

for z/OS Batch

# Medicare Code Editor Software

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Installation Manual ICD-10 Pilot Version

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# About this document

This manual contains the information needed to install version 30.0 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) and z/OS Job Control Language (JCL).

The coding edit information in this manual is effective from 10/01/2012 to 09/30/2013. However it is not intended to be used to process claims as the ICD-10 code set will not be mandated for use until the implementation of ICD-10.

Beginning with the ICD-10 version of MCE, the version number will correspond to the MS Grouper version. Therefore, this ICD-10 version of MCE will be version 30.0.





# 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, 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 and 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

Table 1 (page [10](#)) 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**

MCE version	DRG version	Discharge date range
MCE 30.0 (ICD-10)	DRG 30.0	10/01/2012-09/30/2013

# 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.

Figure 1 (page 11) 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 - V30.0	03/16/2012 PAGE 1
Optional information	Provider Number22900000000000000000000000000000	
	VER= 300 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	
	SEX: 2 FEMALE	
Patient information	DISCHARGE STATUS: -1 UNKNOWN	
	DISCHARGE DATE: 20111023	
Diagnosis code(s)	ADMITTING DIAGNOSIS	
	S82231E DISPL OBLIQUE FX SHAFT OF R TIBIA, 7THE	0
	PRINCIPAL DIAGNOSIS	
	S88019A COMPLETE TRAUMATIC AMP AT KNEE LEVEL, UNSP LOWER LEG, INIT	000000000000
	SECONDARY DIAGNOSES	
	S82451A DISPLACED COMMINUTED FRACTURE OF SHAFT OF RIGHT FIBULA, INIT	000000000000
	M85552 ANEURYSMAL BONE CYST, LEFT THIGH	
Procedure code(s)	PROCEDURES	
	0DQXZZ EXTIRPATION OF MATTAR FROM ANUS, EXTERNAL APPROACH	000000000000

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.

Figure 1 (page [11](#)) 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, discharge status, and discharge date).

Discharge status must be coded according to the UB-04 conventions. See Table 14 (page [37](#)) 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 error message is displayed and the claim stops processing.

*For more information on software version date ranges, see Table 1 (page [9](#)).*

### **Diagnosis code(s)**

The following diagnosis information is reported:

- ICD-10-CM admitting diagnosis code and English description
- ICD-10-CM principal diagnosis code and English description
- ICD-10-CM secondary diagnosis code(s) and English descriptions

### **Procedure code(s)**

The ICD-10-PCS 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. Link-editing the Assembler subroutines and testing the grouper

The following description of the installation media includes instructions on how to download the files shown in Table 2 (page [15](#)), and test that the installation was successful.

## Installation media

The MCE installation media contains the compiled object code for the MCE and print programs, written in the IBM OS Assembler language. The media 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. Table 2 (page [15](#)) lists the files contained on the media.

## Downloading the installation media files

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

The content of the downloaded file folder is shown in Table 2 (page [15](#)).

**Table 2. MCE Media contents**

File	File name	LRECL	BLKSIZE	Description
1	OBJLIB	80	27920	Object library
2	SRCLIB	80	27920	Source library
3	LOADLIB	0	6233	Load library

The content of the miscellaneous folder is shown in Table 3 (page [16](#)).

**Table 3. MCE miscellaneous folder contents**

File	File name	LRECL	BLKSIZE	Description
1	TESTDB	1400	18200	Test database
2	DXEBC	71	27974	Diagnoses EBCDIC table
3	SGEBC	71	27974	Procedure EBCDIC table
4	CODEDSC	87	27927	Code description
5	JCL Members	80	27920	See Table 4 (page <a href="#">17</a> ).

## eDownload instructions

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

### Editor program installation

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

This directory contains the following folders:

- Load library - MCE Editor load modules
- Object library - MCE Editor object modules
- Source library - MCE Editor source programs
- Miscellaneous
  - Test database file
  - EBCDIC files
  - Sample JCL
  - Code description



### *JCL library*

The following steps download the JCL library.

