character; length: $7.

2.3 CENTER (Field Center)

Description: Character variable with four possible values derived from the enrollment site:
F: Forsyth County, North Carolina

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

Type: Character; length: $1.

Algorithm: CENTER=First letter of the subject ID

Source variable(s): SUBJECTID

3. ARIC VISIT COMPLETION AND STUDY STATUS VARIABLES

3.1 DATEOFDEATH_FollowUpDays (Days of follow up from visit 1 to Date of Death)

Description: Numeric variable indicating the days of follow up from visit 1 to date of death compiled from previous visit dates and ARIC surveillance data.

Type: Numeric

Algorithm: If [C21DTHA1.DTHA09] (date of death)>NULL then DATEOFDEATH_FollowUpDays is the number of days between visit 1 and [C21DTHA1.DTHA09]
Else if [C21HRMA1.HRAA14] (date of discharge or death)>NULL and HRAA17="D" then DATEOFDEATH_FollowUpDays is the number of days between visit 1 and [C21HRMA1. HRAA14] (date of discharge or death)
Else if ([C21CELB1.CELB04] (date of discharge or death)>NULL and CELB06='Y') then DATEOFDEATH_FollowUpDays is the number of days between visit 1 and [C21CELB1.CELB06] (date of discharge or death)
Else if NULL<[ADER.DTHDATE] (date of death) <=30NOV2022 then DATEOFDEATH_FollowUpDays is the number of days between visit 1 and [ADER.DTHDATE] (date of death)
Else DATEOFDEATH_FollowUpDays =NULL;

Source variable(s): visit 1 date, DTHA09, HRAA14, HRAA17, CELB04, CELB06, DTHDATE

3.2 STATUSDATE21_FollowUpDays (Days of follow up from visit 1 to either death date, date of visit 2 exam, OR 05Feb1990)

Description: Numeric variable with status as of visit 2. Value is the days of follow up from visit 1 to one of the following: 1) date of completion of visit 2, 2) date of death if dead by the start of visit 2, or 3) the date that visit 2 began (05Feb1990).

Type: Numeric

Algorithm: If visit 2 date is not missing then STATUSDATE21_FollowUpDays is the number of days between visit 1 and visit 2.
Else if KNWNDEADBYVISIT21=1 then STATUSDATE21_FollowUpDays is the number of days between visit 1 and date of death.
Else STATUSDATE21_FollowUpDays is the number of days between visit 1 and the date that visit 2 began.

Source variable(s): visit 1 date, visit 2 date, KNWNDEADBYVISIT21, date of death

3.3 STATUSDATE31_FollowUpDays (Days of follow up from visit 1 to either death date, date of visit 3 exam, OR 16Mar1993)

Description: Numeric variable with status as of visit 3. Value is the days of follow up from visit 1 to one of the following: 1) date of completion of visit 3, 2) date of death if dead by the start of visit 3, or 3) the date that visit 3 began (16Mar1993).

Type: Numeric

Algorithm: If visit 3 date is not missing then STATUSDATE31_FollowUpDays is the number of days between visit 1 and visit 3.
Else if KNWNDEADBYVISIT31=1 then STATUSDATE31_FollowUpDays is the number of days between visit 1 and date of death.
Else STATUSDATE31_FollowUpDays is the number of days between visit 1 and the date that visit 3 began.

Source variable(s): visit 1 date, visit 3 date, KNWNDEADBYVISIT31, date of death

3.4 STATUSDATE41_FollowUpDays (Days of follow up from either death date, date of visit 4 exam, OR 01Feb1996)

Description: Numeric variable with status as of visit 4. Value is the days of follow up from visit 1 to one of the following: 1) date of completion of visit 4, 2) date of death if dead by the start of visit 4, or 3) the date that visit 4 began (01Feb1996).

Type: Numeric

Algorithm: If visit 4 date is not missing then STATUSDATE41_FollowUpDays is the number of days between visit 1 and visit 4.
Else if KNWNDEADBYVISIT41=1 then STATUSDATE41_FollowUpDays is the number of days between visit 1 and date of death.

Else STATUSDATE41_FollowUpDays is the number of days between visit 1 and the date that visit 4 began.

Source variable(s): visit 1 date, visit 4 date, KNWNDEADBYVISIT41, date of death

3.5 STATUSDATE51_FollowUpDays (Days of follow up from either death date, date of visit 5 exam, OR 01Jun2011)

Description: Numeric variable with status as of visit 5. Value is the days of follow up from visit 1 to one of the following: 1) date of completion of visit 5, 2) date of death if dead by the start of visit 5, or 3) the date that visit 5 began (01Jun2011).

Type: Numeric

Algorithm: If visit 5 date is not missing then STATUSDATE51_FollowUpDays is the number of days between visit 1 and visit 5.
Else if KNWNDEADBYVISIT51=1 then STATUSDATE51_FollowUpDays is the number of days between visit 1 and date of death.
Else STATUSDATE51_FollowUpDays is the number of days between visit 1 and the date that visit 5 began.

Source variable(s): visit 1 date, visit 5 date, KNWNDEADBYVISIT51, date of death

3.6 STATUSDATE61_FollowUpDays (Days of follow up from visit 1 to either death date, date of visit 6 exam, OR 15Jun2016)

Description: Numeric variable with status as of visit 6. Value is the days of follow up from visit 1 to one of the following: 1) date of completion of visit 6, 2) date of death if dead by the start of visit 6, or 3) the date that visit 6 began (15Jun2016).

Type: Numeric

Algorithm: If visit 6 date is not missing then STATUSDATE61_FollowUpDays is the number of days between visit 1 and visit 6.
Else if KNWNDEADBYVISIT61=1 then STATUSDATE61_FollowUpDays is the number of days between visit 1 and date of death.
Else STATUSDATE61_FollowUpDays is the number of days between visit 1 and the date that visit 6 began.

Source variable(s): visit 1 date, visit 6 date, KNWNDEADBYVISIT61, date of death

3.7 STATUSDATE71_FollowUpDays (Days of follow up from visit 1 to either death date, date of visit 7 exam, OR 01Feb2018)

Description: Numeric variable with status as of visit 7. Value is the days of follow up from visit 1 to one of the following: 1) date of completion of visit 7, 2) date of death if dead by the start of visit 7, or 3) the date that visit 7 began (01Feb2018).

Type: Numeric

Algorithm: If visit 7 date is not missing then STATUSDATE71_FollowUpDays is the number of days between visit 1 and visit 7.
Else if KNWNDEADBYVISIT71=1 then STATUSDATE71_FollowUpDays is the number of days between visit 1 and date of death.
Else STATUSDATE71_FollowUpDays is the number of days between visit 1 and the date that visit 7 began.

Source variable(s): visit 1 date, visit 7 date, KNWNDEADBYVISIT71, date of death

3.8 STATUSDATE81_FollowUpDays (Days of follow up from visit 1 to either death date, date of visit 8 exam, OR 13Jan2020)

Description: Numeric variable with status as of visit 8. Value is the days of follow up from visit 1 to one of the following: 1) date of completion of visit 8, 2) date of death if dead by the start of visit 8, or 3) the date that visit 8 began (13Jan2020).

Type: Numeric

Algorithm: If visit 8 date is not missing then STATUSDATE81_FollowUpDays is the number of days between visit 1 and visit 8.
Else if KNWNDEADBYVISIT81=1 then STATUSDATE81_FollowUpDays is the number of days between visit 1 and date of death.
Else STATUSDATE81_FollowUpDays is the number of days between visit 1 and the date that visit 8 began.

Source variable(s): visit 1 date, visit 8 date, KNWNDEADBYVISIT81, date of death

3.9 STATUSDATE8T1_FollowUpDays (Days of follow up from visit 1 to either death date, date of visit 8T exam, OR 15Jun2020)

Description: Numeric variable with status as of visit 8 telephone. Value is the days of follow up from visit 1 to one of the following: 1) date of completion of visit 8T, 2) date of death if dead by the start of visit 8T, or 3) the date that visit 8T began (15Jun2020).

Type: Numeric

Algorithm: If visit 8 telephone date is not missing then STATUSDATE8T1_FollowUpDays is the number of days between visit 1 and visit 8 telephone.
Else if KNWNDEADBYVISIT8T1=1 then STATUSDATE8T1_FollowUpDays is the number of days between visit 1 and date of death.
Else STATUSDATE8T1_FollowUpDays is the number of days between visit 1 and the date that visit 8 telephone began.

Source variable(s): visit 1 date, visit 8 telephone date, KNWNDEADBYVISIT8T1, date of death

3.10 STATUSDATE91_FollowUpDays (Days of follow up from visit 1 to either death date, date of visit 9 exam, OR 01JUN2021)

Description: Numeric variable with status as of visit 9. Value is the days of follow up from visit 1 to one of the following: 1) date of completion of visit 9, 2) date of death if dead by the start of visit 9, or 3) the date that visit 9 began (01JUN2021).

Type: Numeric

Algorithm: If visit 9 date is not missing then STATUSDATE91_FollowUpDays is the number of days between visit 1 and visit 9.
Else if NULL<date of death<=the date that visit 9 began then STATUSDATE91_FollowUpDays is the number of days between visit 1 and date of death.
Else STATUSDATE91_FollowUpDays is the number of days between visit 1 and the date that visit 9 began.

Source variable(s): visit 1 date, visit 9 date, date of death, V9 start date (6/1/2021)

3.11 LASTFUINTERVIEWDATE_FollowUpDays (Days of follow up from visit 1 to date of last completed follow-up interview by 30NOV2022)

Description: Numeric variable that documents the days of follow up from visit 1 to the date of the participant's last completed follow-up interview where an actual contact was made, prior to end of visit 9 (30NOV2022).

Type: Numeric

Algorithm: LASTFUINTERVIEWDATE_FollowUpDays is the number of days between visit 1 and the max status date in the composite follow-up dataset among the records for a single ID where AFUcomp2_A indicates that the interview was accomplished (AFUcomp2_a in ('A', 'C', 'D')) and the date preceded November 30, 2022.

Source variable(s): follow-up status date, AFUcomp2_A

4. DISEASE INCIDENCE

4.1 INCSELFREPHBP91 (Self-Report Incident High Blood Pressure by the end of Visit 9)

Description: Numeric indicator variable reporting if the participant self-reported high blood pressure by November 30, 2022. May be used in conjunction with INCSELFREPHBP_DATE91.

Format: 1=Yes, 0=No

Type: Numeric

Algorithm: If MCU1=NULL then INCSELFREPHBP91=NULL.

Else if NULL<= MCU1a<=’30NOV2022’d then do;
If MCU1=’Y’ then INCSELFREPHBP91=1
Else if MCU1=’N’ then INCSELFREPHBP91=0
End;

Else if MCU1a>’30NOV2022'd then INCSELFREPHBP91=0;

Source variable(s): [MCU_&mrt] MCU1, [MCU_&mrt] MCU1a

4.2 INCSELFREPHBP_DATE91_FUdays (Days of follow up from visit 1 to Self-Report Incident High Blood Pressure Date or Earliest Date from Last Follow-up, Death, or End of V9 Data Collection)

Description: Numeric variable with the days of follow up from visit 1 to date the first time a participant self-reported high blood pressure (through November 30, 2022); if participant never self-reported high blood pressure (INCSELFREPHBP91=0), then the value is the days of follow up from visit 1 to one of the following: 1) the Medical Conditions Update (MCU) form date, 2) date of death, or 3) November 30, 2022, whichever is earlier. The variable is missing if there are no records for this ID.

Type: Numeric

Algorithm: if INCSELFREPHBP91=1 then INCSELFREPHBP_DATE91_FUdays is the number of days between visit 1 and self-report incident high blood pressure date

Else if INCSELFREPHBP91=0 then INCSELFREPHBP_DATE91_FUdays is the number of days between visit 1 and min(MCU date, date of death, “30NOV2022”d)

Else INCSELFREPHBP_DATE91_FUdays = NULL

Source variable(s): visit 1 date, MCU date, self-report incident high blood pressure date, date of death, INCSELFREPHBP91

4.3 INCSELFREPDM91 (Self-Report Diabetes Mellitus by the End of Visit 9)

Description: Numeric indicator variable reporting if the participant self-reported diabetes mellitus by November 30, 2022. May be used in conjunction with INCSELFREPDM_DATE91.

Format: 1=Yes, 0=No

Type: Numeric

Algorithm: If MCU2=NULL then INCSELFREPDM91=NULL.

Else if NULL<= MCU2a<=’30NOV2022’d then do;
If MCU2=’Y’ then INCSELFREPDM91=1
Else if MCU2=’N’ then INCSELFREPDM91=0
End;

Else if MCU2a>’30NOV2022’d then INCSELFREPDM91=0;

Source variable(s): [MCU_&mrt] MCU2, [MCU_&mrt] MCU2a

4.4 INCSELFREPDM_DATE91_FUdays (Days of follow up from visit 1 to Self-Report Diabetes Mellitus Date or Earliest Date from Last Follow-up, Death, or End of V9 Data Collection)

Description: Numeric variable with the days of follow up from visit 1 to date the first time a participant self-reported diabetes mellitus (through November 30, 2022); if participant never self-reported diabetes mellitus (INCSELFREPDM91=0), then the value is the days of follow up from visit 1 to one of the following: 1) the Medical Conditions Update (MCU) form date, 2) date of death, or 3) November 30, 2022, whichever is earlier. The variable is missing if there are no records for this ID.

Type: Numeric

Algorithm: if INCSELFREPDM91=1 then
INCSELFREPDM_DATE91_FUdays is the number of days between visit 1 and self-report incident diabetes mellitus date

Else if INCSELFREPDM91=0 then
INCSELFREPDM_DATE91_FUdays is the number of days between visit 1 and min(MCU date, date of death, “30NOV2022”d)

Else INCSELFREPDM_DATE91_FUdays = NULL

Source variable(s): visit 1 date, MCU date, self-report incident diabetes mellitus date, date of death, INCSELFREPDM91

4.5 INCSELFREPCLD91 (Self-Report Incident PVD or Claudication by End of Visit 9)

Description: Numeric variable reporting if the participant self-reported incident PVD or claudication by November 30, 2022. May be used in conjunction with INCSELFREPCLD_DATE91.

Format: 1=Yes, 0=No,

Type: Numeric

Algorithm: If MCU5=NULL then INCSELFREPCLD91=NULL.

Else if NULL<= MCU5a<=’30NOV2022’d then do;
If MCU5=’Y’ then INCSELFREPCLD91=1
Else if MCU5=’N’ then INCSELFREPCLD91=0
End;

Else if MCU5a>’30NOV2022’d then INCSELFREPCLD91=0;

Source variable(s): [MCU_&mrt] MCU5, [MCU_&mrt] MCU5a

4.6 INCSELFREPCLD_DATE91_FUdays (Days of follow up from visit 1 to Self-Report Incident PVD or Claudication Date or Earliest Date from Last Follow-up, Death, or End of V9 Data Collection)

Description: Numeric variable with the days of follow up from visit 1 to the date the first time a participant self-reported incident PVD or claudication (through November 30, 2022); if participant never self-reported incident PVD or claudication (INCSELFREPCLD91=0), then the value is the days of follow up from visit 1 to one of the following: 1) the Medical Conditions Update (MCU) form date, 2) date of death, or 3) November 30, 2022, whichever is earlier. The variable is missing if there are no records for this ID.

Type: Numeric

Algorithm: if INCSELFREPCLD91=1 then INCSELFREPCLD_DATE91_FUdays is the number of days between visit 1 and self-report incident PVD or claudication date

Else if INCSELFREPCLD91=0 then
INCSELFREPCLD_DATE91_FUdays is the number of days between visit 1 and min(MCU date, date of death, “30NOV2022”d)

Else INCSELFREPCLD_DATE91_FUdays = NULL

Source variable(s): visit 1 date, MCU date, self-report incident PVD or claudication date, date of death, INCSELFREPCLD91

4.7 INCSELFREPAST91 (Self-Report Asthma by the End of Visit 9)

Description: Numeric variable reporting if the participant self-reported asthma by November 30, 2022. May be used in conjunction with INCSELFREPAST_DATE91.

Format: 1=Yes, 0=No

Type: Numeric

Algorithm: If MCU4=NULL then INCSELFREPAST91=NULL.

Else if NULL<= MCU4a<=’30NOV2022’d then do;
If MCU4=’Y’ then INCSELFREPAST91=1
Else if MCU4=’N’ then INCSELFREPAST91=0
End;

Else if MCU4a>’30NOV2022’d then INCSELFREPAST91=0;

Source variable(s): [MCU_&mrt] MCU4, [MCU_&mrt] MCU4a

4.8 INCSELFREPAST_DATE91_FUdays (Days of follow up from visit 1 to Self-Report Asthma Date or Earliest Date from Last Follow-up, Death, or End of V9 Data Collection)

Description: Numeric variable with the days of follow up from visit 1 to the date the first time a participant self-reported asthma (through November 30, 2022); if participant never self-reported asthma (INCSELFREPAST91=0), then the value is the days of follow up from visit 1 to one of the following: 1) the Medical Conditions Update (MCU) form date, 2) date of death, or 3) November 30, 2022, whichever is earlier. The variable is missing if there are no records for this ID.

Type: Numeric

Algorithm: if INCSELFREPAST91=1 then
INCSELFREPAST_DATE91_FUdays is the number of days between visit 1 and self-report incident asthma date

Else if INCSELFREPAST91=0 then
INCSELFREPAST_DATE91_FUdays is the number of days between visit 1 and min(MCU date, date of death, “30NOV2022”d)

Else INCSELFREPAST_DATE91_FUdays = NULL

Source variable(s): visit 1 date, MCU date, self-report incident asthma date, date of death, INCSELFREPAST91

4.9 INCSELFREPLUNG91 (Self-Report Chronic Lung Disease by the End of Visit 9)

Description: Numeric variable reporting if the participant self-reported chronic lung disease by November 30, 2022. May be used in conjunction with INCSELFREPLUNG_DATE91.

Format: 1=Yes, 0=No

Type: Numeric

Algorithm: If MCU3=NULL then INCSELFREPLUNG91=NULL.

Else if NULL<= MCU3a<=’30NOV2022’d then do;
If MCU3=’Y’ then INCSELFREPLUNG91=1
Else if MCU3=’N’ then INCSELFREPLUNG91=0
End;

Else if MCU3a>’30NOV2022’d then INCSELFREPLUNG91=0;

Source variable(s): [MCU_&mrt] MCU3, [MCU_&mrt] MCU3a

4.10 INCSELFREPLUNG_DATE91_FUdays (Days of follow up from visit 1 to Self-Report Chronic Lung Disease Date or Earliest Date from Last Follow-up, Death, or End of V9 Data Collection)

Description: Numeric variable with the days of follow up from visit 1 to the date the first time a participant self-reported chronic lung disease (through November 30, 2022); if participant never self-reported chronic lung disease (INCSELFREPLUNG91=0), then the value is the days of follow up from visit 1 to one of the following: 1) the Medical Conditions Update (MCU) form date, 2) date of death, or 3) November 30, 2022, whichever is earlier. The variable is missing if there are no records for this ID.

