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MHS GENESIS Immunization Table for the MHS Data Repository (MDR) (Version 1.02)

Future Specification

Revision History

Version	Date	Originator	Para/Tbl/Fig	Description of Change
1.00	10/15/2024	C. Kangas	Initial Document	Initial Document
1.01	05/08/2025	C. Kangas	Tbl 3	• Changed provider join to personnel to be based on performed_prsnl_id instead of admin_prsnl_id. • Added T5 Region fields
1.02	07/17/2025	C. Kangas	Tbl 3	• Added MTF T3 and T17 Region fields

MDR GENESIS Immunization Table

I. BACKGROUND

This specification describes the transformation process required to create the Military Health System (MHS) Data Repository (MDR) GENESIS Immunization table based on data received from the Oracle Bulk Data Extract (BDE) feeds.

II. SOURCE

The source system is the MHS GENESIS Oracle Millennium database.

III. RAW

All records in the MDR GENESIS Immunization table are based on data pulled from the MIP Redshift genesis_vw.clinical_event view. To increase the utility of this file, variables from other MDR tables in the following subject areas have been added: Encounter, Person, Personnel, and Location. Additionally, variables from the DEERS LVM, Omni-CAD, and DMIS ID Index tables have been added. Table 1 provides a listing of raw Redshift views that are used during the creation of the MDR GENESIS Immunization table.

Table 1: MIP Redshift Raw Source Views

Raw Source Table	View Name	Description
Encounter	genesis_vw.encounter	Contains details about the encounter during which the immunization was recorded.
Encounter Alias	genesis_vw.encntr_alias	Used to look up key encounter identifiers such as the FIN.
Person Alias	genesis_vw.person_alias	Used to look up key person identifiers such as the EDIPI.
Code Value	genesis_vw.code_value	A reference table used to look up descriptions for many code values.
Medication Administration	genesis_vw.ce_med_result	Used to look up information about the medication administered to the patient.
Orders	genesis_vw.orders	Used to look up fields related to the original order for the immunization.

IV. TRANSMISSION FREQUENCY

The MDR GENESIS Immunization table is updated weekly.

V. ORGANIZATION

Output product: one SAS dataset containing all immunization records for all time. The Immunization table is stored at: /mdr/pub/genesis3/immunization/immunization.sas7bdat.

VI. RECEIVING FILTERS

Immunization records are kept based on the following logic criteria:

- Only event_class_cd = 228 (represents immunizations) records are kept.
- Medication administration start date is between 1920 and today.
- Test patients are excluded.

VII. UPDATE PROCESS

Raw BDE feeds from Oracle are sent to MIP Redshift, and the Redshift views (ex. genesis_vw.clinical_event) are updated daily. New and updated records are sent each day. New records are added to the existing table. Updated records replace the original record in the table based on the EVENT_ID field, which is the primary key for the Clinical Event view. Similar processes are applied to the other raw supporting views within Redshift.

Once the raw data has been updated, the MDR processes it into the analytic table as described in this specification and assigns many other internally derived variables as described in Table 3.

VIII. FIELD TRANSFORMATIONS AND DELETIONS

This section of this functional specification describes data merges that are necessary to append fields in the MDR GENESIS Immunization table. Table 2 lists additional MDR tables that are used in processing. Table 3 lists in detail all the fields added from these merges as well as any additional transformation rules.

Table 2: MDR Table Merges for MDR GENESIS Immunization File

Merge	Date Matching	Additional Matching Methodology
MDR GENESIS Person Table	N/A	PERSON_ID
MDR GENESIS Personnel Table	N/A	PERFORMED_PRSNL_ID = PERSON_ID
Longitudinal VM6 (LVM6)	Date Given between the begin and end dates associated with the segment	EDIPN

Merge	Date Matching	Additional Matching Methodology
DMISID Index	Visit Date	DENRSITE
Omni Cad	Visit Date	PATZIP Sponsor Service

IX. File Layout

The MDR GENESIS Immunization table is stored as a SAS data set. Table 3 provides the file layout and transformation rules.