1. Allocate a PDS on your mainframe with the following characteristics:
  - DSN = [e.g. YOURID.MCE300.I10.JCL]
  - RECFM = FB
  - LRECL = 80
  - BLKSIZE = 27920
  - SPACE = (TRK,(2,1,3),RLSE)
2. FTP in ASCII mode all of the sample JCL files listed in Table 4 (page [17](#)) into the pre-allocated PDS defined in step 1 above.

There is JCL to run sample COBOL interface programs. Table 4 (page [17](#)) lists the files contained in the miscellaneous folder.

**Table 4. Sample JCL members**

<b>Member</b>	<b>Function</b>
ALTSTJCL	Run sample COBOL program (ALTTEST)
BUILDPDS	Sample JCL used for electronic download
CBTSTJCL	Run sample COBOL program (COBTEST)
COBTSTGO	Run test database, executing COBTEST load library members
ALLTSTGO	Run test database, executing ALTTEST load library members
VSAMLOAD	Load the code description file

### *Load library*

The load library consists of the load modules for the MCE editor and print routine programs. The entire load library is optional if you intend to use the object modules.

Table 5 (page [17](#)) lists the members of the load library.

**Table 5. Load library members**

<b>Number</b>	<b>Name</b>	<b>Description</b>
1	ALTTEST	Sample COBOL program (alternate interface)

Number	Name	Description
2	COBTEST	Sample COBOL (standard interface) program
3	MCT300CA	Control program (alternate interface)
4	MCT300CN	Control program (standard interface)
5	MCT300PA	Print program

The load library is a sequential file, FTPLOAD.

1. Pre-allocate a sequential dataset on your mainframe to receive the file using the following file characteristics:
  - DSN = [e.g. YOURID.MCE300.I10.FTPLOAD]
  - RECFM = FB
  - LRECL = 80
  - BLKSIZE = 3120
  - SPACE = (CYL(20,1),RLSE)
2. FTP in **BINARY** mode the FTPLOAD file into the sequential dataset you allocated above.
3. Pre-allocate a load library PDS on the mainframe using the following file characteristics:
  - DSN = [e.g. YOURID.MCE300.I10.LOADLIB]
  - RECFM = U
  - BLKSIZE = 6233
  - SPACE = (CYL(20,3,2),RLSE)
4. Modify BUILD PDS in library YOURID.MCE300.I10.JCL 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 PDS that was created in the step above.

**Note:** BUILDPDS was FTP'd to the mainframe from the JCL library. 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 shown below.

```
//JOB CARD FOR YOUR INSTALLATION
/* *****
/* *** RECEIVE FTP'D SEQUENTIAL FILES TO CREATE LOAD LIBRARY PDS ***
/* *****
//BLDLOAD EXEC PGM=IKJEFT01
//SYSTSPRT DD SYSOUT=*
//SYSTSIN DD *
  RECEIVE INDATASET('YOURID.MCE300.I10.FTPLOAD')
    DATASET('YOURID.MCE300.I10.LOADLIB')
/*
```

5. After you modify the BUILDPDS, execute the JCL

### Object library

The object library zip file contains the object library of all MCE programs. Table 6 (page [19](#)) lists the members of the object library.

**Table 6. Object library members**

Number	Name	Description
1	ALTTEST	Sample COBOL program (alternate interface)
2	COBTEST	Sample COBOL (standard interface) program
3	MCT300CA	The main control program (alternate interface)
4	MCT300CN	The main control program (standard interface)
5	MCT300DT	Date calculation program
6	MCT300ED	Editor program
7	MCT300PA	Print program
8	MCT300PB	Print program
9	MCT300PC	Print program
10	MCT300RT	The editor tables
11	MCT300VS	VSAM code description program

Members 4 through 11 comprise the main MCE executor using the standard interface. Substitute MCT300CA for MCT300CN to compile the main grouper executor using the alternate (re-entrant, macro-free) interface.

All the programs contained in the object library were written in IBM Basic Assembly Language (BAL). The programs were written and tested on an IBM Z10 2097-E26 (703) computer.

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Object module files must be FTP'd in BINARY.

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The following steps download the object library.