Type: Numeric

Algorithm: if INCSELFREPLUNG91=1 then INCSELFREPLUNG_DATE91_FUdays is the number of days between visit 1 and self-report incident chronic lung disease date

Else if INCSELFREPLUNG91=0 then INCSELFREPLUNG_DATE91_FUdays is the number of days between visit 1 and min(MCU date, date of death, “30NOV2022”d)

Else INCSELFREPLUNG_DATE91_FUdays = NULL

Source variable(s): visit 1 date, MCU date, self-report incident chronic lung disease date, date of death, INCSELFREPLUNG91

4.11 INCSELFREPHF91 (Self-Report Heart Failure by the End of Visit 9)

Description: Numeric variable reporting if the participant self-reported heart failure by November 30, 2022. May be used in conjunction with INCSELFREPHF_DATE91.

Format: 1=Yes, 0=No

Type: Numeric

Algorithm: If SRHFail=NULL then INCSELFREPHF91=NULL;

Else if NULL <= MCU7a<=’30NOV2022’d then do;
if SRHFail=1 then INCSELFREPHF91=1
Else if SRHFail=0 then INCSELFREPHF91=0
End;

Else if MCU7a>’30NOV2022’d then INCSELFREPHF91=0;

Source variable(s): [MCU_&mrt] MCU6, [MCU_&mrt] MCU7, [MCU_&mrt] MCU7a

4.12 INCSELFREPHF_DATE91_FUdays (Days of follow up from visit 1 to Self-Report Heart Failure Date or Earliest Date from Last Follow-up, Death, or End of V9 Data Collection)

Description: Numeric variable with the days of follow up from visit 1 to the date the first time a participant self-reported heart failure (through November 30, 2022); if participant never self-reported heart failure (INCSELFREPHF91=0), then the value is the days of follow up from visit 1 to one of the following: 1) the Medical Conditions Update (MCU) form date, 2) date of death, or 3) November 30, 2022, whichever is earlier. The variable is missing if there are no records for this ID.

Type: Numeric

Algorithm: if INCSELFREPHF91=1 then
INCSELFREPHF_DATE91_FUdays is the number of days between visit 1 and the self-report incident heart failure date

Else if INCSELFREPHF91=0 then
INCSELFREPHF_DATE91_FUdays is the number of days between visit 1 and min(MCU date, date of death, “30NOV2022”d)

Else INCSELFREPHF_DATE91_FUdays = NULL

Source variable(s): visit 1 date, MCU date, self-report incident heart failure date, date of death, INCSELFREPHF91

4.13 INCSELFREPAF91 (Self-Report Atrial Fibrillation by the End of Visit 9)

Description: Numeric variable reporting if the participant self-reported atrial fibrillation by November 30, 2022. May be used in conjunction with INCSELFREPAF_DATE91.

Format: 1=Yes, 0=No

Type: Numeric

Algorithm: If MCU12=NULL then INCSELFREPAF91=NULL.

Else if NULL<= MCU12a<=’30NOV2022’d then do;
If MCU12=’Y’ then INCSELFREPAF91=1
Else if MCU12=’N’ then INCSELFREPAF91=0
End;

Else if MCU12a>’30NOV2022’d then INCSELFREPAF91=0;

Source variable(s): [MCU_&mrt] MCU12, [MCU_&mrt] MCU12a

4.14 INCSELFREPAF_DATE91_FUdays (Days of follow up from visit 1 to Self-Report Atrial Fibrillation Date or Earliest Date from Last Follow-up, Death, or End of V9 Data Collection)

Description: Numeric variable with the days of follow up from visit 1 to the date the first time a participant self-reported atrial fibrillation (through November 30, 2022); if participant never self-reported atrial fibrillation (INCSELFREPAF91=0), then the value is the days of follow up from visit 1 to one of the following: 1) the Medical Conditions Update (MCU)

form date, 2) date of death, or 3) November 30, 2022, whichever is earlier. The variable is missing if there are no records for this ID.

Type: Numeric

Algorithm: if INCSELFREPAF91=1 then INCSELFREPAF_DATE91_FUdays is the number of days between visit 1 and self-report incident atrial fibrillation date

Else if INCSELFREPAF91=0 then INCSELFREPAF_DATE91_FUdays is the number of days between visit 1 and min(MCU date, date of death, “30NOV2022”d)

Else INCSELFREPAF_DATE91_FUdays = NULL

Source variable(s): visit 1 date, MCU date, self-report incident atrial fibrillation date, date of death, INCSELFREPAF91

4.15 INCSELFREPSTK91 (Self-Report Stroke by the End of Visit 9)

Description: Numeric variable reporting if the participant self-reported stroke by November 30, 2022. May be used in conjunction with INCSELFREPSTK_DATE91.

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

Type: Numeric

Algorithm: INCSELFREPSTK91=1 if any of the records for a single ID have a Y value for either AFUcomp29_A or AFUcomp8b_K and NULL<afucomp1_A<=’30NOV2022’d

INCSELFREPSTK91=0 if AFUcomp29_A, AFUcomp8b_K are (N,NULL) or (NULL,N) respectively in all records for a single ID, where NULL<afucomp1_A<=’30NOV2022’d
INCSELFREPSTK71=NULL otherwise.

Source variable(s): [uc8531_compositeafu_safu] AFUcomp29_A, [uc8531_compositeafu_safu] AFUcomp8b_K, [uc8531_compositeafu_safu] AFUcomp1_a

4.16 INCSELFREPSTK_DATE91_FUdays (Days of follow up from visit 1 to Self-Report Stroke Date or Earliest Date from Last Follow-up, Death, or End of V9 Data Collection)

Description: Numeric variable with the days of follow up from visit 1 to the date the first time a participant self-reported stroke (through November 30, 2022); if participant never self-reported stroke (INCSELFREPSTK91=0), then the value is the days of follow up from visit 1 to one of the following: 1) the most recent AFU, 2) date of death, or 3) November 30, 2022, whichever is earlier. The variable is missing if there are no records for this ID.

Type: Numeric

Algorithm: INCSELFREPSTK_DATE91_FUdays is the number of days between visit 1 and the earliest status date in the composite follow-up dataset within the records for a single ID where a Y value is found for either AFUcomp29_A or AFUcomp8b_K (as long as the status date is not greater than “30NOV2022”d)

Else INCSELFREPSTK_DATE91_FUdays is the number of days between visit 1 and min(last completed follow-up interview date by 30NOV2022, date of death, “30NOV2022”d)

Else INCSELFREPSTK_DATE91_FUdays= missing if no records are found for a single ID

Source variable(s): AFUcomp29_A, AFUcomp8b_K, status date, last completed follow-up interview by 30NOV2022, date of death

5. NEUROCOGNITIVE STUDY

Table 1. Computer Algorithm Determination of REVISEDSYNDDIAG51 (VISIT 5 only)

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

Table 2. Computer Generated Algorithmic Diagnoses (Visit 6+)

Stratum	Decline[1]	Failed domain[2]	CDR sum of boxes	FAQ	Algorithm Dx[3]	Selected to Stage 2	Requires Review
1	PPT diagnosed with dementia at V5 or V6 or V7 (DEMDXL1_&v.1=1)				Dem	No	No
2	MMSE score (prorated) less than 21 for white participants ***or*** MMSE score (prorated) less than 19 for black participants				Dem	No	No
3	N	ANY	uncollected	uncollected	NL	No	No
4	Y or Y due to missing	0	uncollected	uncollected	NL	No	No
5	Y or Y due to missing	1 failed OR at least 1 missing	0, missing	≤5, missing	MCI	Yes	Yes
6	Y or Y due to missing	1 failed OR at least 1 missing	0	>5	Prob MCI	Yes	Yes
7	Y or Y due to missing	1 failed OR at least 1 missing	>0 but ≤3	≤5, missing	MCI	Yes	Yes
8	Y or Y due to missing	1 failed OR at least 1 missing	>0 but ≤3	>5	Prob MCI	Yes	Yes
9	Y or Y due to missing	1 failed OR at least 1 missing	>3	≤5	Prob Dem	Yes	Yes
10	Y or Y due to missing	1 failed OR at least 1 missing	>3	>5, missing	Prob Dem	Yes	Yes
11	Y or Y due to missing	>1	0, missing	≤5, missing	MCI	Yes	Yes
12	Y or Y due to missing	>1	0	>5	Prob MCI	Yes	Yes
13	Y or Y due to missing	>1	>0 but ≤3	≤5	MCI	Yes	Yes
14	Y or Y due to missing	>1	>0 but ≤3	>5, missing	Prob MCI	Yes	Yes
15	Y or Y due to missing	>1	>3	≤5	Prob Dem	Yes	Yes
16	Y or Y due to missing	>1	>3	>5, missing	Dem	Yes	Yes

5.1 MISSEDMMSEITEMS&v.1 (V&v. Number of missing MMSE items) &v.=5, 6, 7, 8, 9

Description: Numeric variable describing the number of missing MMSE items.

Type: Numeric

Algorithm: *CALCULATE FOR &v=5, 6, 7, 9;
=nmiss(MME1,MME2,MME3,MME4,MME5,MME6,MME7,MME8,MME9,MME10,MME11,MME12,MME13,MME14,MME15,MME16,MME17,MME18,MME19,MME20,MME21,MME22,MME23,MME24,MME25,MME26,MME27,MME28,MME29,MME30)

Source variable(s): MME1, MME2, MME3, MME4, MME5, MME6, MME7, MME8, MME9, MME10, MME11, MME12, MME13, MME14, MME15, MME16, MME17, MME18, MME19, MME20, MME21, MME22, MME23, MME24, MME25, MME26, MME27, MME28, MME29, MME30

5.2 PRORATEDMMSE&v.2 (V&v. Pro-rated MMSE score ver2, [(30 * MME score) / (30 – number skipped due to non-cognitive reasons)], NULL if too much missingness) &v.=5, 6, 7, 8, 9

Description: Version 2 of numeric variable calculated from the number of correct responses on the Mini-Mental State Exam and the number of items not collected due to reasons other than cognitive ability.

Type: Numeric

Algorithm: *CALCULATE FOR &v=5, 6, 7, 9;
If .<MISSEDMMSEITEMS&v.1<7 then

PRORATEDMMSE&v.2=(30*(sum(MME1,MME2,MME3,MME4,MME5,MME6,MME7,MME8,MME9,MME10,MME11,MME12,MME13,MME14,MME15,MME16,MME17,MME18,MME19,MME20,MME21,MME22,MME23,MME24,MME25,MME26,MME27,MME28,MME29,MME30)))/(30- MISSEDMMSEITEMS&v.1);
Else PRORATEDMMSE&v.2=NULL;
END;

Source variable(s): MME1, MME2, MME3, MME4, MME5, MME6, MME7, MME8, MME9, MME10, MME11, MME12, MME13, MME14, MME15, MME16, MME17, MME18, MME19, MME20, MME21, MME22, MME23, MME24, MME25, MME26, MME27, MME28, MME29, MME30

5.3 COGDIAG&v.1 (&v.1 NCS Cognitive Status Diagnosis) &v.=5, 6, 7, 8, 8T, 9

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

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

Type: Character

Algorithm: Calculate for &v.=5, 6, 7, 8, 8T, 9:

COGDIAG&v.1 is the classification committee's diagnosis (REVIEWERSYND&v.1) for PPT's who have been identified as requiring an informant interview (selected to stage 2), otherwise the value assigned is determined from the categorized algorithmic diagnosis ALGDX&v.1 (N=0,1; M=3,5; D=4,6; U=2).

Source variable(s): REVIEWERSYND&v.1, ALGDX&v.1

5.4 REVISEDROW51 (Row from syndromic dx) (Visit 5 only)

Type: Character

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

Source variable(s): NSS6, NSS11, CDS7, FAQ51, PRORATEDMMSE51, RACEGRP

5.5 ALGDXSTRATUM&v.1 (Row from syndromic dx)

Type: Numeric

Algorithm: Calculate for &v.=6,7, 8T, 9:

Categorical variable equal to the value in the 'STRATUM' column in Table 2 above.

6. LEVELED DEMENTIA DIAGNOSES

The Neurocognitive Committee created hierarchical, leveled dementia diagnosis variables based on multiple sources obtained at different points in time as depicted on the following page.

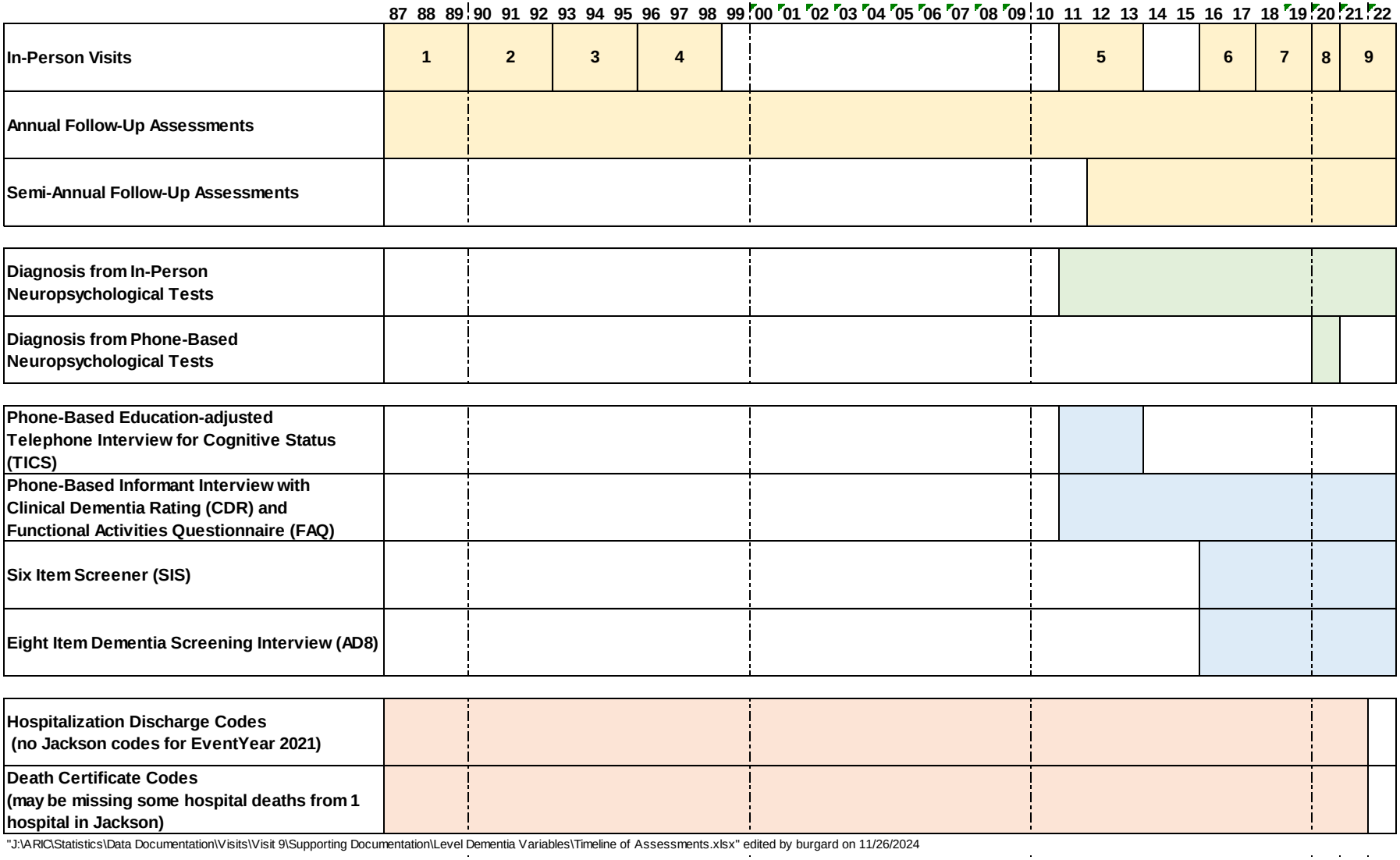
1. Level 1 – Dementia diagnosed based on neuropsychological tests administered in-person at Visit 5 (2011-2013), Visit 6 (2016-2017), Visit 7 (2018-2019), Visit 8 (2020) or over the phone at Visit 8 (2020), and Visit 9 (2021-2022).
2. Level 2a – Dementia additionally determined from the education-adjusted Telephone Interview for Cognitive Status (TICS) or a combination of the Clinical Dementia Rating (CDR) scale and the Functional Activities Questionnaire (FAQ).
3. Levels 2b and 2c – Dementia additionally determined from the Six Item Screener (SIS) or Eight Item Dementia Screening Interview (AD8).
4. Level 3 – Dementia additionally determined from the surveillance data documenting dementia-related hospitalizations and deaths.

Each variable has a corresponding variable for days of follow up from visit 1 to the date of diagnosis and an indicator for the source of the diagnosis. If the PPT has a dementia diagnosis, the diagnosis date corresponds to the earliest date dementia was detected.

The sequential order utilized for dementia ascertainment is (1) reviewer diagnosis based on neuropsychological tests, (2) algorithmic diagnosis based on neuropsychological tests, (3) education-adjusted TICS, (4) the CDR and FAQ from an informant interview, (5) AD8 result, (6) two SIS results, (7) one SIS result if PPT is lost to follow up or deceased, (8) hospitalization discharge codes, and (9) death certificate codes. The algorithms for dementia ascertainment are complicated and contain temporary variables depicted in Appendix A. Each algorithm also has a graphical depiction.

Two additional dementia diagnosis variables have been provided for sensitivity analyses. The first variable incorporates information from Levels 2a, 2b, and 2c but not Levels 1 or 3. This variable represents incident dementia determined solely from informant interviews and the phone-based education-adjusted TICS, SIS, and AD8. The second variable only incorporates information from Level 3 and represents incident dementia determined solely from medical records and death certificates. The purpose of these variables is to facilitate comparisons between ARIC and other studies that may only use phone-based assessments or surveillance data to ascertain incident dementia.

Timing of Sources Utilized to Ascertain Dementia



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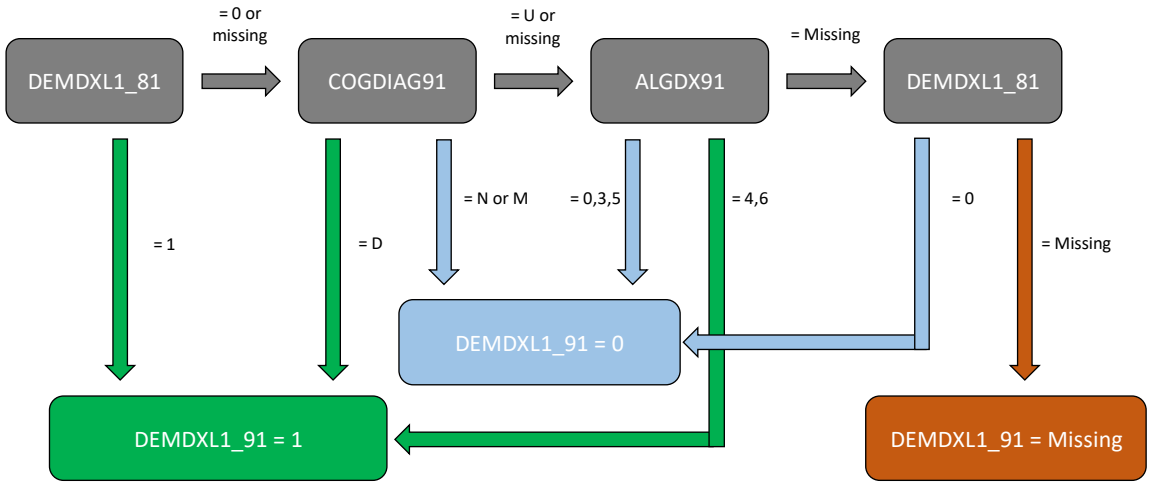
Level 1

The level 1 variable for dementia diagnosis (**DEMDXL1_91**) is available for those PPTs who completed an in-person or phone-based neuropsychological assessment. The evaluation procedure for determining cognitive status is described in Manual 17. Briefly, cognitive, behavioral, and functional assessments were conducted and an algorithmic diagnosis was generated. When the algorithm identified incident MCI or dementia, reviewers evaluated diagnostic materials and rendered an additional diagnosis. The reviewer diagnosis superseded the algorithmic diagnosis.

