Maryland MDS Data Reporting Project

MDS Manager SAS End User Manual

March 21, 2014

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1 Introduction

MDS Manager is an application that imports various data files collected by MHCC and uses the data to calculate length of stays of Maryland nursing facility residents over a user-defined period of time and various other variables such as age, RUG ADL score, etc. As a final output, the application creates a table that shows MDS data items for the nursing facility residents at admission and at either discharge or the end of the user-defined time period (the Admission/Current table). All programming for the MDS Manager application was performed in SAS. The recommended schedule to run the MDS Manager to finalize a calendar year Admission/Current table is after importing all data through the second calendar quarter after the end of the desired calendar year. For example, prior to finalizing the Admission/Current table for the January 1 through December 31, 2009 calendar year, all data through June 30, 2010 should be imported.

Several changes have been made to the MDS Manager application between version 2.0 issued in June 2010 and the SAS version. These changes include:

- Updated the program to use MDS 3.0 data.

- Updated the program from Visual FoxPro 9.0 to SAS.

The MDS Manager application follows the steps below to import data, calculate the stays, and generate the output tables. Each of these processes will be discussed in greater detail later in this manual. The MHCC MDS Manager Architectural Design document contains the application software architecture documents that fully detail the technical aspects of the application. These documents include a data dictionary, data flow diagrams, use case models, class diagrams, and entity relationship diagrams, and flow charts.

1. Import data files.

    a. Facility data.

    b. CCRC/Subacute data.

    c. ZIP code data.

2. Adjust ZIP code allocation percentages as needed. This step does not have to be performed as part of the process to create export files, but may be performed at any time it is necessary.

3. Import MDS 3.0 data.

4. Generate the Admission file that contains all stays based on the entire MDS 2.0 and MDS 3.0 databases.

5. Create the Admission/Current file for a defined period of time.

2 MDS Manager Instructions for Running Programs

2.1 MDS Manager Functions

You will be able to perform the following MDS Manager functions using SAS scripts.

2.1.1 Order for Importing Data Files

When new or revised data files are received, the data files must be imported in a specific order for the data to be saved correctly. The data files must be imported in the following order:

1. Facility data file.

2. MDS data file.

The CCRC/Subacute data file and the ZIP Code data file can be imported at any time and do not need to be imported in a specific order. **However, these files do need to be imported prior to creating the Admission/Current file.** A CCRC/Subacute data file is created specifically for each year. If the CCRC/Subacute data file is missing for a given year, no facilities in the Admission and Current tables created for that year will be flagged as being CCRC or Subacute. On the other hand, ZIP code data can be updated anytime. If the ZIP code data is not updated for a year, the existing version of the data will be used to create the Admission/Current file.

Importing a new data file does not necessarily mean that data for a new year is being imported. You can import a data file relating to a previously imported year. For example, if a MDS data file was imported and the year specified at import was 2008, another MDS data file with a specified year of 2008 could be imported. This may be done to capture corrections that have been made to the data. MDS Manager will use the most recently imported data file for a year when creating the Admission/Current output file.

2.1.2 Importing the Facility Data Provided by CMS

CMS provides periodic updates to the facility data. The data is contained in ASCII files. MDS Manager can apply these updates to the historical data. To import facility data:

1. Copy the downloaded CMS data file(s) to the current SourceData directory:

2. Check and verify the CMS data to be imported.

    a. This is currently a set of files obtained from OHCQ as a data extract in a flat ASCII file format.

    b. Verify the file is of correct format.

        i. There should be a file currently having a naming convention similar to the following:

        QWU_J77484_P1_Facility_Extract_MHCC_Layout.html

ii. View the contents of this file. It should have information similar to the following:

Thu Oct 04 10:21:14 EDT 2012   QIES Workbench

Record Layout Report

For Job: Facility Extract-MHCC (77484.1)

Report Name: Facility Extract-MHCC

Data Type	Offset	Length	DP	Field Name
CHAR	1	2	0	State ID
NUM	3	10	0	Facility Internal ID
DATE	13	8	0	Bankruptcy Begin Date
DATE	21	8	0	Bankruptcy End Date
NUM	29	1	0	Bankrupt
CHAR	30	5	0	Carrier Number
CHAR	35	2	0	Category
CHAR	37	100	0	Chain Description
CHAR	137	2	0	Chain Identification
CHAR	139	20	0	City
DATE	159	8	0	Closed Date
DATE	167	8	0	Date Added to System
CHAR	175	3	0	Department of Justice Contact Identification
CHAR	178	80	0	Department of Justice Contact Name
CHAR	258	16	0	Facility Identification
CHAR	274	50	0	Facility Name
CHAR	324	3	0	Facility Type
CHAR	327	13	0	Fax/Telephone Number
CHAR	340	1	0	HHA Indicator
CHAR	341	1	0	MDS Indicator
CHAR	342	3	0	Media Contact Identification

Data Type	Offset	Length	DP	Field Name
CHAR	345	80	0	Media Contact Name

DATE	425	8	0	Nurse Aide Training Competency Evaluation Program Loss End Date
NUM	433	1	0	Nurse Aide Training Competency Evaluation Program Loss
DATE	434	8	0	Nurse Aide Training Competency Evaluation Program Waiver End Date
NUM	442	1	0	Nurse Aide Training Competency Evaluation Program Waiver
NUM	443	1	0	ODIE Accepted
DATE	444	8	0	Participation Date
CHAR	452	50	0	Provider Address
CHAR	502	9	0	Provider Employer Identification Number
CHAR	511	15	0	Provider Medicaid ID
CHAR	526	12	0	Provider Number
DATE	538	8	0	Special Focus Begin Date
DATE	546	8	0	Special Focus End Date
NUM	554	1	0	Special Focus
DATE	555	8	0	State Prepared Date
CHAR	563	3	0	States Region Code
CHAR	566	3	0	SSA County Code
CHAR	569	24	0	SSA County Description
CHAR	593	2	0	State
CHAR	595	13	0	Telephone
CHAR	608	11	0	ZIP Code

If not DO NOT Proceed until correct format obtained.

    c. The actual MDS 3.0 Facility data is in a file currently have a naming convention similar to the following:

       QWU_J77484_P1_Facility_Extract_MHCC_Data.txt

    d. Verify this file name for use as a processing parameter.

3. Open up the MDS30FaciltyImporter Project in SAS Enterprise Guide.

4. In the Project Tree window, Open up the Set Parameters process flow.

5. In the Set Parameters process flow, Open up the Set Import Variables program.

6. Save Set Import Variables program.

7. Run Set Import Variables program.

    a. If successful program execution continue, otherwise edit Set Import Variables program and re-run.

8. In the Process Flow Window, Open up the drop menu under the RUN button by selecting the black down arrow.

9. Select the Run Project menu item.

    a. The entire MDS30FacilityImporter project will now execute.

Alternate execution of individual Process Flows:

    Do Steps 1-7 above.

8. In the Process Flow Window, Open up the drop menu under the RUN button by selecting the black down arrow.

9. Select the Run Set Import Variables menu item.

    a. If successful program execution continue, otherwise edit Set Import Variables program and re-run.

10. In the Project Tree window, Open up the Import Facility Data process flow.

11. In the Process Flow Window, Open up the drop menu under the RUN button by selecting the black down arrow.

12. Select the Run Import Facility Data menu item.

    a. If successful program execution continue, otherwise examine program logs, edit, save and re-run.

2.1.3 Importing MDS 2.0 Data

As the SAS version of MDS Manager is implemented, MDS 3.0 has been in use for three years. While CMS has discussed not allowing facilities to submit MDS 2.0 assessments effective 10/01/2013, as of the effective date of this manual, CMS has not implemented this restriction. Since it is unlikely that a significant number of MDS 2.0 assessments will be submitted after this date, a decision has been made to import into MDS Manager all MDS 2.0 assessments submitted on or before 10/01/2013. Any MDS 2.0 assessments submitted after 10/01/2013 will not be imported into MDS Manager. The MDS 2.0 assessment database will be frozen as of 10/01/2013.

In the unlikely event that MDS 2.0 data would need to be imported after 10/01/2013, the previous version of MDS Manager written in Visual FoxPro will be used to import the MDS data. The End User Manual for this version of the program has been included in Appendix B MDS Manager Version 2.0 End User Manual. Once the MDS 2.0 data has been imported using this program, the data can be imported from the FoxPro databases to the SAS databases.

2.1.4 Importing New MDS 3.0 Data

Periodic updates to the MDS 3.0 data are received from OHCQ. The data is contained in ASCII files. The MDS Manager can apply these updates to the historical data. **The facility data for the year must have been imported before performing this step.** When MDS Manager imports the MDS 3.0 data, it attempts to match the data to a given provider for that year. If the provider is not found for a given MDS record, that MDS record is not imported. To import MDS data using the MDS30Importer project:

1. Copy the downloaded CMS data file(s) to the current SourceData directory:

2. Check and verify the CMS data to be imported.

   a. This is currently a set of files obtained from OHCQ as a data extract in a flat ASCII file format.

   b. Verify the file is of correct format.

      i. There should be a file currently having a naming convention similar to the following:

         QWU_J81571_P1_MHCC_Data_for_10_1_2010_to_01_SAS.txt

      ii. View the contents of this file. It should have a header like the following:

```
/********************************************************************
*      Job Number: 78644
*
*    Procedure Number: 1
*
*      Report Name: MHCC MDS Data for File ID Range
*
*  Report Description: State mds 3.0 assessments Extract
*
*     Record Length: 3688
*
*   Generation Date: Wed Oct 24 16:56:32 EDT 2012
*
********************************************************************/
```

      iii. Verify the following items in this file:

         1. The Record Length is 3688.

         2. The Report Description is State mds 3.0 assessments Extract.

         3. The Input statement starts like the following:

```
INPUT
@1    ASMT_SYS_CD              $CHAR10.
@11   MDS_ITM_SBST_CD          $CHAR3.
@14   ITM_SET_VRSN_CD          $CHAR10.
@24   SPEC_VRSN_CD             $CHAR10.
```

@34	PRODN_TEST_CD	$CHAR1.
@35	STATE_CD	$CHAR2.
@37	FACID	$CHAR16.

    4. The Input statement ends like the following:

@3198	C_MDCR_RUG4_HIRCHCL_VRSN_TXT	$CHAR10.
@3208	C_MDCR_RUG3_IDX_MAX_GRP_TXT	$CHAR10.
@3218	C_MDCR_RUG3_IDX_MAX_VRSN_TXT	$CHAR10.
@3228	C_MDCR_RUG3_IDX_MAX_CMI_TXT	$CHAR7.
@3235	C_MDCR_RUG3_IDX_MAX_CMI_SET_CD	$CHAR3.
@3238	C_MDCR_RUG3_HIRCHCL_GRP_TXT	$CHAR10.
@3248	C_MDCR_RUG3_HIRCHCL_VRSN_TXT	$CHAR10.
@3258	C_BIRTH_DT_SBMT_CD	$CHAR1.
@3688	DATA_END	$CHAR1.

