**26 March 2018**

Clinical Data Repository Vitals

for the

MHS Data Repository (MDR)

(Version 1.00.06)

Current Specification

Revision History

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| --- | --- | --- | --- | --- |
| Version | Date | Originator | Para/Tbl/Fig | Description of Change |
| 1.00.00 | 11/22/2011 | K. Hofmann |  | * Original revision
 |
| 1.00.01 | 4/23/2013 | K. Hofmann | Section V., Fields in the MDR Basic VITALS Table | * Add UPID
* Set limits on numeric variables including HEIGHT\_INCHES, OXYGEN\_SAT, TEMPERATURE\_F, WEIGHT\_LBS, SYSTOLIC\_\*, DIASTOLIC\_\*, and RATE\_\*
 |
| 1.00.02 | 11/26/2013 | K. Hofmann | Section V., Fields in the MDR Basic VITALS Table | * Add MDR Appointment File merge to get MEPRS Code.
 |
| 1.00.03 | 10/11/2016 | K. Hofmann | Section V., Fields in the MDR Basic VITALS Table | * Add Most Recent BMI Record Flag.
 |
| 1.00.04 | 10/2/2017 | W. Funk | Table 2 | * Inserted new fields related to NDAA 2017 and T2017
 |
| 1.00.05 | 10/4/2017 | W. Funk | Appendix 2 | * Corrected a typo for ACV Group
 |
| 1.00.06 | 3/26/2018 | K. Hofmann | Table 1Table 2Appendix 2 | * Clarified that LVM, DMIS ID, and Omni-CAD merges are based on appointment date
* Removed erroneous decimal places from formats
* Added references to VM6 specification for LVM merge
* Added default values for records that do not match to the LVM
* Changed formats for Eligibility Group, Enrollment Group, Treatment MSMA, and Enrollment MSMA
* Added Assigned HCDP Code to LVM merge
* Pointed ACV Group derivation to VM6 specification, deleted Appendix 2, and moved ACV Group to the LVM merge section
* Added Catchment Area, PRISM Area, and MTF Service Area to Omni-CAD Merge
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 **VITALS FOR THE MDR**

1. SOURCE

Clinical Data Repository (CDR)

1. TRANSMISSION (Format and Frequency)

Vitals transmission occurs weekly from the CDR to the EI/DS Feed Node, where they are batched and submitted weekly for MDR processing.

1. ORGANIZATION AND BATCHING

Vitals are organized into fiscal year files.

Vitals are processed weekly. Raw data batches are created, processed, and appended/updated to the master file. If Vitals are received from a fiscal year not being processed that month, they will be held to batch with all others received prior to that year’s next update batch.

Frequency of updates, based on appointment date:

Current FY: Every week

* Prior FY: weekly for one month (October), monthly for the next two months (November and December) then semiannually (April, October)
* All years prior to prior FY: Annually (October)
1. RECEIVING FILTERS

In the feed, there are cases where a single Vitals event will appear associated with many appointments (several thousand in some cases). In these cases, the Vitals event is kept only once, and the appointment data (assumed to be erroneous) is deleted. ENTRY\_DATE is used in place of APPOINTMENT\_DATE.

Only Vitals with an appointment date in FY09 or later are kept.

Some OBSERVATION\_NCIDs are not kept from the feed. These include, but are not limited to: null, 2059, 2060, 2183, 33584, 69062, 69069, 69071, 84142, 108397, 114020, 114021, 114027, 154655, 176134, 182895, 959596, 959599, 1006570, 1016299, 1450061, 1452024, 14502497, 14505094, 14510348, 14510349, 14510350, 14510351, 14597875, 14597876, 14602905.

