

**14 December 2020**

**Comprehensive Ancillary Data Record Extract  
(CADRE) Radiology Enhanced  
for the  
MHS Data Repository (MDR)  
(Version 1.01.04)**

**Current Specification**

## Revision History

Version	Date	Originator	Para/Tbl/Fig	Description of Change
1.00.00	11/28/2014	S. Keane		<ul style="list-style-type: none"> <li>Initial Release.</li> </ul>
1.00.01	12/04/2014	S. Keane	Section V and Table 2.	<ul style="list-style-type: none"> <li>Delete "Provide Order Number".</li> </ul>
1.00.02	01/14/2015	S. Keane	Sections I, IV, V, VI, VII.	<ul style="list-style-type: none"> <li>Update rules for External file matching.</li> <li>Update key.</li> <li>Update file layout.</li> <li>Delete cancellation file.</li> </ul>
1.00.03	8/3/2015	S. Keane	Section V and Appendix A.	<ul style="list-style-type: none"> <li>Update business rules for certain fields.</li> </ul>
1.00.04	8/19/2015	S. Keane	Table 2.	<ul style="list-style-type: none"> <li>Update business rules for Relationship to sponsor (rel).</li> </ul>
1.00.05	1/14/2016	S. Keane	Section V and Table 2.	<ul style="list-style-type: none"> <li>"Flatten" file.</li> </ul>
1.00.06	2/12/2016	S. Keane	Table 2.	<ul style="list-style-type: none"> <li>Remove "bilat" reference.</li> </ul>
1.00.07	3/30/2016	S. Keane	Table 2.	<ul style="list-style-type: none"> <li>Change MDRkey to numeric.</li> </ul>
1.00.08	05/17/2016	S. Keane	Table 2.	<ul style="list-style-type: none"> <li>Set Inpatient Record ID (PRN) to char7, stripped, with leading zeros.</li> <li>Update derivation rules for Beneficiary Residence Region (PATREGN) and HSSC Residence Region (RSREG).</li> </ul>
1.01.00	10/25/2017	K. Hutchinson	Table 2	<ul style="list-style-type: none"> <li>Changes for NDAA 2017 and T2017</li> <li>Delete fields</li> </ul>
1.01.01	06/01/2018	S. Keane	Table 2.	<ul style="list-style-type: none"> <li><i>Administrative changes only. Removed Appendix A as no longer required.</i></li> </ul>
1.02.02	02/12/2020	S. Keane	Table 2	<ul style="list-style-type: none"> <li>Add Number of Orders (ordcount).</li> </ul>
1.02.03	06/19/2020	S. Keane	Table 2	<ul style="list-style-type: none"> <li>Add Certifying Provider Name, Ordering Provider Name, PCM Name, PCM NPI, PCM NPI Type Code, and Service Line Ordering.</li> </ul>
1.02.04	12/14/2020	S. Keane	Table 2	<ul style="list-style-type: none"> <li>Specify Last, First Names for Certifying Provider Name and Ordering Provider Name</li> </ul>

## CADRE Radiology Enhanced for the MDR

This functional specification describes the process required to convert the CADRE Radiology Basic, as described in the specification "Comprehensive Ancillary Data Record Extract (CADRE) Radiology Basic for the MHS Data Repository (MDR)," into the CADRE Radiology Enhanced. In time, the dataset(s) developed from this specification will replace the Ancillary dataset(s) described in the specification "Ancillary Laboratory and Radiology for the MHS Data Repository (MDR)."

### I. SOURCE

The most recent CADRE Radiology Basic file is the source for the CADRE Radiology Enhanced file.

### II. ORGANIZATION AND BATCHING

- Time slicing: Organize data into fiscal year files. The Fiscal Year is determined by the Date of Service (SERVDATE) field.
- Frequency of processing and updates:
  - Current FY: every month after the CADRE Radiology Basic.
  - Prior FY: semiannually.
  - All years prior to prior FY: annually (October).
- Archiving (APUB): Use routine archiving rules and procedures of the MDR.

### III. RECEIVING FILTERS

None.

### IV. FIELD TRANSFORMATIONS AND DELETIONS

Table 1 lists the external reference files (and criteria) used to append many fields to the CADRE Radiology Enhanced file.

