

for z/OS Batch

# **Medicare Code Editor Software**

Installation Manual ICD-10 Version

v41 October 2023

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# About this document

This manual contains the information needed to install version 41.0 of the Medicare Code Editor (MCE) software that runs under the z/OS batch operating system. The manual assumes that the person installing the software has experience working with Basic Assembly Language (BAL), z/OS Job Control Language (JCL), and USS (UNIX System Services) on the mainframe.

The manual assumes that you are familiar with:

- IBM® MVS™ Job Control Language
- USS (UNIX System Services) on the mainframe

The current version of the software was developed and tested in the:

- z/OS® version 2.5
- IBM SDK for z/OS
- IBM Enterprise COBOL for z/OS 6.2.0
- Java Technology Edition version 8
- LE run-time environment





# Chapter 1: Introduction

On April 20, 1983, Congress enacted “Prospective Payment for Medicare Inpatient Hospital Services” as Title VI of the Social Security Amendment. Under Title VI, hospitals are paid a fixed price by Diagnosis Related Group (DRG) for treating Medicare patients.

In order to determine the appropriate DRG for a Medicare patient, the age, sex, discharge status, principal diagnosis, secondary diagnoses, and procedures performed must be reported by hospitals to their Medicare fiscal intermediaries. The logic of the DRG Definitions assumes that the patient information provided is accurate, and no attempt is made by the DRG Definitions to edit the data for accuracy. Only for extreme inconsistencies in the medical information will a DRG not be assigned to a patient record.

## Types of edits

Three types of edits can be performed before assigning a DRG:

- Code edits examine a record for the correct use of the ICD codes that describe a patient’s diagnoses and procedures. Code edits include basic consistency checks on the interrelationships of a patient’s age, sex, length of stay, and diagnoses and procedures.
- Coverage edits examine patient type and performed procedures to determine if the services rendered are covered by Medicare and to what extent they are covered.
- Clinical edits examine the clinical consistency of the diagnostic and procedural information on the medical claim to determine if they are clinically reasonable and therefore if they should be paid.

In a first phase of edits, the Centers for Medicare & Medicaid Services (CMS) provides all fiscal intermediaries with a code editing package, referred to as the Medicare Code Editor (MCE). MCE software contains edits that deal primarily with coding and coverage related issues.

## Purpose of the software

MCE detects and reports errors in the coding of claims data. While the program identifies and indicates the nature of the error, it does not correct the error. A particular error condition is associated with each type of coding error that is identified.

## Versions and date ranges

The following table lists the versions contained in this release of MCE software. The patient's discharge date determines the version used for processing.

**Table 1. Program versions with discharge date ranges**

| <b>MCE Version</b> | <b>DRG Version</b> | <b>Discharge date range</b> |
|--------------------|--------------------|-----------------------------|
| MCE 41.0 (ICD-10)  | DRG 41.0 (ICD-10)  | 10/01/2023 – 09/30/2024     |
| MCE 40.1 (ICD-10)  | DRG 40.1 (ICD-10)  | 04/01/2023 – 09/30/2023     |
| MCE 40.0 (ICD-10)  | DRG 40.0 (ICD-10)  | 10/01/2022– 03/31/2023      |
| MCE 39.1 (ICD-10)  | DRG 39.1 (ICD-10)  | 04/01/2022 – 09/30/2022     |
| MCE 39.0 (ICD-10)  | DRG 39.0 (ICD-10)  | 10/01/2021 – 03/31/2022     |
| MCE 38.1 (ICD-10)  | DRG 38.1 (ICD-10)  | 01/01/2021 – 09/30/2021     |
| MCE 38.0 (ICD-10)  | DRG 38.0 (ICD-10)  | 10/01/2020 – 12/31/2020     |
| MCE 37.2 (ICD-10)  | DRG 37.2 (ICD-10)  | 08/01/2020 – 09/30/2020     |
| MCE 37.1 (ICD-10)  | DRG 37.1 (ICD-10)  | 04/01/2020 – 07/31/2020     |
| MCE 37.0 (ICD-10)  | DRG 37.0 (ICD-10)  | 10/01/2019 – 03/31/2020     |
| MCE 36.0 (ICD-10)  | DRG 36.0 (ICD-10)  | 10/01/2018 – 09/30/2019     |
| MCE 35.0 (ICD-10)  | DRG 35.0 (ICD-10)  | 10/01/2017 – 09/30/2018     |
| MCE 34.0 (ICD-10)  | DRG 34.0 (ICD-10)  | 10/01/2016 – 09/30/2017     |
| MCE 33.0 (ICD-10)  | DRG 33.0 (ICD-10)  | 10/01/2015 – 09/30/2016     |
| MCE 32.0           | DRG 32.0           | 10/01/2014 – 09/30/2015     |
| MCE 31.0           | DRG 31.0           | 10/01/2013 – 09/30/2014     |
| MCE 30.0           | DRG 30.0           | 10/01/2012 – 09/30/2013     |
| MCE 28.0           | DRG 29.0           | 10/01/2011 – 09/30/2012     |
| MCE 27.0           | DRG 28.0           | 10/01/2010 – 09/30/2011     |
| MCE 26.0           | DRG 27.0           | 10/01/2009 – 09/30/2010     |
| MCE 25.0           | DRG 26.0           | 10/01/2008 – 09/30/2009     |
| MCE 24.1           | DRG 25.1           | 04/01/2008 – 09/30/2008     |
| MCE 24.0           | DRG 25.0           | 10/01/2007 – 03/31/2008     |
| MCE 23.0           | DRG 24.0           | 10/01/2006 – 09/30/2007     |
| MCE 22.0           | DRG 23.0           | 10/01/2005 – 09/30/2006     |

| <b>MCE Version</b> | <b>DRG Version</b> | <b>Discharge date range</b> |
|--------------------|--------------------|-----------------------------|
| MCE 21.0           | DRG 22.0           | 10/01/2004 – 09/30/2005     |
| MCE 20.0           | DRG 21.0           | 10/01/2003 – 09/30/2004     |
| MCE 19.0           | DRG 20.0           | 10/01/2002 – 09/30/2003     |
| MCE 18.0           | DRG 19.0           | 10/01/2001 – 09/30/2002     |
| MCE 17.0           | DRG 18.0           | 10/01/2000 – 09/30/2001     |
| MCE 16.0           | DRG 17.0           | 10/01/1999 – 09/30/2000     |
| MCE 15.1           | DRG 16.0           | 07/01/1999 – 09/30/1999     |
| MCE 15.0           | DRG 16.0           | 10/01/1998 – 06/30/1999     |
| MCE 14.0           | DRG 15.0           | 10/01/1997 – 09/30/1998     |
| MCE 13.0           | DRG 14.0           | 10/01/1996 – 09/30/1997     |
| MCE 12.0           | DRG 13.0           | 10/01/1995 – 09/30/1996     |
| MCE 11.0           | DRG 12.0           | 10/01/1994 – 09/30/1995     |
| MCE 10.0           | DRG 11.0           | 10/01/1993 – 09/30/1994     |
| MCE 9.0            | DRG 10.0           | 10/01/1992 – 09/30/1993     |
| MCE 8.0            | DRG 9.0            | 10/01/1991 – 09/30/1992     |
| MCE 7.0            | DRG 8.0            | 10/01/1990 – 09/30/1991     |
| MCE 6.0            | DRG 7.0            | 10/01/1989 – 09/30/1990     |
| MCE 5.0            | DRG 6.0            | 10/01/1988 – 09/30/1989     |
| MCE 4.0            | DRG 5.0            | 10/01/1987 – 09/30/1988     |
| MCE 3.0            | DRG 4.0            | 10/01/1986 – 09/30/1987     |
| MCE 2.0            | DRG 3.0            | 03/01/1984 – 09/30/1986     |



# Chapter 2: Program output

This chapter describes the output from the Medicare Code Editor (MCE) software program. When conflicting or incorrect information on a medical claim has been identified, the Medicare Code Editor prints a summary of the medical claim information, including the edit message that identifies the potential problem.

The following figure illustrates the MCE summary format and content of the printed claim. The illustration is intended to be an example of a claims summary that is generated. No error messages appear in the example.