Table 3: Fields in the MDR GENESIS Immunization table

Field	Format	SAS Name	Source Element	Transformation
Event ID	N(8)	EVENT_ID	clinical_event.event_id	No transformation.
EDIPN	$10	EDIPN	clinical_event.person_id	Join to person_alias where person_id matches and person_alias_type_cd = 22 and active_ind = 1.
Immunization Name	$60	IMMUNIZATION	clincal_event.event_cd	Join to code_value table where event_cd matches the code_value and code_set = 72 and active_ind = 1 and retrieve display.
CVX Code	$13	CVX	clincal_event.event_cd	Join to code_value_outbound table where event_cd matches the code_value and contributor_source_cd = 18024127 and retrieve alias.
Sequence	N(8)	CLINICAL_SEQ	clincal_event.clinical_seq	No transformation.
Financial Information Number (FIN)	$40	FIN	clinical_event.encntr_id	Join to encntr_alias table where encntr_id matches and encntr_alias_type_cd = 1077 and active_ind = 1 and end_effective_dt_tm > sysdate and retrieve alias.
Encounter ID	N(8)	ENCNTR_ID	clinical_event.encntr_id	No transformation.
Order ID	N(8)	ORDER_ID	clinical_event.order_id	If order_id = 0 then set to null, otherwise set to order_id.
Data Entry Method	$33	DATA_ENTRY_ METHOD	clinical_event.entry_mode_cd	Join to code_value table where entry_mode_cd matches the code_value and code_set = 29520 and active_ind = 1 and retrieve description.
Contributor System	$60	CONTRIBUTOR_ SYSTEM	clinical_event.contributor_system_cd	Join to code_value table where contributor_system_cd matches the code_value and code_set = 89 and active_ind = 1 and retrieve description.
Result Status	$40	RESULT_STATUS	clinical_event.result_status_cd	Join to code_value table where result_status_cd matches the code_value and code_set = 8 and active_ind = 1 and retrieve display.
Person ID	N(8)	PERSON_ID	clinical_event.person_id	No transformation.
MHS Genesis Personnel ID	N(8)	PERFORMED_ PRSNL_ID	clinical_event.performed_prsnl_id	No transformation.
Update Datetime	Datetime	UPDT_DT_TM	clinical_event.updt_dt_tm	No transformation.

Field	Format	SAS Name	Source Element	Transformation
Fields from Medication Administration				
Date Given	Datetime	DATE_GIVEN	ce_med_result.admin_start_dt_tm	No transformation.
Dosage	N(8)	DOSAGE	ce_med_result.admin_dosage	No transformation.
Dosage Unit	$60	DOSAGE_UNIT	ce_med_result.dosage_unit_cd	Join to code_value table where dosage_unit_cd matches the code_value and code_set = 54 and active_ind = 1 and retrieve description.
Lot Number	$100	SUBSTANCE_LOT_ NBR	ce_med_result.substance_lot_number	No transformation.
Manufacturer Code	$60	SUBSTANCE_ MANUFACTURER	ce_med_result.manufacturer_cd	Join to code_value table where manufacturer_cd matches the code_value and code_set = 221 and active_ind = 1 and retrieve display.
Route of Administration	$31	ROUTE	ce_med_result.admin_route_cd	Join to code_value table where admin_route_cd matches the code_value and code_set = 4001 and active_ind = 1 and retrieve display.
Site of Administration	$22	SITE	ce_med_result.admin_site_cd	Join to code_value table where admin_site_cd matches the code_value and code_set = 97 and active_ind = 1 and retrieve description.
Immunization Type	$9	IMMUNIZATION_ TYPE	ce_med_result.immunization_type_cd	Join to code_value table where dosage_unit_cd matches the code_value and code_set = 30260 and active_ind = 1 and retrieve description.
Strength Dose	N(8)	STRENGTH	ce_med_result.admin_strength	No transformation.
Strength Dose Unit	$40	STRENGTH_UNIT	ce_med_result. admin_strength_unit_cd	Join to code_value table where admin_strength_unit_cd matches the code_value and code_set = 54 and active_ind = 1 and retrieve display.
Administering Personnel ID	N(8)	ADMIN_PRSNL_ID	ce_med_result.admin_prov_id	No transformation.
Fields from Encounter				
Encounter Type	$26	ENCOUNTER_TYPE	encounter.encntr_type_cd	Join to code_value table where encntr_type_cd matches the code_value and code_set = 71 and active_ind = 1 and retrieve display.
Visit Date & Time	N(8)	VISIT_DT_TM	reg_dt_tm, arrive_dt_tm, create_dt_tm	if reg_dt_tm ne . then visit_dt_tm = reg_dt_tm else if arrive_dt_tm ne . then visit_dt_tm = arrive_dt_tm else visit_dt_tm = create_dt_tm
Visit Date	N(8)	VISIT_DT	visit_dt_tm	visit_dt = datepart(visit_dt_tm)