1. Allocate a PDS on your mainframe with the following characteristics:
  - DSN = [e.g. YOURID.MCE300.I10.OBJLIB]
  - RECFM = FB
  - LRECL = 80
  - BLKSIZE = 27920
  - SPACE = (CYL(21,1,2),RLSE)
2. FTP in BINARY mode all of the files in the object library folder into the PDS allocated in step 1 above.

### *Library of source programs and tables*

The source zip file consists of the source for the COBOL test programs and the sources for the MCE editor and print routine programs.

Table 7 (page [20](#)) lists the members of the source library.

**Table 7. Source library members**

<b>Number</b>	<b>Name</b>	<b>Description</b>
1	ALTTEST	Sample COBOL program (alternate interface)
2	COBTEST	Sample COBOL (standard interface) program
3	MCT300CA	Control program (alternate interface)
4	MCT300CN	Control program (standard interface)
5	MCT300DT	Date calculation program
6	MCT300ED	Editor program
7	MCT300PA	Print program to the table
8	MCT300PB	Print program
9	MCT300PC	Print program
10	MCT300PR	Print macro

Number	Name	Description
11	MCT300RT	Editor tables
12	MCT300VS	VSAM description file program

The following steps load the source library.

1. Allocate a PDS on your mainframe with the following characteristics:
  - DSN = [e.g. YOURID.MCE300.I10.SRCLIB]
  - RECFM = FB
  - LRECL = 80
  - BLKSIZE = 27920
  - SPACE = (CYL(55,1,4),RLSE)
2. FTP in ASCII mode all of the files in the source library folder into the PDS allocated in step 1 above.

## Miscellaneous files installation

### *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 Table 8 (page [21](#)).

**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	7-9	LOS	Length of stay
5	10-17	DDATE	Discharge date
6	18-225	DX	Diagnoses (26)
7	226-400	PROC	Procedures (25)
8	401-415	PROV	Provider
9	416-416	PPS	PPS
10	417-483	FILLER	Filler
11	484-486	VERSION	Version

Field#	Location	Name	Description
12	487-487	ADXFLAG	ADXFLAG
13	488-837	DXFLAGS	DXFLAGS
14	838-1262	SGFLAGS	SGFLAGS
15	1263-1400	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.MCE300.I10.TESTDB
  - RECFM=FB
  - LRECL=1400
  - BLKSIZE=18200
  - SPACE=(CYL,(10,1),RLSE)
2. FTP in ASCII mode the TESTDB file from the miscellaneous folder to the mainframe, YOURID.MCE300.I10.TESTDB.

### 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 (see DSCPTR narrative in chapter 5).

Figure 2 (page [22](#)) is an example of how to load the English description file. The layout of the description file follows the figure.

```
// JOB CARD FOR YOUR INSTALLATION
/*SETUP CARD FOR INSTALLATION
// EXEC PGM=IDCAMS,REGION=1024K
//SYSPRINT DD SYSOUT=*
//INPUT DD DSN=YOURID.MCE300.I10.CODEDSC,DISP=SHR
//SYSIN DD *
    DEFINE CLUSTER (NAME(YOURID.MCE300.I10.VSFILE) -
        VOLUMES(DISKVOLID) -
        CISZ(2048) -
        RECORDS(141752)) -
    DATA (KEYS(11 0) -
        RECORDSIZE(87 87) -
        NAME(YOURID.MCE300.I10.VSFILE.DATA)) -
    INDEX (NAME(YOURID.MCE300.I10.VSFILE.INDEX))
    REPRO INFILE(INPUT) -
        OUTDATASET(YOURID.MCE300.I10.VSFILE)
/*
```

Figure 2: Sample JCL to install the English description file

### *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 9. Description file layout**

<b>Field</b>	<b>Pos</b>	<b>Length</b>	<b>Description</b>
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.MCE300.I10.CODEDSC
  - RECFM=FB
  - LRECL=87
  - BLKSIZE=27927
  - SPACE=(CYL,(16,2),RLSE)
2. FTP in ASCII mode the CODEDSC file from the miscellaneous folder to the mainframe YOURID.MCE300.I10.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 ICD-10-CM diagnosis, 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.