;

    5. If not DO NOT Proceed until correct format obtained.

  c. The actual MDS 3.0 data is in a file currently have a naming convention similar to the following:

    QWU_J81571_P1_MHCC_Data_for_10_1_2010_to_01_Data_1.txt

  d. Verify this file name for use as a processing parameter.

3. Open up the MDS30Importer Project in SAS Enterprise Guide.

4. In the Project Tree window Open up the Set Parameters process flow.

5. In the Set Parameters process flow Open up the Set Import Variables program.

6. Save Set Import Variables program.

7. Run Set Import Variables program.

  a. If successful program execution continue, otherwise edit Set Import Variables program and re-run.

8. In the Process Flow Window, open up the drop menu under the RUN button by selecting the black down arrow.

9. Select the Run Project menu item.

  a. The entire MDS30Importer project will now execute.

Alternate execution of individual Process Flows:

    Do Steps 1-7 above.

8. In the Process Flow Window, open up the drop menu under the RUN button by selecting the black down arrow.

9. Select the Run Set Import Variables menu item.

   a. If successful program execution continue, otherwise edit Set Import Variables program and re-run.

10. In the Project Tree window Open up the Import Assessment Data process flow.

11. In the Process Flow Window Open up the drop menu under the RUN button by selecting the black down arrow.

12. Select the Run Import Assessment Data menu item.

   a. If successful program execution continue, otherwise examine program logs, edit, save and re-run.

13. In the Project Tree window Open up the Update Residents Data process flow.

14. In the Process Flow Window Open up the drop menu under the RUN button by selecting the black down arrow.

15. Select the Run Update Residents Data menu item.

   a. If successful program execution continue, otherwise examine program logs, edit, save and re-run.

16. In the Project Tree window Open up the Calculate Assessment Metrics process flow.

17. In the Process Flow Window Open up the drop menu under the RUN button by selecting the black down arrow.

18. Select the Run Calculate Assessment Metrics menu item.

   a. If successful program execution continue, otherwise examine program logs, edit, save and re-run.

2.1.5 Importing CCRC and Subacute Data

The FacType variable in the MHCCFacility table indicates if the facility is CCRC or Subacute. If FacType = 1, the facility is a CCRC. If the FacType = 2, the facility is Subacute. These values are not imported but are adjusted directly in the MHCCFacility table as changes occur at the facility.

2.1.6 Importing ZIP Code Data

Historically, MHCC received periodic updates to the ZIP code data. The format of the data file received by MHCC is a MapInfo table (*.tab) file. MHCC will convert the MapInfo table into a CSV file with two columns in the following order: ZIP Code and State/County FIPS Code. The converted CSV file will be imported by MDS Manager and applied to the historical data.

Currently, the source of Zip Code data is under discussion. The ability to import ZIP Code updates to MDS Manager using the files previously received has not been coded in the SAS

version of the program. As the final source of ZIP Code data is determined, MDS Manager will be updated to import updates to the files.

2.1.7 Adjusting ZIP Code Allocations

Historically, if a ZIP Code contained addresses in more than one county, the facilities in the ZIP Code were allocated between the counties based on a percentage entered in the ZIP Code source tables.

Currently, the source of Zip Code data is under discussion. The ability to adjust ZIP Code allocations between counties in MDS Manager has not been coded in the SAS version of the program. As the final source of ZIP Code data is determined, MDS Manager will be updated to adjust the allocation of facilities between counties if this functionality is needed.

2.1.8 Managing Source Files

When data is imported, the name of the originating file is also imported and attached to the data. If it is discovered that a set of data is incorrect, this source field can be used to see where the incorrect data resides.

2.1.9 Creating the Admissions File

The Admissions file uses MDS data to generate all stays based on residents' history regardless of period. This file should be generated each time new MDS data is imported into MDS Manager. **The facility, MDS and CCRC/Subacute data for the year must have been imported before creating this file. Also, the ZIP code data should be updated with the most recent information, if it is available.** To create the Admissions file using the MDSEpisodesOfCare project:

1. Verify there is no new data to be imported.

    a. If none continue, otherwise run the MDS30Importer project.

2. Open up the MDSEpisodesOfCare Project in SAS Enterprise Guide.

3. In the Project Tree window Open up the Set Parameters process flow.

4. In the Set Parameters process flow Open up the Set Episodes Of Care Variables program.

5. Save Set Episodes Of Care Variables program.

6. Run Set Episodes Of Care Variables program.

    a. If successful program execution continue, otherwise edit Set Episodes Of Care Variables program and re-run.

7. In the Process Flow Window, open up the drop menu under the RUN button by selecting the black down arrow.

8. Select the Run Project menu item.

    a. The entire MDSEpisodesOfCare project will now execute.

Alternate execution of individual Process Flows:

Do Steps 1-6 above.

7. In the Process Flow Window, open up the drop menu under the RUN button by selecting the black down arrow.

8. Select the Run Set Parameters menu item.

    a. If successful program execution continue, otherwise edit Set Episodes Of Care Variables program and re-run.

9. In the Project Tree window, open up the Determine Episodes process flow.

10. In the Process Flow Window, open up the drop menu under the RUN button by selecting the black down arrow.

11. Select the Run Determine Episodes menu item.

    a. If successful program execution continue, otherwise examine program logs, edit, save and re-run.

12. In the Project Tree window, open up the Get Demographic Elements process flow.

13. In the Process Flow Window, open up the drop menu under the RUN button by selecting the black down arrow.

14. Select the Run Get Demographic Elements menu item.

    a. If successful program execution continue, otherwise examine program logs, edit, save and re-run.

15. In the Project Tree window, open up the Get Assessment Elements process flow.

16. In the Process Flow Window, open up the drop menu under the RUN button by selecting the black down arrow.

17. Select the Run Get Assessment Elements menu item.

    a. If successful program execution continue, otherwise examine program logs, edit, save and re-run.

18. In the Project Tree window, open up the Create Admissions Tables process flow.

19. In the Process Flow Window, open up the drop menu under the RUN button by selecting the black down arrow.

20. Select the Run Create Admissions Tables menu item.

    a. If successful program execution continue, otherwise examine program logs, edit, save and re-run.

2.1.10 Creating the Admission/Current File

The Admission/Current file is created based on the census data for a given date range. The Admission/Current file is a final output file that contains length of stay and other MDS data items for nursing facility residents at admission and at either discharge or the last day of the user-defined date range. This file is created using information available in the Admissions file. If new MDS data has been imported, a new Admissions file must be generated before the results will be available to the Admission/Current file. To create the Admission/Current file:

1. Verify there is no new data to be imported.

    a. If none continue, otherwise run the MDS30Importer and MDS30EpisodesofCare projects.

2. Check and verify the Admission dataset is has current data.

    a. If current continue, otherwise run the MDS30EpisodesofCare project.

3. Open up the MDS30AdmissionCurrent Project in SAS Enterprise Guide.

4. In the Project Tree window, open up the Set Parameters process flow.

5. In the Set Parameters process flow, open up the Set Admission Current Variables program.

6. Save Set Admission Current Variables program.

7. Run Set Admission Current Variables program.

    a. If successful program execution continue, otherwise edit Set Admission Current Variables program and re-run.

8. In the Process Flow Window, open up the drop menu under the RUN button by selecting the black down arrow.

9. Select the Run Project menu item.

    a. The entire MDS30AdmissionCurrent project will now execute.

Alternate execution of individual Process Flows:

Do Steps 1-7 above.

8. In the Process Flow Window, open up the drop menu under the RUN button by selecting the black down arrow.

9. Select the Run Set Admission Current menu item.

   a. If successful program execution continue, otherwise edit Set Import Variables program and re-run.

10. In the Project Tree window, open up the Create Admission And Current Table process flow.

11. In the Process Flow Window, open up the drop menu under the RUN button by selecting the black down arrow.

12. Select the Run Create Admission And Current Table Data menu item.

   a. If successful program execution continue, otherwise examine program logs, edit, save and re-run.

2.1.11 Running MDS Manager Validation Reports

1. Open up the MDS_Reporting Project in SAS Enterprise Guide.

2. In the Project Tree window Open up the Set Parameters process flow.

3. In the Set Parameters process flow, Open up the Set Reporting Variables program.

4. Save Set Reporting Variables program.

5. Run Set Reporting Variables program.

   a. If successful program execution continue, otherwise edit Set Reporting Variables program and re-run.

6. In the Process Flow Window Open up the drop menu under the RUN button by selecting the black down arrow.

7. Select the Run Project menu item.

   a. The entire MDS_Reporting project will now execute.

Alternate execution of individual Process Flows:

Do Steps 1-5 above.

6. In the Process Flow Window, Open up the drop menu under the RUN button by selecting the black down arrow.

7. Select the Run Set Reporting Variables menu item.

   a. If successful program execution continue, otherwise edit Set Reporting Variables program and re-run.

8. In the Project Tree window, Open up the Outlier - Stay Overlap process flow.

9. In the Process Flow Window, Open up the drop menu under the RUN button by selecting the black down arrow.

10. Select the Run Outlier - Stay Overlap menu item.

    a. If successful program execution continue, otherwise examine program logs, edit, save and re-run.

11. In the Project Tree window, Open up the Outlier - Cross Episode LOS process flow.

12. In the Process Flow Window, Open up the drop menu under the RUN button by selecting the black down arrow.

13. Select the Run Outlier - Cross Episode LOS menu item.

    a. If successful program execution continue, otherwise examine program logs, edit, save and re-run.

14. In the Project Tree window, Open up the Outlier - Cross Year LOS process flow.

15. In the Process Flow Window, Open up the drop menu under the RUN button by selecting the black down arrow.

16. Select the Run Outlier - Cross Year LOS menu item.

    a. If successful program execution continue, otherwise examine program logs, edit, save and re-run.

17. In the Project Tree window, Open up the Outlier - LOS Exceeds process flow.

18. In the Process Flow Window, Open up the drop menu under the RUN button by selecting the black down arrow.

19. Select the Run Outlier - LOS Exceeds menu item.

    a. If successful program execution continue, otherwise examine program logs, edit, save and re-run.

20. In the Project Tree window, Open up the Outlier - Number Of Stays Exceeds process flow.

21. In the Process Flow Window, Open up the drop menu under the RUN button by selecting the black down arrow.

22. Select the Run Outlier - Number Of Stays Exceeds menu item.

    a. If successful program execution continue, otherwise examine program logs, edit, save and re-run.

2.1.12 Running Miscellaneous Reports

The following miscellaneous reports are available to be run:

- Residency Count

- Flu Season

- Birth Dates

- Missing Data Analysis

- Bad Episodes

- Duplicate Records in Import

Since these reports are only run occasionally for a specific purpose, please speak with a developer to have a report generated.

2.1.13 Consumer Guide Table

The MDS30ConsumerGuide project is used to create Consumer Guide datasets for a specific date range. This project is separate from the MDS Manager program. Instructions for running the project are only included in this end user manual for convenience.

1. Verify there is no new data to be imported.

   a. If none continue, otherwise run the MDS30Importer and MDS30EpisodesofCare projects.