Dementia cases ascertained from in-person assessments are carried forward to subsequent assessments. Dementia cases ascertained from phone-based assessments are carried forward unless a subsequent in-person assessment renders a diagnosis of MCI or normal. A conflicting reviewer diagnosis based on an in-person assessment supersedes a prior reviewer or algorithmic diagnosis generated from a phone-based assessment.

If a participant had an initial in-person assessment in 2020 (V8) and a subsequent phone-based assessment in 2020 (V8T), then two diagnoses were generated. The first diagnosis was rendered using data from the in-person assessment and was defined as occurring on the date of the in-person assessment. The second diagnosis was rendered using data from the in-person and phone-based assessments and was defined as occurring on the date of the phone-based assessment. If only one assessment was performed during Visit 8 then the date and data from that assessment was used to determine the diagnosis.

V9 Dementia Level 1 (DEMDXL1_91)
One assessment conducted in-person (V9)



"J:\ARIC\Statistics\Data Documentation\Visits\Visit 9\Supporting Documentation \Level Dementia Variables \DEMDX Flow Chart 241126. pptx", created by Rodriguez/Burgard on 11/26/2024

6.1 DEMDXL1_91 (Dementia diagnosis level 1)

Description: Indicator variable for dementia based on (1) reviewer diagnosis (COGDIAG91) and (2) algorithmic diagnosis (ALGDX91). Diagnoses are prioritized based on the order listed. A value of 1 indicates dementia (COGDIAG=D or ALGDX=4, 6). A value of 0 indicates normal or MCI (COGDIAG=N, M or ALGDX=0, 3, 5).

Format: 0=No, 1=Yes.

Type: Numeric

Algorithm: If DEMDXL1_81=1 then DEMDXL1_91=1
Else if COGDIAG91= “D” then DEMDXL1_91=1
Else if COGDIAG91= (“N” or “M”) then DEMDXL1_91=0
Else if COGDIAG91= (“U” or “”) and ALGDX91 in (4, 6) then
DEMDXL1_91=1
Else if ALGDX91 in (0, 3, 5) then DEMDXL1_91=0
Else DEMDXL1_91=NULL

Source variable(s): DEMDXL1_81, COGDIAG91, ALGDX91

6.2 DATE_DEMDXL1_91_FollowUpDays (Days of follow up from visit 1 to Date for dementia diagnosis level 1)

Description: Days of follow up from visit 1 to the date of diagnosis associated with DEMDXL1_91. For PPTs with dementia (DEMDXL1_91=1) the date corresponds to a neuropsychological assessment or the earliest hospitalization date with a dementia code.

Type: Numeric

Algorithm: IF DEMDXL1_91 = missing
then DATE_DEMDXL1_91_FollowUpDays = missing;

IF DEMDXL1_81 = 1 then DATE_DEMDXL1_91_FollowUpDays = DATE_DEMDXL1_81_FollowUpDays;

ELSE IF COGDIAG91 = “D” then do;
If DEMDXL2a_82 = 1 then DATE_DEMDXL_91_FollowUpDays = DATE_DEMDEXL2a_82_FollowUpDays;

Else if DEMDXL2c_82 = 0 then do:

if (DEMENTEDCEL91 = 1 and ((the days of follow up from visit 1 to DEMENTEDCEL91_DATE_COND <= DATE_DEMDXL2c_82_FollowUpDays) or (DATE_DEMDXL2c_82_FollowUpDays is missing and DEMENTEDCEL91_DATE_COND < '01SEP2013'd))) or (DEMENTEDCEL91 = NULL then DATE_DEMDXL1_91_FollowUpDays is the number of days between visit 1 and visit 9 date;

else if DEMENTEDCEL91 = 1 and (NULL < DATE_DEMDXL2c_82_FollowcUpDays < the days of follow up from visit 1 to DEMENTEDCEL91_DATE_COND or (DATE_DEMDXL2c_82_FollowUpDays is missing and DEMENTEDCEL91_DATE_COND > '01SEP2013'd)) then DATE_DEMDXL1_91_FollowUpDays is the number of days between visit 1 and min(visit 9 date, DEMENTEDCEL91_DATE_COND);

End;

Else DATE_DEMDXL1_91_FollowUpDays is the number of days between visit 1 and min(visit 9 date, DEMENTEDCEL91_DATE1);

END;

ELSE IF COGDIAG91 = ("N" or "M") then DATE_DEMDXL1_91_FollowUpDays is the number of days between visit 1 and visit 9 date;

ELSE IF COGDIAG91 = ("U" or "") then

If DEMDXL2c_82 = 1 then DATE_DEMDXL1_91_FollowUpDays = DATE_DEMDXL2c_82_FollowUpDays;

Else if DEMDXL2c_82 = 0 then do:

if (DEMENTEDCEL91 = 1 and ((the days of follow up from visit 1 to DEMENTEDCEL91_DATE_COND <= DATE_DEMDXL2a_82_FollowUpDays) or (DATE_DEMDXL2c_82_FollowUpDays is missing and DEMENTEDCEL91_DATE_COND < '01SEP2013'd))) or (DEMENTEDCEL91 = NULL then DATE_DEMDXL1_91_FollowUpDays is the number of days between visit 1 and visit 9 date;

else if DEMENTEDCEL91 = 1 and (NULL < DATE_DEMDXL2a_82_FollowUpDays < the days of follow up from visit 1 to

DEMENTEDCEL91_DATE_COND or (DATE_DEMDXL2a_82_FollowUpDays is missing and DEMENTEDCEL91_DATE_COND > '01SEP2013'd)) then DATE_DEMDXL1_91_FollowUpDays is the number of days between visit 1 and min(visit 9 date, DEMENTEDCEL91_DATE_COND);

End;

Else DATE_DEMDXL1_91_FollowUpDays is the number of days between visit 1 and min(visit 9 date, DEMENTEDCEL91_DATE1);

END;

ELSE IF ALGDX91 in(0, 3, 5) then DATE_DEMDXL1_91_FollowUpDays is the number of days between visit 1 and visit 9 date;

Source variable(s): visit 1 date, DEMDXL1_81, DEMDXL1_91, DATE_DEMDXL2c_82_FollowUpDays, DEMDXL2a_82, DATE_DEMDXL1_81_FollowUpDays, DEMDXL2c_82, COGDIAG91, ALGDX91, visit 9 date, DEMENTEDCEL91, DATE_DEMDXL2a_82_FollowUpDays, DEMENTEDCEL91_DATE_COND, DEMENTEDCEL91_DATE1

6.3 SOURCE_DEMDXL1_91 (Diagnosis and date source for DATE_DEMDXL1_91)

Description: Source variable created to indicate the diagnosis and date source used in DATE_DEMDXL1_91_FollowUpDays.

Type: Character

Algorithm: If DEMDXL1_91 = missing then SOURCE_DEMDXL1_91 = missing;

ELSE IF the diagnosis occurred at V8 (DEMDXL1_81 = 1) then SOURCE_DEMDXL1_91 = SOURCE_DEMDXL1_81;

ELSE IF COGDIAG91 = "D" then do:

If DEMDXL2a_82 = 1 then SOURCE_DEMDXL1_91 = "V9+"||strip(source_demdxl2a_82);

Else if DEMDXL2c_82 = 0 then do:

if (DEMENTEDCEL91 = 1 and ((the days of follow up from visit 1 to DEMENTEDCEL91_DATE_COND <= DATE_DEMDXL2c_82_FollowUpDays) or (DATE_DEMDXL2c_82_FollowUpDays is missing and DEMENTEDCEL91_DATE_COND < '01SEP2013'd))) or

(DEMENTEDCEL91 = NULL then
SOURCE_DEMDXL1_91 = “V9”;

else if DEMENTEDCEL91 = 1 and (NULL < DATE_DEMDXL2c_82_FollowUpDays < the days of follow up from visit 1 to DEMENTEDCEL91_DATE_COND or (DATE_DEMDXL2c_82_FollowUpDays is missing and DEMENTEDCEL91_DATE_COND > ‘01SEP2013’d)) then do:

if DATE_DEMDXL1_91_FollowUpDays = the days of follow up from visit 1 to visit 9 date then SOURCE_DEMDXL1_91 = “V9”;

else if DATE_DEMDXL1_91_FollowUpDays = the days of follow up from visit 1 to DEMENTEDCEL91_DATE_COND then SOURCE_DEMDXL1_91 = “V9+HOSP”;
end;
End;
Else do:
if DATE_DEMDXL1_91_FollowUpDays = the days of follow up from visit 1 to visit 9 date then SOURCE_DEMDXL1_91 = “V9”;

else if DATE_DEMDXL1_91_FollowUpDays = the days of follow up from visit 1 to DEMENTEDCEL91_DATE1 then SOURCE_DEMDXL1_91 = “V9+HOSP”;
End;
END;

ELSE IF COGDIAG91 = (“N” or “M”) then
SOURCE_DEMDXL1_91 = “V9”;

ELSE IF COGDIAG91 = (“U” or “”) then do:
If DEMDXL2c_82 = 1 then
SOURCE_DEMDXL1_91 = “V9+”||strip(source_demdxl2c_82;

Else if DEMDXL2c_82 = 0 then do:
if (DEMENTEDCEL91 = 1 and ((the days of follow up from visit 1 to DEMENTEDCEL91_DATE_COND <= DATE_DEMDXL2a_82_FollowUpDays) or (DATE_DEMDXL2c_82_FollowUpDays is missing and DEMENTEDCEL91_DATE_COND < ‘01SEP2013’d))) or (DEMENTEDCEL91 = NULL then
SOURCE_DEMDXL1_91 = “V9”;

else if DEMENTEDCEL91 = 1 and (NULL < DATE_DEMDXL2a_82_FollowUpDays < the days of follow up from visit 1 to DEMENTEDCEL91_DATE_COND or (DATE_DEMDXL2a_82_FollowUpDays is missing and DEMENTEDCEL91_DATE_COND > '01SEP2013'd)) then do:

if DATE_DEMDXL1_91_FollowUpDays = the days of follow up from visit 1 to visit 9 date then SOURCE_DEMDXL1_91 = "V9";

else if DATE_DEMDXL1_91_FollowUpDays = the days of follow up from visit 1 to DEMENTEDCEL91_DATE_COND then SOURCE_DEMDXL1_91 = "V9+HOSP";

end;

End;

Else do:

if DATE_DEMDXL1_91_FollowUpDays = the days of follow up from visit 1 to visit 9 date then SOURCE_DEMDXL1_91 = "V9";

else if DATE_DEMDXL1_91_FollowUpDays = the days of follow up from visit 1 to DEMENTEDCEL91_DATE1 then SOURCE_DEMDXL1_91 = "V9+HOSP";

End;

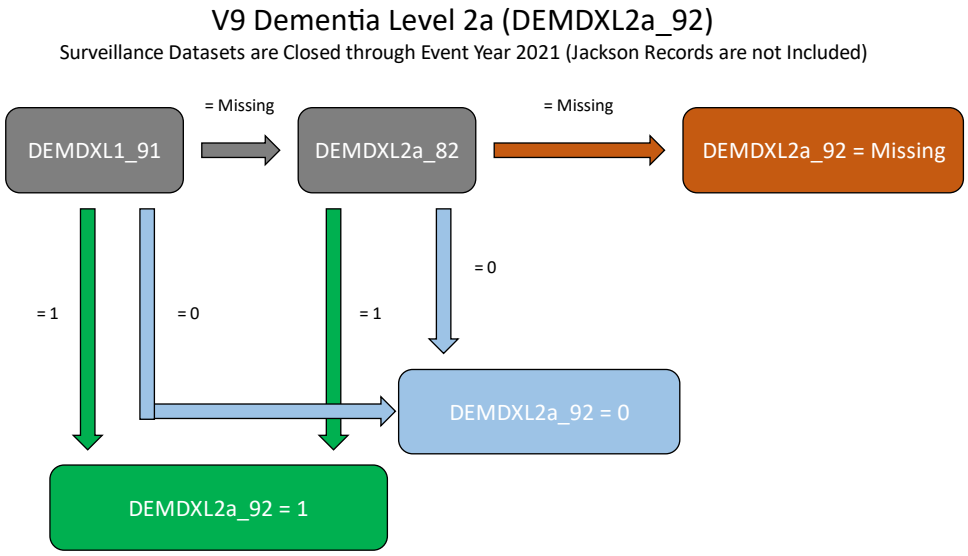
END;

ELSE IF ALGDX91 in(0, 3, 5) then SOURCE_DEMDXL1_91 = "V9";

Source variable(s): visit 1 date, visit 9 date, DEMDXL1_81, SOURCE_DEMDXL1_81, DEMDXL1_91, COGDIAG91, DEMDXL2a_82, DEMDXL2c_82, DEMENTEDCEL91, DEMENTEDCEL91_DATE_COND, DATE_DEMDXL2c_82_FollowUpDays, DATE_DEMDXL1_91_FollowUpDays, DATE_DEMDXL2a_82_FollowUpDays, ALGDX91

Level 2a

For PPTs known to be alive who did not complete a neuropsychological assessment, dementia was ascertained using the education-adjusted Telephone Interview for Cognitive Status (TICS) administered at Visit 5 or informant ratings from the Clinical Dementia Rating (CDR) scale and Functional Activities Questionnaire (FAQ). The algorithm that utilizes the CDR and FAQ is described in detail in Manual 17.



6.4 DEMDXL2a_92 (Dementia diagnosis level 2a)

Description: Indicator variable for dementia based on (1) reviewer diagnosis, (2) algorithmic diagnosis, (3) education-adjusted TICS (<=23), and (4) the CDR (>3) and FAQ (>5) from an informant interview (see **Manual 17**). Diagnoses are prioritized based on the order listed.

Format: 0=No, 1=Yes.

Type: Numeric

Algorithm: For PPTs with DEMDXL1_91 = 1 or (DEMDXL1_91 = 0 and SOURCE_DEMDXL1_91 = “V9” or “V9+DOD”):
DEMDXL2a_92 = DEMDXL1_91;

(For PPTs missing DEMDXL1_81 or (DEMDXL1_91 = 0 and SOURCE_DEMDXL1_91 in (“V8”, “V7”, “V6”, “V5”))) and DEMDXL2a_82 in (0, 1):
DEMDXL2a_92 = DEMDXL2a_82;

Source variable(s): DEMDXL2a_82, DEMDXL1_91, SOURCE_DEMDXL1_91

6.5 DATE_DEMDXL2a_92_FollowUpDays (Days of follow up from visit 1 to Date for dementia diagnosis level 2a)

Description: Days of follow up from visit 1 to date of diagnosis associated with DEMDXL2a_92. For PPTs with dementia (DEMDXL2a_92=1) the date corresponds to a neuropsychological assessment, the earliest hospitalization date with a dementia code, the date the TICS was administered, or the date an informant interview was conducted.

Type: Numeric

Algorithm: For PPTs with DEMDXL1_91 = 1 or (DEMDXL1_91 = 0 and SOURCE_DEMDXL1_91 = “V9” or “V9+DOD”):
DATE_DEMDXL2a_92_FollowUpDays = DATE_DEMDXL1_91_FollowUpDays;

(For PPTs missing DEMDXL1_91 or (DEMDXL1_91 = 0 and SOURCE_DEMDXL1_91 in (“V8T”, “V8”, “V7”, “V6”, “V5”))) and DEMDXL2a_82 in (0, 1):
DATE_DEMDXL2a_92_FollowUpDays = DATE_DEMDXL2a_82_FollowUpDays;

For deceased PPTs, if DATE_DEMDXL2a_92_FollowUpDays > DATEOFDEATH_FollowUpDays and SOURCE_DEMDXL1_91 is not “V9”:
DATE_DEMXL2a_92_FollowUpDays = DATEOFDEATH_FollowUpDays;

Source variable(s): DEMDXL1_91, SOURCE_DEMDXL1_91, DATE_DEMDXL1_91_FollowUpDays, DEMDXL2a_82, DATE_DEMDXL2a_82_FollowUpDays, DATEOFDEATH_FollowUpDays

6.6 SOURCE_DEMDXL2a_92 (Diagnosis and date source for DATE_DEMDXL2a_92)

Description: Source variable created to indicate the diagnosis and date source used in DATE_DEMDXL2a_92_FollowUpDays.

Type: Character

Algorithm: For PPTs with DEMDXL1_91 = 1 or (DEMDXL1_91 = 0 and SOURCE_DEMDXL1_91 = “V9” or “V9+DOD”):
SOURCE_DEMDXL2a_92 = SOURCE_DEMDXL1_91;

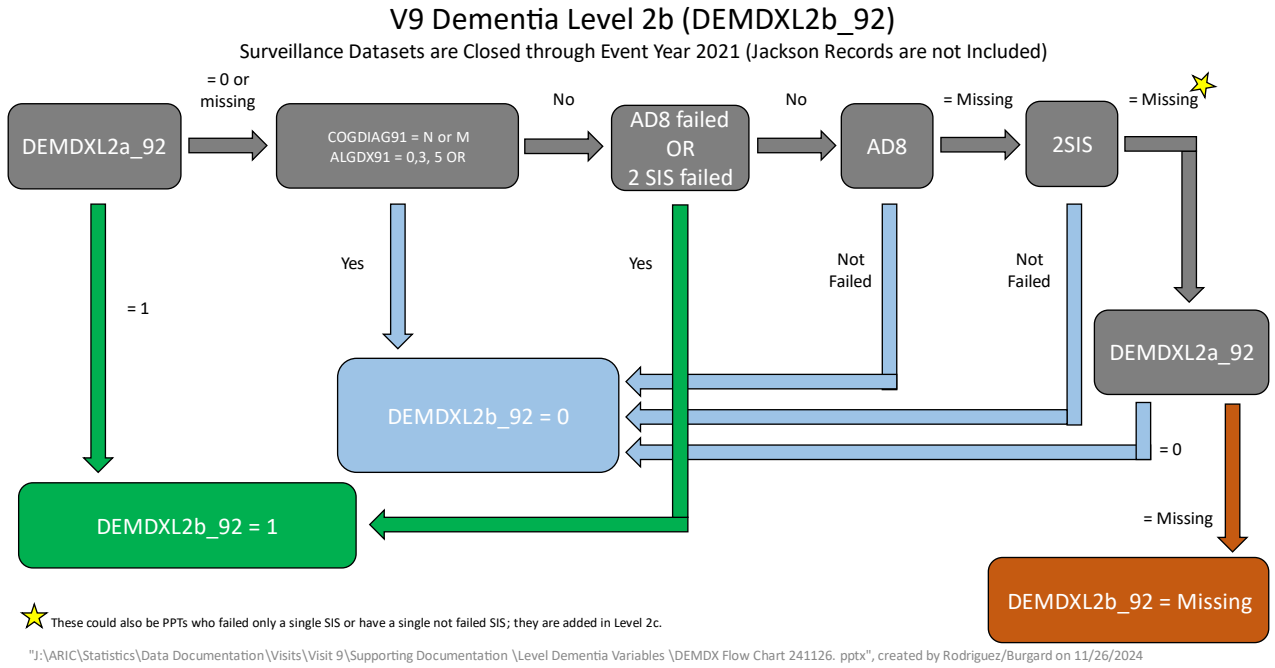
(For PPTs missing DEMDXL1_91 or (DEMDXL1_91 = 0 and SOURCE_DEMDXL1_91 in (“V8”, “V7”, “V6”, “V5”))) and DEMDXL2a_82 in (0, 1):
SOURCE_DEMDXL2a_92 = SOURCE_DEMDXL2a_82;

For deceased PPTs, if DATE_DEMDXL2a_92_FollowUpDays > DATEOFDEATH_FollowUpDays and SOURCE_DEMDXL1_91 is not “V8”:
DATE_DEMXL2a_92_FollowUpDays = DATEOFDEATH_FollowUpDays;
SOURCE_DEMDXL2a_92 = strip(source_demdxl2a_92)||”+DOD”;

Source variable(s): DEMDXL1_91, SOURCE_DEMDXL1_91, DEMDXL2a_82, SOURCE_DEMDXL2a_82, DATE_DEMDXL2a_92_FollowUpDays, DATEOFDEATH_FollowUpDays

Level 2b

For PPTs known to be alive who did not complete a neuropsychological assessment, TICS, or informant interview, dementia was ascertained using the Eight Item Dementia Screening Interview (AD8) or Six Item Screener (SIS). If level 2a was not present, the AD8 score was utilized. When AD8 was not available, two prorated SIS scores were utilized.