1. FIELD TRANSFORMATIONS AND DELETIONS FOR MDR CORE DATABASE
2. The feed contains data on an observation level (i.e. one observation per record). Certain “header” information is the same on all records for an event. The variables CDR\_APPT\_ID, CDR\_PATIENT\_ID, ENTRY\_DT, ENTRY\_TIME, APPTDT, FY, and FM are derived from APPTID, UNIT\_NUMBER, ENTRY\_DATE, and APPOINTMENT\_DATE on the initial observation for each event. Header information from all other observations are checked against this initial observation.
3. Each record in the feed has an OBSERVATION\_NCID which defines what type of observation (e.g. systolic blood pressure, heart rate, temperature) this record represents. The value of the observation (e.g. 120 mm Hg, 80 beats/min, 99 °F) can reside in one of the following variables: VALUE\_NCID, VALUE\_NUMBER, VALUE\_STRING. Observations that have VALUE\_NUMBER, also have a UNITS\_NCID that defines which units the VALUE\_NUMBER is in. The observations for an event are parsed in the following manner:

**Variable to OBSERVATION\_NCID mapping**

| Variable(s) | OBSERVATION\_NCID | Value Variable | Notes |
| --- | --- | --- | --- |
| TEMP\_SITE\_ID | 1134 | VALUE\_NCID | VALUE\_NCID must be 10357 (ear), 12052 (axillary), 12152 (oral), or 67663 (rectal) |
| (POSITION\_ID) | 1439 | VALUE\_NCID | See Appendix 1 |
| DIASTOLIC\_SITDIASTOLIC\_STANDDIASTOLIC\_SUPINEDIASTOLIC\_BLANK | 1976 | VALUE\_NUMBER | UNITS\_NCID must be 1788 (mm Hg)See Appendix 1 |
| SYSTOLIC\_SITSYSTOLIC\_STANDSYSTOLIC\_SUPINESYSTOLIC\_BLANK | 1985 | VALUE\_NUMBER | UNITS\_NCID must be 1788 (mm Hg)See Appendix 1 |
| RATE\_SITRATE\_STANDRATE\_SUPINERATE\_BLANK | 2051 | VALUE\_NUMBER | UNITS\_NCID must be 1762 (/min)See Appendix 1 |
| RHYTHM\_ID\_SITRHYTHM\_ID\_STANDRHYTHM\_ID\_SUPINERHYTHM\_ID\_BLANK | 2052 | VALUE\_NCID | See Appendix 1 |
| RESPIRATORY\_RATE | 2124 | VALUE\_NUMBER | UNITS\_NCID must be 1762 (/min) |
| TEMPERATURE\_F | 2154 | VALUE\_NUMBER | UNITS\_NCID must be 1639 (°C) or 1640 (°F) |
| WEIGHT\_LBS | 2178 | VALUE\_NUMBER | UNITS\_NCID must be 1630 (g), 1631 (kg), 1634 (oz), or 1636 (lbs) |
| PEAK\_FLOW | 30742 | VALUE\_NUMBER | UNITS\_NCID must be 1767 (L/min) |
| HEIGHT\_INCHES | 110675 | VALUE\_NUMBER | UNITS\_NCID must be 1606 (in), 1608 (yd), 1617 (cm) |
| ALCOHOL\_CUT\_DOWN | 959580 | VALUE\_STRING | VALUE\_STRING must be Yes or No |
| ALCOHOL\_ANNOY | 959581 | VALUE\_STRING | VALUE\_STRING must be Yes or No |
| ALCOHOL\_GUILT | 959582 | VALUE\_STRING | VALUE\_STRING must be Yes or No |
| ALCOHOL\_EYE\_OPENER | 959583 | VALUE\_STRING | VALUE\_STRING must be Yes or No |
| TOBACCO\_AMOUNT | 959591 | VALUE\_STRING |  |
| TOBACCO\_QUIT | 959592 | VALUE\_STRING | VALUE\_STRING must be Yes or No |
| PAIN | 959595 | VALUE\_STRING | Value must resolve to an integer between 0 and 10 |
| TOBACCO\_TYPE | 959597 | VALUE\_STRING |  |
| ALCOHOL\_USE | 959598 | VALUE\_STRING | VALUE\_STRING must be Yes or No |
| OXYGEN\_SAT | 1481540 | VALUE\_NUMBER | UNITS\_NCID must be 11090 (% SAT) |
| TOBACCO | 1604139 | VALUE\_STRING | VALUE\_STRING must be Yes or No |