Field	Format	SAS Name	Source Element	Transformation
DMISID	$4	DMISID	encounter.location_cd	Join to MDR Location table where the location_cd matches and return mtf.
MEPRS Code	$4	MEPRS4CD	encounter.location_cd	Join to MDR Location table where location_cd matches and return MEPRS field.
Nursing Unit Location Code	$45	NULC	encounter.location_cd	Join to MDR Location table where the location_cd matches and return loc_nurse_unit_disp.
Fields from Orders				
Orderable Display	$100	ORDERABLE_DISP	orders.clinical_display_line	No transformation.
Orderable Mnemonic	$200	ORDERABLE_MNEMONIC	orders.order_mnemonic	No transformation.
Fields from MDR GENESIS Person Table				
Medical Record Number (Patient)	$40	MRN	mdr_person.mrn	Join to the MDR GENESIS Person table on person_id and retrieve the mrn.
Patient Social Security Number	$9	PATSSN	mdr_person.ssn	Join to the MDR GENESIS Person table on person_id and retrieve the ssn.
Sponsor Social Security Number	$9	SPONSSN	mdr_person.sponssn	Join to the MDR GENESIS Person table on person_id and retrieve the sponssn.
Patient Date of Birth	N(8)	PATDOB	mdr_person.birth_dt	Join to the MDR GENESIS Person table on person_id and retrieve the birth_dt.
Patient Gender	$1	GENDER	mdr_person.gender	Join to the MDR GENESIS Person table on person_id and retrieve the gender.
Patient Race	$41	RACE_GENESIS	mdr_person.race_cd	Join to the MDR GENESIS Person table on person_id and retrieve the race value.
Patient Ethnicity Code	$1	ETHNIC_GENESIS	mdr_person.ethnic	Join to the MDR GENESIS Person table on person_id and retrieve the ethnic value.
Test Record Indicator	N(8)	TEST_RECORD_IND	mdr_person.test_record_ind	Join to the MDR GENESIS Person table on person_id and retrieve the test_record_ind.
Fields from MDR GENESIS Personnel				
Provider EDIPN	$10	PROV_EDIPN	mdr_personnel.prsnl_edipn	Join to the MDR GENESIS Personnel table where performed_prsnl_id = person_id and retrieve the prsnl_edipn.
Provider NPI	$10	PROV_NPI	mdr_personnel.npi	Join to the MDR GENESIS Personnel table where performed_prsnl_id = person_id and retrieve the npi.
Provider Skill Type	$1	SKILL_TYPE	mdr_personnel.skill_type	Join to the MDR GENESIS Personnel table where performed_prsnl_id = person_id and retrieve the skill_type.