When error messages occur, they appear to the right of the code in question or at the bottom of the report. The Definitions of Medicare Code Edits guide contains more information on the edits that appear in MCE software.

|                      |      |  |            |      |   |
|----------------------|------|--|------------|------|---|
| Title line           | ———— | MEDICARE CODE EDITOR -V.37   | 03/16/2014 | PAGE | 1 |
| Optional information | ———— | Provider Number229000000000000000000000  |            |      |   |
|                      |      | VER=370 PROV= 0000000000000006 PPS = 0   |            |      |   |
| Edit flags           |      | ED 1-10 = 00 00 00 00 00 00 00 00 00 00  |            |      |   |
|                      |      | ED11-20 = 00 00 00 00 00 00 00 00 00 00  |            |      |   |
|                      |      | ED21-30 = 00 00 00 00 00 00 00 00 00 00  |            |      |   |
|                      |      | ED31-40 = 00 00 00 00 00 00 00 00 00 00  |            |      |   |
|                      |      | ED41-50 = 00 00 00 00 00 00 00 00 00 00  |            |      |   |
|                      |      | ED51-60 = 00 00 00 00 00 00 00 00 00 00  |            |      |   |
|                      |      | EDT FLG = 04   |            |      |   |
| Provider number      | ———— | PROVIDER: 0000000000000006 (PPS STATUS UNKNOWN)                                      |            |      |   |
|                      |      | AGE: 83  |            |      |   |
| Patient information  |      | SEX: 2 FEMALE  |            |      |   |
|                      |      | DISCHARGE STATUS: -1 UNKNOWN   |            |      |   |
|                      |      | DISCHARGE DATE: 20141023   |            |      |   |
| Diagnosis code(s)    |      | ADMITTING DIAGNOSIS  |            |      |   |
|                      |      | S82231E, DISPL OBLIQUE FX SHAFT OF R TIBIA, 7TH                                      |            |      |   |
|                      |      | PRINCIPAL DIAGNOSIS  |            |      |   |
|                      |      | S88019A, COMPLETE TRAUMATIC AMP AT KNEE LEVEL, UNSP LOWER LEG, INIT 00000000000000   |            |      |   |
|                      |      | SECONDARY DIAGNOSES  |            |      |   |
|                      |      | S82451A, DISPLACED COMMUNUTED FRACTURE OF SHAFT OF RIGHT FIBULA, INIT 00000000000000 |            |      |   |
|                      |      | M85552 ANEURYSMAL BONE CYST, LEFT THIGH  |            |      |   |
| Procedure code(s)    |      | PROCEDURES   |            |      |   |
|                      |      | 0DCQXZZ, EXTIRPATION OF MATTER FROM ANUS, EXTERNAL APPROACH 00000000000000           |            |      |   |

Figure 1: Sample output report

## Elements in the output report

Data elements in the MCE output report are described below.

## Title line

The title line includes the name of the software, the date the report was produced (mm/dd/yyyy format), the program version that processed the claim, and the report's page number. Each record is printed on a separate page.

## Optional information

This section contains optional patient information from the claims record. The user may enter up to 11 lines, each 40 characters long, of optional information. For example, a hospital name and claim identifier can be reported as optional fields. The claim identifier can be a medical record number, social security number, patient's name, or any other identifier chosen by the user.

The Sample output report (page [13](#)) shows the hospital name, patient ID, and length of stay reported in the optional fields section. Additional information (e.g., physician number) can also be reported in this section at the user's option. Information on the description of the print program pointer OPTPTR is given in chapter 5.

## Provider number

The 15 character Medicare provider number is reported. The type of hospital (i.e., PPS or non-PPS) is also reported in parentheses next to the provider number.

## Patient information

This section contains the required patient information from the claims record (i.e., age, sex, length of stay, discharge status, and discharge date).

Discharge status must be coded according to the UB-04 conventions. See the UB-04 discharge status codes table (page [35](#)) for a list of valid discharge status codes.

Discharge date is displayed in the same format as the date was entered (i.e., yyyymmdd). There are no separators in the 8-character field.

The program uses the discharge date to determine which version of the software will be used to process the claim. When the discharge date is absent or invalid, an Edit Flag of 4 is returned and the claim stops processing.

*For more information on software version date ranges, see the Program versions with discharge date ranges table (page [10](#)).*

## **Diagnosis code(s)**

The following diagnosis information is reported:

- Admitting diagnosis code and English description
- Principal diagnosis code and English description
- Secondary diagnosis code(s) and English descriptions

## **Procedure code(s)**

The procedure(s) codes and English descriptions of the procedure(s) performed are reported.





# Chapter 3: Installing the software

This chapter describes installation of the Medicare Code Editor (MCE) software that evaluates patient data to help identify possible errors in coding. Appendix A lists the edits contained in the program. The Definitions of Medicare Code Edits guide (PBL–011) contains more information on coding edits. The following three steps are required to download and install the software:

1. Downloading and unzipping the file to your local machine
2. Allocating and FTPing the files to the mainframe
3. Testing the editor

The following description of the installation includes instructions on how to download the files shown in the following table, and test that the installation was successful.

## Overview

The Medicare Code Editor Software v.41.0 software is provided to users to allow them to group MCE claims using the V41.0 software in a Java environment, embedded within a calling program.

## Setup

The following files are needed to execute the MCE MF java version 41.0 software:

- ☐ MCEMFV410.jar – the jar file to be run, via either standalone mode or by calls from an outside program.

## Installation

The MCE installation contains the Java jar, the compiled object code for the MCE print programs, written in the IBM® OS® Assembler language. It also contains MCE tables and English description files that are an integral part of the MCE system, and the source for all the executor programs. The following table lists the files contained within.

## Downloading the installation files

This section gives specific information on the installation files and downloading them.

The content of the downloaded file folder is shown in the following table.

**Table 2. MCE contents**

| File | File name | LRECL | BLKSIZE | Description  |
|------|-----------|-------|---------|--|
| 1    | OBJLIB    | 80    | 27920   | Object library   |
| 2    | SRCLIB    | 80    | 32720   | Source library   |
| 3    | LOADLIB   | 0     | 6233    | Load library   |
| 4    | JAR       | USS   | USS     | Binary jar files and ASCII control files for the Unix system |

The content of the miscellaneous folder is shown in the following table.

**Table 3. MCE miscellaneous folder contents**

| File | File name   | LRECL | BLKSIZE | Description                       |
|------|-------------|-------|---------|-----------------------------------|
| 1    | TESTDB      | 1625  | 27625   | Test database                     |
| 2    | DXEBC       | 72    | 27936   | Diagnoses EBCDIC table            |
| 3    | SGEBC       | 72    | 27936   | Procedure EBCDIC table            |
| 4    | CODEDESC    | 87    | 27927   | Code description                  |
| 5    | JCL Members | 80    | 27920   | See the Sample JCL members table. |

## eDownload instructions

This section contains instructions for downloading program files from the Internet for the Medicare Code Editor (MCE) Software.

### Editor program installation

All required software for executing the MCE MF Java Editor programs is contained in the folders in this directory.

This directory contains the following folders:

- Load library - MCE load modules
- Object library - MCE object modules
- Source library - MCE source programs
- Test database file
- Sample JCL
- Code description
- Java Jar
- Environment file

### *JCL library*

**Table 4. Sample JCL library members**

| Number | Member   | Function  |
|--------|----------|---|
| 1      | BLDPDSE  | Sample JCL used for electronic download                   |
| 2      | CBTSTGO  | Run test database, executing COBTEST load library members |
| 3      | COBTEST  | Run sample COBOL program (COBTEST)                        |
| 4      | INSTLCNT | Readme for install test database record count             |
| 5      | VSAMLOAD | Load the code description file                            |

The following steps download the JCL library.

1. Allocate a PDSE on your mainframe with the following characteristics:
  - DSN = [e.g. YOURID.EDITOR.JCL]
  - RECFM = FB
  - LRECL = 80
  - BLKSIZE = 27920
  - SPACE = (TRK,(2,1,4),RLSE)
2. FTP in ASCII mode all of the files in the sample JCL library folder into the PDSE allocated in Step 1.