2. Check and verify the Admission dataset is has current data.

   a. If current continue, otherwise run the MDS30EpisodesofCare project.

3. Open up the MDS30ConsumerGuide Project in SAS Enterprise Guide.

4. In the Project Tree window Open up the Set Parameters process flow.

5. In the Set Parameters process flow Open up the Set Consumer Guide Variables program.

6. Save Set Consumer Guide Variables program.

7. Run Set Consumer Guide Variables program.

   a. If successful program execution continue, otherwise edit Set Consumer Guide Variables program and re-run.

8. In the Process Flow Window Open up the drop menu under the RUN button by selecting the black down arrow.

9. Select the Run Project menu item.

   a. The entire MDS30ConsumerGuide project will now execute.

Alternate execution of individual Process Flows:

Do Steps 1-7 above.

8. In the Process Flow Window Open up the drop menu under the RUN button by selecting the black down arrow.

9. Select the Run Set Consumer Guide menu item.

    a. If successful program execution continue, otherwise edit Set Consumer Guide Variables program and re-run.

10. In the Project Tree window Open up the Create Consumer Guide Table process flow.

11. In the Process Flow Window Open up the drop menu under the RUN button by selecting the black down arrow.

12. Select the Run Create Consumer Guide Table Data menu item.

    a. If successful program execution continue, otherwise examine program logs, edit, save and re-run.

3 Detailed Description of Application Processes

This section contains a detailed description of the processing activities that occur when the MDS Manager scripts are run.

3.1 Importing the Facility Data Provided by CMS

There is no detail needed for this import process. This section is currently a place holder in case there is a future need.

3.2 Importing New MDS Data Provided by CMS

3.2.1 Date Field Validation

MDS items that contain dates are converted to a YYMMDD8 format for storage in the tables. Dates are not validated by MDS Manager.

3.2.2 Resident Data Update

When new MDS data is imported, resident data that does not already exist in the Resident and Resident Criteria tables is added to the tables. MDS Manager uses this method to update the resident tables instead of importing the Resident file generated by CMS. This is done because the Resident file from CMS can lag in notifying MDS Manager of new residents or changes in resident information.

The process uses the following fields to determine if a new resident exists. The process is able to differentiate between a new resident and a change in resident information.

- CMS Resident ID
- Resident First Name
- Resident Middle Initial
- Resident Last Name
- Resident Name Suffix
- Gender
- Date of Birth
- Ethnicity
- Social Security Number

This process also selects ZIP Code for the new resident from the most recent assessment and stores it in the Resident table.

3.2.3 RUG Calculation

Before the MDS data is loaded into the database tables, information provided in each

assessment is used to determine the RUG (Resource Utilization Group) score. This calculation is performed for each assessment during the data import process so that the classification is available for use by later processes, reducing the running time of the later processes. The RUG score using MDS 2.0 data is calculated based upon the pseudo-code for the 34-group model of version 5.12b of the M3PI classification system provided by CMS. A description of this calculation is included in Appendix A. The RUG score using MDS 3.0 data is calculated using the same pseudo-code and the "RUG-III MDS 3.0 Mapping Specifications" document provided by CMS. This document is also included in Appendix A.

Two scores, the RUG ADL score and the RUG CPS score, are used in the calculation of the RUG score for an assessment. These scores are also used as part of other calculations in the Admission/Current table. The calculation of the RUG ADL and RUG CPS scores is described below.

3.2.4 RUG ADL Score

The RUG Activities of Daily Living (ADL) Score is used in all determinations of a resident's placement in a RUG-III category. It is also used in the calculation of the Diversion Potential score for Maryland. Research has determined that these late loss ADLs are more predictive of resource use than other ADLs.

3.2.4.1 MDS 2.0 Calculation

A. To find the ADL scores for Bed mobility (G1aA=Self-Performance; G1aB=Support), Transfer (G1bA=Self-Performance; G1bB=Support), and Toilet use (G1iA=Self-Performance; G1iB=Support), compare the MDS item responses for Self-Performance (A) and Support (B) to CHART A. Record the three ADL scores (one each for Bed mobility, Transfer, and Toilet use).

CHART A

IF Self-Performance (G1_A) =	AND Support (G1_B) =	ADL Score =
0 or 1	* (any number)	1
2	* (any number)	3
3 or 4	2	4
3, 4 or 8	3 or 8	5

B. To find the Eating ADL score, check the MDS item responses to Parenteral/IV (K5a), Feeding tube (K5b), Total calories (K6a) and Average fluid intake (K6b).

1. If Parenteral/IV (K5a) is checked ('1'), the Eating ADL score is 3.

2. If Feeding tube (K5b) is checked ('1')   **AND**

    a. Total calories (K6a) = 3 or 4   **OR**

   b. Total calories (K6a) = 2   **AND** Average fluid intake (K6b) = 2, 3, 4 or 5

   the Eating ADL score is 3.

3. If neither condition 1 or 2 is met, note the number from Eating Self-performance (G1hA) and find the ADL score from CHART B.

CHART B

IF G1hA =	ADL Score =
0 or 1	1
2	2
3, 4 or 8	3

Add the four scores (Bed mobility, Transfer, Toilet use and Eating). The total is the RUG ADL Score which will be between 4 and 18.

3.2.4.2 MDS 3.0 Version 1.00 Calculation

A. To find the ADL scores for Bed mobility (G0110A1=Self-Performance; G0110A2=Support), Transfer (G0110B1=Self-Performance; G0110B2=Support), and Toilet use (G0110I1=Self-Performance; G0110I2=Support), compare the MDS item responses for Self-Performance (1) and Support (2) to CHART A. Record the three ADL scores (one each for Bed mobility, Transfer, and Toilet use).

CHART A

IF Self-Performance (G0110_1) =	AND Support (G0110_2) =	ADL Score =
-, 0, 1, or 7	* (any number)	1
2	* (any number)	3
3, 4, or 8	-, 0, 1, or 2	4
3, 4, or 8	3 or 8	5

B. To find the Eating ADL score, check the MDS item responses to Parenteral/IV (K0500A), Feeding tube (K0500B), Total calories (K0700A) and Average fluid intake (K0700B).

1. If Parenteral/IV (K0500A) is checked ('1'), the Eating ADL score is 3.

2. If Feeding tube (K0500B) is checked ('1')   **AND**

   a. Total calories (K0700A) = 3   **OR**

   b. Total calories (K0700A) = 2   **AND** Average fluid intake (K0700B) = 2

the Eating ADL score is 3.

3. If neither condition 1 or 2 is met, note the number from Eating Self-performance (G0110H1) and find the ADL score from CHART B.

CHART B

IF G0110H1 =	ADL Score =
-, 0, 1, or 7	1
2	2
3, 4 or 8	3

Add the four scores (Bed mobility, Transfer, Toilet use and Eating). The total is the RUG ADL Score which will be between 4 and 18.

3.2.4.3 MDS 3.0 Version 1.10 Calculation

A. To find the ADL scores for Bed mobility (G0110A1=Self-Performance; G0110A2=Support), Transfer (G0110B1=Self-Performance; G0110B2=Support), and Toilet use (G0110I1=Self-Performance; G0110I2=Support), compare the MDS item responses for Self-Performance (1) and Support (2) to CHART A. Record the three ADL scores (one each for Bed mobility, Transfer, and Toilet use).

CHART A

IF Self-Performance (G0110_1) =	AND Support (G0110_2) =	ADL Score =
-, 0, 1, or 7	* (any number)	1
2	* (any number)	3
3, 4, or 8	-, 0, 1, or 2	4
3, 4, or 8	3 or 8	5

B. To find the Eating ADL score, check the MDS item responses to Parenteral/IV (K0510A1 and K0510A2), Feeding tube (K0510B1 and K0510B2), Total calories (K0700A) and Average fluid intake (K0700B).

1. If Parenteral/IV (K0510A1 or K0510A2) is checked ('1'), the Eating ADL score is 3.

2. If Feeding tube (K0510B1 or K0510B2) is checked ('1') **AND**

    a. Total calories (K0700A) = 3   **OR**

    b. Total calories (K0700A) = 2 **AND** Average fluid intake (K0700B) = 2

the Eating ADL score is 3.

3. If neither condition 1 or 2 is met, note the number from Eating Self-performance (G0110H1) and find the ADL score from CHART B.

CHART B

IF G0110H1 =	ADL Score =
-, 0, 1, or 7	1
2	2
3, 4 or 8	3

Add the four scores (Bed mobility, Transfer, Toilet use and Eating). The total is the RUG ADL Score which will be between 4 and 18.

3.2.4.4 MDS 3.0 Version 1.13 Calculation

A. To find the ADL scores for Bed mobility (G0110A1=Self-Performance; G0110A2=Support), Transfer (G0110B1=Self-Performance; G0110B2=Support), and Toilet use (G0110I1=Self-Performance; G0110I2=Support), compare the MDS item responses for Self-Performance (1) and Support (2) to CHART A. Record the three ADL scores (one each for Bed mobility, Transfer, and Toilet use).

CHART A

IF Self-Performance (G0110_1) =	AND Support (G0110_2) =	ADL Score =
-, 0, 1, or 7	* (any number)	1
2	* (any number)	3
3, 4, or 8	-, 0, 1, or 2	4
3, 4, or 8	3 or 8	5

B. To find the Eating ADL score, check the MDS item responses to Parenteral/IV (K0510A1 and K0510A2), Feeding tube (K0510B1 and K0510B2), Total calories (K0710A3) and Average fluid intake (K0710B3).

1. If Parenteral/IV (K0510A1 or K0510A2) is checked ('1'), the Eating ADL score is 3.

2. If Feeding tube (K0510B1 or K0510B2) is checked ('1') **AND**

    a. Total calories (K0710A3) = 3 **OR**

    b. Total calories (K0710A3) = 2 **AND** Average fluid intake (K0710B3) = 2

the Eating ADL score is 3.

3. If neither condition 1 or 2 is met, note the number from Eating Self-performance (G0110H1) and find the ADL score from CHART B.

CHART B

IF G0110H1 =	ADL Score =
-, 0, 1, or 7	1
2	2
3, 4 or 8	3

Add the four scores (Bed mobility, Transfer, Toilet use and Eating). The total is the RUG ADL Score which will be between 4 and 18.

3.2.5 RUG CPS Score

The Cognitive Performance Scale (CPS) is a scale using selected items from the MDS to objectively evaluate an individual's cognitive status. In the RUG-III version 5.12 classification, a score of 3 or higher qualifies the resident for the Impaired Cognition category. It is also used in the calculation of the Diversion Potential score for Maryland. For further information on this tool, consult Morris, J.N., Fries, B.F., et al, "MDS Cognitive Performance Scale," Journal of Gerontology, 1994, Vol. 49, No. 4, M174 - M182.