Table 10 (page [24](#)) contains the EBCDIC Diagnosis table layout.

**Table 10.      Diagnosis table**

<b>Name</b>	<b>Pos</b>	<b>Len</b>	<b>Description</b>
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
misp	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



Name	Pos	Len	Description
ncov5	42	1	ncov5
ncov2agelt78	43	1	ncov2agelt78
ncov2agelt64	44	1	ncov2agelt64
ncov6	45	1	ncov6
ncov7	46	1	ncov7
ncov89	47	1	ncov89
diabtypel	48	1	diabetes
bmi	49	1	bmi
obesity	50	1	obesity
clintrial	51	1	clinical trial
wrnproc	52	1	wrong procedure performed
ecodepdx	53	1	ecodepdx
UNUSED	54	18	UNUSED

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

1. Allocate a sequential dataset using the following attributes:
  - DSN=YOURID.MCE300.I10.DXEBC
  - LRECL=71
  - BLKSIZE=27974
  - RECFM=FB
  - SPACE=(CYL(10),RLSE)
2. FTP the DXEBC file from the miscellaneous folder in ASCII mode into a mainframe sequential dataset, "YOURID.MCE300.I10.DXEBC".

### *Procedure EBCDIC table*

**Procedure table.** Contains one row per ICD-10-PCS procedure, 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.

Table 11 contains the EBCDIC Procedure table.

**Table 11. Procedure table**

<b>Name</b>	<b>Pos</b>	<b>Len</b>	<b>Description</b>
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
lcov_lvrs	41	1	limited coverage - LVRS
lcov_lungxp	42	1	limited coverage - lung transplant
lcov_heartlungxl	43	1	limited coverage - heart/lung transplant
lcov_heartxp	44	1	limited coverage - heart transplant
lcov_heartsys	45	1	limited coverage - heart system transplant
lcov_intxp	46	1	limited coverage - intestine transplant
lcov_liver	47	1	limited coverage - liver transplant

Name	Pos	Len	Description
lcov_other	48	1	limited coverage - other
ncov10a	49	1	ncov10a
ncov10b	50	1	ncov10b
ncov10c	51	1	ncov10c
ncov11	52	1	ncov11
ncov12agele60	53	1	ncov12agele60
lcov_kidneyxp	54	1	limited coverage - kidney transplant
lcov_pancreasxp	55	1	limited coverage - pancreas transplant
ncov13a	56	1	ncov13a
ncov13b	57	1	ncov13b
ncov45a	58	1	ncov45a
lcov_arheartxp	59	1	limited coverage - artificial heart transplant
lcov_arheartxpa	60	1	limited coverage - artificial heart transplant
lcov_arheartxpb	61	1	limited coverage - artificial heart transplant
los	62	1	length of stay
UNUSED	63	9	UNUSED

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

1. Allocate a sequential dataset using the following attributes:
  - DSN=YOURID.MCE300.I10.**SGEBC**
  - LRECL=71
  - BLKSIZE=27974
  - RECFM=FB
  - SPACE=(CYL(10),RLSE)
2. FTP the SGEBC file from the miscellaneous folder in ASCII mode into a mainframe sequential dataset, "YOURID.MCE300.I10.**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 on the media to allow you to test the results of the installation procedure. Figure 3 is an example of a compile-link-go to execute the COBOL test program.

If you have not installed the ICD-10 description file, change line 55 in the COBOL test program to read:

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

Also, exclude the marked  line from Figure 3 below.

```

//JOB CARD FOR YOUR INSTALLATION                                00001000
//* *****                                                    00002000
//* THIS JOB IS USED TO COMPILE, LINK AND RUN THE MCE          00003400
//* COBOL TEST PROGRAM, COBTEST.                               00004000
//*                                                            00005000
//* BOTH OBJECT AND LOAD MODULES ARE TEMPORARY.              00005100
//* *****                                                    00006000
//COBUCLG PROC SYSOUT='*'                                       00007000
//* COBOL FOR MVS COMPILE AND LINK                             00008000
//COB EXEC PGM=IGYCRCTL,PARM='RENT,NODYNAM'                    00009000
//STEPLIB DD DSN=IGYV3R4.SIGYCOMP,DISP=SHR                    00009100
//SYSLIB DD DSN=YOURID.&PROD.,SRCLIB,DISP=SHR                 00009200
//SYSPRINT DD SYSOUT=&SYSOUT                                    00009300
//SYSIN DD DSN=YOURID.&PROD.,SRCLIB(COBTEST),DISP=SHR         00009400
//SYSUT1 DD UNIT=SYSDA,SPACE=(CYL,(1,1))                      00009500
//SYSUT2 DD UNIT=SYSDA,SPACE=(CYL,(1,1))                      00009600
//SYSUT3 DD UNIT=SYSDA,SPACE=(CYL,(1,1))                      00009700
//SYSUT4 DD UNIT=SYSDA,SPACE=(CYL,(1,1))                      00009800
//SYSUT5 DD UNIT=SYSDA,SPACE=(CYL,(1,1))                      00009900
//SYSUT6 DD UNIT=SYSDA,SPACE=(CYL,(1,1))                      00010000
//SYSUT7 DD UNIT=SYSDA,SPACE=(CYL,(1,1))                      00010100
//SYSLIN DD DSN=&&LOADSET,UNIT=SYSDA,DISP=(MOD,PASS),          00010200
// SPACE=(TRK,(3,3)),DCB=BLKSIZE=800                          00010300
//*                                                            00010400
//LKED EXEC PGM=IEWL,PARM='LIST,MAP,AMODE=31,RMODE=ANY',      00010500
// COND=(5,LT,COB)                                             00010600
//SYSLIB DD DSN=CEE.SCEELKED,DISP=SHR                          00010700
//SYSLMOD DD DSN=&&GOSET(COBTEST),UNIT=SYSDA,DISP=(,PASS),    00010800
// SPACE=(CYL,(5,1,5))                                         00010900
//SYSUT1 DD UNIT=SYSDA,SPACE=(CYL,(1,1))                      00011000
//SYSPRINT DD SYSOUT=&SYSOUT                                    00011100
//SYSLIN DD DSN=&&LOADSET,DISP=(OLD,DELETE)                     00011200
// DD DDNAME=SYSIN                                             00011300
//OBJECT DD DSN=YOURID.&PROD.,OBJLIB,DISP=OLD                  00011400
//*                                                            00011500
//GO EXEC PGM=COBTEST,COND=((5,LT,COB),(5,LT,LKED))           00012000
//STEPLIB DD DISP=SHR,DSN=&&GOSET                                00012100
// DD DISP=SHR,DSN=CEE.SCEERUN                                 00012200
//INFILE DD DSN=YOURID.&PROD.,TESTDB,DISP=SHR                  00012300
//SYSPRINT DD SYSOUT=&SYSOUT                                    00012400
//MCE30DSC DD DSN=YOURID.&PROD.,VSFILE,DISP=SHR                00012500
//RPTFILE DD SYSOUT=&SYSOUT,DCB=(RECFM=FA,BLKSIZE=99,BUFNO=1) 00012600
// PEND                                                         00012700
//*                                                            00012800
//PROG1 EXEC COBUCLG,PROD=MCE300.I10                           00012900
//*                                                            00013000
//LKED.SYSIN DD *                                             00013100
INCLUDE OBJECT(MCT300CN,MCT300ED,MCT300RT)                    00013200
INCLUDE OBJECT(MCT300PA,MCT300VS,MCT300DT)                    00013300
ENTRY COBTEST                                                  00014000
NAME COBTEST                                                  00014100
/*                                                            00017800

```

Figure 3: Sample JCL to execute the COBOL test program

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 shown in Figure 4 (page 30). There should be 5106 records processed. The test should take less than 1 CPU second.

Note that the DISCHARGE DATE output field displays in the same format as the date is entered (yyyymmdd).