1. Some variables can appear multiple times for one event, depending on the position of the body. For example, blood pressure can be taken while the patient is standing or sitting. The derivation of these variables is explained in Appendix 1.
2. If a variable shows up more than once for an event with unique values (barring those described in Appendix 1), or if any of the Notes from the above table are violated, an error flag will go off in the processor. The processor will keep the record, but the record will be output for further analysis.
3. Any variable that is defined by a VALUE\_NCID, has its values translated into an alpha-code representing the meaning of the VALUE\_NCID. For example if a heart rhythm has a value of 2078 (Irregular), it is converted to a value of “I”. All the mappings are described in the table below.
4. During the extraction of the raw records, de-duplication of records, or anytime a Vitals key collision occurs between incoming data and existing master data, the processor de-duplicates data by selecting the largest value of the Feed Date (FEEDDATE) for any given Vitals key (CDR\_VITALS\_ID).

Deleted events are treated in a similar manner as above. Potential deleted events are linked to the Vitals data by the key data field, CDR\_VITALS\_ID. If the key data fields match and the Vitals Feed Date from a deleted event is greater than its counterpart from the Vitals master data set, the Vitals event is removed from the data set.

1. After new feeds have been merged with the existing Vitals table, the entire table is merged to both the Appointment and Patient tables to derive variables from those tables. The CHCS Host and Appointment IEN from the Appointment table is then used to merge to the MDR Appointment table to derive the MEPRS Code. The EDI\_PN from the Patient table is then used for the LVM merge to derive variables from DEERS. These variables are described in the table below.

**Table 1: Merges to the Vitals File**

| **Merge** | **Date Matching** | **Additional Matching** |
| --- | --- | --- |
| Longitudinal VM File  | Appointment date, with begin and end dates for each changeable demographic segment. | EDI\_PN if available.  |
| DMISID  | FY of the appointment date, FY of MDR DMISID SAS format file. | Application based on treatment DMISID, DEERS enrollment DMISID |
| Omni-CAD | FY/FM of appointment date, FY/FM of MDR Omni CAD format file | Zip code & sponsor service |
| MDR Appointment File |  | CHCS Host and Appointment IEN |
| CDR Patient Table |  | CDR\_PATIENT\_ID |
| CDR Appointment Table |  | CDR Appointment ID |

The table below reflects the fields as they exist in the Vitals following processing. Other fields may be created to facilitate processing, but should not be included in the public use MDR file when it is posted. The public use MDR file is broken out by fiscal year based on encounter date and each is saved as a SAS dataset in the MDR.