### *Load library*

The load library is a sequential file, FTPLOAD.

The load library consists of the load modules for the MCE Java programs.

1. Pre-allocate a sequential dataset on your mainframe to receive the file using the following file characteristics:
  - DSN = [e.g. YOURID.EDITOR.FTPLOAD]
  - RECFM = FB
  - LRECL = 80
  - BLKSIZE = 3120
  - SPACE = (CYL(1,1),RLSE)
2. FTP in BINARY mode the FTPLOAD file into the sequential dataset you allocated above.  
**Important!** You must FTP the load module files in BINARY.
3. Pre-allocate a load library PDSE on the mainframe using the following file characteristics:
  - DSN = [e.g. YOURID.EDITOR.LOADLIB]
  - RECFM = U
  - BLKSIZE = 6233
  - SPACE = (CYL(1,3,2),RLSE)
4. Create a BLDPDSE JCL member as follows:
  - Add your JOBCARD
  - Modify dataset names as necessary
    - ◆ INDATASET = sequential dataset that was FTP'd to the mainframe in the step above.
    - ◆ DATASET = pre-allocated load library PDSE that was created in the step above.

**Note:** This JCL executes the utility, IKJEFT01, a terminal monitor program that executes the TSO commands via batch processing. This will populate the LOAD LIBRARY from the FTP'd load sequential file. A copy is included in the JCLLIB folder.

After you modify the BLDPDSE, execute the JCL.

**Table 5. Load library contents**

| Number | Name     | Description                        |
|--------|----------|------------------------------------|
| 1      | COBTEST  | Sample COBOL interface program     |
| 2      | MCT410JV | COBOL Java wrapper control program |
| 3      | MCT410PA | Print program                      |

## Object library

This information is for the object library. This directory contains an object module folder.

**Table 6. Object library contents**

| Number | Name     | Description                        |
|--------|----------|------------------------------------|
| 1      | COBTEST  | Sample COBOL interface program     |
| 2      | MCT410DT | Date calculation program           |
| 3      | MCT410JV | COBOL Java wrapper control program |
| 4      | MCT410PA | Print program                      |
| 5      | MCT410VS | VSAM code description program      |

**Important!** Object module files must be FTP'ed in BINARY.

The following steps download the object library.

1. Allocate a PDSE on your mainframe with the following characteristics:
  - DSN = [e.g. YOURID.EDITOR.OBJLIB]
  - RECFM = FB
  - LRECL = 80
  - BLKSIZE = 27920
  - SPACE = (CYL(1,1,2),RLSE)
2. FTP in **BINARY mode** all of the files in the object library folder into the PDSE allocated in step 1.

## Source library

There are several datasets included that are not needed for the grouping process but may be useful to editor users.

The folder contains the source library for all the editor programs, tables, and the COBOL test programs.

The library contains members, as listed in the following table.

**Table 7. Source library members**

| Number | Name     | Description                    |
|--------|----------|--------------------------------|
| 1      | COBTEST  | Sample COBOL interface program |
| 2      | MCT410DT | Date calculation program       |
| 3      | MCT410JV | Java wrapper control program   |
| 4      | MCT410PA | Print program                  |
| 5      | MCT410PR | Print macro                    |
| 6      | MCT410VS | VSAM code description program  |

The following steps are required to FTP the source library to the mainframe.

1. Allocate a PDSE on your mainframe with the following characteristics:

- DSN = [e.g. YOURID.EDITOR.SRCLIB]
- RECFM = FB
- LRECL = 80
- BLKSIZE = 32720
- SPACE = (CYL(1,1,4),RLSE)

FTP in ASCII mode all of the files in the source library folder into the PDSE allocated in step 1.

### *Test database file*

The miscellaneous folder contains a test database that is used to verify the integrity of the installed MCE program. The format of the test database is shown in the following table.

**Table 8. Test database format**

| Field# | Location | Name  | Description      |
|--------|----------|-------|------------------|
| 1      | 1-3      | AGE   | Age              |
| 2      | 4        | SEX   | Sex              |
| 3      | 5-6      | DSTAT | Discharge Status |
| 4      | 7-11     | LOS   | Length of stay   |

| Field# | Location  | Name    | Description     |
|--------|-----------|---------|-----------------|
| 5      | 12-19     | DDATE   | Discharge date  |
| 6      | 20-227    | DX      | Diagnoses (26)  |
| 7      | 228-402   | PROC    | Procedures (25) |
| 8      | 403-417   | PROV    | Provider        |
| 9      | 418-418   | PPS     | PPS             |
| 10     | 419-483   | FILLER  | Filler          |
| 11     | 484-486   | VERSION | Version         |
| 12     | 487-487   | ADXFLAG | ADXFLAG         |
| 13     | 488-987   | DXFLAGS | DXFLAGS         |
| 14     | 988-1487  | SGFLAGS | SGFLAGS         |
| 15     | 1488-1625 | MCEBUFF | MCEBUFF         |

The following steps load the test database file to the mainframe.

1. Allocate a sequential file (PS) on your mainframe using the attributes below.
  - DSN= YOURID.EDITOR.**TESTDB**
  - RECFM=FB
  - LRECL=1625
  - BLKSIZE=27625
  - SPACE=(CYL,(20,1),RLSE)
2. FTP the TESTDB file in ASCII mode from the miscellaneous folder to the mainframe, YOURID.EDITOR.TESTDB.

## Java jar library

The MCE version 41.0 software is provided to users to allow them to group MCE claims using the v41.0 software in a Java® environment and can be called from an outside program.

The following files are needed to execute the MCE version 41.0 software:

- MCEMFV410.jar – the jar file to be run by calls from an outside program.

Users wishing to embed this jar in their own applications may do so by invoking the following method:

```
String results = grouper.process(inputRecord)
```

The method takes a String in the specified input format and returns the grouping results as a String in the specified output format.

1. On the USS system, create a folder 'dist' and FTP the modules in the java-jar folders in Binary mode into that folder. ONE member is included: MCEMFV410.jar file
2. FTP the MCEENV410 file in ASCII mode and place the file at the same level as the dist folder.
3. Update the above files with the correct path in your environment.
4. Min and max default heap size updated to 256m in the MCEENV410 file.

## Interface methods

Users wishing to embed this jar in their own applications may do so by invoking the following static method:

```
String results = Mce.processMce(inputRecord)
```

Alternatively, users could initialize the MCE object and invoke the processing logic:

```
Mce mceComponent = new Mce();  
String results = mceComponent.process(inputRecord);
```

The method takes a String in the format specified in Table 8 and returns the grouping results as a String in the format specified in Table 9.

An example program (alternative method) that calls the editor might look something like this:

```
public void myProgram() {  
  
    String inputRecord = null;  
  
    Mce mceComponent = new Mce();  
  
    // populate the inputRecord string then send to .process()  
  
    String results = mceComponent.process(inputRecord);  
  
    // Review Results  
}
```



## Input & output formats to/from jar and to/from OO cobol wrapper program MCT410JV

The total length of the input record is **500** bytes. The expected format of the input for this program is outlined in the following table:

**Table 9.** Input format to invoke jar and to call OO Cobol wrapper program MCT410JV

| Field                         | Length   |
|-------------------------------|--|
| CLAIM-AGE                     | PIC X(03)  |
| CLAIM-SEX                     | PIC X(01)  |
| CLAIM-DISCHARGE-STATUS        | PIC X(02)  |
| CLAIM-LOS                     | PIC X(05)  |
| CLAIM-DISCHARGE-DATE          | PIC X(08)  |
| DIAG-CODES                    | PIC X(208). First 8 characters are for ADX and POA |
| PROC-CODES                    | PIC X(175)   |
| WS-PROVIDER-NUM               | PIC X(15)  |
| WS-PPS                        | PIC X(01)  |
| WS-I9-I10-IND                 | PIC X(01) 9=I9, 0=I10                              |
| FILLER                        | PIC X(80)  |
| WS-DEBUG-IND (Internal field) | PIC X(01)  |

The total length of the input record is **1142** bytes. The expected format of the output from this program is outlined in the following table:

**Table 10. Output format from jar and OO Cobol wrapper program MCT410JV**

| Field                 | Length      |
|-----------------------|-------------|
| OUT-CMSMCE-VER        | PIC X(03)   |
| OUT-CMSMCE-OUTADXFLAG | PIC X(01)   |
| OUT-CMSMCE-OUTDXFLAGS | PIC X(500)  |
| OUT-CMSMCE-OUTPRFLAGS | PIC X(500)  |
| OUT-CMSMCE-OUTBUFF    | PIC X(138)* |

\*Please see Chapter 5 (page [35](#)) for an explanation of the field descriptions.