**TABLE 1: EXTERNAL REFERENCE FILES**

Merge	Date Matching	Additional Matching
Master Person Index	n/a	See MPI Specification
Longitudinal VM4	Date of Service (SERVDATE)	Patient EDIPN (EDIPN)
DEERS	Date of Service (SERVDATE)	Patient EDIPN (EDIPN) or SSN
DMISID Index	FY of Date of Service (SERVDATE)	Treatment DMIS ID (TMTDMIS)
Omni-CAD	FY/FM of Date of Service (SERVDATE)	Beneficiary Zip Code (PATZIP) and Sponsor Branch of Service (SVC)
Reservist GWOT	Date of Service (SERVDATE)	Sponsor SSN (SPONSSN)
Enrollment MEPRS	Date of Service (SERVDATE)	Join based on rules in Appendix A, section 1 of the Enrollment MEPRS Code specification
CPT Weight Table	CY of Date of Service (SERVDATE)	CPT Code (CPT) and CPT Code Modifier (CPTMOD)
Cost	FY of Date of Service (SERVDATE)	MEPRS Parent (MEPRDMIS)

Merge	Date Matching	Additional Matching
Ancillary Transfusion (/mdr/ref/ancillary.transfuse.cyxx.fmt)	CY of Date of Service (SERVDATE)	Treatment DMIS ID (TMTDMIS) and CPT Code (CPT)

**V. UPDATING THE MASTER TABLES**

To apply an update: append new ancillary records to the CADRE Radiology Enhanced Table. The unique identifier or Record Key is defined as the combination of CHCS Host DMIS ID, Accession Number, Order ID, CPT Code, and CPT Code Modifier. That is, CHCSDMIS || ACCESSNO || ORDERID || CPT || CPTMOD. In the event of duplicate records, e.g., those with the same unique identifier or Record Key: CHCSDMIS || ACCESSNO || ORDERID || CPT || CPTMOD, retain the record with the newest Extract File Date (FILEDATE) [extracted from the File Name]. Delete duplicates before updating CADRE Radiology Enhanced Table.

**VI. FILE LAYOUT AND CONTENT**

MDR CADRE Radiology Enhanced Table has one core file as described in Table 2. Keep from Variables are listed in the following order: Record Key variables and then alphabetically (approximately) by source.

**TABLE 2: MDR CADRE RADIOLOGY ENHANCED TABLE**

MDR FIELD NAME	SAS NAME	SAS FORMAT	BUSINESS RULE
<b>CADRE RADIOLOGY BASIC</b>			
CHCS Host Platform DMIS ID	chcsdmis	\$4	No Derivation.
Accession Number	accessno	\$17	No Derivation. A radiology exam has a unique accession number. There may be more than one record per accession number as more than one entry may be made for a radiology exam.
Order ID	orderid	\$12	No Derivation.
CPT Code	cpt	\$5	No Derivation.
CPT Code Modifier	cptmod	\$2	No Derivation.
Record Type Modifier	mod	\$2	No Derivation.
Appointment Match Indicator	apptmatch	\$3	No Derivation.
Appointment Record ID	apptno	\$20	No Derivation. Aka Appointment IEN.
Calendar Month	cm	\$2	No Derivation.
Calendar Year	cy	\$4	No Derivation.
Certifying Provider EDIPN	cpedipn	\$10	No Derivation.
Certifying Provider HIPAA Taxonomy	cphipaa	\$10	No Derivation.
Certifying Provider IEN	cpien	\$20	No Derivation.
Certifying Provider NPI	cpnpi	\$10	No Derivation.
Certifying Provider SSN	cpssn	\$9	No Derivation.