**Table 2: Fields in the MDR Basic VITALS**

| **Data Element Name** | **Format** | **SAS Variable Name in MDR** | **Transformation Rule** |
| --- | --- | --- | --- |
| CDR Appointment ID | $20 | CDR\_APPT\_ID | No transformation. If there are multiple appointments for an event, set to blank. |
| CDR Patient ID | $20 | CDR\_PATIENT\_ID | No transformation. |
| CDR Vitals ID | $20 | CDR\_VITALS\_ID | No transformation. |
| Entry Date | 8 | ENTRY\_DT | Convert date part to SAS date. |
| Entry Time | 8 | ENTRY\_TIME | Convert time part to SAS time. |
| Feed Date | $8 | FEEDDT | Date of the feed in which this entry most recently came. YYYMMDD format. |
| Peak Flow | 8 | PEAK\_FLOW | No transformation. Values will be in L/min. |
| Respiratory Rate | 8 | RESPIRATORY\_RATE | No transformation. Values will be in /min. |
| **Fields Derived from the CDR Patient Table** |
| EDIPN | $10  | EDI\_PN | Derived from the Patient table merge based on CDR\_PATIENT\_ID |
| Universal Patient ID | $14 | UPID | Derived from the Patient table merge based on CDR\_PATIENT\_ID |
| Sponsor SSN | $9 | SPONSSN | Derived from the Patient table merge based on CDR\_PATIENT\_ID |
| Patient SSN | $9 | PATSSN | Derived from the Patient table merge based on CDR\_PATIENT\_ID |
| Patient Category | $3 | PATCAT | Derived from the Patient table merge based on CDR\_PATIENT\_ID |
| Patient Date of Birth | 8 | PATDOB | Derived from the Patient table merge based on CDR\_PATIENT\_ID |
| **Derived from MDR Appointment Table Merge** |
| MEPRS 4 Code | $4 | MEPRSCD | Derived from merge to the MDR Appointment Table based on HOSTDMIS and APPTIDNO. |
| **Derived from LVM Merge** |
| DEERS Alternate Care Value | $1 | ACV | Fill with ACV from LVM based on EDIPN, if the appointment date is between the begin and end date associated with the ACV, else if ACV is blank after LVM merge and bencat is ACT or GRD then set ACV to M, otherwise set to blank. See VM6 Specification, Exhibits G-18 and 19 for segment and field positions. Blank fill after 1/1/2018 |
| DEERS Beneficiary Category | $3 | BENCAT | Fill with DEERS beneficiary category from LVM based on EDIPN, if the appointment date is between the begin and end date associated with the DEERS beneficiary category. If no match for the person, set to “UNK”. See VM6 Specification, Exhibits G-18 and 19 for segment and field positions. |
| DEERS Common Beneficiary Category | $1 | COMBEN | Derived from Beneficiary Category during LVM merge. See VM6 Specification, section A.1.12 for derivation. If no match for the person, set to “3”. |
| DEERS Enrollment DMISID | $4 | DENRSITE | Fill with enrollment DMISID from LVM based on EDIPN, if the appointment date is between the begin and end date associated with the enrollment site. See VM6 Specification, Exhibits G-18 and 19 for segment and field positions. |
| DEERS Gender | $1 | GENDER | Fill with gender from LVM based on EDIPN. If no match for the person in LVM merge, then fill with gender from Patient Table Merge. |
| DEERS Enrollment HCDP | $3 | HCDP | Fill with DEERS HCDP code from LVM based on EDIPN, if the appointment date is between the begin and end date associated with the DEERS HCDP code. See VM6 Specification, Exhibits G-18 and 19 for segment and field positions. |
| DEERS Sponsor Service | $1 | DSPONSVC | Fill with DEERS sponsor service from LVM based on EDIPN, if the appointment date is between the begin and end date associated with the DEERS sponsor service. See VM6 Specification, Exhibits G-18 and 19 for segment and field positions. |