3.2.5.1 MDS 2.0 Calculation

Very Severe Impairment, Score of 6. The resident is placed in this category if:

Coma   B1 = 1
OR
Decision Making   B4 = 3   **AND**
Eating Self-Performance   G1hA = 4 or 8

Severe Impairment, Score of 5. The resident is placed in this category if:

Decision Making   B4 = 3   **AND**
Eating Self-Performance   G1hA = 0, 1, 2 or 3

Calculate the Impairment Count:

MDS Item	Value	Add
Short Term Memory (B2a)	1	1
Decision Making (B4)	1 or 2	1
Making Self Understood (C4)	1, 2 or 3	1

Calculate the Severe Impairment Count:

MDS Item	Value	Add
Decision Making (B4)	2	1
Making Self Understood (C4)	2 or 3	1

Moderately Severe Impairment, Score of 4. The resident is placed in this category if:

Impairment Count   = 2 or 3   **AND**
Severe Impairment Count   = 2

Moderate Impairment, Score of 3. The resident is placed in this category if:

Impairment Count   = 2 or 3   **AND**
Severe Impairment Count   = 1

Mild Impairment, Score of 2. The resident is placed in this category if:

Impairment Count   = 2 or 3   **AND**
Severe Impairment Count   = 0

Borderline Intact, Score of 1. The resident is placed in this category if:

Impairment Count   = 1   **AND**
Severe Impairment Count   = 0

Intact, Score of 0. The resident is placed in this category if:

Impairment Count   = 0   **AND**
Severe Impairment Count   = 0

3.2.5.2 MDS 3.0 Version 1.00 Calculation

For MDS 3.0, the Brief Interview for Mental Status (BIMS) score of 0-15 is calculated and entered in item C0500. A BIMS score of 0-9 is considered to be impaired. If available, this value is used in calculating a RUG for the assessment.

The CPS score for a resident is only calculated if the BIMS score is not completed. Entering a BIMS score in item C0500 triggers a skip pattern and items C0700 and C1000 are not completed.

Very Severe Impairment, Score of 6. The resident is placed in this category if:

Coma   B0100 = 1
OR
Decision Making   C1000 = 3   **AND**
Eating Self-Performance   G0110H1 = 4 or 8

Severe Impairment, Score of 5. The resident is placed in this category if:

Decision Making	C1000 = 3 **AND**
Eating Self-Performance	G0110H1 = 0, 1, 2 or 3

Calculate the Impairment Count:

MDS Item	Value	Add
Short Term Memory (C0700)	1	1
Decision Making (C1000)	1 or 2	1
Making Self Understood (B0700)	1, 2 or 3	1

Calculate the Severe Impairment Count:

MDS Item	Value	Add
Decision Making (C1000)	2	1
Making Self Understood (B0700)	2 or 3	1

Moderately Severe Impairment, Score of 4. The resident is placed in this category if:

Impairment Count	= 2 or 3 **AND**
Severe Impairment Count	= 2

Moderate Impairment, Score of 3. The resident is placed in this category if:

Impairment Count	= 2 or 3 **AND**
Severe Impairment Count	= 1

Mild Impairment, Score of 2. The resident is placed in this category if:

Impairment Count	= 2 or 3 **AND**
Severe Impairment Count	= 0

Borderline Intact, Score of 1. The resident is placed in this category if:

Impairment Count	= 1 **AND**
Severe Impairment Count	= 0

Intact, Score of 0. The resident is placed in this category if:

Impairment Count	= 0 **AND**
Severe Impairment Count	= 0

3.2.5.3 MDS 3.0 Version 1.10 Calculation

The MDS 3.0 Version 1.10 calculation is the same as the MDS 3.0 Version 1.00 calculation. No items used in the calculation of this value were modified between the versions.

3.2.5.4 MDS 3.0 Version 1.13 Calculation

The MDS 3.0 Version 1.13 calculation is the same as the MDS 3.0 Version 1.10 calculation. No items used in the calculation of this value were modified between the versions.

3.2.6 Degree of Care Score

The resident's Degree of Care (DOC) score is classified as Light (1), Moderate (2), Heavy (3), or Heavy Special (4) for each assessment. The DOC score will be stored in the AdmDOC and CurDOC fields of the Admission/Current table for the selected Admission and Last assessments.

The DOC score is calculated based on a resident's dependence in specified activities for daily living. This is a different calculation than the RUG ADL score. This DOC score is an accumulation of points based on the information provided for mobility, bathing, dressing, continence, and eating.

3.2.6.1 MDS 2.0 Calculation

The DOC score is assigned a point for mobility if the resident meets any one of the following conditions:

- Transfer G1bA = 2, 3, or 4
- Walk in Room G1cA = 2, 3, or 4
- Walk in Corridor G1dA = 2, 3, or 4
- Locomotion on Unit G1eA = 2, 3, or 4

The DOC score is assigned a point for bathing if Bathing G2a = 3 or 4.

The DOC score is assigned a point for dressing if Dressing G1ga = 2, 3, or 4.

The DOC score is assigned a point for eating if the resident meets any one of the following conditions:

- Eating G1ha = 2, 3, or 4
- Feeding Tube K5b = 1
- Parenteral/Enteral Intake Calories K6a = 1, 2, 3, or 4
- Parenteral/Enteral Intake Fluid K6b = 1, 2, 3, 4, or 5

The DOC score is assigned a point for continence if the resident meets any one of the following conditions:

- Toilet Use G1ia = 3 or 4
- Bowel Continence H1a = 3 or 4
- Bladder Continence H1b = 3 or 4

- Scheduled Toileting Plan H3a = 1
- Bladder Retraining Program H3b = 1
- External (Condom) Catheter H3c = 1
- Indwelling Catheter H3d = 1
- Ostomy Present H3i = 1

The resident qualifies for special services if they meet any one of the following conditions:

- HIV Infection I2d = 1
- Viral Hepatitis I2k = 1
- Parenteral/IV K5a = 1
- Ulcers Stage 3 M1c >= 1
- Ulcers State 4 M1d >= 1
- Pressure Ulcer M2a = 3 or 4
- Stasis Ulcer M2b = 3 or 4
- Feeding Tube K5b = 1 AND Eating G1hA = 4
- Ventilator or Respirator P1al = 1

If the total DOC score is 2 or lower, the resident classifies as Light (1). If the total DOC score is 3 or 4, the resident classifies as Moderate (2). If the total DOC score is 5 and the resident does not qualify for special services, the resident classifies as Heavy (3). If the total DOC score is 5 and the resident does qualify for special services, the resident classifies as Heavy Special (4).

3.2.6.2 MDS 3.0 Version 1.00 Calculation

The DOC score is assigned a point for mobility if the resident meets any one of the following conditions:

- Transfer G0110B1 = 2, 3, or 4
- Walk in Room G0110C1 = 2, 3, or 4
- Walk in Corridor G0110D1 = 2, 3, or 4
- Locomotion on Unit G0110E1 = 2, 3, or 4

The DOC score is assigned a point for bathing if:

- Bathing G0120A = 3 or 4

The DOC score is assigned a point for dressing if:

- Dressing G0110G1 = 2, 3, or 4

The DOC score is assigned a point for eating if the resident meets any one of the following conditions:

- Eating G0110H1 = 2, 3, or 4
- Feeding Tube K0500B = 1
- Parenteral/Enteral Intake Calories K0700A = 3

The DOC score is assigned a point for continence if the resident meets any one of the following conditions:
- Toilet Use G0110I1 = 2, 3 or 4
- Bowel Continence H0400 = 2 or 3
- Urinary Continence H0300 = 2 or 3
- Current Toileting Program or Trial H0200C = 1
- Bowel Toileting Program H0500 = 1
- Indwelling Catheter H0100A = 1
- External Catheter H0100B = 1
- Ostomy H0100C = 1
- Intermittent Catheterization H0100D = 1

The resident qualifies for special services if they meet any one of the following conditions:
- HIV Infection I8000A-J = 042
- Viral Hepatitis I2400 = 1
- Parenteral/IV Feeding K0500A = 1
- Pressure Ulcers Stage 3 M0300C1 >= 1
- Pressure Ulcers Stage 4 M0300D1 >= 1
- Pressure Ulcers Unstageable-Slough and/or Eschar M0300F >= 1
- Feeding Tube K0500B = 1 AND Eating G0110H1 = 3 or 4 AND Parenteral/Enteral Intake Calories K0700A = 3
- Ventilator or Respirator While Not a Resident O0100F1 = 1
- Ventilator or Respirator While a Resident O0100F2 = 1

If the total DOC score is 2 or lower, the resident classifies as Light (1). If the total DOC score is 3 or 4, the resident classifies as Moderate (2). If the total DOC score is 5 and the resident does not qualify for special services, the resident classifies as Heavy (3). If the total DOC score is 5 and the resident does qualify for special services, the resident classifies as Heavy Special (4).

3.2.6.3 MDS 3.0 Version 1.10 Calculation

The DOC score is assigned a point for mobility if the resident meets any one of the following conditions:
- Transfer G0110B1 = 2, 3, or 4
- Walk in Room G0110C1 = 2, 3, or 4
- Walk in Corridor G0110D1 = 2, 3, or 4
- Locomotion on Unit G0110E1 = 2, 3, or 4

The DOC score is assigned a point for bathing if:
- Bathing G0120A = 3 or 4

The DOC score is assigned a point for dressing if:
- Dressing G0110G1 = 2, 3, or 4

The DOC score is assigned a point for eating if the resident meets any one of the following conditions:
- Eating G0110H1 = 2, 3, or 4
- Feeding Tube While Not a Resident K0510B1 = 1
- Feeding Tube While a Resident K0510B2 = 1
- Parenteral/Enteral Intake Calories K0700A = 3

The DOC score is assigned a point for continence if the resident meets any one of the following conditions:
- Toilet Use G0110I1 = 2, 3 or 4
- Bowel Continence H0400 = 2 or 3
- Urinary Continence H0300 = 2 or 3
- Current Toileting Program or Trial H0200C = 1
- Bowel Toileting Program H0500 = 1
- Indwelling Catheter H0100A = 1
- External Catheter H0100B = 1
- Ostomy H0100C = 1
- Intermittent Catheterization H0100D = 1

The resident qualifies for special services if they meet any one of the following conditions:
- HIV Infection I8000A-J = 042
- Viral Hepatitis I2400 = 1
- Parenteral/IV Feeding While Not a Resident K0510A1 = 1
- Parenteral/IV Feeding While a Resident K0510A2 = 1
- Pressure Ulcers Stage 3 M0300C1 >= 1
- Pressure Ulcers Stage 4 M0300D1 >= 1
- Pressure Ulcers Unstageable-Slough and/or Eschar M0300F >= 1
- Feeding Tube While Not a Resident K0510B1 = 1 AND Eating G0110H1 = 3 or 4 AND Parenteral/Enteral Intake Calories K0700A = 3
- Feeding Tube While a Resident K0510B2 = 1 AND Eating G0110H1 = 3 or 4 AND Parenteral/Enteral Intake Calories K0700A = 3
- Ventilator or Respirator While Not a Resident O0100F1 = 1
- Ventilator or Respirator While a Resident O0100F2 = 1

If the total DOC score is 2 or lower, the resident classifies as Light (1). If the total DOC score is 3 or 4, the resident classifies as Moderate (2). If the total DOC score is 5 and the resident does not qualify for special services, the resident classifies as Heavy (3). If the total DOC score is 5 and the resident does qualify for special services, the resident classifies as Heavy Special (4).