6.7 DEMDXL2b_92 (Dementia diagnosis level 2b)

Description: Indicator variable for dementia based on (1) reviewer diagnosis, (2) algorithmic diagnosis, (3) education-adjusted TICS (<=23), (4) the CDR (>3) and FAQ (>5) from an informant interview, (5) AD8 (>=2), and (6) SIS (<=3). Diagnoses are prioritized based on the order listed. Two failures of the SIS are required.

Format: 0=No, 1=Yes.

Type: Numeric

Algorithm: For PPTs with DEMDXL2a_92 = 1 or (DEMDXL2a_92 = 0 and SOURCE_DEMDXL2a_92 = “V9” or “V9+DOD”):
DEMDXL2b_92 = DEMDXL2a_92;

For PPTs missing DEMDXL2a_92 or (DEMDXL2a_92 = 0 and SOURCE_DEMDXL2a_92 not in (“V9”, "V9+DOD")) then do:

IF AD8FAILURE = 1 or SISFAILURECAT = 2

then DEMDXL2b_92 = 1;
ELSE IF AD8FAILURE = 0 then DEMDXL2b_92=0;

ELSE IF AD8FAILURE = NULL and SISFAILURECAT = 0
then DEMDXL2b_92 = 0;

ELSE IF AD8FAILURE = NULL and SISFAILURECAT = (NULL, 1, or 3) and DEMDXL2a_92 = 0 then DEMDXL2b_92 = DEMDXL2a_92;

Else DEMDXL2b_92=missing;

Source variable(s): DEMDXL2a_92, SOURCE_DEMDXL2a_92, AD8FAILURE, SISFAILURECAT

6.8 DATE_DEMDXL2b_92_FollowUpDays (Days of follow up from visit 1 to Date for dementia diagnosis level 2b)

Description: Days of follow up from visit 1 to date of diagnosis associated with DEMDXL2b_92. For PPTs with dementia (DEMDXL2b_92=1) the date corresponds to a neuropsychological assessment, the earliest hospitalization date with a dementia code, the date the TICS was administered, the date an informant interview was conducted, the date of the AD8, or the date of the SIS.

Type: Numeric

Algorithm: IF DEMDXL2b_92=missing then DATE_DEMDXL2b_92_FollowUpDays is missing.

IF DEMDXL2a_92=1 or (DEMDXL2a_92=0 and SOURCE_ DEMDXL2a_92 in (“V9”, “V9+DOD") then DATE_DEMDXL2b_92_FollowUpDays = DATE_DEMDXL2a_92_FollowUpDays.

ELSE IF missing DEMDXL2a_92 or (DEMDXL2a_92=0 and SOURCE_ DEMDXL2a_92 not in (“V9”, “V9+DOD") then do;
If AD8FAILURE=1 and SISFAILURECAT=2 then do;
if demdxl2a_82=0 then do;
if (DEMENTEDCEL91=1 and ((the number of days between visit 1 and DEMENTEDCEL91_date_COND <= DATE_DEMDXL2a_82_FollowUpDays) or (DATE_DEMDXL2a_82_FollowUpDays is missing and dementedcel91_date_cond < '01SEP2013'd))) or DEMENTEDCEL91=NULL then

DATE_DEMDXL2b_92_FollowUpDays is the number of days between visit 1 and min(AD8FAILUREdate, SISFAILUREDATE);

Else if DEMENTEDCEL91=1 and (.z< DATE_DEMDXL2a_82_FollowUpDays < the number of days between visit 1 and DEMENTEDCEL91_date_COND or (DATE_DEMDXL2a_82_FollowUpDays is missing and dementedcel91_date_cond >= '01SEP2013'd)) then DATE_DEMDXL2b_92_FollowUpDays is the number of days between visit 1 and min(AD8FAILUREdate, SISFAILUREDATE, DEMENTEDCEL91_date_COND);

end;

Else DATE_DEMDXL2b_92_FollowUpDays is the number of days between visit 1 and min(AD8FAILUREdate, SISFAILUREDATE, DEMENTEDCEL91_Date1);

End;

Else if DEMENTEDCEL91=1 and (.z<DATE_DEMDXL2a_82_FollowUpDays<the number of days between visit 1 and dementedcel91_date_cond or (DATE_DEMDXL2a_82_FollowUpDays is missing and dementedcel91_date_cond >= '01SEP2013'd) then DATE_DEMDXL2b_92_FollowUpDays is the number of days between visit 1 and min(AD8FAILUREdate, SISFAILUREDATE, DEMENTEDCEL91_date_COND);

Else DATE_DEMDXL2b_92_FollowUpDays is the number of days between visit 1 and min(AD8FAILUREdate, SISFAILUREDATE, DEMENTEDCEL91_Date1);

END;

ELSE IF AD8FAILURE=1 and SISFAILURECAT ne 2 then do;

If demdxl2a_82=0 then do;

if (DEMENTEDCEL91=1 and ((the number of days between visit 1 and dementedcel91_date_cond <= DATE_DEMDXL2a_82_FollowUpDays) or (DATE_DEMDXL2a_82_FollowUpDays is missing and dementedcel91_date_cond < '01SEP2013'd))) or DEMENTEDCEL91=NULL then DATE_DEMDXL2b_92_FollowUpDays is the number of days between visit 1 and AD8FAILUREdate.

End;

Else DATE_DEMDXL2b_92_FollowUpDays is the days of follow up from visit 1 to min(AD8FAILUREdate, DEMENTEDCEL91_Date1);
END;

Else if AD8FAILURE NE 1 and SISFAILURECAT=2 then do;
if demdxl2a_82=0 then do;
if (DEMENTEDCEL91=1 and (the number of days between visit 1 and dementedcel91_date_cond <= DATE_DEMDXL2a_82_FollowUpDays or (DATE_DEMDXL2a_82_FollowUpDays is missing and dementedcel91_date_cond < '01SEP2013'd))) or DEMENTEDCEL91=NULL then DATE_DEMDXL2b_92_FollowUpDays is the number of days between visit 1 and SISFAILUREDATE.

else if DEMENTEDCEL91=1 and (.z< DATE_DEMDXL2a_82_FollowUpDays < the number of days between visit 1 and dementedcel91_date_cond or (DATE_DEMDXL2a_82_FollowUpDays is missing and dementedcel91_date_cond >= '01SEP2013'd)) then DATE_DEMDXL2b_92_FollowUpDays is the number of days between visit 1 and min(SISFAILUREDATE, DEMENTEDCEL91_date_COND);
end;

Else DATE_DEMDXL2b_92_FollowUpDays is the number of days between visit 1 and the minimum value of SISFAILUREDATE and DEMENTEDCEL91_DATE1;
End;
ELSE IF AD8FAILURE=0 then DATE_DEMDXL2b_92_FollowUpDays is the number of days between visit 1 and AD8FAILUREDATE.
ELSE IF AD8FAILURE=NULL and SISFAILURECAT=0 then DATE_DEMDXL2b_92_FollowUpDays is the number of days between visit 1 and SISFAILUREDATE.
ELSE IF AD8FAILURE=NULL and SISFAILURECAT= 1,3, or missing and DEMDXL2a_92=0 then DATE_DEMDXL2b_92_FollowUpDays= DATE_DEMDXL2a_92_FollowUpDays.

END;

For PPTs who have died:
if DATEOFDEATH_FollowUpDays < date_demdxl2b_92_FollowUpDays and source_demdxl1_91 ne “V9” then
date_demdxl2b_92_FollowUpDays=DATEOFDEATH_FollowUpDays

Source variable(s): visit 1 date, DEMDXL2a_82, SOURCE_ DEMDXL2a_92, DATE_ DEMDXL2a_82_FollowUpDays, DEMDXL2b_92, DEMDXL2a_92, DATE_DEMDXL2a_92_FollowUpDays, AD8FAILURE, AD8FAILUREDATE, DEMENTEDCEL91, DEMENTEDCEL91_DATE_COND, DEMENTEDCEL91_DATE1, SISFAILURECAT, SISFAILUREDATE, SOURCE_ DEMDXL2a_92, SOURCE_DEMDXL1_91, DATEOFDEATH_FollowUpDays

6.9 SOURCE_DEMDXL2b_92 (Diagnosis and date source for DATE_DEMDXL2b_92)

Description: Source variable created to indicate the diagnosis and data source used in DATE_DEMDXL2b_92_FollowUpDays.

Type: Character

Algorithm: If DEMDXL2b_92=missing then SOURCE_DEMDXL2b_92=missing.

If DEMDXL2a_92=1 or (DEMDXL2a_92=0 and SOURCE_ DEMDXL2a_92 in (“V9”, “V9+DOD") then SOURCE_DEMDXL2b_92=SOURCE_DEMDXL2a_92

Else if missing DEMDXL2a_92 or (DEMDXL2a_92=0 and SOURCE_DEMDXL2a_92 not in (“V9”, “V9+DOD”):

If AD8FAILURE=1 and SISFAILURECAT=2:
SOURCE_DEMDXL2b_92=”AD8” if DATE_DEMDXL2b_92_FollowUpDays is the days of follow up from visit 1 to AD8FAILUREDATE OR

SOURCE_DEMDXL2b_92=”2SIS” if DATE_DEMDXL2b_92_FollowUpDays is the days of follow up from visit 1 to SISFAILUREDATE OR

SOURCE_DEMDXL2b_92=”AD8+2SIS+HOSP” if DATE_DEMDXL2b_92_FollowUpDays is the days of follow up from visit 1 to DEMENTEDCEL91_DATE_COND or DEMENTEDCEL91_DATE1

Else if AD8FAILURE=1 and SISFAILURECAT NE 2:
SOURCE_DEMDXL2b_92=”AD8+HOSP” if DATE_DEMDXL2b_92_FollowUpDays is the days of follow up from visit 1 to DEMENTEDCEL91_DATE_COND or DEMENTEDCEL91_Date1 OR

SOURCE_DEMDXL2b_92=”AD8” if DATE_DEMDXL2b_92_FollowUpDays is the days of follow up from visit 1 to AD8FAILUREDATE

Else if AD8FAILURE NE 1and SISFAILURECAT=2 then SOURCE_DEMDXL2b_92=”2SIS+HOSP” if DATE_DEMDXL2b_92_FollowUpDays is the days of follow up from visit 1 to DEMENTEDCEL91_DATE_COND or DEMENTEDCEL91_Date1 OR

SOURCE_DEMDXL2b_92=”2SIS” if DATE_DEMDXL2b_92_FollowUpDays is the days of follow up from visit 1 to SISFAILUREDATE

Else if AD8FAILURE=0 then SOURCE_DEMDXL2b_92= “AD8”

Else if AD8FAILURE=NULL and SISFAILURECAT=0 then SOURCE_DEMDXL2b_92=”2SIS”

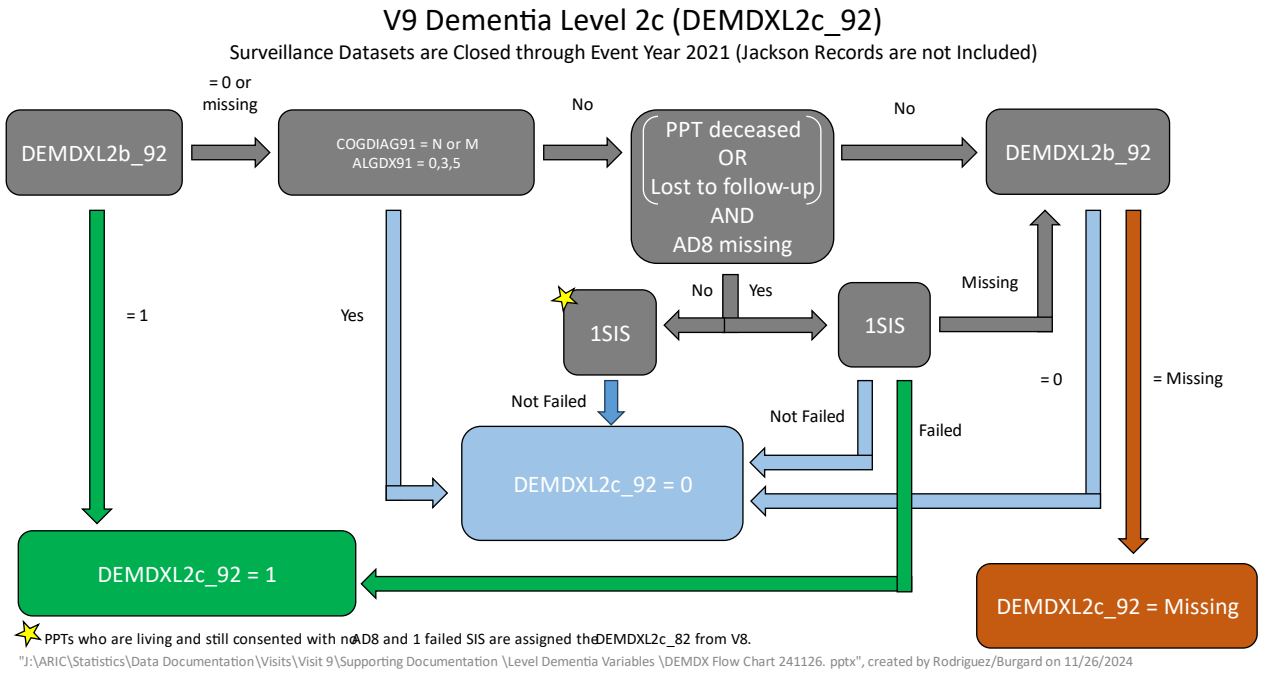
Else if AD8FAILURE=NULL and SISFAILURECAT= 1,3, or missing and DEMDXL2a_92=0 then SOURCE_DEMDXL2b_92= SOURCE_DEMDXL2a_92

For PPTs who have died:
if dateofdeath_FollowUpDays < date_demdxl2b_92_FollowUpDays and source_demdxl1_91 ne (“V9”) then SOURCE_DEMDXL2b_92= strip(SOURCE_DEMDXL2b_92)||"+DOD"

Source variable(s): visit 1 date, DEMDXL2b_92, SOURCE_DEMDXL2a_92, SOURCE_DEMDXL1_91, DATE_DEMDXL2b_92_FollowUpDays, DEMDXL2a_92, AD8FAILURE, AD8FAILUREDATE, SISFAILURECAT, SISFAILUREDATE, DEMENTEDCEL91_DATE_COND, DEMENTEDCEL91_Date1, DATEOFDEATH_FollowUpDays

Level 2c

For PPTs who were lost to follow up or deceased, dementia was ascertained from the SIS in the absence of an AD8. If level 2b was not present, an AD8 score was not available, and the PPT was lost to follow up or deceased, then the value assigned was based on a single prorated SIS score. If a participant is alive, still consented, has 1 failed SIS and no AD8, the level 2c assigned was the same as was assigned at V8.



6.10 DEMDXL2c_92 (Dementia diagnosis level 2c)

Description: Indicator variable for dementia based on (1) reviewer diagnosis, (2) algorithmic diagnosis, (3) education-adjusted TICS, (4) the CDR and FAQ from an informant interview, (5) AD8, and (6) SIS. Diagnoses are prioritized based on the order listed. Two failures of the SIS (<=3) are required unless the PPT is lost to follow up or deceased in which case a single failed SIS is utilized to ascertain dementia.

Format: 0=No, 1=Yes.

Type: Numeric

Algorithm: For PPTs with DEMDXL2b_92=1 or (DEMDXL2b_92=0 and SOURCE_DEMDXL2b_92 in (“V9”, “V9+DOD")): DEMDXL2c_92=DEMDXL2b_92

For PPTs with DEMDXL2b_92 is missing or (DEMDXL2b_92=0 and SOURCE_DEMDXL2b_92 NOT in (“V9”, “V9+DOD")):

If SISFAILURECAT=1 and AD8FAILURE=NULL AND (NULL<[ADER] date of death<=30NOV2022 OR (ICT1=0 AND NULL<ICT form date<=30NOV2022)) then DEMDXL2c_92=1
Else if source_demdxl2b_92 in (“2SIS”, “AD8”) then DEMDXL2c_92=DEMDXL2b_92

Else if SISFAILURECAT=3 and AD8FAILURE=NULL AND (NULL<[ADER] date of death<=30NOV2022 OR (ICT1=0 AND NULL<ICT form date<=30NOV2022)) then DEMDXL2c_92=0

Else do:

If DEMDXL2b_92=0 then DEMDXL2c_92=0

Else DEMDXL2c_92=NULL

End;

End;

Source variable(s): DEMDXL2b_92, SOURCE_DEMDXL2b_92, SISFAILURECAT, AD8FAILURE, [ADER] date of death, ICT1, ICT form date

6.11 DATE_DEMDXL2c_92_FollowUpDays (Days of follow up from visit 1 to Date for dementia diagnosis level 2c)

Description: Days of follow up from visit 1 to date of diagnosis associated with DEMDXL2c_92. For PPTs with dementia (DEMDXL2c_92=1), the date corresponds to a neuropsychological assessment, the earliest hospitalization date with a dementia code, the date the TICS was administered, the date an informant interview was conducted, the date of the AD8, or the date of the SIS.

Type: Numeric

Algorithm: If DEMDXL2c_92=missing then DATE_DEMDXL2c_92_FollowUpDays=missing

For PPTs with DEMDXL2b_92=1 or (DEMDXL2b_92=0 and SOURCE_DEMDXL2b_92 in (“V9”, “V9+DOD”): DATE_DEMDXL2c_92_FollowUpDays = DATE_DEMDXL2b_92_FollowUpDays.