| DEERS Sponsor Service Aggregate | $1 | DSVCAGG | Fill with DEERS sponsor service (aggregate) from LVM based on EDIPN, if the appointment date is between the begin and end date associated with the DEERS sponsor service (aggregate). See VM6 Specification, Exhibits G-18 and 19 for segment and field positions. |
| DEERS ZIP Code | $5  | DEERSZIP | Fill with DEERS ZIP code from LVM based on EDIPN, if the appointment date is between the begin and end date associated with the DEERS ZIP code. See VM6 Specification, Exhibits G-18 and 19 for segment and field positions. |
| DEERS Relationship | $1 | RELATIONSHIP | Fill with DEERS Relationship from the LVM based on EDIPN and SPONSSN. If Relationship not found in LVM merge, then derive from FMP from Patient Table Merge. |
| Eligibility Group | $1 | ELG\_GRP | Fill with Eligibility Group from LVM if the appointment date is between the begin and end dates of the associated segment. If no match for the person, set to “Z”. See VM6 Beneficiary Specification, Exhibit G19. |
| Enrollment Group | $1 | ENR\_GRP | Fill with Enrollment Group from LVM if the appointment date is between the begin and end dates of the associated segment. If no match for the person, set to “Z”. See VM6 Beneficiary Specification, Exhibit G19. |
| PCM Type | $1 | PCM\_TYPE | Fill with PCM Type from LVM if the appointment date is between the begin and end dates of the associated segment. If no match for the person, set to “Z”. See VM6 Beneficiary Specification, Exhibit G19. |
| Assigned HCDP Code | $3 | HCDP\_ASSGN | Fill with Assigned HCDP Code from LVM if the appointment date is between the begin and end dates of the associated segment. See VM6 Beneficiary Specification, Exhibit G19. |
| ACV Group | $2 | ACVGROUP | Derived during LVM merge based on Enrollment Group, PCM Type, Eligibility Group, and Common Beneficiary Category or ACV and Common Beneficiary Category depending on whether appointment date is before or after 1/1/18. If no match for the person, set to “O”. See VM6 Beneficiary Specification, Section G.3 for details.  |
| **Derived from CDR Appointment Table Merge** |
| Appointment ID Number | $10 | APPTIDNO | Derived from the Appt table merge based on CDR\_APPOINTMENT\_ID |
| CHCS HOST | $4 | HOSTDMIS | Derived from the Appt table merge based on CDR\_APPOINTMENT\_ID |
| Treatment DMISID | $4 | DMISID | Derived from the Appt table merge based on CDR\_APPOINTMENT\_ID |
| **Fields from OMNI CAD Merge** |
| Beneficiary T3 Region | $2 | BEN\_T3\_REG | T3\_REG, based on matching FY, FM and DEERSZIP |
| Beneficiary T2017 Region | $2 | BEN\_T17\_REG | T17\_REG, based on matching FY/ FM and DEERSZIP |
| Catchment Area ID | $4 | CATCH | Based on matching FY, FM and DEERSZIP; if DSPONSVC = A then set equal to AWORLD, if DSPONSVC = F then set equal to FWORLD; if DSPONSVC in (M, N) then set equal to NWORLD, otherwise set equal to OWORLD. If zip code not found in MDR Omni-CAD, set equal to ‘0999’  |
| PRISM Area ID | $4 | PRISM | Based on matching FY, FM and DEERSZIP; if DSPONSVC = A then set equal to APRISM, if DSPONSVC = F then set equal to FPRISM; if DSPONSVC in (M, N) then set equal to NPRISM, otherwise set equal to OPRISM. If zip code not found in MDR Omni-CAD, set equal to ‘0999’ |