<b>MDR FIELD NAME</b>	<b>SAS NAME</b>	<b>SAS FORMAT</b>	<b>BUSINESS RULE</b>
Date of Collection/Exam	examdate	yyyymmdd	No Derivation.
Date of Order	orddate	yyyymmdd	No Derivation.
Date of Service	servdate	yyyymmdd	No Derivation.
Date Report Verified	verfdate	yyyymmdd	No Derivation.
Extract File Date	filedate	yyyymmdd	No Derivation.
Fiscal Month	fm	\$2	No Derivation.
Fiscal Year	fy	\$4	No Derivation.
Inactive CPT Code Indicator	nactcpt	\$1	No Derivation.
Initial Processing Date	procdte	yyyymmdd	No Derivation.
Inpatient Record ID	prn	\$7	Change to Char7; add leading zeros (if applicable). Remove leading and trailing blanks. Aka Register Number.
Master Change Code	chgcode	\$1	No Derivation.
Master Change Date	chgdate	yyyymmdd	No Derivation.
Number of Services	count	comma	No Derivation. Sum in final.
OHI Indicator	ohi	\$1	No Derivation.
Ordering DMIS ID	orddmis	\$4	No Derivation. Aka Order Requesting Location DMIS ID.
Ordering MEPRS Code	meprscd	\$4	No Derivation. Aka Order Requesting Location MEPRS Code.
Ordering Provider EDIPN	opedipn	\$10	No Derivation.
Ordering Provider HIPAA Taxonomy	ophipaa	\$10	No Derivation.
Ordering Provider IEN	opien	\$20	No Derivation.
Ordering Provider NPI	opnpi	\$10	No Derivation.
Ordering Provider SSN	opssn	\$9	No Derivation.
Patient Age	patage	Numeric	No Derivation.
Patient Category Code	patcat	\$3	No Derivation.
PATCAT subcategory	patcat2	\$1	No Derivation.
Patient EDIPN (raw)	redipn	\$10	No Derivation. Aka Patient Identifier on record.
Patient Family Member Prefix	fmp	\$2	No Derivation.
Patient HCDP Code (raw)	hcdpr	\$3	No Derivation.
Patient IEN	patien	\$20	No Derivation.
Patient SSN	patssn	\$9	No Derivation.
Patient SSN Type Code	patssntyp	\$1	No Derivation. Type code describing the Patient SSN. Valid values: D = Temporary Identification Number (TIN) F = Foreign Identification Number (FIN)

MDR FIELD NAME	SAS NAME	SAS FORMAT	BUSINESS RULE
			I = Provider Tax ID (ITIN) P = US military personnel code prior to SSNs R = Special Code assigned to a DOD contractor S = Social Security Number (SSN) U = Pseudo SSN
Performing CMAC Locality Code	cmaccd	\$3	No Derivation.
Purchased Service Facility ID	psfid	\$12	No Derivation. Purchased Service Facility IEN. Previously named IEN/SSN (ienssn).
Purchased Service Facility ID Type Code	psfidtyp	\$2	No Derivation. The type (IEN/SSN) of the Purchased Service Facility Identifier. Valid values: 24 = IEN, 34 = SSN. Previously named External Indicator (external).
Record Number	recno	Numeric	No Derivation. Numeric.
Sponsor SSN (raw)	rsponssn	\$9	No Derivation.
Sponsor SSN (raw) Type Code	rsponssntyp	\$1	No Derivation. Type code describing the Sponsor SSN (raw). Valid values: D = Temporary Identification Number (TIN) F = Foreign Identification Number (FIN) I = Provider Tax ID (ITIN) P = US military personnel code prior to SSNs R = Special Code assigned to a DOD contractor S = Social Security Number (SSN) U = Pseudo SSN.
Treatment DMIS ID	tmtdmis	\$4	No Derivation. Aka Performing DMIS ID.
Treatment Group/Parent DMIS ID	pgrpdmis	\$4	No Derivation.
<b>CADRE RADIOLOGY ENHANCED INTERNALLY DERIVED FIELDS</b>			
ACV Group	acvgroup	\$15	If SERVDATE >=1/1/2018 then do: if ENR_GRP=P then PR else if ENR_GRP=L then PL else if ENR_GRP=U then DP else if (COMBEN=4 and PCM_TYPE=N) then R else if PCM_TYPE=O then R else if ELG_GRP= R or S then O else O  For FY12 to Dec 31, 2017: If ACV = A, E, H, or J then PR Else if ACV = B or F then OP Else if ACV = G or L then PL Else if ACV = U then DP Else if ACV = R or V then O Else if ACV = M or Q then R Else if COMBEN=4 then R Else O
Age Group Common	agegroup	\$1	If 0 <= PATAGE <= 4 then "A" Else if PATAGE <= 14 then "B" Else if PATAGE <= 17 then "C" Else if PATAGE <= 24 then "D" Else if PATAGE <= 34 then "E"