For PPTs with DEMDXL2b_92 is NULL or (DEMDXL2b_92=0 and SOURCE_DEMDXL2b_92 not in (“V9”, “V9+DOD”):

If SISFAILURECAT=1 and AD8FAILURE=NULL AND (NULL<[ADER] date of death<=30NOV2022 OR (ICT1=0 AND NULL<ICT form date<=30NOV2022)) then do;

if demdxl2a_82=0 then do;

if (dementedcel91=1 and ((number of days between visit 1 and dementedcel91_date_cond <= DATE_DEMDXL2a_82_FollowUpDays) or (DATE_DEMDXL2a_82_FollowUpDays is missing and dementedcel91_date_cond < '01SEP2013'd))) or dementedcel91=NULL then DATE_DEMDXL2c_92_FollowUpDays is the number of days between visit 1 and SISFAILUREDATE.

else if dementedcel91=1 and (.z< DATE_DEMDXL2a_82_FollowUpDays <dementedcel91_date_cond or (DATE_DEMDXL2a_82_FollowUpDays is missing and dementedcel91_date_cond >= '01SEP2013'd)) then DATE_DEMDXL2c_92_FollowUpDays is the number of days between visit 1 and min(SISFAILUREDATE, DEMENTEDCEL91_DATE_COND);

end;

Else DATE_DEMDXL2c_92_FollowUpDays is the number of days between visit 1 and min(SISFAILUREDATE, DEMENTEDCEL91_Date1);

End;

Else if source_demdxl2b_92 in ('2SIS', 'AD8') then DATE_DEMDXL2c_92_FollowUpDays = date_DEMDXL2b_92_FollowUpDays.

Else if SISFAILURECAT=0 and AD8FAILURE=NULL AND ((NULL<[ADER] date of death<=30NOV2022) OR (ict1=0 and NULL<ICT form date<=30NOV2022)) then DATE_DEMDXL2c_92_FollowUpDays is the number of days between visit 1 and SISFAILUREDATE.

Else if DEMDXL2b_92=0 then DATE_DEMDXL2c_92_FollowUpDays = DATE_DEMDXL2b_92_FollowUpDays.

End;

For PPTs who have died:
if dateofdeath_FollowUpDays < date_demdxl2c_92_FollowUpDays and source_demdxl1_91 NE (“V9”) then DATE_DEMDXL2c_92_FollowUpDays=dateofdeath_FollowUpDays.

Source variable(s): visit 1 date, DEMDXL2c_92, DEMDXL2b_92, SOURCE_DEMDXL2b_92, DATE_DEMDXL2b_92_FollowUpDays, DEMDXL2a_2, DATE_DEMDXL2a_82_FollowUpDays , SISFAILURECAT, AD8FAILURE, [ADER] date of death, ICT1, ICT form date, SISFAILUREDATE, DEMENTEDCEL91, DEMENTEDCEL91_DATE_COND, DEMENTEDCEL91_Date1, SOURCE_DEMDXL1_91, DATEOFDEATH_FollowUpDays

6.12 SOURCE_DEMDXL2c_92 (Diagnosis and date source for DATE_DEMDXL2c_92)

Description: Source variable created to indicate the diagnosis and data source used in DATE_DEMDXL2c_82_FollowUpDays.

Type: Character

Algorithm: If DEMDXL2c_92=missing then SOURCE_DEMDXL2c_92=missing.

For PPTs with DEMDXL2b_92=1 or (DEMDXL2b_92=0 and SOURCE_DEMDXL2b_2 in (“V9”, “V9+DOD”):
SOURCE_DEMDXL2c_92= SOURCE_DEMDXL2b_92

For PPTs with DEMDXL2b_92=NULL or (DEMDXL2b_92=0 and SOURCE_DEMDXL2b_92 not in (“V9”, “V9+DOD”, “V8T”):

If SISFAILURECAT=1 and AD8FAILURE=NULL AND (NULL<[ADER] date of death<=30NOV2022 OR (ICT1=0 AND NULL<ICT form date<=30NOV2022)) then SOURCE_DEMDXL2c_92= “1SIS” if DATE_DEMDXL2c_92_FollowUpDays is the days of follow up from visit 1 to SISFAILUREDATE
OR =“1SIS+HOSP” if DATE_DEMDXL2c_92_FollowUpDays is the days of follow up from visit 1 to DEMENTEDCEL91_DATE_COND or DEMENTEDCEL91_Date1

Else if SOURCE_DEMDXL2b_92 in (“2SIS”, “AD8”) then SOURCE_DEMDXL2c_92=SOURCE_DEMDXL2b_92

Else if SISFAILURECAT=3 and AD8FAILURE=NULL AND ((NULL<[ADER] date of death<=30NOV2022) OR (ICT1=0 and NULL<ICT form date<=30NOV2022)) then
SOURCE_DEMDXL2c_92= “1SIS”
Else if DEMDXL2b_92=0 then
SOURCE_DEMDXL2c_92=SOURCE_DEMDXL2b_92
End;

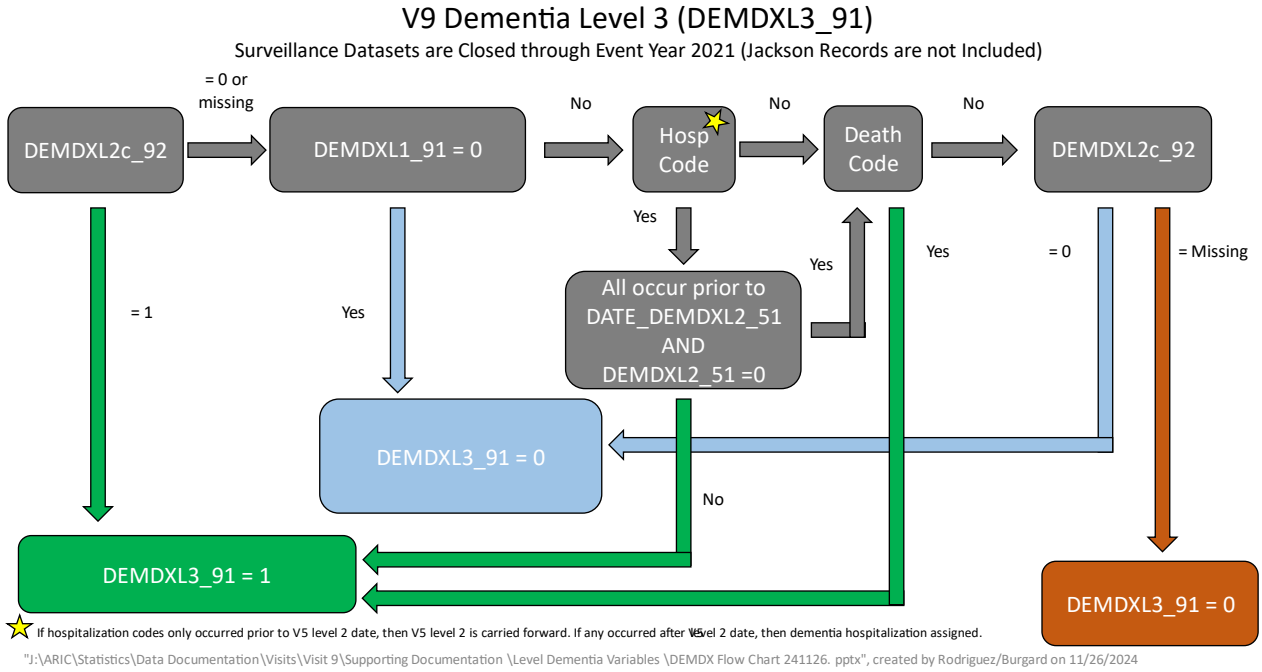
For PPTs who have died:
if DATEOFDEATH_FollowUpDays < DATE_DEMDXL2c_92_FollowUpDays and SOURCE_DEMDXL1_91

NE (“V9”) then
SOURCE_DEMDXL2c_92=strip(SOURCE_DEMDXL2c_92)||"+DOD”

Source variable(s): visit 1 date, DEMDXL2c_92, DATE_DEMDXL2c_92_FollowUpDays, DEMDXL2b_92, SOURCE_DEMDXL2b_92, SISFAILURECAT, AD8FAILURE, [ADER] date of death, ICT1, ICT form date, SOURCE_DEMDXL1_91, DATEOFDEATH_FollowUpDays, DEMENTEDCEL91_DATE_COND, DEMENTEDCEL91_Date1, SISFAILUREDATE

Level 3

Dementia hospitalization discharge codes and diagnostic codes from death certificates were used to ascertain dementia for PPTs who had no neuropsychological assessments, informant interviews, TICS, AD8, or SIS assessments. Level 3 dementia diagnosis, **DEMDXL3_91**, is assigned as the level 1 diagnosis when available, the level 2a diagnosis when available, the level 2b diagnosis when available, or the level 2c when available. Dementia hospitalization codes are then utilized followed by dementia codes from death certificates.



6.13 DEMDXL3_91 (Dementia diagnosis level 3)

Description: Indicator variable for dementia based on (1) reviewer diagnosis, (2) algorithmic diagnosis, (3) education-adjusted TICS, (4) the CDR and FAQ from an informant interview, (5) AD8, (6) SIS, (7) dementia codes from hospitalization records, and (8) dementia codes from death certificates. Diagnoses are prioritized based on the order listed.

Format: 0=No, 1=Yes.

Type: Numeric

Algorithm: For PPTs with DEMDXL2c_92=1 or (DEMDXL2c_92=0 and source_demdxl2c_92 in ("V9", "V9+DOD")):
DEMDXL3_91=DEMDXL2c_92;

For PPTs with DEMDXL2c_92 is NULL or (demdxl2c_92=0 and source_demdxl2c_92 not in (“V9”, “V9+DOD”)):

If DEMDXL2c_92=0 then do;

if (dementedcel91=1 and ((days of follow up from visit 1 to dementedcel91_date_cond<=date_demdxl2a_82_FollowUpDays) or (date_demdxl2a_82_FollowUpDays is missing and dementedcel91_date_cond<'01SEP2013'd))) then do;

if (dementeddth91=1 and NULL<dementeddth91_date<='30NOV2022'd) then DEMDXL3_91=1;

else DEMDXL3_91= DEMDXL2c_92;

end;

else if (dementedcel91=1 and (NULL<date_demdxl2a_82_FollowUpDays<days of follow up from visit 1 to dementedcel91_date_cond or (date_demdxl2a_82_FollowUpDays is missing and dementedcel91_date_cond>='01SEP2013'd) then DEMDXL3_91=1;

else if (dementeddth91=1 and NULL<dementeddth91_date<='30NOV2022'd) then DEMDXL3_91=1;

else DEMDXL3_91=DEMDXL2c_92;

End;

Else if (dementedcel91=1 and NULL <dementedcel91_date1<='30NOV2022'd) or (dementeddth91=1 and NULL<dementeddth91_date<='30NOV2022'd) then DEMDXL3_91=1;

Else DEMDXL3_91 = 0;

Otherwise DEMDXL3_91=0

Source variable(s): DEMDXL2c_92, SOURCE_DEMDXL2c_92, DEMENTEDCEL91_DATE1, DEMENTEDCEL91, DEMENTEDDTH91, DEMENTEDDTH91_DATE, date_demdxl2a_82_FollowUpDays, dementedcel91_date_cond

6.14 DATE_DEMDXL3_91_FollowUpDays (Days of follow up from visit 1 to Date for dementia diagnosis level 3)

Description: Days of follow up from visit 1 to date of diagnosis associated with DEMDXL3_91. For PPTs with dementia (DEMDXL3_91=1) the date

corresponds to a neuropsychological assessment or the earliest hospitalization date with a dementia code, the date the TICS was administered, the date an informant interview was conducted, the date of the AD8, the date of the SIS, or the date of death.

Type: Numeric

Algorithm: For PPTs with DEMDXL2c_92=1 or (DEMDXL2c_92=0 AND SOURCE_DEMDXL2c_92 in (“V9”, “V9+DOD”):
DATE_DEMDXL3_91_FollowUpDays =
DATE_DEMDXL2c_92_FollowUpDays

For PPTs with DEMDXL2c_92=NULL or (DEMDXL2c_92=0 AND SOURCE_DEMDXL2c_92 not in (“V9”, “V9+DOD”):
if (DEMDXL2c_82=0) then do;
if (dementedcel91=1 and ((days of follow up from visit 1 to dementedcel91_date_cond <= date_demdxl2a_82_FollowUpDays) or (date_demdxl2a_82_FollowUpDays is missing and dementedcel91_date_cond < '01SEP2013'd))) then do;
if (dementeddth91=1 and NULL<dementeddth91_date<=30NOV2022) then DATE_DEMDXL3_91_FollowUpDays is the number of days between visit 1 and dementeddth91_date.

else DATE_DEMDXL3_91_FollowUpDays = DATE_DEMDXL2c_92_FollowUpDays;
end;

else if dementedcel91=1 and (NULL<date_demdxl2a_82_FollowUpDays <dementedcel91_date_cond or (date_demdxl2a_82_FollowUpDays is missing and dementedcel91_date_cond >= '01SEP2013'd)) then DATE_DEMDXL3_91_FollowUpDays is the number of days between visit 1 and DEMENTEDCEL91_DATE_COND.

else if (dementeddth91=1 and NULL<dementeddth91_date<=30NOV2022) then date_demdxl3_91_FollowUpDays is the number of days between visit 1 and dementeddth91_date.

else DATE_DEMDXL3_91_FollowUpDays=DATE_DEMDXL2c_92_ FollowUpDays.
end;

else if (DEMENTEDCEL91=1 and
NULL<DEMENTEDCEL91_date1<=30NOV2022) or
(DEMENTEDDTH91=1 and
NULL<DEMENTEDDTH91_date<=30NOV2022) then do;
If DEMENTEDCEL91=1 then date_demdxl3_91_FollowUpDays is the number of days between visit 1 and DEMENTEDCEL91_date1.
Else if DEMENTEDDTH91=1 then date_demdxl3_91_FollowUpDays is the number of days between visit 1 and DEMENTEDDTH91_date.
End;

For PPTs who have died:
if dateofdeath_FollowUpDays < date_demdxl3_91_FollowUpDays and source_demdxl1_91 NE “V9” then
date_demdxl3_91_FollowUpDays=dateofdeath_FollowUpDays;

Otherwise DATE_DEMDXL3_81_FollowUpDays=NULL

Source variable(s): visit 1 date, DEMDXL2c_82, SOURCE_DEMDXL2c_92, DATE_DEMDXL2c_92_FollowUpDays, DATE_DEMDXL2a_82_FollowUpDays, DEMENTEDCEL91, DEMENTEDDTH91, DEMENTEDCEL91_DATE_COND, DEMENTEDCEL91_Date1, DEMENTEDDTH91_DATE, SOURCE_DEMDXL1_91, DATEOFDEATH_FollowUpDays

6.15 SOURCE_DEMDXL3_91 (Diagnosis and date source for DATE_DEMDXL3_91)

Description: Source variable created to indicate the diagnosis and data source used in DATE_DEMDXL3_91. Details are depicted in the table below.

Type: Character

Algorithm: For PPTs with DEMDXL2c_92=1 or (DEMDXL2c_92=0 AND SOURCE_DEMDXL2c_92 in (“V9”, “V9+DOD”):
SOURCE_DEMDXL3_91=SOURCE_DEMDXL2c_92

For PPTs with DEMDXL2c_92=NULL or (DEMDXL2c_92=0 AND SOURCE_DEMDXL2c_92 not in (“V9”, “V9+DOD”):

If DATE_DEMDXL3_91_FollowUpDays is the days of follow up from visit 1 to DEMENTEDDTH91_DATE and the death occurred before '30NOV2022' then SOURCE_DEMDXL3_91=‘DTH’

Else if DATE_DEMDXL3_91_FollowUpDays is the days of follow up from visit 1 to DEMENTEDCEL91_DATE_COND or DEMENTEDCEL91_Date1 then SOURCE_DEMDXL3_91='HOSP'

Else SOURCE_DEMDXL3_91= SOURCE_DEMDXL2c_92 (*See table below for more granular assignments for SOURCE_DEMDXL3_91.)*

If SOURCE_DEMDXL3_91 is missing and DEMDXL3_91 is not missing then SOURCE_DEMDXL3_91='NO CODE'

For PPTs who have died:
if dateofdeath_FollowUpDays < date_demdxl3_91_FollowUpDays and source_demdxl1_1 NE ("V9") then source_demdxl3_91=strip(source_demdxl3_91)||"+DOD"

Source variable(s): visit 1 date, DEMDXL2c_92, SOURCE_DEMDXL2c_92, DATE_DEMDXL3_91_FollowUpDays, DEMDXL3_91, DEMENTEDCEL91_DATE_COND, DEMENTEDCEL91_Date1, DEMENTEDDTH91_DATE, SOURCE_DEMDXL1_91, DATEOFDEATH_FollowUpDays

SOURCE_DEMDXL3_91 - Diagnosis and date source for DATE_DEMDXL3_91_FollowUpDays

Source code	Source of the diagnosis	Date of the diagnosis
1SIS	1 SIS	SIS
1SIS+DOD	1 SIS	Date of death
1SIS+HOSP	1 SIS	Hospitalization discharge
2SIS	2 SIS	SIS
2SIS+HOSP	2 SIS	Hospitalization discharge
AD8	AD8	AD8
AD8+2SIS+HOSP	AD8	AD8
AD8+DOD	AD8	Date of death
AD8+HOSP	AD8	Hospitalization discharge
DTH	Dementia death code	Dementia death code
HOSP	Dementia hospitalization code	Hospitalization discharge
RDS Dead	RDS Dead	RDS Dead
RDS Live	RDS Live	RDS Live
RDS Live+DOD	RDS Live	Date of death
RDS+DTH	RDS	Dementia death code
RDS+DTH+DOD	RDS	Date of death
RDS+HOSP	RDS	Hospitalization discharge
TICS	TICS	TICS
TICS+HOSP	TICS	Hospitalization discharge
V5	V5 NCS exam	V5 visit
V5+HOSP	V5 NCS exam	Hospitalization discharge
V6	V6 NCS exam	V6 visit
V6+HOSP	V6 NCS exam	Hospitalization discharge
V6+RDS Live	V6 NCS exam, RDS Live	RDS
V6+RDS+HOSP	V6 NCS exam, RDS	Hospitalization discharge
V6+TICS	V6 NCS exam, TICS	TICS
V7	V7 NCS exam	V7 visit
V7+HOSP	V7 NCS exam	Hospitalization discharge
V7+RDS Live	V7 NCS exam, RDS Live	RDS
V7+RDS+HOSP	V7 NCS exam, RDS	Hospitalization discharge
V7+TICS	V7 NCS exam, TICS	TICS
V7+TICS+HOSP	V7 NCS exam, TICS	Hospitalization discharge
V8	V8 NCS exam	V8 visit
V8+HOSP	V8 NCS exam	Hospitalization discharge
V8+RDS Live	V8 NCS exam, RDS Live	RDS
V8+RDS+HOSP	V8 NCS exam, RDS	Hospitalization discharge
V8+TICS	V8 NCS exam, TICS	TICS
V8+TICS+HOSP	V8 NCS exam, TICS	Hospitalization discharge
V8T	V8 Telephone NCS exam	V8T visit
V8T+HOSP	V8 Telephone NCS exam	Hospitalization discharge
V8T+RDS Live	V8 Telephone NCS exam, RDS Live	RDS
V8T+RDS+HOSP	V8 Telephone NCS exam, RDS	Hospitalization discharge