| MTF Service Area ID | $4 | MTFSVCAREA | Based on matching FY, FM and DEERSZIP; if DSPONSVC = A then set equal to ABPA, if DSPONSVC = F then set equal to FBPA; if DSPONSVC in (M, N) then set equal to NBPA, otherwise set equal to OPRISM. If zip code not found in MDR Omni-CAD, set equal to ‘0999’ |
| **Fields from DMIS ID Table Merge** |
| Treatment DMIS ID Parent | $4 | MTF\_PARENT | Parent DMISID, based on matching FY and Treatment DMIS ID |
| Treatment DMIS ID T3 Region | $2 | MTF\_T3\_REG | T3\_REGION, based on matching FY and Treatment DMIS ID |
| Treatment DMIS ID T2017 Region | $2 | MTF\_T17\_REG | T17\_REGION, based on matching FY and Treatment DMIS ID |
| Treatment DMIS ID MSMA | $3 | MTF\_MSMA | MSMA, based on matching FY and Treatment DMIS ID |
| Treatment DMIS ID Military Service | $1 | MTF\_SVC | UBU\_SVC, based on matching FY and Treatment DMIS ID |
| Enrollment Parent | $4 | ENR\_PARENT | Parent DMISID, based on matching FY and Enrollment DMIS ID |
| Enrollment T3 Region | $2 | ENR\_T3\_REG | T3\_REGION, based on matching FY and Enrollment DMIS ID |
| Enrollment T2017 Region | $2 | ENR\_T17\_REG | T17\_REGION, based on matching FY and Enrollment DMIS ID |
| Enrollment MSMA | $3 | ENR\_MSMA | MSMA, based on matching FY and Enrollment DMIS ID |
| Enrollment Military Service | $1 | ENR\_SVC | UBU\_SVC, based on matching FY and Enrollment DMIS ID |
| **Internally Derived Fields** |
| Fiscal Year | $4 | FY | Fiscal year equivalent of calendar year of APPTDT |
| Fiscal Month | $2 | FM | Fiscal month equivalent of calendar month of APPTDT |
| Patient Age | 3 | PATAGE | Derived using aprod/util macro by subtracting PATDOB from APPTDT. |
| Age Group Code | $1 | AGEGRP | Derived using aprod/util macro. A = 0-17, B = 18-24, etc. |
| Alcohol Annoy | $1 | ALCOHOL\_ANNOY | If VALUE\_STRING = "No", then "N". Else if VALUE\_STRING = "Yes" then "Y". |
| Alcohol Cut Down | $1 | ALCOHOL\_CUT\_DOWN | If VALUE\_STRING = "No", then "N". Else if VALUE\_STRING = "Yes" then "Y". |
| Alcohol Eye Opener | $1 | ALCOHOL\_EYE\_OPENER | If VALUE\_STRING = "No", then "N". Else if VALUE\_STRING = "Yes" then "Y". |
| Alcohol Guilt | $1 | ALCOHOL\_GUILT | If VALUE\_STRING = "No", then "N". Else if VALUE\_STRING = "Yes" then "Y". |
| Alcohol Use | $1 | ALCOHOL\_USE | If VALUE\_STRING = "No", then "N". Else if VALUE\_STRING = "Yes" then "Y". |
| Height (in inches) | 8 | HEIGHT\_INCHES | If UNITS\_NCID = 1606, then HEIGHT\_INCHES = VALUE\_NUMBER. If UNITS\_NCID = 1608, then HEIGHT\_INCHES = VALUE\_NUMBER\*0.027778. If UNITS\_NCID = 1617, then HEIGHT\_INCHES = VALUE\_NUMBER\*0.39370. Else HEIGHT\_INCHES = If HEIGHT\_INCHES ≥ 10,000 then set to 9,999. Values will be in inches. |
| Oxygen Saturation | 8 | OXYGEN\_SAT | If OXYGEN\_SAT ≥ 1,000 then set to 999. Values will be in % saturation. |
| Pain | 3 | PAIN | When VALUE\_STRING is of the form x/y, then PAIN = (x/y)\*10. If x > y, then PAIN = x.  |
| Temperature (in Fahrenheit) | 8 | TEMPERATURE\_F | If UNITS\_NCID = 1639, then TEMPERATURE\_F = VALUE\_NUMBER\*1.8 + 32. If UNITS\_NCID = 1640, then TEMPERATURE\_F = VALUE\_NUMBER. If TEMPERATURE\_F ≥ 1,000 then set to 999. Values will be in degrees Fahrenheit. |
| Temperature Site ID | $1 | TEMP\_SITE\_ID | If VALUE\_NCID = 10357, then TEMP\_SITE\_ID = E. If VALUE\_NCID = 12052, then TEMP\_SITE\_ID = A. If VALUE\_NCID = 12152, then TEMP\_SITE\_ID = O. If VALUE\_NCID = 67663, then TEMP\_SITE\_ID = R. Else TEMP\_SITE\_ID = . |
| Tobacco Amount Used | $100 | TOBACCO\_AMOUNT | Only keep first 100 characters. |
| Tobacco Quit Desire | $1 | TOBACCO\_QUIT | If VALUE\_STRING = "No", then "N". Else if VALUE\_STRING = "Yes" then "Y". |