## Installing the software

```
MEDICARE CODE EDITOR - V30.0                01/03/2013 PAGE    1
LAST RECORD
PROVIDER: Provider Number (NON-PPS)
AGE: 95
LOS: 002
SEX: 2 FEMALE
DISCHARGE STATUS: 00 UNKNOWN
DISCHARGE DATE: 20130522
ADMITTING DIAGNOSIS
T2129XD BURN OF SECOND DEGREE OF OTHER SITE OF TRUNK, SUBS ENCNR      0
PRINCIPAL DIAGNOSIS
S70341D EXTERNAL CONSTRICTION, RIGHT THIGH, SUBSEQUENT ENCOUNTER    0000000000000000
SECONDARY DIAGNOSES
S92911A UNSP FRACTURE OF RIGHT TOE(S), INIT FOR CLOS FX              0000000000000000
S59001P UNSP PHYSL FX LOW END ULNA, R ARM, SUBS FOR FX W MALUNION    0000000000000000
S52326M NONDISP TRANSVERSE FX SHAFT OF UNSP RAD, 7THM              0000000000000000
T23649A CORROS SECOND DEGREE OF UNSP MULT FNGR, INC THUMB, INIT     0000000000000000
S9402XA INJURY OF LATERAL PLANTAR NERVE, LEFT LEG, INITIAL ENCOUNTER 0000000000000000
S2699XD INJ HEART, UNSP W OR W/O HEMOPERICARDIUM, SUBS ENCNR       0000000000000000
S72032C DISPL MIDCERVICAL FX L FEMUR, INIT FOR OPN FX TYPE 3A/B/C   0000000000000000
S21401A UNSP OPN WND R BK WL OF THORAX W PENET THORACIC CAVITY, INIT 0000000000000000
S80811D ABRASION, RIGHT LOWER LEG, SUBSEQUENT ENCOUNTER             0000000000000000
S61111D LACERATION W/O FB OF RIGHT THUMB W DAMAGE TO NAIL, SUBS     0000000000000000
S82842N DISPL BIMALLEOL FX L LOW LEG, 7THN                         0000000000000000
M87332  OTHER SECONDARY OSTEONECROSIS OF LEFT RADIUS                0000000000000000
S92192K OTH FRACTURE OF LEFT TALUS, SUBS FOR FX W NONUNION          0000000000000000
PROCEDURES
5A1955Z RESPIRATORY VENTILATION, GREATER THAN 96 CONSECUTIVE HOURS   00000000000000001
0XU34JZ SUPPLEMENT L SHOULDER WITH SYNTH SUB, PERC ENDO APPROACH     00000000000000000
06B73ZX EXCISION OF COLIC VEIN, PERCUTANEOUS APPROACH, DIAGNOSTIC   00000000000000000
055C0ZZ DESTRUCTION OF RIGHT KNEE JOINT, OPEN APPROACH              00000000000000000
05UY3JZ SUPPLEMENT UPPER VEIN WITH SYNTH SUB, PERC APPROACH         00000000000000000
0HBY0ZZ EXCISION OF SUPERNUMERARY BREAST, OPEN APPROACH             00000000000000000
0LCH0ZZ EXTIRPATION OF MATTER FROM PERINEUM TENDON, OPEN APPROACH    00000000000000000
0HQ2XZZ REPAIR RIGHT EAR SKIN, EXTERNAL APPROACH                   00000000000000000
0X0B0ZZ ALTERATION OF RIGHT ELBOW REGION, OPEN APPROACH            00000000000000000
0D168KL BYPASS STOMACH TO TRANSVERSE COLON WITH NONAUT SUB, ENDO    00000000000000000
INVALID DISCHARGE STATUS
```

Figure 4: COBOL test program output

# 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 specifies the pointers in the control block where the input data is located, the MCE program is invoked by calling the controller program MCT300CN that determines the MCE version to be called based on the date of discharge.

MCT300CN 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 30.0, an error message is displayed and the claim stops processing.

The process is then repeated for each record to be edited. At the call to the control program, general purpose Register 1 must be set to point to the control block. The control block is discussed in chapter 5.