Field	Format	SAS Name	Source Element	Transformation
Fields from the LVM				
Alternate Care Value (ACV)	$1	ACV	lvm.acv	Fill with ACV if the date_given is between the begin and end date associated with the ACV.
DEERS Beneficiary Category	$3	BENCAT	lvm.r_ben_cat_cd	Fill with bencat associated with this EDIPN. If there is no match for this patient in the LVM, set to OTH.
DEERS Common Beneficiary Category	$1	COMBEN	lvm.cben	Derived from Beneficiary Category during LVM merge: 1 = Dep Active Duty / Guard 2 = Retired 3 = Dep of Retired / Survivor / Other / Unknown / IGR / IDG 4 = Active Duty / Guard
DEERS Patient Zip Code	$5	DEERSZIP	lvm.zip	Fill with ZIP Code if the date_given is between the begin and end date associated with the ZIP Code.
Enrollment MTF	$4	DENRSITE	lvm.enr	Fill with Enrollment MTF if the date_given is between the begin and end date associated with the enrollment of the patient to the MTF.
DEERS Sponsor Service Aggregate	$1	DSVCAGG	lvm.aggsvc	Fill with Sponsor Service Aggregated if the date_given is between the begin and end date associated with the Sponsor Service Aggregated. If the visit date is outside of the dates associated with the Sponsor Service, or there is no match for this patient in the LVM, set to Z.
Sponsor Service from DEERS	$1	DSPONSVC	lvm.svc	Fill with Sponsor Service if the date_given is between the begin and end date associated with the Sponsor Service. If the visit date is outside of the dates associated with the Sponsor Service, or there is no match for this patient in the LVM, set to Z.
Patient Race Code (DEERS)	$1	RACE_DEEERS	lvm.race	Fill with race associated with this EDIPN. If there is no match for this patient in the LVM, set to Z.
Patient Ethnicity (DEERS)	$1	ETHNIC_DEERS	lvm.ethnic	Fill with ethnicity associated with this EDIPN. If there is no match for this patient in the LVM, set to Z.
Health Care Delivery Program (HCDP) Code	$3	HCDP_ENR	lvm.hcdp	Fill with enrollment HCDP code if the date_given is between the begin and end date associated with the enrollment HCDP code.
Assigned Health Care Delivery Program (HCDP)	$3	HCDP_ASGN	lvm.asghcdp	Fill with assigned HCDP code if the date_given is between the begin and end date associated with the assigned HCDP code.
Primary Care Manager (PCM) Provider ID	$18	PCM_ID	lvm.pcm	Fill with PCM ID if the date_given is between the begin and end dates associated with the PCM ID.
Primary Care Manager (PCM) Type	$1	PCM_TYPE	lvm.pcmtyp	Fill with Enrollment PCM Type if the date_given is between the begin and end date associated with the Enrollment PCM Type.

Field	Format	SAS Name	Source Element	Transformation
Eligibility Group	$1	ELG_GRP	lvm.elggrp	Fill with Eligibility Group if the date_given is between the begin and end date associated with the Eligibility Group.
Enrollment Group	$1	ENR_GRP	lvm.enrgrp	Fill with Enrollment Group if the date_given is between the begin and end date associated with the Enrollment Group.
PCM NPI	$10	PCM_NPI	lvm.npi	Fill with PCM NPI if the date_given is between the begin and end dates associated with the PCM NPI.
Patient Attached UIC	$8	PAT_ATTCH_UIC	lvm.attch_uic	Fill with ATTCH_UIC if the date_given is between the begin and end dates associated with the ATTCH_UIC, else leave blank.
Patient Assigned UIC	$8	PAT_ASSGN_UIC	lvm.assgn_uic	Fill with ASSGN_UIC if the date_given is between the begin and end dates associated with the ASSGN_UIC, else leave blank.
Fields from the Omni CAD				
Patient PRISM Area	$4	PRISM	patzip, dsvcagg	Based on matching FY, FM and deerszip; if sagglvm = A then set equal to APRISM, if sagglvm = F then set equal to FPRISM; if sagglvm in (M, N, V) then set equal to NPRISM, otherwise set equal to OPRISM.
Patient Catchment Area	$4	CATCH	patzip, dsvcagg	Based on matching FY, FM and deerszip; if sagglvm = A then set equal to AWORLD, if sagglvm = F then set equal to FWORLD; if sagglvm in (M, N, V) then set equal to NWORLD, otherwise set equal to OWORLD.
Patient MTF Service Area	$4	MTFSVCAREA	deerszip, dsvcagg	Based on matching FY, FM and deerszip; if sagglvm = A then set equal to ABPA, if sagglvm = F then set equal to FBPA; if sagglvm in (M, N, V) then set equal to NBPA, otherwise set equal to OPRISM.
Beneficiary T3 Region	$2	BEN_T3_REG	deerszip	Based on matching FY, FM and deerszip; Set equal to T3_REG. If deerszip not found in MDR Omni-CAD, leave blank. Not needed CY25 and later.
Beneficiary T17 Region	$2	BEN_T17_REG	deerszip	Based on matching FY, FM and deerszip; Set equal to T17_REG. If deerszip not found in MDR Omni-CAD, leave blank.
Beneficiary T5 Region	$2	BEN_T5_REG	deerszip	Based on matching FY, FM and deerszip; Set equal to T5_REG. If deerszip not found in MDR Omni-CAD, leave blank. Populate for FY23+.
Fields from the DMISID Index Table				
Enrollment MTF T3 Region	$2	ENR_T3_REG	dmisid_index.t3_reg	Join to the DMISID Index table where the enrollment denrsite matches the dmisid and retrieve the t3_reg. Not needed CY25 and later.