## Miscellaneous files installation

### *Source English description VSAM file*

The CODEDSC file is written as a key-sequenced data set, and the input file is sorted. This file replaces any English description files that may have been installed for other versions of MCE software. It combines all codes into one file, and has an additional identifier as part of the key.

Downloading the description file is optional. The report programs that use the CODEDSC file give you the option to bypass descriptions.

The example of how to load the English description file is included in the sample JCL folder as VSAMLOAD. The layout of the description file is below.

### *Layout of the description file*

The layout of the description file follows:

- The first byte indicates whether the code is an I9 code (9) or I10 (0).
- The next byte indicates whether the code is a diagnosis (1) or procedure (2).
- The next seven bytes (bytes 2-8) contain the code.
- The next two bytes contain the sequence number. When sequence number equals 00, the code description is valid for all MCE versions (first to current).
- The next eight bytes contain the "from" date.
- The next eight bytes contain the "to" date.
- The remaining bytes contain the code description.

An example of the description file layout is shown below.

**Table 11. Description file layout**

| Field       | Pos | Length | Description                        |
|-------------|-----|--------|------------------------------------|
| Set         | 1   | 1      | 0=ICD-10-CM, 9=ICD-9-CM            |
| Code Type   | 2   | 1      | 1=diagnosis, 2=procedure           |
| Code        | 3   | 7      | diagnosis or procedure code        |
| Sequence    | 10  | 2      | sequence number                    |
| From Date   | 12  | 8      | first date code desc is valid      |
| To Date     | 20  | 8      | last date which code desc is valid |
| Description | 28  | 60     | code description                   |

The following steps send the Source description file to the mainframe.

1. Allocate a sequential file (PS) on your mainframe using the attributes below. It is also shown for the SYSUT2 DD card in JCL library member **VSAMLOAD**.
  - DSN=YOURID.EDITOR.CODEDSC
  - RECFM=FB
  - LRECL=87
  - BLKSIZE=27927
  - SPACE=(CYL,(20,2),RLSE)
2. FTP in ASCII mode the CODEDSC file from the miscellaneous folder to the mainframe YOURID.EDITOR.CODEDSC.

### *Diagnosis EBCDIC Table*

The tables that drive the MCE are expressed in Extended Binary Coded Decimal Interchange Code (EBCDIC) as two files:

**Diagnosis table.** Contains one row per diagnosis code, with diagnosis attributes.

In the layouts in this section, each field is identified by its position (first column is position 1) and length in a table row. Criteria fields (length 1) are one when the criteria are met and zero otherwise.

The following table contains the EBCDIC Diagnosis table layout.

**Table 12.      Diagnosis table**

| Name          | Pos | Len | Description                  |
|---------------|-----|-----|------------------------------|
| codetype      | 1   | 1   | I9 (9) or I10 (0)            |
| dx            | 2   | 7   | diagnosis code               |
| effdate       | 9   | 8   | edit effective date          |
| termdate      | 17  | 8   | edit termination date        |
| pediatric     | 25  | 1   | diagnosis for pediatric only |
| mzp           | 26  | 1   | medicare as secondary payer  |
| maternity     | 27  | 1   | diagnosis for maternity only |
| nonspecific   | 28  | 1   | nonspecific diagnosis        |
| newborn       | 29  | 1   | diagnosis for newborn only   |
| manifestation | 30  | 1   | manifestation                |
| female        | 31  | 1   | diagnosis for female only    |
| male          | 32  | 1   | diagnosis for male only      |
| mdc08         | 33  | 1   | MDC 8                        |
| reqsdx        | 34  | 1   | requires secondary diagnosis |
| ncov2         | 35  | 1   | ncov2                        |
| qadm          | 36  | 1   | questionable admission       |
| unacceptable  | 37  | 1   | unacceptable diagnosis       |
| adult         | 38  | 1   | diagnosis for adult only     |
| cc            | 39  | 1   | cc                           |
| ncov3         | 40  | 1   | ncov3                        |
| ncov4         | 41  | 1   | ncov4                        |
| ncov5         | 42  | 1   | ncov5                        |
| ncov2agelt78  | 43  | 1   | ncov2agelt78                 |
| ncov2agelt64  | 44  | 1   | ncov2agelt64                 |
| ncov6         | 45  | 1   | ncov6                        |
| ncov7         | 46  | 1   | ncov7                        |
| ncov89        | 47  | 1   | ncov89                       |
| diabtype1     | 48  | 1   | diabetes                     |

| Name             | Pos | Len | Description               |
|------------------|-----|-----|---------------------------|
| UNUSED           | 49  | 1   | UNUSED                    |
| UNUSED           | 50  | 1   | UNUSED                    |
| clintrial        | 51  | 1   | clinical trial            |
| wrnproc          | 52  | 1   | wrong procedure performed |
| ecodepdx         | 53  | 1   | ecodepdx                  |
| ncov_z302        | 54  | 1   | ncov_z302                 |
| delout           | 55  | 1   | outcome of delivery       |
| Unspecified code | 56  | 1   | Unspecified code          |
| UNUSED           | 57  | 16  | UNUSED                    |

The following steps load the Diagnosis EBCDIC table to the mainframe.

1. Allocate a sequential dataset using the following attributes:
  - DSN=YOURID.EDITOR.DXEBC
  - LRECL=72
  - BLKSIZE=27936
  - RECFM=FB
  - SPACE=(CYL(10),RLSE)
2. FTP the DXEBC file from the miscellaneous folder in ASCII mode into a mainframe sequential dataset, "YOURID.EDITOR.DXEBC".

### *Procedure EBCDIC table*

**Procedure table.** Contains one row per procedure code, with procedure attributes.

In the layouts in this section, each field is identified by its position (first column is position 1) and length in a table row. Criteria fields (length 1) are one when the criteria are met and zero otherwise.

The following table contains the EBCDIC Procedure table.

**Table 13. Procedure table**

| Name                                  | Pos | Len | Description  |
|---------------------------------------|-----|-----|--|
| codetype                              | 1   | 1   | I9 (9) or I10 (0)  |
| sg                                    | 2   | 7   | procedure code   |
| effdate                               | 9   | 8   | edit effective date  |
| termdate                              | 17  | 8   | edit termination date  |
| noncovered                            | 25  | 1   | noncovered procedure   |
| biopsy                                | 26  | 1   | biopsy   |
| UNUSED                                | 27  | 1   | UNUSED   |
| bilateral                             | 28  | 1   | bilateral procedure  |
| nonspecific                           | 29  | 1   | nonspecific OR procedure   |
| or                                    | 30  | 1   | or indicator   |
| female                                | 31  | 1   | procedure for female only  |
| male                                  | 32  | 1   | procedure for male only  |
| kidneyxp                              | 33  | 1   | kidney transplant  |
| ncov8                                 | 34  | 1   | ncov8  |
| ncov9                                 | 35  | 1   | ncov9  |
| ncov6                                 | 36  | 1   | ncov6  |
| ncov7                                 | 37  | 1   | ncov7  |
| ncov45                                | 38  | 1   | ncov45   |
| ncov2                                 | 39  | 1   | ncov2  |
| ncov3                                 | 40  | 1   | ncov3  |
| I9 - lcov_lvr<br>I10 - lcov           | 41  | 1   | I9 - limited coverage - LVRS<br>I10 - limited coverage           |
| I9 - lcov_lungxp<br>I10 - UNUSED      | 42  | 1   | I9 - limited coverage - lung<br>transplant<br>I10 - UNUSED       |
| I9 - lcov_heartlungxl<br>I10 - UNUSED | 43  | 1   | I9 - limited coverage -<br>heart/lung transplant<br>I10 - UNUSED |