MDR FIELD NAME	SAS NAME	SAS FORMAT	BUSINESS RULE
			Else if PATAGE <= 44 then "F" Else if PATAGE <= 64 then "G" Else if PATAGE <= 69 then "H" Else if PATAGE <= 74 then "I" Else if PATAGE <= 79 then "J" Else if PATAGE <= 84 then "K" Else if PATAGE not blank or negative then "L" Else "Z".
Beneficiary Category (common)	comben	\$1	Derive from Bencat (D_COM_BEN_CAT). If "DA," "DGR" then assign "1." Else if "RET" then assign "2." Else if "DR","DS","DCO","NAT", "IGR", "IDG", "OTH","UNK" then assign "3". Else if "ACT","GRD" then assign "4."
Certifying Provider Name	cpname	\$61	Use DMHRSi as lookup to obtain LAST_NM, FIRST_NM.
Derived Number of Services	drvcount	Numeric	This is approximate civilian equivalent number of services. If CPT Code (CPT) is in reference table /mdr/ref/ancillary.bilat.fmt.cyxx for the corresponding year or the Record Type modifier indicates a bilateral code (MOD in 50, 51 or 99) and Number of Services (COUNT) >1, then drvcount=count/2; else drvcount=count.
Inpatient Indicator	inpt	\$1	This is "Y" if Inpatient Record ID (PRN) field is populated, and "N" if empty.
M2Key	m2key	\$6	Base 62 of MDR Key.
MDR Key	mdrkey	Numeric	Sequential counter of records.
MPI Status Flag	mpiflag	\$1	Flag has value of E if an EDI-PN (EDIPN) replaces a previous blank field. Otherwise, mpiflag has a blank value.
Number of Orders	ordcount	Numeric	If first ORDERID then 1; else 0.
Ordering Provider Name	opname	\$61	Use DMHRSi as lookup to obtain LAST_NM, FIRST_NM.
Relationship (to sponsor)	rel	\$1	Derived from first character of Patient Family Member Prefix (FMP) using rules in "MDR Master Person Index" Table 4: If FMP is 01-19 then Relationship = "1" If FMP is 20 then Relationship = "2" If FMP is 30-39 then Relationship = "3" If FMP is in list 40, 45, 50, 55, or is within 60-69, then Relationship is "4" ELSE Relationship is "2".
Service Line Ordering	svclineo	\$5	Apply format from service line map. mepr3=substr(meprscd,1,3); svclineo = put(mepr3,\$slfmt.);
<b>MPI</b>			
EDI-PN	edipn	\$10	Results of MPI merge procedures with Patient EDIPN (raw) (REDIPN). If REDIPN is missing or null, apply routine MDR procedures for MPI merge. DoD Electronic Data Interchange Person Identifier DOD EDI PN ID.
Person Association Reason Code	PARC	\$2	Results of MPI merge procedures. Change blank values to ZZ. Person Association Reason Code PNA_RSN_CD.
Sponsor SSN	sponsn	\$9	Results of MPI merge procedures. Sponsor Person Identifier (SSN) SPN_PN_ID.
<b>VM4</b>			