3.2.6.4 MDS 3.0 Version 1.13 Calculation

The DOC score is assigned a point for mobility if the resident meets any one of the following conditions:

- Transfer G0110B1 = 2, 3, or 4
- Walk in Room G0110C1 = 2, 3, or 4
- Walk in Corridor G0110D1 = 2, 3, or 4
- Locomotion on Unit G0110E1 = 2, 3, or 4

The DOC score is assigned a point for bathing if:

- Bathing G0120A = 3 or 4

The DOC score is assigned a point for dressing if:

- Dressing G0110G1 = 2, 3, or 4

The DOC score is assigned a point for eating if the resident meets any one of the following conditions:

- Eating G0110H1 = 2, 3, or 4
- Feeding Tube While Not a Resident K0510B1 = 1
- Feeding Tube While a Resident K0510B2 = 1
- Parenteral/Enteral Intake Calories K0710A3 = 3

The DOC score is assigned a point for continence if the resident meets any one of the following conditions:

- Toilet Use G0110I1 = 2, 3 or 4
- Bowel Continence H0400 = 2 or 3
- Urinary Continence H0300 = 2 or 3
- Current Toileting Program or Trial H0200C = 1
- Bowel Toileting Program H0500 = 1
- Indwelling Catheter H0100A = 1
- External Catheter H0100B = 1
- Ostomy H0100C = 1
- Intermittent Catheterization H0100D = 1

The resident qualifies for special services if they meet any one of the following conditions:

- HIV Infection I8000A-J = 042
- Viral Hepatitis I2400 = 1
- Parenteral/IV Feeding While Not a Resident K0510A1 = 1
- Parenteral/IV Feeding While a Resident K0510A2 = 1
- Pressure Ulcers Stage 3 M0300C1 >= 1
- Pressure Ulcers Stage 4 M0300D1 >= 1
- Pressure Ulcers Unstageable-Slough and/or Eschar M0300F >= 1
- Feeding Tube While Not a Resident K0510B1 = 1 AND Eating G0110H1 = 3 or 4

AND Parenteral/Enteral Intake Calories K0710A3 = 3
- Feeding Tube While a Resident K0510B2 = 1 AND Eating G0110H1 = 3 or 4 AND Parenteral/Enteral Intake Calories K0710A3 = 3
- Ventilator or Respirator While Not a Resident O0100F1 = 1
- Ventilator or Respirator While a Resident O0100F2 = 1

If the total DOC score is 2 or lower, the resident classifies as Light (1). If the total DOC score is 3 or 4, the resident classifies as Moderate (2). If the total DOC score is 5 and the resident does not qualify for special services, the resident classifies as Heavy (3). If the total DOC score is 5 and the resident does qualify for special services, the resident classifies as Heavy Special (4).

3.3 Importing ZIP Code Data

3.3.1 ZIP Code Database Files

Historically, MHCC received periodic updates to the ZIP code data. The format of the data file received by MHCC is a MapInfo table (*.tab) file. MHCC will convert the MapInfo table into a CSV file with two columns in the following order: ZIP Code and State/County FIPS Code. The converted CSV file will be imported by MDS Manager. MDS Manager can apply these updates to the historical data.

Currently, the source of Zip Code data is under discussion. The ability to import ZIP Code updates to MDS Manager using the files previously received has not been coded in the SAS version of the program. As the final source of ZIP Code data is determined, MDS Manager will be updated to import updates to the files.

3.4 Creating the Admissions Table

3.4.1 The Admissions Table

The facility, MDS and CCRC/Subacute data for the year must have been imported before performing this step. Also, the ZIP code data should be updated with the most recent information.

Using the data files imported into MDS Manager, the application calculates the length of stays of Maryland nursing facility residents for all MDS 2.0 and MDS 3.0 assessments in the tables. Please note that a resident may have multiple stays. The Admission table stores each stay that is determined, specific MDS items for each stay requested by MHCC, and scores that are calculated based on MDS items.

3.4.2 Processes Run To Create the Admissions Table

The Admissions table processes include Building the Activity Log, Identifying the Episodes of Care, Selection of Pertinent MDS Records, Resident Diversion, and Area of Residence Determination.

The Admissions table processes only need to be run if new facility or MDS data has been imported since the last time an Admissions table was generated. If new facility or MDS data has not been imported, the Admissions table processes do not need to be run and the data in the existing Admissions table can be used to create a new Admission/Current table. For example, if you have generated the Admission/Current file for calendar year 1999 and no new data has been imported, the Admissions table processes do not need to be run when you generate the Admission/Current file for calendar year 2000.

If new facility or MDS data has been imported since the last time the Admissions table was generated, the Admissions table processes do need to be run. When a new Admissions table is generated, the Stay_ID assigned to a stay in the prior table will change.

3.4.3 Building the Activity Log

The Activity Log table is built that contains activity from every resident's MDS records. This Activity Log table is used to track the dates when the resident is considered either in the facility or not in the facility.

MDS Manager shall build the Activity Log table depicting the residency status throughout every resident's entire history recorded in the MDS. This list shall be built based on the MDS records for each resident, and shall adhere to the following logic, which was developed to clean the erroneous entries in the assessment records. MDS 2.0 and MDS 3.0 records are processed differently. The Activity Log table shall also track the facility in which the activity occurred (identified by Fac_ID).

3.4.3.1 MDS 2.0 Processing

1. If AA8a = 01-10 AND A3a contains a date AND A3a is >= AA3, the resident is added to the activity log as being in the facility as of the date in A3a.

2. If AA8a = 00 AND A3a contains a date AND A3a is >= AA3, the resident is added to the activity log as being in the facility as of the date in A3a.

3. If AA8a = 00-07 or 09-10 AND AB1 contains a date AND AB1 is >= AA3 AND R4 is empty or is >= AB1, the resident is added to the activity log as being in the facility as of the date in AB1.

4. If AA8a = 08 AND AB1 contains a date AND AB1 is >= AA3 AND R4 – AB1 is <= 30 days, the resident is added to the activity log as being in the facility as of the date in AB1.

5. If A4a contains a date AND A4a is >= AA3 AND AB1 is empty or is <= A4a, the resident is added to the activity log as being in the facility as of the date in A4a.

6. If AA8a = 06 or 07 AND R4 contains a date AND R4 is >= AA3, the resident is added to the activity log as being in the facility as of the date in R4.

7. If R4 contains a date AND R4 is >= AA3, the resident is added to the activity log as being out of the facility as of the date in R4.

3.4.3.2 MDS 3.0 Version 1.00 Processing

1. If A0310A = 01-06 AND A2300 contains a date AND A2300 is >= A0900, the resident is added to the activity log as being in the facility as of the date in A2300.

2. If A0310B = 01-07 AND A2300 contains a date AND A2300 is >= A0900, the resident is added to the activity log as being in the facility as of the date in A2300.

3. If A1600 contains a date AND A1600 is >= A0900, the resident is added to the activity log as being in the facility as of the date in A1600.

4. If A2000 contains a date AND A2000 is >= A0900, the resident is added to the facility as being out of the facility as of the date in A2000.

3.4.3.3 MDS 3.0 Version 1.10 Processing

The MDS 3.0 Version 1.10 processing is the same as the MDS 3.0 Version 1.00 processing. No items used in the processing for the activity log were modified between the versions.

3.4.3.4 MDS 3.0 Version 1.13 Processing

The MDS 3.0 Version 1.13 processing is the same as the MDS 3.0 Version 1.10 processing. No items used in the processing for the activity log were modified between the versions.

3.4.4 Identifying the Episodes of Care

The episodes of care for each resident and facility combination are then identified using the Activity Log table constructed above and saved to the Residency Log table. Since the process used to calculate the episodes of care is based on the data in the Activity Log table, it does not vary due to the version of the assessment. Each episode of care applicable to a resident is calculated. The episodes are calculated from admission/entry date through discharge date or the end of the available MDS data. Each row in the Residency Log table indicates a single stay.

Initially, the system shall consider the resident as not being in any facility. Each entry in the Activity Log table shall be processed sequentially by date, using the following logic. Due to the fact that the resident is considered to be not in a facility at the start of this process, the first iteration for a resident will always bypass steps 1 through 4.

1. Is a stay being tracked AND does the prior activity indicate the stay's potential end AND does the current activity indicate the resident is in a facility?

    A. If no, move to 2.

    B. If yes, is the current activity more than 14 days after the prior activity or for a different facility?

        i. If no, flag the stay as not potentially ending and move to 2.

        ii. If yes, track the stay's end date as either 14 days after the potential ending date or the date of the current activity, whichever comes first. Save the stay to the stay log. Move to 2.

2. Is a stay being tracked AND does the current activity indicate the resident is in a different facility?

    A. If no, move to 3.

    B. If yes, track the stay's end date as the date of the current activity. Save the stay to the stay log. Move to 3.

3. Is there a stay being tracked AND does the current activity indicate the resident is not in a facility?

    A. If no, move to 4.

    B. If yes, is the current activity due to a Discharge-Return Anticipated?

        i. If no, track the stay's end date as the date of the current activity. Save the stay to the stay log. Move to 4.

        ii. If yes, flag the stay as potentially ending. Move to 4.

4. Is there a stay being tracked AND is there a gap of at least 200 days between the current and prior activity?

    A. If no, move to 5.

    B. If yes, track the stay's end date as the date of the current activity. Save the stay to the stay log. Move to 5.

5. Is there no stay being tracked AND is there activity that places the resident in a facility?

    A. If no, move to 7.

    B. If yes, track the new stay. Move to 6.

6. Is the current activity an Admission assessment with a Reentry date?

    A. If yes, set the stay begin date equal to the Reentry date. Move to 6C.

    B. If no, is the current activity an Admission assessment without a Reentry date?

        i. If yes, is the entry date on or after the end date of the prior stay?

            1. If yes, set the stay begin date equal to the entry date. Move to 6C.

            2. If no, set the stay begin date equal to the assessment reference date. Move to 6C.

        ii. If no, is the current activity a reentry tracking form?

            1. If yes, set the stay begin date equal to the reentry date. Move to 6C.

            2. If no, is the current activity a Discharge Prior to Completing Initial Assessment (MDS 2.0 only)?

                a. If yes, is there an entry date and is the discharge date within 14 days following the entry date?

                        i.   If yes, set the stay begin date equal to the entry date. Move to 6C.

                      ii. If no, move to 6C.

         b. If no, is there a reentry date?

                        i.   If yes, set the stay begin date equal to the latter of the entry and reentry dates. Move to 6C.

                      ii. If no, set the stay begin date equal to the entry date. Move to 6C.

   C. Is the stay begin date is still unknown?

               i.   If yes, set the stay begin date equal to the effective date. Move to 7.

              ii. If no, is the stay begin date is prior to the date of birth AND is the date of birth is prior to the effective date?