| Name                                 | Pos | Len | Description  |
|--------------------------------------|-----|-----|--|
| I9 - lcov_heartxp<br>I10 - UNUSED    | 44  | 1   | I9 - limited coverage - heart<br>transplant<br>I10 - UNUSED            |
| I9 - lcov_heartsys<br>I10 - UNUSED   | 45  | 1   | I9 - limited coverage - heart<br>system transplant<br>I10 - UNUSED     |
| I9 - lcov_intxp<br>I10 - UNUSED      | 46  | 1   | I9 - limited coverage -<br>intestine transplant<br>I10 - UNUSED        |
| I9 - lcov_liver<br>I10 - UNUSED      | 47  | 1   | I9 - limited coverage - liver<br>transplant<br>I10 - UNUSED            |
| UNUSED                               | 48  | 1   | UNUSED   |
| ncov10a                              | 49  | 1   | ncov10a  |
| ncov10b                              | 50  | 1   | ncov10b  |
| ncov10c                              | 51  | 1   | ncov10c  |
| ncov11                               | 52  | 1   | ncov11   |
| ncov12agele60                        | 53  | 1   | ncov12agele60  |
| I9 - lcov_kidneyxp<br>I10 - UNUSED   | 54  | 1   | I9 - limited coverage - kidney<br>transplant<br>I10 - UNUSED           |
| I9 - lcov_pancreasxp<br>I10 - UNUSED | 55  | 1   | I9 - limited coverage -<br>pancreas transplant<br>I10 - UNUSED         |
| ncov13a                              | 56  | 1   | ncov13a  |
| ncov13b                              | 57  | 1   | ncov13b  |
| ncov45a                              | 58  | 1   | ncov45a  |
| I9 - lcov_arheartxp<br>I10 - UNUSED  | 59  | 1   | I9 - limited coverage - artificial<br>heart transplant<br>I10 - UNUSED |
| lcov_arheartxpa                      | 60  | 1   | limited coverage - artificial<br>heart transplant                      |
| lcov_arheartxpb                      | 61  | 1   | limited coverage - artificial<br>heart transplant                      |
| los                                  | 62  | 1   | length of stay   |
| ncov_z302                            | 63  | 1   | ncov_z302  |

| Name   | Pos | Len | Description      |
|--------|-----|-----|------------------|
| UNUSED | 64  | 1   | UNUSED           |
| csect  | 65  | 1   | cesarean section |
| vagdel | 66  | 1   | vaginal delivery |
| UNUSED | 67  | 6   | UNUSED           |

The following steps load the Procedure EBCDIC table to the mainframe.

1. Allocate a sequential dataset using the following attributes:
  - DSN=YOURID.EDITOR.**SGEBC**
  - LRECL=72
  - BLKSIZE=27936
  - RECFM=FB
  - SPACE=(CYL(10),RLSE)
2. FTP the SGEBC file from the miscellaneous folder in ASCII mode into a mainframe sequential dataset, "YOURID.EDITOR.**SGEBC**".

## Running the test program

**Note:** We strongly recommend running the test program to ensure that the software is correctly installed.

A copy of the COBOL test program and the test database are included to allow you to test the results of the installation procedure. The COBTEST is an example of a compile-link-go to execute the COBOL test program. It's included in the JCL folder.

If you have not installed the ICD-10 description file, change line 60 in the COBOL test program to read:

```
❑ 77 DSCFLAG PIC S9(8) COMP VALUE IS +0.
```

If the test is successful, all return results should match the expected results on the test database input, and the report output should match the printout in the Miscellaneous folder. The test data base has been updated. The number of records processed is displayed, as well as the last record of the test data base with no mismatches.



# Chapter 4: Running the program

To execute the Medicare Code Editor (MCE) program, you must write an interface program that will perform the following functions:

- Read the input file records.
- Construct the MCE control block (see chapter 5).
- Move diagnoses and procedures into contiguous locations if they were not recorded that way on input.
- Recode the discharge status if the coding scheme is not UB-04 standard.
- Call the MCE program, and optionally, one of the report programs.
- Write output records, if applicable.

Note that the MCE system assumes that provider number, PPS indicator, age, sex, discharge status, date, length of stay, diagnoses and procedures are all EBCDIC (character) data.

## Calling the editor

Once the interface program is done and has the fields loaded with the data buffers as laid out in tables 9 and 10, the MCE program is invoked by calling the controller program MCT410JV that determines the MCE version to be called based on the date of discharge.

MCT410JV then calls the appropriate MCE version and returns control to your interface program. If a date is not valid, or is not within the range of the MCE version 41.0, an error message is displayed and the claim stops processing.

The COBOL wrapper (MCT410JV) uses JNI and StringUtils. These Utilities can fail if not set up properly. Refer to the following resource for return code values that can indicate the cause of a failure: <https://www.ibm.com/docs/en/cobol-zos/6.2?topic=java-manipulating-strings>

The process is then repeated for each record to be edited. The input and output buffer fields are discussed in Chapter 5 (page [35](#)).

## JCL for executing the program

The JCL Member COBTEST is an example of compile-link-go JCL to edit only.



# Chapter 5: The control block

The control block is a block of fullwords which serves as the main reference point for each of the programs in the Medicare Code Editor (MCE) system. Each program uses the control block to locate required input data and to establish the locations of return information.

The following pages explain the pointers listed in the above table. Bit values, where documented, are numbered in a left-to-right order, with bit 0 being the left-most bit.

## Input formats

### CLAIM-AGE

A 3-byte variable containing the numeric age in years. The variable must be right-adjusted, with either zero or blank filling allowed. Values in the range 0-124 are valid.

### CLAIM-SEX

A 1-byte variable containing the numeric sex. The variable must contain the value 1 for males, 2 for females or 0 for unknown.

### CLAIM-DISCHARGE-STATUS

A 2-byte variable containing the numeric discharge status code, which must be coded according to the UB-04 code scheme. If discharge status is not available, CLAIM-DISCHARGE-STATUS should point to a constant with a value of 00. The following table lists the valid UB-04 discharge status codes in the software.

**Table 14. UB-04 discharge status codes**

| Code | Description   |
|------|---|
| 00   | Unknown   |
| 01   | Home, self care (routine)   |
| 02   | Short term hospital   |
| 03   | SNF   |
| 04   | ICF (valid until 09/30/09)<br>Cust/supp care (effective 10/01/09) |

| <b>Code</b> | <b>Description</b>  |
|-------------|---|
| 05          | Other facility (valid until 03/31/08)<br>Canc/child hosp (effective 04/01/08) |
| 06          | Home health service   |
| 07          | Left against medical advice   |
| 08          | Home IV service (valid until 09/30/05)  |
| 20          | Died  |
| 21          | Court/law enfrc (added 10/01/09)  |
| 30          | Still a patient   |
| 43          | Fed hospital (added 10/01/03)   |
| 50          | Hospice - home  |
| 51          | Hospice - medical facility  |
| 61          | Swing bed (added 10/01/01)  |
| 62          | Rehab fac/unit (added 10/01/01)   |
| 63          | LTC hospital (added 10/01/01)   |
| 64          | Nursing facility-Medicaid certified (added 10/01/02)                          |
| 65          | Psych hosp/unit (added 10/01/03)  |
| 66          | Critical access hospital (added 10/01/05)                                     |
| 69          | Designated Disaster Alternative Care Site (added 10/01/13)                    |
| 70          | Oth institution (effective 04/01/08)  |
| 71          | OP services-other facility (10/01/01–09/30/03 only)                           |
| 72          | OP services-this facility (10/01/01–09/30/03 only)                            |
| 81          | Home-Self care w Planned Readmission (added 10/01/13)                         |
| 82          | Home-Self care w Planned Readmission (added 10/01/13)                         |
| 83          | SNF w Planned Readmission (added 10/01/13)                                    |
| 84          | Cust/supp care w Planned Readmission (added 10/01/13)                         |
| 85          | Canc/child hosp w Planned Readmission (added 10/01/13)                        |
| 86          | Home Health Service w Planned Readmission (added 10/01/13)                    |
| 87          | Court/law enfrc w Planned Readmission (added 10/01/13)                        |
| 88          | Federal Hospital w Planned Readmission (added 10/01/13)                       |
| 89          | Swing Bed w Planned Readmission (added 10/01/13)                              |

| Code | Description   |
|------|---|
| 90   | Rehab Facility/ Unit w Planned Readmission (added 10/01/13) |
| 91   | LTCH w Planned Readmission (added 10/01/13)                 |
| 92   | Nursg Fac-Medicaid Cert w Planned Readmiss (added 10/01/13) |
| 93   | Psych Hosp/Unit w Planned Readmission (added 10/01/13)      |
| 94   | Crit Acc Hosp w Planned Readmission (added 10/01/13)        |
| 95   | Oth Institution w Planned Readmission (added 10/01/13)      |

## CLAIM-LOS

A 5-byte variable containing the numeric length of stay. The variable must be right-adjusted, with either zero or blank filling allowed. Values in the range 0-45291 are valid.