| Tobacco Type Used | $50 | TOBACCO\_TYPE | Only keep first 50 characters. |
| Tobacco User | $1 | TOBACCO | If VALUE\_STRING = "No", then "N". Else if VALUE\_STRING = "Yes" then "Y". |
| Weight (in pounds) | 8 | WEIGHT\_LBS | If UNITS\_NCID = 1630, then WEIGHT\_LBS = VALUE\_NUMBER\*0.0022046. If UNITS\_NCID = 1631, then WEIGHT\_LBS = VALUE\_NUMBER\*2.2046. If UNITS\_NCID = 1634, then WEIGHT\_LBS = VALUE\_NUMBER\*0.0625. If UNITS\_NCID = 1636, then WEIGHT\_LBS - VALUE\_NUMBER. Else WEIGHT\_LBS = If WEIGHT\_LBS ≥ 10,000 then set to 9,999. Values will be in pounds. |
| Sitting Systolic Blood Pressure | 8 | SYSTOLIC\_SIT | If SYSTOLIC\_SIT ≥ 1,000 then set to 999. Values will be in mm Hg. |
| Supine Systolic Blood Pressure | 8 | SYSTOLIC\_SUPINE | If SYSTOLIC\_SUPINE ≥ 1,000 then set to 999. Values will be in mm Hg. |
| Standing Systolic Blood Pressure | 8 | SYSTOLIC\_STAND | If SYSTOLIC\_STAND ≥ 1,000 then set to 999. Values will be in mm Hg. |
| Systolic Blood Pressure, no position reported | 8 | SYSTOLIC\_BLANK | If SYSTOLIC\_BLANK ≥ 1,000 then set to 999. Values will be in mm Hg. |
| Sitting Diastolic Blood Pressure | 8 | DIASTOLIC\_SIT | If DIASTOLIC\_SIT ≥ 1,000 then set to 999. Values will be in mm Hg. |
| Supine Diastolic Blood Pressure | 8 | DIASTOLIC\_SUPINE | If DIASTOLIC\_SUPINE ≥ 1,000 then set to 999. Values will be in mm Hg. |
| Standing Diastolic Blood Pressure | 8 | DIASTOLIC\_STAND | If DIASTOLIC\_STAND ≥ 1,000 then set to 999. Values will be in mm Hg. |
| Diastolic Blood Pressure, no position reported | 8 | DIASTOLIC\_BLANK | If DIASTOLIC\_BLANK ≥ 1,000 then set to 999. Values will be in mm Hg. |
| Sitting Heart Rate | 8 | RATE\_SIT | If RATE\_SIT ≥ 10,000 then set to 9,999. Values will be in /min. |
| Supine Heart Rate | 8 | RATE\_SUPINE | If RATE\_SUPINE ≥ 10,000 then set to 9,999. Values will be in /min. |
| Standing Heart Rate | 8 | RATE\_STAND | If RATE\_STAND ≥ 10,000 then set to 9,999. Values will be in /min. |
| Heart Rate, no position reported | 8 | RATE\_BLANK | If RATE\_BLANK ≥ 10,000 then set to 9,999. Values will be in /min. |
| Sitting Heart Rhythm | $1 | RHYTHM\_ID\_SIT | If VALUE\_NCID = 2078, then RHYTHM\_ID = I. If VALUE\_NCID = 2079, then RHYTHM\_ID = Y. If VALUE\_NCID = 2120, then RHYTHM\_ID = R. Else RHYTHM\_ID = . |
| Supine Heart Rhythm | $1 | RHYTHM\_ID\_SUPINE | If VALUE\_NCID = 2078, then RHYTHM\_ID = I. If VALUE\_NCID = 2079, then RHYTHM\_ID = Y. If VALUE\_NCID = 2120, then RHYTHM\_ID = R. Else RHYTHM\_ID = . |
| Standing Heart Rhythm | $1 | RHYTHM\_ID\_STAND | If VALUE\_NCID = 2078, then RHYTHM\_ID = I. If VALUE\_NCID = 2079, then RHYTHM\_ID = Y. If VALUE\_NCID = 2120, then RHYTHM\_ID = R. Else RHYTHM\_ID = . |
| Heart Rhythm, no position reported | $1 | RHYTHM\_ID\_BLANK | If VALUE\_NCID = 2078, then RHYTHM\_ID = I. If VALUE\_NCID = 2079, then RHYTHM\_ID = Y. If VALUE\_NCID = 2120, then RHYTHM\_ID = R. Else RHYTHM\_ID = . |
| Most Recent BMI Record Flag | $1 | RECENT\_BMI | Sort data by UPID and APPTDT (within each FY). Find the latest record where both HEIGHT\_INCHES and WEIGHT\_LBS are populated, and where HEIGHT\_INCHES < 100 in. and WEIGHT\_LBS < 1,000 lbs. This record will have RECENT\_BMI = "Y". All other records in that fiscal year have RECENT\_BMI = "N".  |
| Appointment Date | 8 | APPTDT | Convert date part to SAS date. Drop time part. If there are multiple appointments for an event, set APPTDT = ENTRY\_DT. |