## JCL for executing the program

By implementing the CALL...USING statement, COBOL programmers will have Register 1 set by the CALL statement.

Figure 5 is an example of compile-link-go JCL to edit only.

For an example of JCL to edit and call the report program, refer to Figure 6.

If you have not installed the ICD-10 description file, exclude the marked (†) line from the JCL in Figure 6.

## Running the program

---

```
//JOB CARD FOR YOUR INSTALLATION
/* *****
/* THIS JOB IS USED TO COMPILE, LINK AND RUN THE MCE
/* COBOL TEST PROGRAM, COBTEST.
/*
/* BOTH OBJECT AND LOAD MODULES ARE TEMPORARY.
/* *****
//COBUCLG PROC SYSOUT=*
/* COBOL FOR MVS COMPILE AND LINK
//COB EXEC RGM=IGYCRCTL,PARM='RENT,NODYNAM'
//STEPLIB DD DSN=IGYV3R4.SIGYCOM,DISP=SHR
//SYSLIB DD DSN=YOUR.ID.&PROD.,SRCLIB,DISP=SHR
//SYSPRINT DD SYSOUT=&SYSOUT
//SYSIN DD DSN=YOUR.ID.&PROD.,SRCLIB(COBTEST),DISP=SHR
//SYSUT1 DD UNIT=SYSDA,SPACE=(CYL,(1,1))
//SYSUT2 DD UNIT=SYSDA,SPACE=(CYL,(1,1))
//SYSUT3 DD UNIT=SYSDA,SPACE=(CYL,(1,1))
//SYSUT4 DD UNIT=SYSDA,SPACE=(CYL,(1,1))
//SYSUT5 DD UNIT=SYSDA,SPACE=(CYL,(1,1))
//SYSUT6 DD UNIT=SYSDA,SPACE=(CYL,(1,1))
//SYSUT7 DD UNIT=SYSDA,SPACE=(CYL,(1,1))
//SYSLIN DD DSN=&LOADSET,UNIT=SYSDA,DISP=(MOD,PASS),
// SPACE=(TRK,(3,3)),DCB=BLKSIZE=800
/*
//LKED EXEC RGM=IEWL,PARM='LIST,MARAMODE=31,RMODE=ANY',
// COND=(5,LT,COB)
//SYSLIB DD DSN=CEE.SCEELKED,DISP=SHR
//SYSLMOD DD DSN=&&GOSET(COBTEST),UNIT=SYSDA,DISP=(,PASS),
// SPACE=(CYL,(5,1,5))
//SYSUT1 DD UNIT=SYSDA,SPACE=(CYL,(1,1))
//SYSPRINT DD SYSOUT=&SYSOUT
//SYSLIN DD DSN=&LOADSET,DISP=(OLD,DELETE)
// DD NAME=SYSIN
//OBJECT DD DSN=YOUR.ID.&PROD.,OBJLIB,DISP=OLD
/*
//GO EXEC RGM=COBTEST,COND=((5,LT,COB),(5,LT,LKED))
//STEPLIB DD DISP=SHR,DSN=&&GOSET
// DD DISP=SHR,DSN=CEE.SCEERUN
//INFILE DD DSN=YOUR.ID.&PROD.,TESTDB,DISP=SHR
//SYSPRINT DD SYSOUT=&SYSOUT
//RPTFILE DD SYSOUT=&SYSOUT,DCB=(RECFM=FA,BLKSIZE=99,BURFO=1)
// PEND
/*
//PROG1 EXEC COBUCLG,PROD=MCE300.I10
/*
//LKED.SYSIN DD *
INCLUDE OBJECT(MCT300CN,MCT300ED,MCT300RT)
ENTRY COBTEST
NAME COBTEST
/*
```