## CLAIM-DISCHARGE-DATE

The calendar discharge date (yyyymmdd) that is used for determining which MCE version to call. Each of the three components of the date must be numeric and left zero-filled. There are no separators. If this date is not valid, the claim stops processing, and the edit flag (see OUT-CMSMCE-OUTBUFF) will be set to 4. Since the date edit is not a part of the "official" MCE edits, there is no accumulator provided. The flag is included for your convenience only.

## DIAG-CODES

The area containing contiguous diagnosis codes. Each diagnosis must be left-justified and blank-filled in an 8-byte field. The eighth byte represents the POA indicator. The first of these codes is presumed to be the admitting diagnosis and the second is presumed to be the principal diagnosis. These codes must be present.

## PROC-CODES

The area containing contiguous procedure codes. Each code must be seven bytes. Procedures are handled in the same manner as diagnoses by the system.

## WS-PROVIDER-NUM

An area containing the 15-byte Medicare provider number. This information is required for the summary record. Refer to OUT-CMSMCE-OUTBUFF for a detailed explanation.

## WS-PPS

A 1-byte numeric variable which must be set to one of the values shown in the following table. This information is required for the summary record. Refer to OUT-CMSMCE-OUTBUFF for details.

**Table 15. PPS values**

| Value | Description        |
|-------|--------------------|
| 0     | PPS status unknown |
| 1     | PPS provider       |
| 2     | Non-PPS provider   |

## WS-I9-I10-IND

One-byte variable indicating I9 or I10 codes. The variable must contain I9 = 9 OR I10 = 0. If the discharge date is before 10/01/2015, set the value to 9 = I9. If the discharge date is equal to or after 10/01/2015, set the value to 0 = I10.

## OUT-CMSMCE-VER

3-byte area (Pic 9(3)) where the version identification number is placed by the program. This area contains the number of the MCE version that was run. Selection of an MCE version is determined by the date passed in CLAIM-DISCHARGE-DATE. The following table lists the versions and date ranges.

**Table 16. Versions**

| MCE version   | Date range              |
|---------------|-------------------------|
| 41.0 (ICD-10) | 10/01/2023 – 09/30/2024 |
| 40.1 (ICD-10) | 04/01/2023 – 09/30/2023 |
| 40.0 (ICD-10) | 10/01/2022 – 03/31/2023 |
| 39.1 (ICD-10) | 04/01/2022 – 09/30/2022 |

| <b>MCE version</b> | <b>Date range</b>       |
|--------------------|-------------------------|
| 39.0 (ICD-10)      | 10/01/2021 – 03/31/2022 |
| 38.1 (ICD-10)      | 01/01/2021 – 09/30/2021 |
| 38.0 (ICD-10)      | 10/01/2020 – 12/31/2020 |
| 37.2 (ICD-10)      | 08/01/2020 – 09/30/2020 |
| 37.1 (ICD-10)      | 04/01/2020 – 07/31/2020 |
| 37.0 (ICD-10)      | 10/01/2019 – 03/31/2020 |
| 36.0 (ICD-10)      | 10/01/2018 – 09/30/2019 |
| 35.0 (ICD-10)      | 10/01/2017 – 09/30/2018 |
| 34.0 (ICD-10)      | 10/01/2016 – 09/30/2017 |
| 33.0 (ICD-10)      | 10/01/2015 – 09/30/2016 |
| 32.0               | 10/01/2014 – 09/30/2015 |
| 31.0               | 10/01/2013 – 09/30/2014 |
| 30.0               | 10/01/2012 – 09/30/2013 |
| 28.0               | 10/01/2011 – 09/30/2012 |
| 27.0               | 10/01/2010 – 09/30/2011 |
| 26.0               | 10/01/2009 – 09/30/2010 |
| 25.0               | 10/01/2008 – 09/30/2009 |
| 24.1               | 04/01/2008 – 09/30/2008 |
| 24.0               | 10/01/2007 – 03/31/2008 |
| 23.0               | 10/01/2006 – 09/30/2007 |
| 22.0               | 10/01/2004 – 09/30/2005 |
| 21.0               | 10/01/2004 – 09/30/2005 |
| 20.0               | 10/01/2003 – 09/30/2004 |
| 19.0               | 10/01/2002 – 09/30/2003 |
| 18.0               | 10/01/2001 – 09/30/2002 |
| 17.0               | 10/01/2000 – 09/30/2001 |
| 16.0               | 10/01/1999 – 09/30/2000 |
| 15.1               | 07/01/1999 – 09/30/1999 |
| 15.0               | 10/01/1998 – 06/30/1999 |
| 14.0               | 10/01/1997 – 09/30/1998 |
| 13.0               | 10/01/1996 – 09/30/1997 |

| <b>MCE version</b> | <b>Date range</b>       |
|--------------------|-------------------------|
| 12.0               | 10/01/1995 – 09/30/1996 |
| 11.0               | 10/01/1994 – 09/30/1995 |
| 10.0               | 10/01/1993 – 09/30/1994 |
| 9.0                | 10/01/1992 – 09/30/1993 |
| 8.0                | 10/01/1991 – 09/30/1992 |
| 7.0                | 10/01/1990 – 09/30/1991 |
| 6.0                | 10/01/1989 – 09/30/1990 |
| 5.0                | 10/01/1988 – 09/30/1989 |
| 4.0                | 10/01/1987 – 09/30/1988 |
| 3.0                | 10/01/1986 – 09/30/1987 |
| 2.0                | 03/01/1984 – 09/30/1986 |

## OUT-CMSMCE-OUTADXFLAG

A 1-byte variable containing the admitting diagnosis edit. The variable will contain the value 0 if the admitting diagnosis is valid or 1 if the admitting diagnosis is invalid.

## OUT-CMSMCE-OUTDXFLAG

A 500-byte field containing the diagnosis code edits starting with the principal diagnosis. 20 bytes for each of 25 diagnosis codes. The variable will contain the value 0 if the edit was not applicable or 1 if the edit was applicable. The following table provides a description for each of the 20 edit bytes.

**Table 17. MCE diagnosis code edits**

| <b>Byte</b> | <b>MCE diagnosis edit</b>                 |
|-------------|---|
| 1           | Invalid diagnosis code                    |
| 2           | Sex conflict                              |
| 3           | Age conflict                              |
| 4           | Questionable admission                    |
| 5           | Manifestation code as principal diagnosis |
| 6           | Nonspecific principal diagnosis           |



| Byte | MCE diagnosis edit   |
|------|--|
| 7    | External cause codes as principal diagnosis  |
| 8    | Unacceptable principal diagnosis   |
| 9    | Duplicate of principal diagnosis   |
| 10   | Medicare is secondary payer  |
| 11   | Requires secondary diagnosis   |
| 12   | Type of age conflict:<br>0 = No age conflict<br>1 = Newborn<br>2 = Pediatric<br>3 = Maternity<br>4 = Adult |
| 13   | POA indicator invalid or missing (for future use)  |
| 14   | Wrong procedure performed  |
| 15   | Unspecified code   |
| 16   | UNUSED   |
| 17   | UNUSED   |
| 18   | UNUSED   |
| 19   | UNUSED   |
| 20   | UNUSED   |

## OUT-CMSMCE-OUTPRFLAGS

A 500-byte field containing the procedure code edits. 20 bytes for each of 25 procedure codes. The variable will contain the value 0 if the edit was not applicable or 1 if the edit was applicable. The following table provides a description for each of the 20 edit bytes.