1. REFRESH FREQUENCY

The current fiscal year, and prior fiscal year when it is less than a month old, is refreshed weekly. After a prior year is more than a month old, it is refreshed monthly. After it is six months old, then it is refreshed semi-annually (April and October). Annual refreshes occur after that (October).

1. DATA MARTS

None at this time.

**APPENDIX 1: Deriving Positional Variables**

Four of the OBSERVATION\_NCIDs (1976, 1985, 2051, 2052) that are kept represent observations that can be taken in multiple body positions. The four body positions are represented by VALUE\_NCIDS associated with the OBSERVATION\_NCID for POSITION\_ID (1439). The possible positions are supine (1489), standing (1490), sitting (2137), or no position reported.

There are some observations that stand alone, and some observations that describe previous observations. For example, an observation for Systolic Blood Pressure can stand alone, and can be followed by observations describing which position the body was in at the time of the measurement, with what device the measurement was taken, etc. The OBSERVATION\_NCIDs that are stand alone, or main observations are: 1976, 1985, 2051, 2154, 2178, 108397, 110675, 154655, 959580, 959581, 959582, 959583, 959591, 959592, 959595, 959597, 959598, 1481540, and 1604139. The descriptive OBSERVATION\_NCIDs are 1439 and 2052. Most of the main observations do not have descriptive observations following them, except for the positional variables mentioned above (1976 or Diastolic Blood Pressure, 1985 or Systolic Blood Pressure, and 2051 or Heart Rate). The blood pressures are only described by a body position (1439). The heart rate can be described by a body position (1439) and a heart rhythm id (2052).

To find in which body position each of these positional variables was taken, we look at the observations that follow the main observation, until another main observation is seen. Anything between main observations describes the initial main observation. For example, if we see 1976 (Diastolic Blood Pressure), then 1439 (Position), then 1985 (Systolic Blood Pressure), then the Position between the two main observations (Diastolic and Systolic), describes the initial main observation (the Diastolic Blood Pressure). If the VALUE\_NCID in the observation with OBSERVATION\_NCID 1439 is 2137 (sitting), then the previous diastolic observation represents the diastolic blood pressure taken while sitting, and is assigned to DIASTOLIC\_SIT. If there is no position observation, then the observation represents the positional variable with no position reported (DIASTOLIC\_BLANK). In this way, body positions can be attributed to each of the positional variables. In one event, we can receive four unique values for each of the positional variables (\_SIT, \_STAND, \_SUPINE, \_BLANK).

In addition to body position, heart rhythm can be a descriptive observation for heart rate. If a heart rhythm observation follows a heart rate measurement, then the heart rhythm is assigned to whatever body position that heart rate measurement was assigned to.

In most cases, only one observation for each of these positional variables is recorded, and the body position is not reported. However, most of these observations are taken while the patient is sitting. To better represent reality, if there are no sitting observations for an event, observations with no position reported are assumed to have been taken while sitting. Therefore, these values are assigned to the sitting variables.