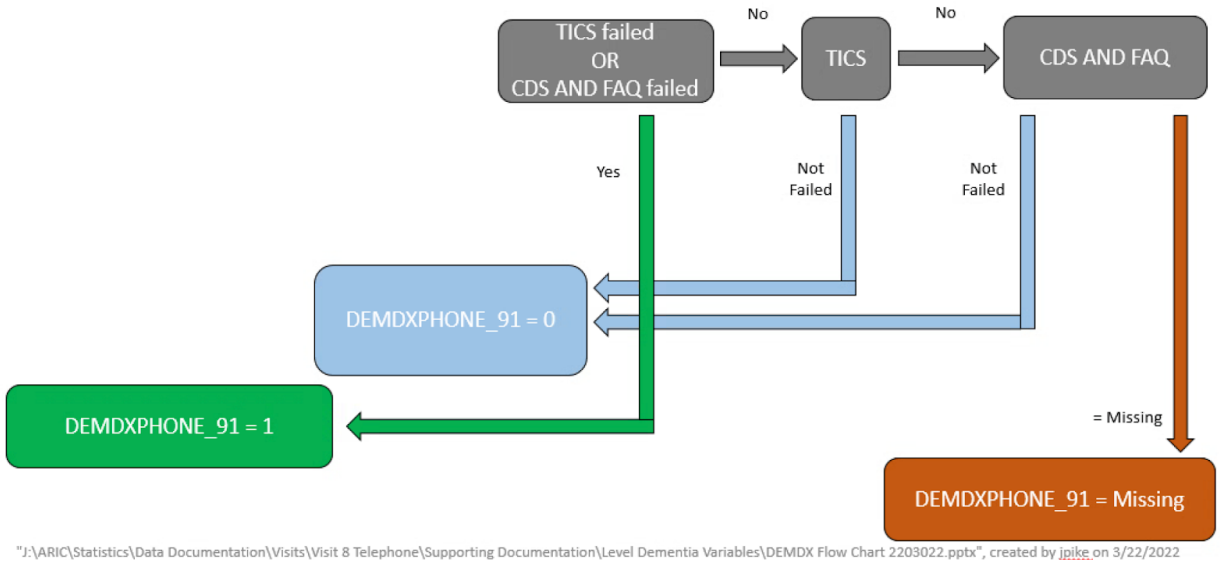
V8T+TICS	V8 Telephone NCS exam, TICS	TICS
V8T+TICS+HOSP	V8 Telephone NCS exam, TICS	Hospitalization discharge
V9	V9 NCS exam	V9 visit
V9+HOSP	V9 NCS exam	Hospitalization discharge
V9+2SIS	V9 NCS exam	V9 visit
V9+AD8	V9 NCS exam	V9 visit

SIS=Six Item Screener, AD8=Eight Item Dementia Screening Interview, RDS=Retrospective dementia surveillance, TICS=Telephone Interview for Cognitive Status

Phone Only

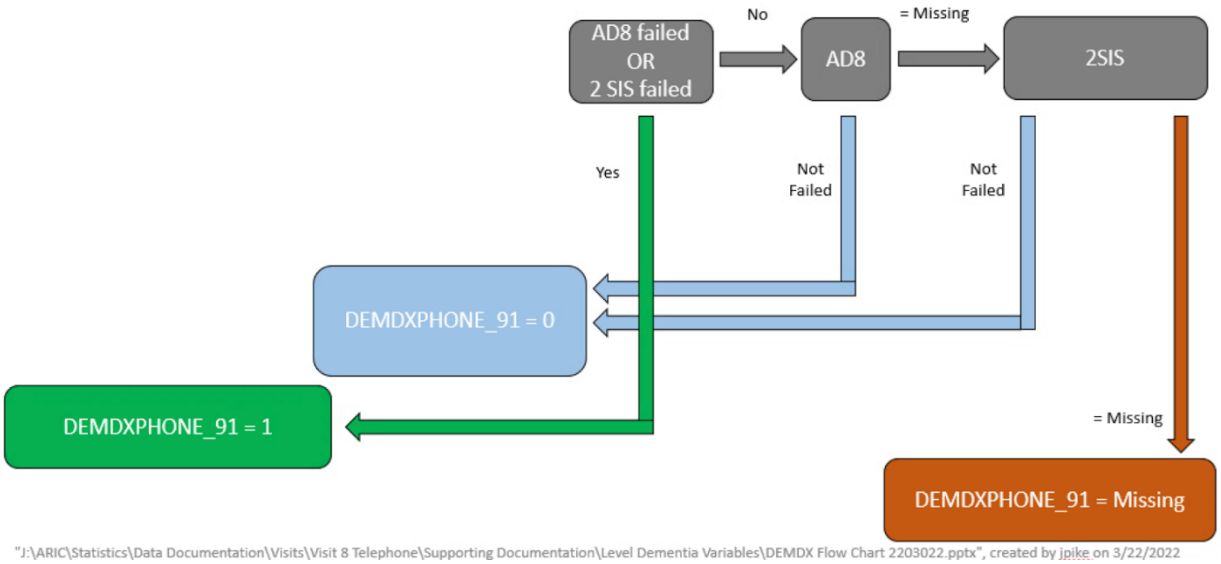
Dementia was ascertained using (**Phase 1**) the education-adjusted Telephone Interview for Cognitive Status (TICS) administered at Visit 5 or informant ratings from the CDR and FAQ, (**Phase 2**) Eight Item Dementia Screening Interview (AD8) score or two prorated Six Item Screener scores (SIS), or (**Phase 3**) a single prorated SIS score.

V9 Phone Only Phase 1

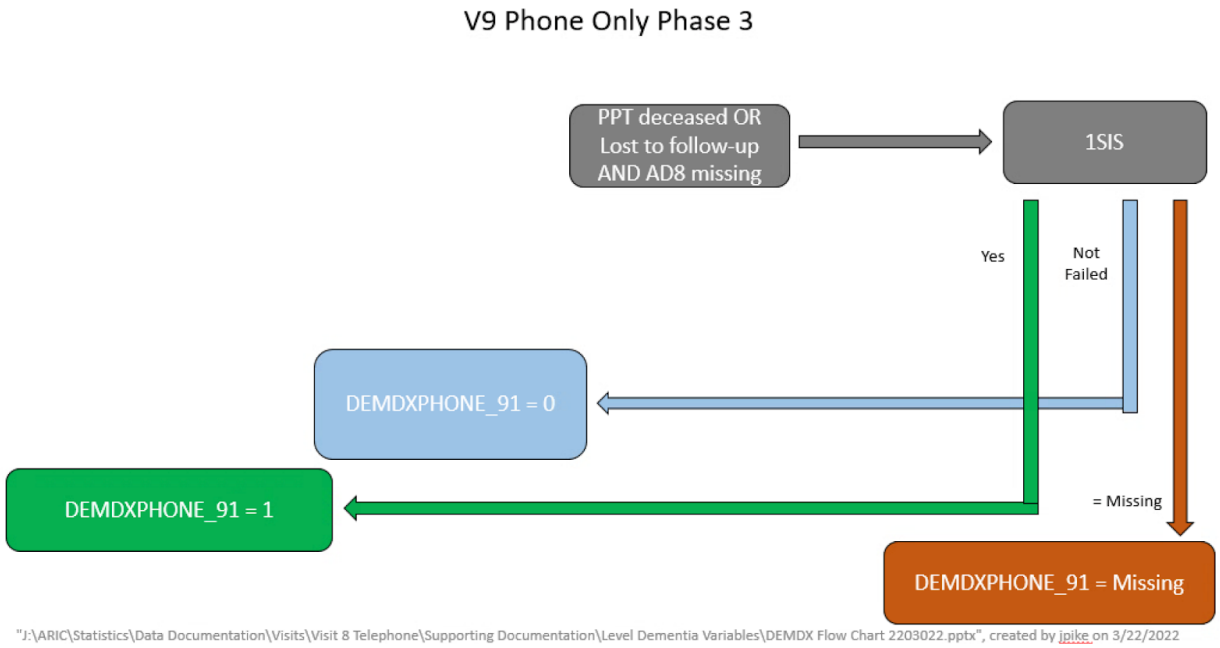


"J:\ARIC\Statistics\Data Documentation\Visits\Visit 8 Telephone\Supporting Documentation\Level Dementia Variables\DEMDX Flow Chart 2203022.pptx", created by jpike on 3/22/2022

V9 Phone Only Phase 2



"J:\ARIC\Statistics\Data Documentation\Visits\Visit 8 Telephone\Supporting Documentation\Level Dementia Variables\DEMDX Flow Chart 2203022.pptx", created by jpike on 3/22/2022



6.16 DEMDXPHONE_91 (Dementia diagnosis from phone assessments)

Description: Indicator variable for dementia based on (1) education-adjusted TICS (<=23), (2) the CDR (>3) and FAQ (>5) from an informant interview (see **Manual 17**), (3) AD8 (>=2), and (4) SIS (<=3). Diagnoses are prioritized based on the order listed.

Format: 0=No, 1=Yes.

Type: Numeric

Algorithm: Let CDS7_# denote CDS7 at each visit # (5, 6, 7, 8, 8T, 9)

If TIC_EDUC51 is non-missing or any CDS7_# are non-missing or SISFAILURECAT is non-missing or (AD8FAILURE is non-missing and SISFAILURECAT is non-missing) then DEMDXPHONE_91 = 0;

If missing < TIC_EDUC51 <= 23 then DEMDXPHONE_91=1
If (CDS7_8>3 and FAQ_8>5) then DEMDXPHONE_91=1
If (CDS7_7>3 and FAQ_7>5) then DEMDXPHONE_91=1
If (CDS7_6>3 and FAQ_6>5) then DEMDXPHONE_91=1
If (CDS7_5>3 and FAQ_5>5) then DEMDXPHONE_91=1

If AD8FAILURE=1 or SISFAILURECAT=2 then DEMDXPHONE_91=1
If AD8FAILURE=NULL AND (NULL<[ADER] date of death<=30NOV202204 OR (ICT1=0 AND NULL<ICT form

date<=30NOV2022)) and SISFAILURECAT=1 then DEMDXPHONE_91=1

If TIC_EDUC51, CDS7_8, CDS7_7, CDS7_6, CDS7_5, AD8FAILURE, and SISFAILURECAT are all missing then DEMDXPHONE_91=missing

Source variable(s): SISFAILURECAT, AD8FAILURE, [ADER] date of death, ICT1, ICT form date, TIC_EDUC51, CDS7 and FAQ scores from visits 5-9

6.17 DATE_DEMDXPHONE_91_FollowUpDays (Days of follow up from visit 1 to Date for dementia diagnosis from phone assessments)

Description: Days of follow up from visit 1 to date of diagnosis associated with DEMDXPHONE_91. For PPTs with dementia (DEMDXPHONE_91=1) the date corresponds to the date the TICS was administered, the date an informant interview was conducted, the date of the AD8, or the date of the SIS.

Type: Numeric

Algorithm: Let CDS7_# denote CDS7 at each visit # (5, 6, 7, 8, 8T, 9)

If DEMDXPHONE_91=missing then DATE_DEMDXPHONE_91_FollowUpDays=missing.

For PPTs with DEMDXPHONE_91=1:

If non-missing TIC_EDUC51 <= 23 and CDS7_5>3 and FAQ_5>5 then DATE_DEMDXPHONE_91_FollowUpDays is the number of days between visit 1 and min(visit 5 CDS form date, visit 5 TIC form date);

Else if non-missing TIC_EDUC51 <= 23 and (CDS7_5 <= 3 or FAQ_5 <= 5) then DATE_DEMDXPHONE_91_FollowUpDays is the number of days between visit 1 and visit 5 TIC form date.

Else if (CDS7_#>3 and FAQ_#>5) then DATE_DEMDXPHONE_91_FollowUpDays is the number of days between visit 1 and the CDS form date from visit #.

Else if AD8FAILURE = 1 and SISFAILURECAT = 2 then DATE_DEMDXPHONE_91_FollowUpDays is the number of days between visit 1 and min(SISFAILUREDATE, AD8FAILUREDATE)

Else if AD8FAILURE = 1 then
DATE_DEMDXPHONE_91_FollowUpDays is the number of days between visit 1 and AD8FAILUREDATE

Else if SISFAILURECAT = 2 then
DATE_DEMDXPHONE_91_FollowUpDays is the number of days between visit 1 and SISFAILUREDATE

Else if AD8FAILURE = NULL and SISFAILURECAT = 1 then
DATE_DEMDXPHONE_91_FollowUpDays is the number of days between visit 1 and SISFAILUREDATE

For PPTs with DEMDXPHONE_91=0:
DATE_DEMDXPHONE_91_FollowUpDays is the number of days between visit 1 and max(CDS form date from visit #, visit 5 TIC form date, last ADS date, last SIS date)

For PPTs who have died:
if DATEOFDEATH_FollowUpDays < DATE_DEMDXPHONE_91_FollowUpDays then DATE_DEMDXPHONE_91_FollowUpDays = DATEOFDEATH_FollowUpDays

Source variable(s): visit 1 date, DEMDXPHONE_91, TIC_EDUC51, CDS7_#, FAQ_#, CDS form date, TIC form date, AD8_derivelong, SIS_derivelong, SISFAILUREDATE, AD8FAILUREDATE, ADS form date, SIS form date, DATEOFDEATH_FollowUpDays

6.18 SOURCE_DEMDXPHONE_91 (Diagnosis and date source from phone assessments)

Description: Source variable created to indicate the diagnosis and data source used in DATE_DEMDXPHONE_91_FollowUpDays.

Type: Character

Algorithm: Let CDS7_# denote CDS7 at each visit # (5, 6, 7, 8, 8T, 9)

If DEMDXPHONE_91=missing then
SOURCE_DEMDXPHONE_91=missing

Else if SOURCE_DEMDXPHONE_91="TICS" if [TIC_EDUC51 <= 23 or DATE_DEMDXPHONE_81_FollowUpDays is the days of follow up from visit 1 to TIC form date]

Else if SOURCE_DEMDXPHONE_91="CDR" if [CDS7_#>3 and FAQ_#>5 or DATE_DEMDXPHONE_91_FollowUpDays is the days of follow up from visit 1 to CDS form date from visit #]

Else if AD8FAILURE=1 or SISFAILURECAT=2:
SOURCE_DEMDXPHONE_91="AD8" if AD8FAILURE = 1 and DATE_DEMDXPHONE_91_FollowUpDays exists.
Else SOURCE_DEMDXPHONE_91="2SIS" if SISFAILURECAT =2.

Else if SISFAILURECAT=1 and AD8FAILURE=NULL:
SOURCE_DEMDXPHONE_91= "1SIS" if DATE_DEMDXPHONE_91_FollowUpDays is the days of follow up from visit 1 to SISFAILUREDATE

For PPTs with DEMDXPHONE_91=0:
SOURCE_DEMDXPHONE_91="TICS" if DATE_DEMDXPHONE_91_FollowUpDays is the days of follow up from visit 1 to visit 5 TIC form date

SOURCE_DEMDXPHONE_91="CDR" if DATE_DEMDXPHONE_91_FollowUpDays is the days of follow up from visit 1 to CDS form date from visit #

SOURCE_DEMDXPHONE_91="AD8" if DATE_DEMDXPHONE_91_FollowUpDays is the days of follow up from visit 1 to the last ADS date
SOURCE_DEMDXPHONE_91="1SIS" if DATE_DEMDXPHONE_91_FollowUpDays is the days of follow up from visit 1 to the last SIS date

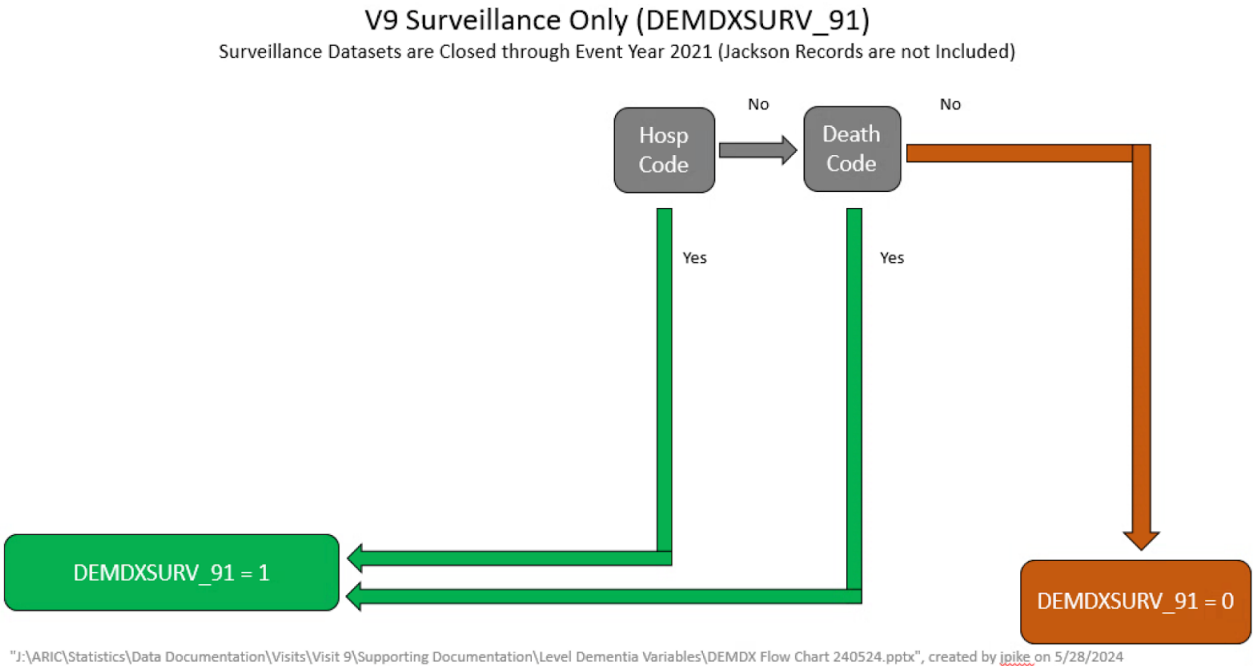
For PPTs who have died:
if DATEOFDEATH_FollowUpDays < DATE_DEMDXPHONE_91_FollowUpDays then SOURCE_DEMDXPHONE_91=strip(SOURCE_DEMDXPHONE_91)||"+DOD"

If DATEOFDEATH_FollowUpDays is present and DATE_DEMDXPHONE_91_FollowUpDays > (DATEOFDEATH_FollowUpDays-180) and SOURCE_DEMDXPHONE_91 is missing then SOURCE_DEMDXPHONE_91="DTH+DOD"

Source variable(s): visit 1 date, DEMDXPHONE_91, TIC_EDUC51, DATE_DEMDXPHONE_91_FollowUpDays, AD8FAILURE, SISFAILURECAT, AD8FAILUREDATE, SISFAILUREDATE, [ADER] date of death, ICT1, ICT form date, DATEOFDEATH_FollowUpDays, TIC form date, CDS form date

Medical Records and Death Certificates Only

Dementia was ascertained for all PPTs using hospitalization discharge codes and diagnostic codes from death certificates.



6.19 DEMDXSURV_91 (Dementia diagnosis from medical records and death certificates)

Description: Indicator variable for dementia based on (1) dementia codes from hospitalization records and (2) dementia codes from death certificates. Diagnoses are prioritized based on the order listed.

Format: 0=No, 1=Yes.