MDR FIELD NAME	SAS NAME	SAS FORMAT	BUSINESS RULE
ACV	acv	\$1	DEERS ACV in longitudinal derivation of VM4 where service date in ACV date range and the ACV on the segment is "not Z." If bencat is active or guard/reserve, then assign "M"; else set to blank if beneficiary is not active or guard/reserve.
Beneficiary Category	bencat	\$3	Ben Cat (R_BEN_CAT_CD) in longitudinal derivation of VM4 where service date in Ben Cat date range. If no match, derive from patient category code using universal PATCAT format table. Change value Z to UNK.
Beneficiary Zip Code	patzip	\$5	Zip Code (D_ZIP_CD) in longitudinal derivation of VM4 where service date in zip code date range, or "NONE" if unmatched.
Date of Birth	dob	yyyymmdd	Date of birth (PN_BRTH_DT) in longitudinal derivation of VM4.
HCDP - Enrolled	hcdplvm4	\$3	HCDP code in longitudinal derivation of VM4.
DEERS Match Flag	deers	\$1	"1" if EDI-PN matched with longitudinal VM4; "0" if no EDI-PN match in VM4.
Enrollment DMIS ID	enrdmis	\$4	Enrollment DMIS ID (D_MI_PCM_EDVSN_DMIS_ID) in longitudinal derivation of VM4 where service date in the enrollment dmis id date range, or "NONE" if unmatched.
Gender	sex	\$1	Gender (PN_SEX_CD) in longitudinal derivation of VM4. If no match or blank, set value to Z=unknown.
Medicare Eligibility	medelg	\$1	Medicare Eligibility in longitudinal derivation of VM4 based on Privcode, age. If no match or blank, set value to N.
PCM ID	pcmids	\$18	PCM ID (D_MI_PCM_ID) in longitudinal derivation of VM4 where service date in the PCM ID date range.
Privilege Code	privcode	\$1	Privilege code (D_ELG_CD) in the longitudinal derivation of VM4 where service date in privilege code date range.
Sponsor Branch of Service	svc	\$1	Sponsor service in longitudinal derivations of VM4 where service date is sponsor service date range. If no match, derive from 1st letter of PATCAT. If U, then recode as Z. If not (A,F,N,M,C,Z), then recode as X. If blank after the above, set to Z=Unknown.
Sponsor Branch of Service, Aggregate	svcagg	\$1	Aggregated sponsor service in longitudinal derivation of VM4 where service date in sponsor service date range. If no match, derive from 1st letter of PATCAT. If U, then recode as Z. If not (A,F,N,M,C,Z), then recode as X. If blank after the above, set to Z=Unknown.
Tricare Prime Remote Eligibility Flag	TPRelig	\$1	Merge to the VM6 where service date in the enrollment date range. Use D_TPR_ELG_CD.
HCDP - Assigned	hcdp_assgn	\$3	If the SERVDATE is between the begin and end date of D_MI_HCDP_PLN_CVG_CD then fill with D_MI_HCDP_PLN_CVG_CD, else leave blank. See DEERS VM6 specification, section G18 and 19 for segment and field position.
Eligibility Group	elg_grp	\$2	If the SERVDATE is between the begin and end date of D_ELG_GRP_CD then fill with D_ELG_GRP_CD, else leave blank. See DEERS VM6 specification, section G18 and 19 for segment and field position.
Enrollment Group	enr_grp	\$2	If the SERVDATE is between the begin and end date of D_ENR_GRP_CD then fill with D_ENR_GRP_CD, else leave blank. See DEERS



MDR FIELD NAME	SAS NAME	SAS FORMAT	BUSINESS RULE
			VM6 specification, section G18 and 19 for segment and field position.
Enrollment PCM Type	pcm_type	\$1	If the SERVDATE is between the begin and end date of D_PCM_TYPE_CD then fill with D_PCM_TYPE_CD, else leave blank. See DEERS VM6 specification, section G18 and 19 for segment and field position.
<b>DEERS or PCM Table</b>			
Primary Care Manager Name	pcmid_nm	\$40	D_MI_PCM_NM from DEERS merge.
Primary Care Manager NPI	pcmid_npi	\$10	D_PCM_NP_ID from DEERS merge.
PCM NPI Type Code	pcmid_npi_typ	\$1	D_PCM_NP_ID_TYP_CD from DEERS merge.
<b>DMIS</b>			
MEPRS Parent	meprdmis	\$4	MEPRS Parent (MEPR_PAR) of treatment DMIS from DMIS table.
Parent DMIS	pdmis	\$4	Parent DMIS (UBU_PAR) of treatment DMIS from DMIS table.
Treatment Service	tmtdmismis	\$1	Service (UBU_SVC) of treatment DMIS from DMIS table.
Enrollment Site T3 Region	enr_t3_reg	\$2	T3_REG from DMIS ID Index, based on matching FY and ENRDMIS
Enrollment Site T17 Region	enr_t17_reg	\$2	T17_REG from DMIS ID Index, based on matching FY and ENRDMIS
Treatment DMIS ID T3 Region	mtf_t3_reg	\$2	T3_REG from DMIS ID Index, based FY and TMTDMIS
Treatment DMIS ID T17 Region	mtf_t17_reg	\$2	T17_REG from DMIS ID Index, based FY and TMTDMIS
Ordering DMIS ID T3 Region	ord_t3_reg	\$2	T3_REG from DMIS ID Index, based FY and ORDDMIS
Ordering DMIS ID T17 Region	ord_t17_reg	\$2	T17_REG from DMIS ID Index, based FY and ORDDMIS
<b>OMNI-CAD</b>			
Catchment Area ID	catch	\$4	Catchment Area DMIS ID (x_WORLD) of patient residence, based on matching FY, FM, Beneficiary Zip Code (PATZIP), and Sponsor Branch of Service (SVC).
PRISM Area ID	prism	\$4	Prism Service Area DMIS ID (x_PRISM) of patient residence, based on matching FY, FM, Beneficiary Zip Code (PATZIP), and Sponsor Branch of Service (SVC).
Tricare Prime Remote Flag	TPRflag	\$1	TPR Flag (TPRFLAG), based on matching FY, FM, and Beneficiary Zip Code (PATZIP).
Beneficiary T3 Region	ben_t3_reg	\$2	T3_REG, based on matching to OMNI CAD using FY and PATZIP
Beneficiary T17 Region	ben_t17_reg	\$2	T17_REG, based on matching to OMNI CAD using FY and PATZIP
<b>RESERVIST</b>			
Special Operation Code	soc	\$2	Merge to the Reservist Table File by Sponsor SSN. Reservist Special Operation Code is appended to the encounter record if the encounter date occurred during the time frame in which the beneficiary is eligible to receive TRICARE benefits, that is, is within the begin and end dates inclusive on a matching Reservist Table file record.
<b>ENROLLMENT MEPRS</b>			