Field	Format	SAS Name	Source Element	Transformation
Enrollment MTF T17 Region	$2	ENR_T17_REG	dmisid_index.t17_reg	Join to the DMISID Index table where the enrollment denrsite matches the dmisid and retrieve the t17_reg.
Enrollment T5 Region	$2	ENR_T5_REG	dmisid_index.t5_reg	Join to the DMISID Index table where the enrollment denrsite matches the dmisid and retrieve the t5_reg. Populate for FY23+.
Treatment T3 Region	$2	MTF_T3_REG	dmisid_index.t3_reg	Join to the DMISID Index table where the encounter dmisid matches and retrieve the t3_reg. Not needed CY25 and later.
Treatment T17 Region	$2	MTF_T17_REG	dmisid_index.t17_reg	Join to the DMISID Index table where the encounter dmisid matches and retrieve the t17_reg.
Treatment T5 Region	$2	MTF_T5_REG	dmisid_index.t5_reg	Join to the DMISID Index table where encounter dmisid matches and retrieve the t5_reg. Populate for FY23+.
Internally Derived Fields				
Fiscal Month	$2	FM		Fiscal month of Date Given
Fiscal Year	$4	FY		Fiscal year of Date Given
Fiscal Month Encounter	$2	FM_ENC		Fiscal month of VISIT_DT
Fiscal Year Encounter	$4	FY_ENC		Fiscal year of VISIT_DT
Patient Age	N(8)	PATAGE	patdob, date_given	Derived age in years between the patdob and date_given.
Age Group	$1	AGEGRP	patage	If patage is 0-4, set to A; if 5-14, B; if 18-24, C; if 25-34, D; if 35-44, F; if 45-64, G; if 65+, H; else X.
ACV Group	$2	ACVGROUP		Derive from ACV.

X. REFRESH FREQUENCY

Frequency of updates:

- Weekly

XI. DATA QUALITY

It is expected that when the MDR Genesis Immunization processor is run each week, that basic quality checks are performed throughout the process. It is recommended that the EIDS vendor develop a spreadsheet which tracks key characteristics of the data across processing cycles; making it relatively easy to

understand how the data should generally look. EIDS vendors need to review these statistics each month prior to releasing the data. J5 AED (the functional proponent and the specification author) should be contacted immediately should any quality issues arise. These checks, at a minimum, should include:

- Total record counts in the data feed should have a relatively stable distribution across FY and FM. Any anomalies should immediately be investigated.
- The percentage of records 'cleaned out' each processing cycle should be similar in scope and proportion across processing cycles.
- The number of records that match when doing the Genesis Patient table merge should be consistent.
- The distribution of all categorical fields (ex. Immunization) should be consistent. The results of proc freq analyses will verify this.
- The number of null values for important fields such as EDIPN, Date Given, and Immunization CVX should be tracked across monthly updates.
- When reading in the immunization data feed, a small number of records should be printed off and manually inspected to ensure they have read in properly and the percentage of records that are deletes, inserts, and updates should be compared for consistency across processing cycles.
- Cross tabulations should be reviewed on derived elements to ensure the derivation logic works.
- A data flow tracker should be built to ensure that all records that are intended to make it into the final Immunization dataset do. In other words, all inserts, updates, and deletions should be tracked and explained in the data flow worksheet.