                     1. If yes, set the stay begin date equal to the effective date. Move to 7.

                     2. If no, move to 7.

7. Is the current activity from an OBRA or PPS assessment?

   A. If no, move to 11.

   B. If yes, track the MDS record as the latest assessment for the stay. Move to 8.

8. Has the first assessment for the stay been identified?

   A. If no, track the MDS record as the first assessment for the stay. Move to 9.

   B. If yes, move to 9.

9. Is the current activity from a comprehensive assessment?

   A. If no, move to 11.

   B. If yes, track the MDS record as the latest full assessment for the stay. Move to 10.

10. Has the first full assessment for the stay been identified?

   A. If no, track the MDS record as the first full assessment for the stay. Move to 11.

   B. If yes, move to 11.

11. Determine if the MDS record for the current activity should be used for face sheet information, first assessment, last assessment, first full assessment and/or last full assessment. Return to 1.

After each entry in the activity log for a resident has been processed, the following logic shall be performed to record any stays that have not ended. This is a final check that is performed after all entries in the activity log have been processed.

1. Does the latest activity indicate the resident is in a facility?

    a. If no, move to the next resident.

    b. If yes, is the stay flagged as potentially ending more than 14 days prior to the Max Date?

        i. If yes, set the end date 14 days after the potential end date. Move to 2.

        ii. If no, is the latest activity for the stay more than 200 days prior to the Max Date?

            1. If no, move to 2.

            2. If yes, set the end date to the date of the latest activity. Move to 2.

2. Save the stay to the stay log. Move to the next resident.

In the above logic, when the phrase "Save the stay to the stay log" appears, the following logic will be followed:

1. Is there a prior stay for the resident?

    a. If no, write the new stay to the stay log.

    b. If yes, is the prior stay for the same facility?

        i. If no, write the new stay to the stay log.

        ii. If yes, did the prior stay end due to a discharge-return not anticipated AND was the end date of the prior stay within three days of the stay begin date of the current stay?

            1. If yes, update the prior stay's end date, last assessment and last full assessment with those from the current stay.

            2. If no, did the prior stay end due to a Discharge Prior to Completing Initial Assessment (MDS 2.0 only) AND was the end date of the prior stay within fourteen days of the stay begin date of the current stay?

                a. If yes, update the prior stay's end date, last assessment and last full assessment with those from the current stay.

                b. If no, was the end date of the prior stay within one day of the stay begin date of the current stay?

                    i. If yes, update the prior stay's end date, last assessment and last full assessment with those from the current stay.

                    ii. If no, write the new stay to the stay log.

3.4.5 Selection of Pertinent MDS Records

The MDS records that provide information at different times during a resident's episode of care are identified in steps 7 through 11 in the above logic and saved in the Residency Log table for use in later analysis. The records identified are the Admission (or proxy Admission) assessment, the MDS record providing the entry date, the MDS record providing the most up-to-date face sheet information, the last assessment, the last full assessment, and the Discharge (or proxy Discharge) record. Quarterly assessment records (MDS 2.0 records where AA8a = 5 or 10 OR MDS 3.0 records where A0310A = 3 or 6) are ignored when selecting these records.

In the Admission/Current table in the data dictionary that is part of the Architectural Description, the MDS 2.0 Source and MDS 3.0 Source columns specify the MDS record from which each data item is taken.

3.4.5.1 The Admission Assessment

The Admission assessment is selected as either

- The MDS 2.0 record with the earliest A3a date within the episode of care with a value of AA8a = 1, 2, 3, or 4. If this assessment has a value other than 1 in AA8a, it is considered a proxy Admission, which serves as the closest approximation to the resident's status at the time of admission.

- The MDS 3.0 record with the earliest A2300 date within the episode of care with a value of A.310A = 1, 3, 4, or 5. If this assessment has a value other than 1 in A0310A, it is considered a proxy Admission, which serves as the closest approximation to the resident's status at the time of admission.

The Maryland assigned assessment identifier for this record is added to the Residency Log table (AdmitID). If no record meeting this criterion is found, the Residency Log table is left blank (Null) for this field.

The data in this record will populate fields in the Admissions table and show the status of the resident at the beginning of the episode of care.

3.4.5.2 The Entry Date Record

The Entry Date record is the same assessment that provided the entry activity that marked the beginning of the episode of care. The Maryland assigned assessment identifier for this record is added to the Residency Log table (EntryID).

The data in this record will populate fields in the Admissions table and show the resident's date of entry for this episode of care.

3.4.5.3 The Face Sheet Record

The Face Sheet record is selected as either

- The first MDS 2.0 record for a resident that contains face sheet data. A record is deemed to contain face sheet data if items AB1 and AB4 are not blank.

- For MDS 3.0, it is the same at the Entry Date record for the resident's first stay. This is because the Face Sheet was discontinued for MDS 3.0.

The Maryland assigned assessment identifier for this record is added to the Residency Log table (FaceID). If no record meeting this criterion is found, the Residency Log table is left blank (Null) for this field.

The data in this record will populate fields in the Admissions table and show identifying information for the resident as close to the initial date of entry as possible.

3.4.5.4 The First Full Assessment

The First Full assessment is selected as either

- The MDS 2.0 record with the earliest A3a date within the episode of care with a value of AA8a = 1, 2, 3, or 4.

- The MDS 3.0 record with the earliest A2300 date within the episode of care with a value of A0310A = 1, 3, 4, or 5.

In some cases, this record may be the same as the Last Full assessment. The Maryland assigned assessment identifier for this record is added to the Residency Log table (FirstFullID). If no record meeting this criterion is found, the Residency Log table is left blank (Null) for this field.

3.4.5.5 The Last Assessment

The Last assessment is selected as either

- The MDS 2.0 record with the latest A3a date within the episode of care with a value of AA8a = 0, 1, 2, 3, or 4.

- The MDS 3.0 record with the latest A2300 date within the episode of care with a value of A0310A = 1, 3, 4, 5, or 99.

The Maryland assigned assessment identifier for this record is added to the Residency Log table (LastID). If no record meeting this criterion is found, the Residency Log table is left blank (Null) for this field.

The data in this record will populate fields in the Admissions table and show the status of the resident at the end of the episode of care.

3.4.5.6 The Last Full Assessment

The Last Full assessment is selected as either

- The MDS 2.0 record with the latest A3a date within the episode of care with a value of AA8a = 1, 2, 3, or 4.

- The MDS 3.0 record with the latest A2300 date within the episode of care with a value of A0310A = 1, 3, 4, or 5.

In some cases, this record may be the same as the Last assessment. The Maryland assigned

assessment identifier for this record is added to the Residency Log table (LastFullID). If no record meeting this criterion is found, the Residency Log table is left blank (Null) for this field.

The data in this record will populate fields in the Admissions table and show the status of the resident at the end of the episode of care.

3.4.5.7 The Discharge Record

If an exit activity was located for the stay, the MDS record that provided the exit activity is selected as the Discharge record. If no exit activity was found, the activity log is searched for any activity following the last record. If the last activity date plus 200 days is less than or equal to the Max Date, a proxy Discharge is selected for the episode of care. The proxy Discharge is the last submitted MDS record and the proxy discharge date is the target date of the last assessment. The Maryland assigned assessment identifier for the record providing the exit activity or the proxy discharge is added to the Residency Log table (DischID). If no record meeting this criterion is found, the Residency Log table is left blank (Null) for this field.

The data in this record will populate fields in the Admissions table and show the discharge information for the episode, if available.

3.4.5.8 The Next Record

The Next record is selected as the first record submitted for the resident after a stay has ended. The Maryland assigned assessment identifier for this record is added to the Residency Log table (NextID). If no record meeting this criterion is found, the Residency Log table is left blank (Null) for this field.

The data in this record is used to determine if the prior stay has actually ended or if the stay will continue.

3.4.6 Resident Diversion

A resident is classified for diversion potential based on the data found in the Last Full assessment for an episode of care. The Diversion Potential score is stored in the CurDIV field of the Admissions table. If there is not a Last Full assessment for the episode of care, the resident may not be classified and the CurDIV field is left blank. The diversion potential for a resident is calculated in the following order and will assign every resident to one of the categories.

3.4.6.1 MDS 2.0 Calculation

A resident has a high diversion potential (group "A") if they meet all of the following conditions:

- RUG ADL score = 4, 5, or 6
- Cognitive Performance Scale (CPS) score = 0 or 1
- Continence Bowel H1a = 0
- Continence Bladder H1b = 0

- Change in Urinary Continence H4 = 0 or 1
- Pressure Ulcer M2a = 0, 1, or 2
- Comatose B1 = 0
- Extensive Services K5a, P1ai, P1aj and P1al = 0
- Length of stay with the nursing facility is greater than or equal to 30 days and less than 12 months

A resident has no diversion potential (group "D") if they do not qualify for group A and they meet any one of the following conditions:

- RUG ADL score = 16, 17, or 18
- Cognitive Performance Scale (CPS) score = 5 or 6
- Continence Bowel H1a = 2, 3, or 4
- Continence Bladder H1b = 3 or 4
- Change in Urinary Continence H4 = 2
- Pressure Ulcer M2a = 3 or 4
- Comatose B1 = 1
- Extensive Services K5a, P1ai, P1aj and P1al = 1 (any one item)
- Length of stay with the nursing facility is less than 30 days and greater than or equal to 12 months

A resident has a low diversion potential (group "C") if they do not qualify for groups A or D, and they meet any one of the following conditions:

- RUG ADL score = 11, 12, 13, 14, or 15
- Cognitive Performance Scale (CPS) score = 4
- Continence Bowel H1a = 1
- Continence Bladder H1b = 2

A resident has a medium diversion potential (group "B") if they do not qualify for groups A, C or D, and they meet any one of the following conditions:

- RUG ADL score = 7, 8, 9, or 10
- Cognitive Performance Scale (CPS) score = 2 or 3
- Continence Bladder H1b = 1
- Change in Urinary Continence H4 = 0 or 1

3.4.6.2 MDS 3.0 Version 1.00 Calculation

A resident has a high diversion potential (group "A") if they meet all of the following conditions:

- RUG ADL score = 4, 5, or 6
- Cognitive Performance Scale (CPS) score = 0 or 1 or BIMS score = 13-15
- Continence Bowel H0400 = 0
- Continence Bladder H0300 = 0
- Pressure Ulcer M0300C1 = 0 and M0300D1 = 0 and M0300F1 = 0

- Comatose B0100 = 0
- Extensive Services K0500A, O0100D1, O0100D2, O0100E1, O0100E2, O0100F1, and O0100F2 = 0
- Length of stay with the nursing facility is greater than or equal to 30 days and less than 12 months

A resident has no diversion potential (group "D") if they do not qualify for group A and they meet any one of the following conditions:

- RUG ADL score = 16, 17, or 18
- Cognitive Performance Scale (CPS) score = 5 or 6 or BIMS score = 0-9
- Continence Bowel H0400 = 2 or 3
- Continence Bladder H0300 = 2 or 3
- Pressure Ulcer M0300C1 >= 1 and/or M0300D1 >= 1 and/or M0300F1 >= 1
- Comatose B0100 = 1
- Extensive Services K0500A, O0100D1, O0100D2, O0100E1, O0100E2, O0100F1, and O0100F2 = 1 (any one item)
- Length of stay with the nursing facility is less than 30 days and greater than or equal to 12 months

A resident has a low diversion potential (group "C") if they do not qualify for groups A or D, and they meet any one of the following conditions:

- RUG ADL score = 11, 12, 13, 14, or 15
- Cognitive Performance Scale (CPS) score = 4 or BIMS score = 10-12
- Continence Bowel H0400 = 1
- Continence Bladder H0300 = 1

A resident has a medium diversion potential (group "B") if they do not qualify for groups A, C or D, and they meet any one of the following conditions:

- RUG ADL score = 7, 8, 9, or 10
- Cognitive Performance Scale (CPS) score = 2 or 3 or BIMS score = 10-12

3.4.6.3 MDS 3.0 Version 1.10 Calculation

A resident has a high diversion potential (group "A") if they meet all of the following conditions:

- RUG ADL score = 4, 5, or 6
- Cognitive Performance Scale (CPS) score = 0 or 1 or BIMS score = 13-15
- Continence Bowel H0400 = 0
- Continence Bladder H0300 = 0
- Pressure Ulcer M0300C1 = 0 and M0300D1 = 0 and M0300F1 = 0
- Comatose B0100 = 0
- Extensive Services K0510A1, K0510A2, O0100D1, O0100D2, O0100E1, O0100E2, O0100F1, and O0100F2 = 0

- Length of stay with the nursing facility is greater than or equal to 30 days and less than 12 months

A resident has no diversion potential (group "D") if they do not qualify for group A and they meet any one of the following conditions:

- RUG ADL score = 16, 17, or 18
- Cognitive Performance Scale (CPS) score = 5 or 6 or BIMS score = 0-9
- Continence Bowel H0400 = 2 or 3
- Continence Bladder H0300 = 2 or 3
- Pressure Ulcer M0300C1 >= 1 and/or M0300D1 >= 1 and/or M0300F1 >= 1
- Comatose B0100 = 1
- Extensive Services K0510A1, K0510A2, O0100D1, O0100D2, O0100E1, O0100E2, O0100F1, and O0100F2 = 1 (any one item)
- Length of stay with the nursing facility is less than 30 days and greater than or equal to 12 months

A resident has a low diversion potential (group "C") if they do not qualify for groups A or D, and they meet any one of the following conditions:

- RUG ADL score = 11, 12, 13, 14, or 15
- Cognitive Performance Scale (CPS) score = 4 or BIMS score = 10-12
- Continence Bowel H0400 = 1
- Continence Bladder H0300 = 1

A resident has a medium diversion potential (group "B") if they do not qualify for groups A, C or D, and they meet any one of the following conditions:

- RUG ADL score = 7, 8, 9, or 10
- Cognitive Performance Scale (CPS) score = 2 or 3 or BIMS score = 10-12

3.4.6.4 MDS 3.0 Version 1.13 Calculation

The MDS 3.0 Version 1.13 calculation is the same as the MDS 3.0 Version 1.10 calculation. No items used in the calculation of the diversion score were modified between the versions.

3.4.7 Area of Residence Determination

Currently, the source of Zip Code data is under discussion. The ability to import ZIP Code updates to MDS Manager using the files previously received has not been coded in the SAS version of the program. **As a result, an Area of Residence in not saved to the AdmCounty field during the generation of the Admissions table.** As the final source of ZIP Code data is determined, MDS Manager will be updated to assign the AdmCounty value.

Historically, MDS Manager attempted to assign a resident to an Area of Residence based on the ZIP code indicated in the ZIP field of the Admissions table for a stay. The ZIP code stored in the ZIP field is the first valid ZIP code found in the records for this stay. This value is selected individually and does not rely on valid values for any of the other Face Sheet items. The ZIP code stored in the FaceZIPCode field of the Admissions table is not used to

assign the resident to an Area of Residence. This ZIP code is selected using an old methodology and is stored in the Admissions file for reference only.

An invalid ZIP code will not be saved in the ZIP field of the Admissions table. An invalid ZIP code is defined as one that meets the following conditions:

- Contains non-numeric characters.

- Contains an insufficient number of digits (less than 4).

- Contains "00000" or "99999".

- Is empty.

Once an Area of Residence is assigned for a resident's stay, the County Code associated with the Area of Residence will be stored in the AdmCounty field of the Admissions table. If the ZIP code falls within any of the following ranges, the resident shall be assigned to the associated County Code and Area of Residence:

ZIP Code Range	County Code	Area of Residence
15000 – 19699	49	Pennsylvania
19700 – 19999	39	Delaware
20000 – 20099	79	District of Columbia
20100 – 20199	69	Virginia
20200 – 20599	79	District of Columbia
20600 – 21999	97	Maryland Other
22000 – 24699	69	Virginia
24700 – 26999	59	West Virginia
All Other Valid ZIP Codes	88	Other State
No Valid ZIP Code	99	Unknown

For residents assigned to County Code = 97 / Area of Residence = Maryland Other, the resident shall be further classified into one of the County Codes and Areas of Residence for the Maryland counties. This will be done by comparing the ZIP code in the ZIP field to the data in the Allocation table and Area of Residence table. ZIP codes that span multiple counties in the Allocation table will be assigned to a County Code and Area of Residence based on the predefined allocation percentages in the Allocation table. The County Codes and Areas of Residence are listed in the following table:

County Code	Area of Residence
01	Allegany County
02	Anne Arundel County

County Code	Area of Residence
03	Baltimore County
04	Calvert County
05	Caroline County
06	Carroll County
07	Cecil County
08	Charles County
09	Dorchester County
10	Frederick County
11	Garrett County
12	Harford County
13	Howard County
14	Kent County
15	Montgomery County
16	Prince George's County
17	Queen Anne's County
18	St. Mary's County
19	Somerset County
20	Talbot County
21	Washington County
22	Wicomico County
23	Worcester County
30	Baltimore City
39	Delaware
49	Pennsylvania
59	West Virginia
69	Virginia
79	District of Columbia
88	Other States
97	Unknown MD counties (206-219)
99	Unknown

In ZIP codes that are allocated between two or more Areas of Residence, the assignment of the resident to an Area of Residence is done each time the Admissions table is calculated

without regard to where the resident was previously assigned. This is done so that the allocation of residents to the Areas of Residence is correct for each table calculated.

3.5 Creating the Admission/Current Table

Using the data in the Admissions table, MDS Manager calculates the number and length of stays of Maryland nursing facility residents over a user-defined period of time. As a final output, the application creates the Admission/Current table. The table contains data items that show the status of the resident at the resident's admission date and at either the resident's discharge date or, if not discharged, the end of the date range entered when the script was run. Each row in the file indicates a single stay. Please note that a resident may have multiple stays for a date range.

3.5.1 Episodes of Care Records Saved to Admission and Current Tables

Stays from the Residency Log table are saved to the Admission/Current table for the date range specified in the script. Only stays that occurred during the date range specified in the script shall be included in the Admission/Current table. For example, if the date range specified in the script was 01/01/2008 – 12/31/2008:

- A resident's stay beginning on 07/01/2007 and ending on 12/15/2007 would be excluded from the Admission/Current table because the episode of care ended prior to the beginning of the specified date range.

- A resident's stay beginning on 07/01/2007 and ending on 02/14/2008 would be included in the Admission/Current table because the episode of care ended during the date range specified.

- A resident's stay beginning on 07/01/2007 and the resident was still in the facility would be included in the Admission/Current table because the episode of care occurred during the date range specified.

- A resident's stay beginning 01/17/2009 and the resident was still in the facility would be excluded from the Admission/Current table because the episode of care began after the date range specified.

Each row in the table indicates a single stay. Please note that a resident may have multiple stays for a date range entered in the script.

If the episode of care has a Discharge record (contains a Maryland assigned assessment identifier in the DischAsmtID field of the Residency Log table), the DischDate field in the Admission/Current table will contain a date. If a stay does not have a discharge record, the DischDate field will be blank (Null). Stays that have a blank (Null) DischDate field are continuing episodes of care as of the end of the date range specified in the script and are current residents of the facility.

3.5.2 Length of Stay Calculations

The resident days for the portion of an episode of care within the date range entered in the

script are stored in the ResDays field of the Admission/Current table. The ResDays field is calculated by using the appropriate equation:

- If the stay entry date is prior to the beginning of the year and the discharge date is blank, the days equal the last day of the year minus the first day of the year plus one.

- If the stay entry date is prior to the beginning of the date range and there is a discharge date, the days equal the discharge date minus the first day of the date range plus one.

- If the stay entry date is on or after the beginning of the date range and the discharge date is blank, the days equal the last day of the date range minus the entry date plus one.

- If the stay entry date is on or after the beginning of the date range and there is a discharge date, the days equal the discharge date minus the entry date plus one.

The total length of stay in days for an episode of care, regardless of the date range entered on the main menu screen, is stored in the LOS field of the Admission/Current table. The LOS field is calculated by using the appropriate equation:

- If the discharge date is blank, the days equal the last day of the date range minus the entry date plus one.

- If there is a discharge date, the days equal the discharge date minus the entry date plus one.

The total length of stay in months for an episode of care is stored in the Months field of the Admission/Current table. The Months field is calculated by counting the number of months between the entry date and the discharge date or last day of the date range, as appropriate.

Field names in the Admission/Current table are defined as follows:

StayBegin – The date that the stay begins.

StayEnd – The date that the stay ends. This will be the same as the DischDate date.

EntryDate – The date that the resident first appeared in any facility.

DischDate – The date that the stay ends. This will be the same as the StayEnd date.

3.5.3 Age Calculation

The age of the resident is calculated for each stay and stored in the Age field of the Admission/Current table. If the DischDate field contains a date for a stay, the resident's age is calculated as of the date of the discharge. If the DischDate field is blank (Null), the resident's age is calculated as of the last day of the date range entered in the script.

The resident's age is calculated by using the appropriate equation:

- If the DOB field is blank, the resident's age is zero.

- If the DOB field contains a date AND the StayEnd field contains a date, the resident's age is (the StayEnd date minus the DOB date) divided by 365 days.

- If the DOB field contains a date AND the StayEnd field is blank, the resident's age is (the last day of the date range entered in the main menu screen minus the DOB date) divided by 365 days.

3.5.4 Other Calculations

There are other calculations done in the Admission/Current table that are used for generating reports.

A short stay is defined as a stay that is 100 days or less in length. If the LOS calculated for the stay is 100 days or less, the stay is marked as a short stay.

All of the LOS values in the Admission/Current file are sorted and the 99th percentile of the LOS values is determined. Stays with an LOS value at or above the 99th percentile are marked as an Outlier LOS. No changes are made to the stay and it is not excluded from any analysis. This marker can be used as needed during analysis.