MDR FIELD NAME	SAS NAME	SAS FORMAT	BUSINESS RULE
Enrollment MEPRS Code	med_home_meprs	\$4	Join based on rules in Appendix A, section 1 of the Enrollment MEPRS Code specification and Date of Service. med_home_meprs.
<b>CPT WEIGHT TABLE</b>			
Relative Value Units (Facility Practice)	fprvu	6.2	From CPT Weight Table: Raw MHS updated Facility Practice Expense RVU of CPT Code (pexpfadc) for corresponding year, adjusted for modifiers and multiplied by derived number of services.
Relative Value Units (Non-facility Practice)	nprvu	6.2	From CPT Weight Table: Raw MHS updated Non-facility Practice Expense RVU of CPT Code (pexpfnfdc) for corresponding year, adjusted for modifiers and multiplied by derived number of services.
Relative Value Units (Work)	rvuwork	6.2	From CPT Weight Table: Raw MHS updated Work RVU of CPT code (workdc) for corresponding year, multiplied by derived number of services.
Relative Value Units (Total)	rvu	6.2	Sum the values of Work RVU (rvuwork) and Non-facility Practice RVUs (nprvu).
<b>COST</b>			
Full Cost	fullcost	8.2	Product of appropriate rvu and cost fields. Use r_fcstpw, r_fcstp. fullcost=sum((rvuwork*r_fcstpw),(nprvu*r_fcstp)).
Rad Full Cost / Practice (non-facility) RVU	r_fcstp(not stored)	10.6	MEPRS Parent's unit cost for radiology in matching year (not stored in final DB).
Rad Full Cost / Work RVU	r_fcstpw(not stored)	10.6	MEPRS Parent's unit cost for radiology in matching year (not stored in final DB).
Rad Variable Cost / Practice (non-facility) RVU	r_vcostp(not stored)	10.6	MEPRS Parent's unit cost for radiology in matching year (not stored in final DB)
Rad Variable Cost / Work RVU	r_vcostpw(not stored)	10.6	MEPRS Parent's unit cost for radiology in matching year (not stored in final DB).
Variable Cost	varcost	8.2	Product of appropriate rvu and cost fields. Use r_vcostpw, r_vcostp. varcost=sum((rvuwork*r_vcostpw),(nprvu*r_vcostp)).

## VII. DATA MARTS

MHS Mart (M2)

See *M2 Radiology Ancillary\** functional specification of those respective MDR-to-M2 feeds.

## VIII. QUALITY ASSURANCE

The processor should conduct monthly quality assurance checks to ensure input and output data are valid, complete, and reliable. At a minimum, the processor should:

- Compare monthly raw data row counts to ensure data are consistent with previous monthly raw data feeds.
- Ensure pre-processing data subtotals equal post-processing data subtotals.
- Evaluate post-processing values for data that appear out of the ordinary, or not consistent with SME expected values (face validity).