Type: Numeric

Algorithm: For PPTs with DEMENTEDCEL91=1:
DEMDXSURV_91=1

For PPTs with DEMENTEDCEL91=0:

If DEMENTEDDTH91=1 then DEMDXSURV_91=1

Otherwise DEMDXSURV_91=0

If ICT1=0 AND NULL<ICT form date<= DEMENTEDCEL91_Date1 then DEMDXSURV_91=0

Source variable(s): DEMENTEDCEL91, DEMENTEDDTH91, ICT form date, ICT1, DEMENTEDCEL91_Date1

6.20 DATE_DEMDXSURV_91_FollowUpDays (Days of follow up from visit 1 to Date for dementia diagnosis from medical records and death certificates)

Description: Days of follow up from visit 1 to date of diagnosis associated with DEMDXSURV_91. For PPTs with dementia (DEMDXSURV_91=1) the date corresponds to the earliest hospitalization date with a dementia code or the date of death.

Type: Numeric

Algorithm: If (DEMENTEDCEL91=1 and NULL<DEMENTEDCEL91_date1<=30NOV2022) or (DEMENTEDDTH91=1 and NULL<DEMENTEDDTH91_date<=30NOV2022) then do;

If DEMENTEDCEL91=1 then DATE_DEMDXSURV_91_FollowUpDays is the number of days between visit 1 and DEMENTEDCEL91_date1.
Else if DEMENTEDDTH91=1 then DATE_DEMDXSURV_91_FollowUpDays is the number of days between visit 1 and DEMENTEDDTH91_date.

End;

Else if DATEOFDEATH_FollowUpDays>NULL then DATE_DEMDXSURV_91_FollowUpDays = DATEOFDEATH_FollowUpDays

Else DATE_DEMDXSURV_91_FollowUpDays is the number of days between visit 1 and the last date of contact with the participant or their proxy

Source variable(s): visit 1 date, DEMENTEDCEL91, DEMENTEDCEL91_date1, DEMENTEDDTH91, DEMENTEDDTH91_date, DATEOFDEATH_FollowUpDays, last date of contact with the participant or their proxy

6.21 SOURCE_DEMDXSURV_91 (Diagnosis and date source from medical records and death certificates)

Description: Source variable created to indicate the diagnosis and data source used in DATE_DEMDXSURV_91_FollowUpDays.

Type: Character

Algorithm: If DATE_DEMDXSURV_91_FollowUpDays is the days of follow up from visit 1 to DEMENTEDCEL91_DATE_COND or DEMENTEDCEL91_Date1 then SOURCE_DEMDXSURV_91='HOSP'

Else if DATE_DEMDXSURV_91_FollowUpDays is the days of follow up from visit 1 to DEMENTEDDTH91_DATE and the death occurred before '30NOV2022' then SOURCE_DEMDXSURV_91 = 'DTH'

Else if DATE_DEMDXSURV_91_FollowUpDays = DATEOFDEATH_FollowUpDays and the death occurred before '30NOV2022' then SOURCE_DEMDXSURV_91 = 'DTH'

Else SOURCE_DEMDXSURV_91 = 'HOSP'

Source variable(s): visit 1 date, DEMENTEDCEL91_DATE_COND, DEMENTEDCEL91_Date1, DEMENTEDDTH91_DATE, DATE_DEMDXSURV_91_FollowUpDays, DATEOFDEATH_FollowUpDays

7. SURVIVAL ANALYSIS VARIABLES

The use of survival analysis variables is described in **Manual 30** in the section entitled *Dementia and Mild Cognitive Impairment (MCI) Analyses*. In most cases, analysts will use level 3 dementia, i.e. **DEMDXL3CENS_91** and **COXDATE_DEMDXL3_91_FollowUpDays**.

The last date of contact with the participant or their proxy is used in some definitions in this section. Contact may occur in-person (e.g. during a clinic visit) or over the phone (e.g. during an annual or semi-annual follow-up interview). Annual and semi-annual follow-up interviews are counted only if hospitalization information was collected. If the participant died and the last date of contact occurred within a year prior to death, then follow-up is censored at the date of death. Otherwise, follow-up is censored at the last contact.

7.1 DEMDXL1CENS_91 (Censored level 1 dementia diagnosis)

Description: Censored level 1 dementia diagnosis is equivalent to level 1 dementia diagnosis (DEMDXL1_91) except that PPTs are censored at the date of their last in-person or phone-based neuropsychological assessment.

Format: 0=Censored, 1=Incident Dementia

Type: Numeric

Algorithm: If (DEMDXL1_91 = 1 with non-missing DATE_DEMDXL1_91_FollowUpDays and NULL<visit 9 date for dementia diagnosis level 1<= the last date of contact with the participant or their proxy) then
DEMDXL1CENS_91 = DEMDXL1_91;

Else if DEMDXL1_91 =1 with non-missing DATE_DEMDXL1_91_FollowUpDays and visit 9 date for dementia diagnosis level 1 > the last date of contact with the participant or their proxy then
DEMDXL1CENS_91 = 0;

Else if DEMDXL1_91 = 0 then DEMDXL1CENS_91 = 0

then do;

If (DEMDXL1_81 = 1 with non-missing visit 8 date for dementia diagnosis level 1 and NULL< visit 8 date for dementia diagnosis level 1 <= the last date of contact with the participant or their proxy then

DEMDXL1CENS_91 = DEMDXL1_81;

Else if DEMDXL1_81 =1 with non-missing visit 8 date for dementia diagnosis level 1 and visit 8 date for dementia diagnosis level 1 > the last date of contact with the participant or their proxy then
DEMDXL1CENS_91 = 0;

Else if DEMDXL1_81 = 0 then DEMDXL1CENS_91 = 0;

Else DEMDXL1CENS_91 = NULL;

Source variable(s): DEMDXL1_81, visit 8 date for dementia diagnosis level 1, DEMDXL1_91, visit 9 date for dementia diagnosis level 1, last date of contact with the participant or their proxy

7.2 COXDATE_DEMDXL1_91_FollowUpDays (Days of follow up from visit 1 to Adjusted date of censored level 1 dementia diagnosis)

Description: Days of follow up from visit 1 to adjusted date of censored level 1 dementia diagnosis. The date is equivalent to the date for dementia diagnosis level 1 except that 180 days is subtracted from the date if dementia was ascertained from a hospitalization record.

Type: Numeric

Algorithm: If DEMDXL1CENS_91=1 and DATE_DEMDXL1_91_FollowUpDays is non-missing and SOURCE_DEMDXL1_91 in (“DTH”, “DTH+DOD”, “HOSP”, “HOSP+DOD”, “RDS Dead”, “RDS Live”, “RDS Live+DOD”, “RDS+DTH”, “RDS+DTH+DOD”, “RDS+HOSP”, “V5+HOSP”, “V6+HOSP”, “V7+HOSP”, “V7+RDS Live”, “V7+RDS+HOSP” ”, “V8+HOSP”, “V8+RDS Live”, “V8+RDS+HOSP”, “V8T+HOSP”, “V8T+RDS Live”, “V8T+RDS+HOSP”, “V9+HOSP”, “V9+RDS Live”, “V9+RDS+HOSP”):
COXDATE_DEMDXL1_91_FollowUpDays = DATE_DEMDXL1_91_FollowUpDays – 180;

Else if DATE_DEMDXL1_91_FollowUpDays is non-missing then COXDATE_DEMDXL1_91_FollowUpDays = DATE_DEMDXL1_91_FollowUpDays;

Else if DEMDXL1CENS_91 is non-missing then COXDATE_DEMDXL1_91_FollowUpDays is the number of days between visit 1 and visit 5 date.

If the adjusted date of censored level 1 dementia diagnosis is non-missing and after the last date of contact with the participant or their proxy then COXDATE_DEMDXL1_91_FollowUpDays is the number of days between visit 1 and the last date of contact with the participant or their proxy

Source variable(s): visit 1 date, DEMDXL1CENS_91, DATE_DEMDXL1_91_FollowUpDays, SOURCE_DEMDXL1_91, visit 5 date

7.3 DEMDXL2CENS_91 (Censored level 2 dementia diagnosis)

Description: Censored level 2 dementia diagnosis is equivalent to level 2c dementia diagnosis (DEMDXL2c_92) except that PPTs are censored at the date of their last neuropsychological assessment, education-adjusted TICS, informant interview, AD8, or SIS.

Format: 0=Censored, 1=Incident Dementia

Type: Numeric

Algorithm: If (DEMDXL2c_92 = 1 with non-missing DATE_DEMDXL2c_92_FollowUpDays and NULL<visit 9 date for dementia diagnosis level 2c<=
the last date of contact with the participant or their proxy) then DEMDXL2CENS_91 = DEMDXL2c_92;

Else if DEMDXL2c_92 =1 with non-missing DATE_DEMDXL2c_92_FollowUpDays and visit 9 date for dementia diagnosis level 2c > the last date of contact with the participant or their proxy then DEMDXL2CENS_91 = 0;

Else if DEMDXL2c_92 = 0 then DEMDXL2CENS_91 = 0;

Else do;

If (DEMDXL2c_82 = 1 with non-missing visit 8 date for dementia diagnosis level 2c and NULL<visit 8 date for dementia diagnosis level 2c<=
the last date of contact with the participant or their proxy then DEMDXL2CENS_91 = DEMDXL2c_82;

Else if DEMDXL2c_82 =1 with non-missing visit 8 date for dementia diagnosis level 2c and visit 8 date for dementia diagnosis level 2c> the last date of contact with the participant or their proxy then DEMDXL2CENS_91 = 0;

Else if DEMDXL2c_82 = 0 then DEMDXL2CENS_91 = 0;

Else do;

If (DEMDXL2c_72 = 1 with non-missing visit 7 date for dementia diagnosis level 2c and NULL<visit 7 date for dementia diagnosis level 2c<=
the last date of contact with the participant or their proxy then DEMDXL2CENS_81 = DEMDXL2c_72;

Else if DEMDXL2c_72 =1 with non-missing visit 7 date for dementia diagnosis level 2c and visit 7 date for dementia diagnosis level 2c> the last date of contact with the participant or their proxy then DEMDXL2CENS_81 = 0;

Else if DEMDXL2c_72 = 0 then DEMDXL2CENS_81 = 0;

Else do;

If (DEMDXL2c_62 = 1 with non-missing visit 6 date for dementia diagnosis level 2c and NULL<visit 6 date for dementia diagnosis level 2c<= the last date of contact with the participant or their proxy) then DEMDXL2CENS_81 = DEMDXL2c_62;

Else if DEMDXL2c_62 =1 with non-missing visit 6 date for dementia diagnosis level 2c and visit 6 date for dementia diagnosis level 2c>the last date of contact with the participant or their proxy then DEMDXL2CENS_81 = 0;

Else if DEMDXL2c_62 = 0 then DEMDXL2CENS_81=0;

Else do;

If (DEMDXL2_51 = 1 with non-missing visit 5 date for dementia diagnosis level 2 and NULL<visit 5 date for dementia diagnosis level 2<=the last date of contact with the participant or their proxy) then DEMDXL2CENS_81 = DEMDXL2_51;

Else if DEMDXL2_51 =1 with non-missing visit 5 date for dementia diagnosis level 2 and visit 5 date for dementia diagnosis level 2>the last date of contact with the participant or their proxy then DEMDXL2CENS_81 = 0;

Else if DEMDXL2_51 = 0 then DEMDXL2CENS_81=0;

Else DEMDXL2CENS_81 = NULL;

Source variable(s): DEMDXL2_51, visit 5 date for dementia diagnosis level 2, DEMDXL2c_62, visit 6 date for dementia diagnosis level 2c, DEMDXL2c_72, visit 7 date for dementia diagnosis level 2c, DEMDXL2c_82, DATE_DEMDXL2c_82_FollowUpDays, the last date of contact with the participant or their proxy

7.4 COXDATE_DEMDXL2_91_FollowUpDays (Days of follow up from visit 1 to Adjusted date of censored level 2 dementia diagnosis)

Description: Days of follow up from visit 1 to adjusted date of censored level 2 dementia diagnosis. The date is equivalent to the date for dementia diagnosis level 2c except that 180 days is subtracted from the date if dementia was ascertained from a hospitalization record or an informant interview that occurred after the date of death.

Type: Numeric

Algorithm: If DATEOFDEATH_FollowUpDays is non-missing and DATE_DEMDXL2b_92_FollowUpDays > (DATEOFDEATH_FollowUpDays-180) then COXDATE_DEMDXL2_91_FollowUpDays = DATEOFDEATH_FollowUpDays-180

Else If DEMDXL2CENS_91=1 and DATE_DEMDXL2c_92_FollowUpDays is non-missing and SOURCE_DEMDXL2c_92 in (“1SIS+HOSP”, “2SIS+HOSP”, “AD8+DOD”, “AD8+HOSP”, “TICS+HOSP”, “V5+HOSP”, “V6+HOSP”, “V7+HOSP”, “V7+RDS Live”, “V7+RDS+HOSP” ”, “V8+HOSP”, “V8+RDS Live”, “V8+RDS+HOSP”, “V8T+HOSP”, “V8T+RDS Live”, “V8T+RDS+HOSP”, “V9+HOSP”, “V9+RDS Live”, “V9+RDS+HOSP”):
COXDATE_DEMDXL2_91_FollowUpDays = DATE_DEMDXL2c_92_FollowUpDays – 180;

Else if DATE_DEMDXL2c_92_FollowUpDays is non-missing then COXDATE_DEMDXL2_91_FollowUpDays = DATE_DEMDXL2c_92_FollowUpDays;

Else if DEMDXL2CENS_91 is non-missing then COXDATE_DEMDXL2_91_FollowUpDays is the number of days between visit 1 and the last date of contact with the participant or their proxy

If the adjusted date of censored level 2 dementia diagnosis is non-missing and after the last date of contact with the participant or their proxy then COXDATE_DEMDXL2_91_FollowUpDays is the number of

days between visit 1 and the last date of contact with the participant or their proxy

Source variable(s): visit 1 date, DEMDXL2CENS_91, DATE_DEMDXL2c_92_FollowUpDays, SOURCE_DEMDXL2c_92, DATEOFDEATH_FollowUpDays, last date of contact with the participant or their proxy

7.5 DEMDXL3CENS_91 (Censored level 3 dementia diagnosis)

Description: Censored level 3 dementia diagnosis is equivalent to level 3 dementia diagnosis (DEMDXL3_91) except that PPTs are censored at either their date of death, the date they asked to be withdrawn from the study, or the last date of contact with the PPT or their proxy.

Format: 0=Censored, 1=Incident Dementia

Type: Numeric

Algorithm: For PPTs with DEMDXL2c_92=1 or (DEMDXL2c_92=0 and DEMDXL3_91=0):
DEMDXL3CENS_91=DEMDXL2c_92

Else for PPTs with non-missing DATE_DEMDXL3_91_FollowUpDays and visit 9 date for dementia diagnosis level 3 ≤ last date of contact with the participant or their proxy:
DEMDXL3CENS_91=DEMDXL3_91

Else:
DEMDXL3CENS_91=0

Source variable(s): DEMDXL2c_92, DEMDXL3_91, DATE_DEMDXL3_91_FollowUpDays, last date of contact with the participant or their proxy

7.6 COXDATE_DEMDXL3_91_FollowUpDays (Days of follow up from visit 1 to Adjusted date of censored level 3 dementia diagnosis)

Description: Days of follow up form visit 1 to adjusted date of censored level 3 dementia diagnosis. The date is equivalent to the date for dementia diagnosis level 3 except that 180 days is subtracted from the date if dementia was ascertained from a hospitalization record, death certificate, or informant interview that occurred after the date of death.

Type: Numeric

Algorithm: DATE_DEMDXL3CENS_91_FollowUpDays is defined as follows:

For PPTs with [DEMDXL2c_92=1 or (DEMDXL2c_92=0 AND DEMDXL3_91=0)] and non-missing DATE_DEMDXL2c_92_FollowUpDays:
DATE_DEMDXL3CENS_91_FollowUpDays = DATE_DEMDXL2c_92_FollowUpDays

Else for PPTs with non-missing DATE_DEMDXL3_91_FollowUpDays and visit 9 date for dementia diagnosis level 3 ≤ last date of contact with the participant or their proxy:
DATE_DEMDXL3CENS_91_FollowUpDays = DATE_DEMDXL3_91_FollowUpDays

Else:
DATE_DEMDXL3CENS_91_FollowUpDays is the number of days between visit 1 and the last date of contact with the participant or their proxy

COXDATE_DEMDXL3_91_FollowUpDays=DATE_DEMDXL3CENS_91_FollowUpDays

For participants with DEMDXL3CENS_91=1 and SOURCE_DEMDXL3_91 in (“1SIS+HOSP”, “2SIS+HOSP”, “AD8+DOD”, “AD8+HOSP”, “DTH”, “DTH+DOD”, “HOSP”, “HOSP+DOD”, “RDS Dead”, “RDS Live”, “RDS Live+DOD”, “RDS+DTH”, “RDS+DTH+DOD”, “RDS+HOSP”, “TICS+HOSP”, “V5+HOSP”, “V6+HOSP”, “V7+HOSP”, “V7+RDS Live”, “V7+RDS+HOSP”, “V8+HOSP”, “V8+RDS Live”, “V8+RDS+HOSP”, “V8T+HOSP”, “V8T+RDS Live”, “V8T+RDS+HOSP”, “V9+HOSP”, “V9+RDS Live”, “V9+RDS+HOSP”):

COXDATE_DEMDXL3_91_FollowUpDays=DATE_DEMDXL3CENS_91_FollowUpDays – 180;

If COXDATE_DEMDXL3_91_FollowUpDays => DATEOFDEATH_FollowUpDays then COXDATE_DEMDXL3_91_FollowUpDays = DATEOFDEATH_FollowUpDays-1;

Source variable(s): DEMDXL2c_92, DEMDXL3_91, DATE_DEMDXL2c_92_FollowUpDays, DATE_DEMDXL3_91_FollowUpDays, last date of contact with the participant or their proxy, SOURCE_DEMDXL3_91, DATE_DEMDXL3CENS_91_FollowUpDays

7.7 DEMDXPHONECENS_91 (Censored phone only dementia diagnosis)

Description: Censored phone only dementia diagnosis is equivalent to dementia diagnosis from phone assessments (DEMDXPHONE_91) except that PPTs are censored at the date of their last TICS, informant interview, AD8, or SIS.

Format: 0=Censored, 1=Incident Dementia

Type: Numeric

Algorithm: If (DEMDXPHONE_91= 1 with non-missing DATE_DEMDXPHONE_91_FollowUpDays and NULL< visit 9 date for dementia diagnosis from phone assessments <= last date of contact with the participant or their proxy) then DEMDXPHONECENS_91 = DEMDXPHONE_91;

Else if DEMDXPHONE_91 =1 with non-missing DATE_DEMDXPHONE_91_FollowUpDays and visit 8 date for dementia diagnosis from phone assessments > last date of contact with the participant or their proxy then DEMDXPHONECENS_91 = 0;

Else if DEMDXPHONE_91 = 0 then DEMDXPHONECENS_91 = 0;

Else DEMDXPHONECENS_91 = NULL

Source variable(s): DEMDXPHONE_91, DATE_DEMDXPHONE_91_FollowUpDays, last date of contact with the participant or their proxy

7.8 COXDATE_DEMDXPHONE_91_FUdays (Days of follow up from visit 1 to Adjusted date of censored phone only dementia diagnosis)

Description: Days of follow up from visit 1 to adjusted date of censored phone only dementia diagnosis. The date is equivalent to the date for dementia diagnosis from phone assessments except that 180 days is subtracted from the date if dementia was ascertained from an informant interview that occurred after the date of death.