The number of stays for each resident are summed and sorted and the 99th percentile of the number of stays values is determined. All stays for a resident with an number of stays value at or above the 99th percentile are marked as an Outlier Stay. No changes are made to the stays for the resident and they are not excluded from any analysis. This marker can be used as needed during analysis.

3.6 MDS Manager Validation Reports

After the Admissions and Admission/Current tables have been generated, there are outlier reports that can be run to validate the data. Available reports are described in the following sections

3.6.1 Outlier-Stay Overlap Report

This report lists stays that indicate a resident is in two facilities at the same time (i.e., the end date of the first stay overlaps the start date of the second stay). This report should always be blank since the logic used to determine stays adjusts the begin/end date of a stay to prevent it from overlapping another stay. The fields that appear in the report are:

- Resident ID

- Stay ID

- CMS Facility ID

3.6.2 Outlier-Cross Episode Length of Stay Report

This report displays all stays for a resident that are included in a single Admission/Current table specified by the user. The fields that appear in the report are:

- CMS Resident ID

- Stay ID

- CMS Facility ID

- Stay Begin Date

- Stay End Date

- Resident Days

- Length of Stay

3.6.3 Outlier-Cross Year Length of Stay Report

This report displays all stays for a resident that are included in the Admissions table. These include any stays that have occurred in the resident's MDS history and are not limited to a single Admission/Current table. The fields that appear in the report are:

- CMS Resident ID

- Stay ID

- CMS Facility ID

- Stay Begin Date

- Stay End Date

- Length of Stay

3.6.4 Outlier-Length of Stay Exceeds Report

This report displays all stays for a resident that are included in a single Admission/Current table specified by the user where the Length of Stay value exceeds a specified threshold. The default threshold is the 99th percentile of the Length of Stay values in the Admission/Current table. The user can also specify the threshold as a number of days. The fields that appear in the report are:

- CMS Resident ID

- Stay ID

- CMS Facility ID

- Stay Begin Date

- Stay End Date

- Resident Days

- Length of Stay

3.6.5 Outlier-Number of Stays Exceeds Report

This report displays all stays for a resident that are included in a single Admission/Current

table specified by the user where the number of stays for a single resident exceeds a specified threshold. The default threshold is the 99th percentile of the number of stays for a single resident in the Admission/Current table. The user can also specify the threshold as a number of stays. The fields that appear in the report are:

- CMS Resident ID

- Stay ID

- CMS Facility ID

- Stay Begin Date

- Stay End Date

- Resident Days

- Length of Stay

3.7 Miscellaneous Reporting

There are reports that can be run to validate the MDS database and generate special data sets. These reports are stored separately from the outlier reports that are run to validate the Admission/Current table. Available reports are described in the following sections. Since these reports are only run occasionally for a specific purpose, please speak with a developer to have a report generated.

3.7.1 Residency Count Report

This report compares the sum of the resident days for the portion of an episode of care within the date range entered in the script (the ResDays field of the Admission/Current table) for a facility to the resident days reported on the facility's cost report. The report is used to calculate the difference between the resident days calculated by MDS Manager against the resident days the facility includes on the cost report.

3.7.2 Flu Season Report

This report displays vaccination information for a flu season, defined as September 1 through April 30 of the following year. Data is listed for each unique facility/resident combination. If a resident has been in more than one facility during the flu season, the resident will be included in the results multiple times using the assessments completed at each facility. The fields that appear in the report are:

- FluSN (flu season indicated by year)

- Stay Begin Date

- Stay End Date

- Length of Stay

- CMS Resident ID

- CMS Facility ID

- MHCC Facility ID

- Gender

- Primary Race

- Date of Birth

- Age as of September 1

- Item O0250A

- Item O0250B

- Item O0250C

- Item O0300A

- Item O0300B

- InfVac indicated by:

  o 1 = Resident received Influenza Vaccine in this facility (O0250A=1)

  o 2 = Resident received Influenza Vaccine outside of this facility (O0250A=0 and O0250C=2)

  o 3 = Resident did not receive Influenza Vaccine (O0250A=0 and O0250C=1, 3, 4, 5, 6 or 9)

- PneumVac indicated by:

  o 1 = Resident's Pneumococcal vaccination is up to date (O0300A=1)

  o 2 = Residents Pneumococcal vaccination is not up to date (O0300A=0)

3.7.3 Birth Dates Report

This report displays the number of individual residents in the entire MDS database and how many birth dates have been submitted for each resident. The details of the report allow a user to analyze how many residents have had more than one birth date submitted and the number of years difference between the birth dates. This report was originally run in September 2012 to see if we could determine if there was inaccurate birth date data in the system by looking at how frequently different birth date values were submitted.

3.7.4 Missing Data Analysis (Bad Data) Report

This report displays a list of 75 MDS items, the number of stays for which the item as not submitted, and the total number of stays that are included in a single Admission/Current table specified by the user. The fields that appear in this report are:

- Current/Admission File Item Name

- MDS Version

- MDS 2.0/MDS 3.0 Item Number

- Number of Stays Missing Item

- Number of Stays with No Response

- Total Number of Stays

- Percentage of Stays Missing Item

- Percentage of Stays with No Response

- Total Percentage of Stays with Missing Item

3.7.5 Bad Episodes Report

This report lists all stays where the entry isn't based on an Entry date, the discharge isn't based on a Discharge date, or where one of the following assessments is missing from the stay:

- Admission record

- Discharge record

- Face Sheet record

- First Assessment

- First Full Assessment

- Last Full Assessment

- Last Assessment

 Indicators are included in the file to indicate what caused the stay to be flagged.

3.7.6 Duplicate Records in Import Report

This report lists the MDS records in the entire MDS database that are exact duplicates of each other except for Facility ID and Assessment ID. This report was originally run in September 2012 to determine the extent of the duplicate MDS records.

3.8 Consumer Guide Table

The program used to generate the Consumer Guide table is separate from the MDS Manager program. A description of the Consumer Guide is only included in this end user manual for convenience.

The Consumer Guide table is generated from the Admissions table and contains a subset of the data in the Admissions table. The Consumer Guide table is placed on the MHCC website and is used by consumers visiting the website to view data.

To begin the process, a user enters BeginRange and EndRange dates to define the period to

be used when looking for resident stays. The user also enters PriorBeginRange and PriorEndRange dates to define the lookback period to be used when data for a resident isn't available in the period. The period for resident stays is generally six months and the lookback period is generally three months.

The stays for each resident and facility combination in the period are then identified using the Admissions table and the number of residents is determined. Since the process used to calculate the Consumer Guide data is based on the data in the Admissions table, it does not vary due to the version of the assessment.

Once the residents and stays are determined, the data for each of the fields in the Consumer Guide table is taken from the field in the Admissions table. See the table below for the source of each item. The most recent stay for a resident is used as the source of the data. If an item is not available in a stay, the second most recent stay, etc. is used as the source of the data. If none of the stays in the range have data for a field, the stays in the lookback period are used. If data is not found in any of the stays in the period or lookback period, the field is left blank for the resident.

After all residents have been processed, three tables are created containing the percentage of residents in each facility that fall into each field. The Consumer Guide table percentages are calculated using the raw data as found in the Admissions table. The Adjusted Consumer Guide table percentages are calculated removing residents with missing data from the denominator used to calculate the facility percentage. The Updated Adjusted Consumer Guide table combines the Consumer Guide table and Adjusted Consumer Guide table and is the table displayed on the MHCC website. For example, if a facility has 100 residents and 85 responded negatively for Dehydration, 5 responded positively, and 10 had no data, the following calculations would be performed:

Consumer Guide = 5 positive / 100 residents = 5.00%

Adjusted Consumer Guide = 5 positive / 90 residents = 5.56%

The fields that appear in this table are:

Field	Description	Admissions Table Item
Fac_ID	The Maryland Facility ID .	N/A
Male	The number of male residents in the facility from item A0900.	Gender
Female	The number of female residents in the facility from item A0900.	Gender
AgeMean	The average age of residents in the facility from item A0800 and the date the report is generated.	DOB, Age

Field	Description	Admissions Table Item
Age65Under	The number of residents in the facility under age 65 from item A0800 and the date the report is generated.	DOB, Age
Age6574	The number of residents in the facility between age 65 and age 74 from item A0800 and the date the report is generated.	DOB, Age
Age7584	The number of residents in the facility between age 75 and age 84 from item A0800 and the date the report is generated.	DOB, Age
Age85Plus	The number of residents in the facility age 85 and over from item A0800 and the date the report is generated.	DOB, Age
Ambulatory	The number of residents in the facility with a response of 0, 1, or 2 in item G0110D1 Walk In Corridor.	CurWalkCorridorSelf
Dementia	The number of residents in the facility with a response of 1 in I4200 Alzheimer's Disease or I4800 Non-Alzheimer's Dementia.	CurAlzheimersDisease, DurDementia
Intellectual	The number of residents in the facility with a response of 1 in A1550A Down Syndrome, A1550B Autism, A1550C Epilepsy, A1550 D Other Organic Condition Related to MR/DD, or A1550E MR/DD With No Organic Condition.	LastA1550A, LastA1550B, LastA1550C, LastA1550D, LastA1550E, FullA1550A, FullA1550B, FullA1550C, FullA1550D, FullA1550E
Dehydrate	The number of residents in the facility with a response of 1 in J1550C Dehydrated.	LastJ1550C, FullJ1550C
FeedTube	The number of residents in the facility with a response of 1 in K0500B Feeding Tube for MDS 3.0 Version 1.00 or K0510B2 Feeding Tube While a Resident for MDS 3.0 Version 1.10.	CurFeedingTube, CurK0510B2
Male_St	The number of male residents in the state.	Calculated average.
Female_St	The number of female residents in the state.	Calculated average.

Field	Description	Admissions Table Item
AgeMean_St	The average age of residents in the state.	Calculated average.
Age65Under_St	The number of residents in the state under age 65.	Calculated average.
Age6574_St	The number of residents in the state between age 65 and age 74.	Calculated average.
Age7584_St	The number of residents in the state between age 75 and age 84.	Calculated average.
Age85Plus_St	The number of residents in the state age 85 and over.	Calculated average.
Ambulatory_St	The number of residents in the state with a response of 0, 1, or 2 in item G0110D1 Walk In Corridor.	Calculated average.
Dementia_St	The number of residents in the state with a response of 1 in I4200 Alzheimer's Disease or I4800 Non-Alzheimer's Dementia.	Calculated average.
Intellectual_St	The number of residents in the state with a response of 1 in A1550A Down Syndrome, A1550B Autism, A1550C Epilepsy, A1550 D Other Organic Condition Related to MR/DD, or A1550E MR/DD With No Organic Condition.	Calculated average.
Dehydrate_St	The number of residents in the state with a response of 1 in J1550C Dehydrated.	Calculated average.
FeedTube_St	The number of residents in the state with a response of 1 in K0500B Feeding Tube for MDS 3.0 Version 1.00 or K0510B2 Feeding Tube While a Resident for MDS 3.0 Version 1.10.	Calculated average.