**Table 18. MCE procedure code edits**

| Byte | MCE procedure edit   |
|------|--|
| 1    | Invalid procedure code   |
| 2    | Sex conflict   |
| 3    | Nonspecific O.R. procedure   |
| 4    | Open biopsy check  |
| 5    | Non-covered procedure  |
| 6    | Bilateral procedure  |
| 7    | I9 - Limited coverage – Lung volume reduction surgery (LVRS)<br>I10 - Limited coverage |
| 8    | I9 - Limited coverage – Lung transplant<br>I10 - Questionable Obstetric Admission      |
| 9    | I9 - Limited coverage – Combination heart/lung transplant<br>I10 - UNUSED              |
| 10   | I9 - Limited coverage – Heart transplant<br>I10 - UNUSED                               |
| 11   | I9 - Limited coverage – Implant of heart assist system<br>I10 - UNUSED                 |
| 12   | I9 - Limited coverage – Intestine/multi-visceral transplant<br>I10 - UNUSED            |
| 13   | I9 - Limited coverage – Liver transplant<br>I10 - UNUSED                               |
| 14   | I9 - Limited coverage – Kidney transplant<br>I10 - UNUSED                              |
| 15   | I9 - Limited coverage – Pancreas transplant<br>I10 - UNUSED                            |

| Byte | MCE procedure edit  |
|------|---|
| 16   | I9 - Limited coverage – Artificial heart transplant<br>I10 - UNUSED |
| 17   | Procedure inconsistent with LOS                                     |
| 18   | UNUSED  |
| 19   | UNUSED  |
| 20   | UNUSED  |

## OUT-CMSMCE-OUTBUFF

A 138-byte buffer (MCEBUFF) that must be allocated by your interface program. The software will produce a summary of errors for each record and will put the summarized information in this buffer, along with the provider number, PPS indicator, and edit flag. The following table is a description of the buffer.

The accumulators at positions 17 through 62, and 69 through 76, contain the counts of the number of occurrences of each of the error conditions related to diagnoses and/or procedures. Those for which the count cannot exceed 1 are designated with an asterisk (\*).

**Table 19. Buffer description**

| Byte | Datatype   | Description   |
|------|------------|---|
| 1    | pic 9(15). | Medicare provider number                                    |
| 16   | pic 9.     | PPS indicator   |
| 17   | pic 99.    | Invalid diagnosis or procedure code                         |
| 19   | pic 99.    | Sex conflict  |
| 21   | pic 99.    | Age conflict  |
| 23   | pic 99.    | * Questionable admission                                    |
| 25   | pic 99.    | * Manifestation as principal dx                             |
| 27   | pic 99.    | * Non-specific principal dx (versions 2.0-23.0 only)        |
| 29   | pic 99.    | * External causes of morbidity codes as principal diagnosis |
| 31   | pic 99.    | * Unacceptable principal dx                                 |

| Byte | Datatype | Description  |
|------|----------|--|
| 33   | pic 99.  | Duplicate of principal dx  |
| 35   | pic 99.  | MSP alert (versions 15.0–17.0 only)  |
| 37   | pic 99.  | Principal dx requires secondary dx   |
| 39   | pic 99.  | Non-specific procedure (versions 15.0-23.0 only)   |
| 41   | pic 99.  | Open biopsy check (versions 22.0-26.0 only)  |
| 43   | pic 99.  | Non-covered procedure  |
| 45   | pic 99.  | *Bilateral procedure (not valid in I-10)   |
| 47   | pic 99.  | I9 - LVRS - Limited coverage<br>I10 - Limited coverage   |
| 49   | pic 99.  | I9 - Lung transplant - Limited coverage<br>I10 - Questionable Obstetric Admission  |
| 51   | pic 99.  | I9 - Combo heart/lung transpl - Limited coverage (not valid in I-10)<br>I10 - UNUSED   |
| 53   | pic 99.  | I9 - Heart transplant - Limited coverage<br>I10 - UNUSED   |
| 55   | pic 99.  | I9 - Implantable hrt assist - Limited coverage<br>I10 - UNUSED   |
| 57   | pic 99.  | I9 - Intest/M. visceral transpl - Limited coverage<br>I10 - UNUSED   |
| 59   | pic 99.  | I9 - Liver transplant - Limited coverage<br>I10 - UNUSED   |
| 61   | pic 99.  | * Invalid admit dx   |
| 63   | pic 99.  | * Invalid age (not between 0 and 124 years)  |
| 65   | pic 99.  | * Invalid sex (not 1 or 2)   |
| 67   | pic 99.  | * Invalid or missing discharge status code<br><br><b>Note:</b> Some discharge status codes are not valid for all date ranges. See the UB-04 discharge status codes table (page <a href="#">35</a> ). |
| 69   | pic 99.  | I9 - Kidney transplant - Limited coverage<br>I10 - UNUSED  |

| Byte | Datatype  | Description   |
|------|-----------|---|
| 71   | pic 99.   | I9 - Pancreas transplant - Limited coverage<br>I10 - UNUSED         |
| 73   | pic 99.   | POA indicators invalid or missing (for future use)                  |
| 75   | pic 99.   | I9 - Artificial heart transplant - Limited coverage<br>I10 - UNUSED |
| 77   | pic 99.   | Wrong procedure performed   |
| 79   | pic 99.   | Procedure inconsistent with LOS                                     |
| 81   | pic x(99) | Unspecified code  |
| 83   | pic x(54) | Filler  |
| 137  | pic 99.   | MCE edit flag   |

The accumulators at positions 45 and 63 through 68 will have a count of 1 if the error is present, and 0 otherwise. They are effectively the flag bytes for these errors.

### Flag values

The MCE edit flag is set by the software to values shown in the following table.

**Table 20.** Edit flag values

| Value | Description |
|-------|-------------|
| 0     | No edits    |

| Value | Description   |
|-------|---|
| 1     | Pre-payment edits<br>Non-covered procedure<br>Questionable admission<br>Age conflict<br>Sex conflict<br>Invalid diagnosis and procedure code<br>External causes of morbidity codes as principal diagnosis<br>Manifestation as principal diagnosis<br>Unacceptable principal diagnosis<br>Invalid age, sex or discharge status<br>Duplicate of PDX,<br>Requires secondary dx<br>Limited coverage<br>Wrong procedure performed<br>Procedure inconsistent with LOS |
| 2     | Post-payment edits<br>Non-specific diagnosis<br>Non-specific procedure<br>Bilateral procedure<br>Biopsy check<br>MSP alert  |
| 3     | Both pre-payment and post-payment edits   |
| 4     | Discharge date invalid (an improperly formatted date or invalid day or month, i.e., mmddyyyy instead of yyyyymmdd, mm = 13, or dd = 32) or missing, or date is outside of the supported range   |

EDflag is not set for admitting diagnosis.

## DSCPTR

Used with the report programs. This is the address of a binary (PIC 9(8) COMP) fullword indicating whether the ICD code English description file will be accessed. A value of 0 (zero) indicates that no English descriptions are wanted, while a value of 1 indicates that descriptions will be printed. If descriptions are bypassed, their area in the print line is blanked out. No change in print format occurs.

## **OPTPTR**

Used with the report programs. Up to 11 OPTPTRs may be present, with each one pointing to a 40-byte user-allocated area containing additional patient information (patient I.D., length of stay, etc.) that is to be included as a line of output on the report. The report program will print the entire 40 bytes "as is" for each option line present. These lines will be printed immediately below the title line and before the standard information (provider number, PPS status, age, sex, discharge status, date, diagnosis and procedures) is reported.

It is the user's responsibility to set a flag in the last pointer to indicate the end of the pointer list. To set the end-of-list flag the high-order bit of the last pointer must be turned on. For COBOL programmers, the CALL... USING statement automatically sets the end-of-list indicator.