Type: Numeric

Algorithm: For participants with DEMDXPHONECENS_91=1 and SOURCE_DEMDXPHONE_91 in (“1SIS+DOD”, “2SIS+DOD”, “AD8+DOD”, “TICS+DOD”, “CDR+DOD”):
COXDATE_DEMDXPHONE_91_FUdays = DATE_DEMDXPHONE_91_FollowUpDays – 180;

Else:
COXDATE_DEMDXPHONE_91_FUdays =
DATE_DEMDXPHONE_91_FollowUpDays

If DATEOFDEATH_FollowUpDays is present and
DATE_DEMDXPHONE_91_FollowUpDays >
(DATEOFDEATH_FollowUpDays-180) then
COXDATE_DEMDXPHONE_91_FUdays =
DATEOFDEATH_FollowUpDays-180

If the adjusted date of censored phone only dementia diagnosis is non-missing and after the last date of contact with the participant or their proxy then COXDATE_DEMDXPHONE_91_FUdays is the number of days between visit 1 and the last date of contact with the participant or their proxy

Source variable(s): visit 1 date, SOURCE_DEMDXPHONECENS_91, DATE_DEMDXPHONE_91_FollowUpDays, DATEOFDEATH_FollowUpDays, last date of contact with the participant or their proxy

7.9 DEMDXSURVCENS_91 (Censored surveillance only dementia diagnosis)

Description: Censored surveillance only dementia diagnosis is equivalent to dementia diagnosis from medical records and death certificates (DEMDXSURV_91) except that PPTs are censored at either their date of death, the date they asked to be withdrawn from the study, the date they were lost to follow-up, or the last date of contact with the PPT or their proxy.

Format: 0=Censored, 1=Incident Dementia

Type: Numeric

Algorithm: For PPTs with DEMDXSURV_91=(0, missing):
DEMDXSURVCENS_91=0

Else for PPTs with non-missing
DATE_DEMDXSURV_91_FollowUpDays and visit 9 date for dementia diagnosis from medical records and hospital certificates ≤ last date of contact with the participant or their proxy:
DEMDXSURVCENS_91=DEMDXSURV_91

Else DEMDXSURVCENS_91=0

Source variable(s): DEMDXSURV_91, DATE_DEMDXSURV_91_FollowUpDays, last date of contact with the participant or their proxy

7.10 COXDATE_DEMDXSURV_91_FUdays (Days of follow up from visit 1 to Adjusted date of censored surveillance only dementia diagnosis)

Description: Days of follow up from visit 1 to adjusted date of censored surveillance only dementia diagnosis. The date is equivalent to the date for dementia diagnosis from medical records and death certificates except that 180 days is subtracted from the date.

Type: Numeric

Algorithm: If DEMDXSURVCENS_91=0 then
COXDATE_DEMDXSURV_91_FUdays =
DATE_DEMDXSURV_91_FollowUpDays

Else:
COXDATE_DEMDXSURV_91_FUdays =
DATE_DEMDXSURV_91_FollowUpDays – 180;

If adjusted date of censored surveillance only dementia diagnosis is non-missing and after the last date of contact with the participant or their proxy then COXDATE_DEMDXSURV_91_FUdays is the number of days from visit 1 to the last date of contact with the participant or their proxy

Source variable(s): visit 1 date, DEMDXSURVCENS_91, DATE_DEMDXSURV_91, DEMDXSURV_91, ICT1, last date of contact with the participant or their proxy

APPENDIX A: LEVELED DEMENTIA INTERMEDIATE VARIABLES

Appendix A provides the descriptions and algorithms for intermediate variables used to derive leveled dementia variables. These include variables from the Six Item Screener (SIS) and Eight Item Dementia Screening Interview (ADS) from annual and semi-annual follow up as well as hospital discharge codes (Cohort Event Eligibility form, CELB) and death codes (Death Certificate form, DTHA) from community surveillance.

A1. DEATH AND HOSPITALIZATION CODES

A1.1 DEMENTEDCEL91 (Dementia codes in CEL)

Description: Indicator for the presence of ICD-9 or ICD-10 codes for dementia on the Cohort Event Eligibility form. Although a single participant may have multiple records with a dementia hospitalization code, DEMENTEDCEL91 is a one-record-per-SUBJECTID indicator for the presence of any dementia hospitalization code.

Type: Numeric

Algorithm:

DEMENTEDCEL91	Description
1	if any of the CEL10* variables contains an ICD code from the following list: 290, 294.0, 294.1, 294.2, 294.9, 331.8, 331.82, 331.89', 331.0, 331.1, 331.2, 331.7, 331.9, F04, F06.8, G94, G31.9, G31.83, G31.89, F01, F01.5, F01.50, F01.51, F02, F02.8, F02.80, F02.81, F03, F03.9, F03.90, F03.91, G30, G30.0, G30.1, G30.8, G30.9, G31.0, G31.01, G31.09, G31.1, G31.83, R41, R41.81, R41.84, R41.89, R41.9 AND Date of discharge is non-missing and occurs on or before 04DEC2020 *a-z, a1-z1, a2-z2, or a3-z3
NULL	Otherwise

Related variable(s): CELB10a-CELB10z, CELB10a1-CELB10z1, CELB10a2-CELB10z2, CELB10a3-CELB10z3, date of discharge

A1.2 DEMENTEDCEL91_DATE1-DEMENTEDCEL91_DATE# (Date of the occurrence of a CEL with dementia code)

Description: Date variables that correspond to the date of discharge among CEL Cohort Event Eligibility records by participant where the codes contain a dementia hospitalization code. Since participants may have multiple records with a dementia hospitalization code, DEMENTEDCEL91_DATE1 denotes the first instance, DEMENTEDCEL91_DATE2 denotes the second instance, etc. If no dementia hospitalization is found for a participant, then all DEMENTEDCEL91_DATE# variables are missing.

Type: Date

Algorithm:

DEMENTEDCEL91_DATE#	Description
CELB04	If DEMENTEDCEL91=1 then DEMENTEDCEL91_DATE# is the date of discharge for each of the instances in which a dementia hospitalization code was identified.
NULL	Otherwise

Related variable(s): DEMENTEDCEL91, date of discharge

A1.3 DEMENTEDDTH91 (Dementia codes in DTH)

Description: Indicator for the presence of ICD-9 or ICD-10 codes for dementia on the Death Certificate Form (1=Yes, 0=No). Although a single participant may have multiple records with a death code, DEMENTEDDTH91 is a one-record-per-SUBJECTID indicator for the presence of any dementia death code. DEMENTEDDTH91=1 denotes the first occurrence of any dementia death code, and DEMENTEDDTH91=0 denotes that no dementia death code was identified.

Type: Numeric

Algorithm:

DEMENTEDDTH91	Description
1	if any of DTHA19a-DTHA19j contains any one of the ICD codes from the following list: 290, 294.0, 294.1, 294.2, 294.9, 331.8, 331.82, 331.89', 331.0, 331.1, 331.2, 331.7, 331.9, F04, F06.8, G94, G31.9, G31.83, G31.89, F01, F01.5, F01.50, F01.51, F02, F02.8, F02.80, F02.81, F03, F03.9, F03.90, F03.91, G30, G30.0, G30.1, G30.8, G30.9, G31.0, G31.01, G31.09, G31.1, G31.83, R41, R41.81, R41.84, R41.89, R41.9 AND Date of death is non-missing and occurs on or before 30NOV2022
0	Otherwise

Related variable(s): DTHA19a through DTHA19j, date of death

A1.4 DEMENTEDDTH91_DATE (Date of death for PPT with a dementia death code)

Description: Date variable that corresponds to the death date for the participant when a dementia code is found on the death record. Although a single participant may have multiple records with a death code, DEMENTEDDTH91_DATE denotes the first occurrence of a dementia death code.

Type: Date

Algorithm:

DEMENTEDDTH91_DATE	Description
DTHA09	If DEMENTEDDTH91=1 then the corresponding date is the date of death
NULL	Otherwise

Related variable(s): DEMENTEDDTH91, date of death

A1.5 DEMENTEDCEL91_DATE_COND (DEMENTEDCEL91_DATE conditional on dementia information available at V5)

Description: Date variable that corresponds to the date of discharge among CEL Cohort Event Eligibility records by participant where the codes contain a dementia hospitalization code, conditional on dementia information available at V5 (DEMDXL2_51). This variable summarizes the DEMENTEDCEL91_DATE1 through DEMENTEDCEL91_DATE# variables above, based on the timing of available V5 level 2 dementia information. DEMENTEDCEL91_DATE_COND is the first instance of a hospitalization code (DEMENTEDCEL91_DATE1) if there is no V5 information OR all hospitalization codes occur after V5 OR all hospitalization codes occur before V5. If V5 information is available between hospitalization dates, then DEMENTEDCEL91_DATE_COND is the first date after the V5 date (or after 01SEP2013 if V5 date is missing).

Type: Date

Algorithm:

DEMENTEDCEL91_DATE_COND	Description
DEMENTEDCEL91_DATE1	If dementia codes are in CEL AND there is no dementia information available at level 2 at V5 OR all dementia hospitalization codes occur before V5 level 2 information OR all dementia hospitalization codes occur after V5 level 2 information
DEMENTEDCEL91_DATE2 – DEMENTEDCEL91_DATE#	If dementia codes are in CEL AND Dementia information at V5 level 2 occurs between dates of hospitalization codes then it's the first hospitalization date occurring after V5 level 2 date (or after 01SEP2013 if V5 date is missing).
NULL	Otherwise

Related Variable(s): DEMENTEDCEL91, visit 5 date for dementia diagnosis level 2, DEMDXL2_51, DEMENTEDCEL91_DATE1-DEMENTEDCEL91_DATE#

A2. ADS VARIABLES (MULTIPLE RECORDS PER PPT)

A2.1 ADSLEADRESP (Number of responses (Yes or No) to lead in questions)

Description: The number of responses to the lead in questions on the ADS form.
Note: ADS lead in questions refers to variables ADS3 ADS4 ADS5 ADS6 ADS7 ADS8 ADS9 ADS10.

Type: Numeric

Algorithm:

ADSLeadResp	Description
1-8	Count of "Y" or "N" responses to ADS lead in questions. ADSLeadResp=1 if only one question was answered, ADSLeadResp=2 if two questions were answered, etc.
0	If there are no responses (missing) to ADS lead in questions

Related variable(s): ads3 ads4 ads5 ads6 ads7 ads8 ads9 ads10

A2.2 ADSLEADY (Number of Yes responses to lead in questions)

Description: The number of "Yes" responses given to lead in questions on the ADS form.
Note: ADS lead in questions refers to variables ADS3 ADS4 ADS5 ADS6 ADS7 ADS8 ADS9 ADS10.

Type: Numeric

Algorithm:

ADSLeadY	Description
1-8	Count of "Y" responses to ADS lead in questions. ADSLeadY=1 if only one response was "Y", ADSLeadY=2 if two responses were "Y", etc.
0	If there are no "Y" responses to ADS lead in questions

Related variable(s): ads3 ads4 ads5 ads6 ads7 ads8 ads9 ads10

A2.3 ADSLEADN (Number of 'No' responses to lead in questions)

Description: The number of "No" responses given to lead in questions on the ADS form.
Note: ADS lead in questions refers to variables ADS3 ADS4 ADS5 ADS6 ADS7 ADS8 ADS9 ADS10.

Type: Numeric

Algorithm:

ADSLeadN	Description
1-8	Count of "N" responses to ADS lead in questions. ADSLeadN=1 if only one response was "N", ADSLeadN=2 if two responses were "N", etc.
0	If there are no "N" responses to ADS lead in questions

Related variable(s): ads3 ads4 ads5 ads6 ads7 ads8 ads9 ads10

A2.4 ADSSUBRESP (Number of responses (Yes or No) to sub questions)

Description: The number of responses to the sub questions on the ADS form.
Note: ADS sub questions refers to variables ADS3a ADS4a ADS5a ADS6a ADS7a ADS8a ADS9a ADS10a.

Type: Numeric

Algorithm:

ADSSubResp	Description
1-8	Count of "Y" or "N" responses to ADS sub questions. ADSSubResp=1 if only one sub question was answered, ADSSubResp=2 if two sub questions were answered, etc.
0	If there are no responses (missing) to ADS sub questions

Related variable(s): ads3a ads4a ads5a ads6a ads7a ads8a ads9a ads10a;

A2.5 AD8aScore (Number of 'Yes' responses to sub questions (AD8aScore), conditional on the expected number of responses)

Description: AD8aScore is the number of “Yes” responses to sub questions following “Yes” responses to lead in questions. The number of ‘Yes’ responses to lead in questions is equivalent to the number of expected responses to sub questions. An AD8aScore is only calculated if the participant responds (Yes or No) to at least 3 lead in questions AND 50% or more of the expected number of sub questions are answered OR if fewer than 50% of the expected number of sub questions are answered then 50% or more of responses to lead in questions should be ‘No’.

Type: Numeric

Algorithm:

AD8aScore	Description
1-8	Count of “Y” responses to ADS sub questions if there are three or more responses to lead in questions AND: 1) There is a sub question response for half or more of the "Y" responses to lead in questions OR 2) If there are sub question responses for less than half of the "Y" responses to lead in questions, but "N" responses make up half or more of the lead in questions
0	There are no “Y” responses to ADS sub questions if there are three or more responses to lead in questions AND: 1) There is a sub question response for half or more of the "Y" responses to lead in questions OR 2) If there are sub question responses for less than half of the "Y" responses to lead in questions, but "N" responses make up half or more of the lead in questions
NULL	Otherwise

Related variable(s): ads3a ads4a ads5a ads6a ads7a ads8a ads9a ads10a

A2.6 AD8Failure (AD8 failure (score >= 2))

Description: Indicator variable for AD8 failure, defined as an AD8aScore >= 2.

Type: Numeric

Algorithm:

AD8Failure	Description
1	If AD8aScore is 2 or greater then AD8 is failed

0	If AD8aScore is non-missing and less than 2 then AD8 is not failed
NULL	If AD8ascore is missing

Related variable(s): ad8ascore

A3. ADS VARIABLES (ONE RECORD PER PPT)

A3.1 AD8FAILURE (Any failed AD8 (score >=2) among those attempted)

Description: Since a single participant may have multiple AD8 evaluations, this AD8FAILURE variable differs from that in the above section. This variable is a one-record-per-participant indicator variable for any AD8 failure (i.e. one or more AD8 failures among those attempted). Failure is defined as an AD8aScore >= 2.

Type: Numeric

Algorithm:

AD8Failure	Description
1	If there are one or more AD8aScore(s) of 2 or greater
0	If there are no failed AD8s (all non-missing scores are less than 2)
NULL	All AD8aScores are missing

Related variable(s): AD8FAILURE1-AD8FAILURE#

A3.2 AD8FAILUREDATE (Date of first AD8 failed or last observed not failed)

Description: Date variable that corresponds to the earliest date the AD8 was failed or the date of the last AD8 that was not failed.

Type: Date

Algorithm:

AD8FailureDate	Description

ADS0a	If AD8Failure=1 then AD8FAILUREDATE is the earliest ADS date at which the first failure occurred
ADS0a	If AD8Failure=0 then AD8FAILUREDATE is the latest ADS date at which the last observed AD8 was not failed
.	If AD8Failure is missing

Related Variable(s): AD8Failure, ADS date

A4. SIS VARIABLES (MULTIPLE RECORDS PER PPT)

A4.1 SISAttempt (SIS sum of attempted (Correct=C or Incorrect=I) responses)

Description: Number of attempted responses to the Six Item Screener questions SIS3, SIS4, SIS5, SIS6, SIS7, and SIS8. Responses that are correct (C) or incorrect (I) are counted as attempted.

Type: Numeric

Algorithm:

SISAttempt	Description
1-6	Count of attempted responses “C” or “I” to SIS questions. SISAttempt=1 if only one question had a response, SISAttempt=2 if two questions have a response, etc.
0	If there are no attempted responses to SIS questions

Related variable(s): sis3, sis4, sis5, sis6, sis7, sis8

A4.2 SISScore (SIS raw score (sum of correct responses))

Description: SIS raw score indicating the number of correct responses (C) to the Six Item Screener questions SIS3, SIS4, SIS5, SIS6, SIS7, and SIS8. If none of the SIS questions is attempted, then the SIS raw score is missing.

Type: Numeric

Algorithm:

SISScore	Description
1-6	Count of “C” responses to SIS questions. SISScore=1 if only one response was correct, SISScore=2 if two responses were correct, etc.
0	If there are no “C” responses to SIS questions
NULL	If there are no attempted responses to SIS questions

Related variable(s): sis3, sis4, sis5, sis6, sis7, sis8, sisattempt

A4.3 SISProratedScore (SIS prorated score (PPTs attempting 4+ items)=(# of correct SIS items * 6)/(# of attempted items))

Description: Prorated SIS score for PPTs who attempted 4 or more SIS items is given by the number of correct SIS items multiplied by 6 and divided by the total number of attempted SIS items.

Type: Numeric

Algorithm:

SISProratedScore	Description
0-6	If a PPT attempts four or more SIS items then the prorated score is the number of correct items multiplied by 6 and divided by the total number of attempted items
NULL	If there are fewer than four attempted SIS items

Related variable(s): SISScore, SISAttempt

A4.4 SISFailure (SIS failure (prorated SIS score <= 3))

Description: Indicator variable for the failure of an SIS. SIS failure is defined as a prorated SIS score of three or less.

Type: Numeric

Algorithm:

SISFailure	Description
1	If the SIS prorated score is non-missing and three or less, then the SIS was failed
0	If the SIS prorated score is greater than three, then the SIS was not failed
NULL	If the SIS prorated score is missing

Related variable(s): SISProratedScore

A5. SIS VARIABLES (ONE RECORD PER PPT)

A5.1 SISFAILURECAT (SIS FAILURE categories denoting number of failures)

Description: Since participants may have multiple SIS evaluations, SISFAILURECAT is a one-record-per-participant categorical variable that summarizes the number of SIS failures from the section above 'SIS Variables (multiple records per PPT)'. Categories denote the number of SIS Failures in order, where SISFailureCat=2 if there are at least two SIS failures per PPT, SISFailureCat=1 if there is only one SIS failure per PPT, SISFailureCat=0 if at least two SISs were not failed per PPT, and SISFailureCat=3 if any single SIS was not failed per PPT. If all SIS prorated scores are missing for a PPT, then SISFailureCat is also missing.

Type: Numeric

Algorithm:

SISFailureCat	Description
2	2 or more SIS Failures
1	Any single SIS Failure
0	At least two SIS not failed
3	Any single SIS not failed
NULL	All SISFailure missing

Note: SISFAILURE1 indicates the first SIS evaluation for a participant, SISFAILURE2 indicates the second SIS evaluation, etc. These variables are the transposed SISFAILURE variable from the section 'SIS Variables (multiple records per PPT)'.

Related Variables(s): SISFAILURE1-SISFAILURE#

A5.2 SISFAILUREDATE (Date of first SIS failure or last observed not failed)

Description: Date variable that corresponds to the earliest date of SIS failure or the date of the last observed SIS that was not failed.

Type: Date

Algorithm:

SISFailureDate	Description

SIS0a	If SISFailureCat=2, then it's the earliest SIS date at which the second failure occurred
SIS0a	If SISFailureCat=1, then it's the earliest SIS date at which the first failure occurred
SIS0a	If SISFailureCat=0, then it's the latest SIS date between the last two not failed
SIS0a	If SISFailureCat=3, then it's SIS date corresponding to the not failed SIS
NULL	If SISFailureCat =NULL

Related Variable(s): SISFailureCat, SIS date