# Chapter 6: The report programs

A report program is included in the Medicare Code Editor (MCE) program. All versions of the software are compatible with the report program discussed below.

## MCT410PA

This standard report program (format A) prints each patient record on a separate page. MCT410PA output is written to a file with the DD name RPTFILE which can be allocated to the printer, a disk, or file. RPTFILE is opened on the initial call to MCT410PA. In order to close RPTFILE, MCT410PA must be called with Register 1 set to a value of zero (for COBOL, a CALL MCT410PA with no parameters will have this effect). If you are blocking RPTFILE records, closing the file is essential, or the last block of output may be lost.

MCT410PA could be called each time the edit flag (position 137-138 in the MCEBUFF) was returned with a value greater than zero (remember that invalid admitting diagnosis does not set this flag). This would generate a one-page report for the patient record on which errors were detected.

Alternatively, MCT410PA could be called for each record, whether or not any flags were set, which could produce a large volume of print output.

MCT410PA output could be written to a file.



# Appendix A: MCE Software edits

The edits contained in the current Medicare Code Editor (MCE) software are listed here with their descriptions. These edits are the official MCE edits specified by the Centers for Medicare & Medicaid Services (CMS).

Below is a list of edit messages described in this appendix:

1. Invalid diagnosis or procedure code
2. External cause codes as principal diagnosis
3. Duplicate of PDX
4. Age conflict
5. Sex conflict
6. Manifestation code as principal diagnosis
7. Non-specific principal diagnosis (Discontinued as of 10/01/07)
8. Questionable admission
9. Unacceptable principal diagnosis
10. Non-specific O.R. procedure (Discontinued as of 10/01/07)
11. Non-covered procedure
12. Open biopsy check (Discontinued as of 10/01/10)
13. Bilateral procedure (Discontinued as of ICD-10 implementation)
14. Invalid age
15. Invalid sex
16. Invalid discharge status
17. Limited coverage
18. Wrong procedure performed
19. Procedure inconsistent with LOS
20. Unspecified code

## 1. Invalid diagnosis or procedure code

MCE software checks each diagnosis code, including the admitting diagnosis, and each procedure code against a table of valid diagnosis or procedure codes. If an entered code does not agree with any code on the internal list, the entered code is considered invalid.

## 2. External cause codes as principal diagnosis

External cause codes (V, W, X or Y codes (ICD-10-CM), E codes (ICD-9-CM)) as principal diagnosis describe the circumstance(s) that caused an injury, not the nature of the injury (e.g., fall from bed), and therefore should not be used as a principal diagnosis.

## 3. Duplicate of PDX

Whenever a secondary diagnosis is coded the same as the principal diagnosis, the secondary diagnosis is identified by MCE software as a duplicate of the principal diagnosis. This is because the diagnosis code may be considered a complication or comorbidity (CC) and will create an error in DRG assignment if the DRG is affected by the presence of a CC.

## 4. Age conflict

MCE software detects inconsistencies between a patient's age and any diagnosis on the patient's record. Examples of age conflicts are a five-year-old patient with benign prostatic hypertrophy, and a 78 year-old patient with a delivery. In such cases, either the diagnosis or age is presumed to be incorrect. There are four age code categories: newborn (less than one year), pediatric (0–17 years inclusive), maternity (9–64 years inclusive), and adult (15–124 years inclusive).

Note: In Version 37, adjusted Maternity age range to be 9 to 64. Effective 10/01/2019. Prior to this date, the Maternity age range of 12 to 55 will be used.

## 5. Sex conflict

MCE software detects inconsistencies between a patient's sex and any diagnosis or procedure on the patient's record. Examples of sex conflicts are a male patient with cervical cancer (diagnosis) and a male patient with a hysterectomy (procedure). In such cases, either the diagnosis, procedure, or sex is presumed to be incorrect.

## 6. Manifestation code as principal diagnosis

Manifestation codes describe the manifestation of an underlying disease, not the disease itself, and therefore should not be used as a principal diagnosis.

## 7. Non-specific principal diagnosis

*Discontinued as of 10/01/07.*

A set of diagnosis codes, particularly those described as "not otherwise specified" (NOS), are identified by the software as non-specific. While these codes are valid ICD-10-CM codes, more precise codes should be used for the principal diagnosis. It should be noted that a diagnosis is considered non-specific only if the patient was discharged alive; patients who have died often do not receive a complete diagnostic workup, and specification of a precise principal diagnosis may not be possible.

## 8. Questionable admission

There are some diagnoses which are not usually sufficient justification for admission to an acute care hospital (e.g., benign hypertension). The ICD-10-PCS procedure codes describing a cesarean section or vaginal delivery are considered to be a questionable admission without a secondary diagnosis code describing the outcome of delivery. In these cases, the code is flagged.

## 9. Unacceptable principal diagnosis

There are selected codes that describe a circumstance which influences an individual's health status but is not a current illness or injury (e.g., family history of ischemic heart disease) or codes that are not specific manifestations but may be due to an underlying cause. Such codes are considered unacceptable as a principal diagnosis. In a few cases, some unacceptable codes will be acceptable as principal diagnosis if any secondary diagnosis is coded; for these codes, the software displays a "Requires secondary dx" message next to the code in place of the "Unacceptable principal diagnosis" edit.

## 10. Non-specific O.R. procedure

*Discontinued as of 10/01/07.*

A set of O.R. procedure codes, particularly those described as "not otherwise specified" (NOS), are identified by the software as non-specific. While these codes are valid ICD-10-CM codes, more precise codes should be used. It should be noted that the non-specific O.R. procedure condition is reported only if all the O.R. procedures performed have been coded as non-specific;

if a patient had several O.R. procedures and only one was non-specific, the edit would not be generated.

## 11. Non-covered procedure

Medicare does not provide reimbursement for some procedures and their codes are flagged by the software. Some non-covered procedures are covered under certain circumstances with particular principal or secondary diagnoses, as specified by CMS.

## 12. Open biopsy check

*Discontinued as of 10/01/10.*

Biopsies can be performed as open (i.e., a body cavity entered surgically), percutaneous, or endoscopic procedures. Patients are assigned to different DRGs depending on whether or not the biopsy was open. ICD-9-CM codes are explicit for open and non-open biopsies; however, the distinction made by the codes is not applied uniformly. MCE software identifies all biopsies that are coded as open biopsies, and suggests the corresponding non-open biopsy code to use, if applicable.

## 13. Bilateral procedure

*Discontinued as of ICD-10 implementation*

Certain codes do not accurately reflect procedures that are performed in one admission on two or more different bilateral joints of the lower extremities. A combination of these codes shows a bilateral procedure when, in fact, they could be procedures performed on a single joint (i.e., duplicate procedures). When two or more different joint replacement procedures are coded, this edit instructs the fiscal intermediary to make sure that these procedures were performed on two separate joints.

## 14. Invalid age

A patient's age is usually needed for correct DRG grouping. If the age reported is outside the valid range (0–124 years), the software assumes the age is in error.

## 15. Invalid sex

A patient's sex is sometimes needed for correct DRG grouping. The sex code reported must be either 1 (male) or 2 (female). If the entry is not either of these values, the software flags the record.

## 16. Invalid discharge status

A patient's discharge status is sometimes needed for correct DRG grouping. Discharge status must be coded according to the UB-04 conventions. Note that when an invalid discharge status is reported, the patient is presumed to have been discharged alive for the purpose of performing the non-specific principal diagnosis check.

## 17. Limited coverage

For certain procedures whose medical complexity and serious nature incur extraordinary associated costs, Medicare limits coverage to a portion of the cost. The edit applies to such procedures as lung volume reduction surgery (LVRS), an implantable heart assist system, and major organ transplants.

## 18. Wrong procedure performed

Certain external cause codes indicate that the wrong procedure was performed.

## 19. Procedure inconsistent with LOS

The length of stay is sometimes needed to report certain procedures.

## 20. Unspecified code

Unspecified codes exist in the ICD-10-CM classification for circumstances when documentation in the medical record does not provide the level of detail needed to support reporting a more specific code. However, in the inpatient setting, there should generally be very limited and rare circumstances for which the laterality (right, left, bilateral) of a condition is unable to be documented and reported.





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