Figure 5: Sample JCL for edit-only procedure



```

//JOB CARD FOR YOUR INSTALLATION
/* *****
/* THIS JOB IS USED TO COMPILE, LINK AND RUN THE MCE
/* COBOL TEST PROGRAM, COBTEST.
/*
/* BOTH OBJECT AND LOAD MODULES ARE TEMPORARY.
/* *****
//COBUCLG PROC SYSOUT=*
/* COBOL FOR MVS COMPILE AND LINK
//COB EXEC RGM=IGYCRCTL,PARM='RENT,NODYNAM'
//STEPLIB DD DSN=IGYV3R4.SIGYCOM,DISP=SHR
//SYSLIB DD DSN=YOUR.ID.&PROD.,SRCLIB,DISP=SHR
//SYSPRINT DD SYSOUT=&SYSOUT
//SYSIN DD DSN=YOUR.ID.&PROD.,SRCLIB(COBTEST),DISP=SHR
//SYSUT1 DD UNIT=SYSDA,SPACE=(CYL,(1,1))
//SYSUT2 DD UNIT=SYSDA,SPACE=(CYL,(1,1))
//SYSUT3 DD UNIT=SYSDA,SPACE=(CYL,(1,1))
//SYSUT4 DD UNIT=SYSDA,SPACE=(CYL,(1,1))
//SYSUT5 DD UNIT=SYSDA,SPACE=(CYL,(1,1))
//SYSUT6 DD UNIT=SYSDA,SPACE=(CYL,(1,1))
//SYSUT7 DD UNIT=SYSDA,SPACE=(CYL,(1,1))
//SYSLIN DD DSN=&&LOADSET,UNIT=SYSDA,DISP=(MOD,PASS),
// SPACE=(TRK,(3,3)),DCB=BLKSIZE=800
/*
//LKED EXEC RGM=IEWL,PARM='LIST,MAR,AMODE=31,RMODE=ANY',
// COND=(5,LT,COB)
//SYSLIB DD DSN=CEE.SCEELKED,DISP=SHR
//SYSLMOD DD DSN=&&GOSET(COBTEST),UNIT=SYSDA,DISP=(,PASS),
// SPACE=(CYL,(5,1,5))
//SYSUT1 DD UNIT=SYSDA,SPACE=(CYL,(1,1))
//SYSPRINT DD SYSOUT=&SYSOUT
//SYSLIN DD DSN=&&LOADSET,DISP=(OLD,DELETE)
// DD DDNAME=SYSIN
//OBJECT DD DSN=YOUR.ID.&PROD.,OBJLIB,DISP=OLD
/*
//GO EXEC RGM=COBTEST,COND=((5,LT,COB),(5,LT,LKED))
//STEPLIB DD DISP=SHR,DSN=&&GOSET
// DD DISP=SHR,DSN=CEE.SCEERUN
//INFILE DD DSN=YOUR.ID.&PROD.,TESTDB,DISP=SHR
//SYSPRINT DD SYSOUT=&SYSOUT
//MCE30DSC DD DSN=YOUR.ID.&PROD.,VSFILE,DISP=SHR †
//RPT FILE DD SYSOUT=&SYSOUT,DCB=(RECFM=FA,BLKSIZE=99,BUFNO=1)
// PEND
/*
//PROG1 EXEC COBUCLG,PROD=MCE300.I10
/*
//LKED.SYSIN DD *
INCLUDE OBJECT(MCT300CN,MCT300ED,MCT300RT)
INCLUDE OBJECT(MCT300PA,MCT300VS,MCT300DT)
ENTRY COBTEST
NAME COBTEST
/*

```

Figure 6: Sample JCL for edit-print procedure

## Using the alternate interface

The alternate editor control program, (MCT300CA) operates the same as the standard editor control program (MCT300CN) except that it does not contain any macros and is written to be re-

entrant, so it should run in a wider variety of mainframe environments. Whereas the standard interface uses GETMAINS to obtain a 16,384 byte work area, the alternate interface requires that the calling program provide the work area. It must do so by providing two additional addresses in the list pointed to by general register 1 (see Table 13.)

Table 12 gives the additional work area parameters required by the alternate interface.

**Table 12. Work area parameters**

<b>Element number</b>	<b>Editor pointers</b>	<b>Full word pointer to...</b>
16	WORKAREA	A buffer of at least 20,000 bytes.
17	WORKSIZE	4-byte binary (PIC 9(8) comp) field containing the actual length in bytes of the work area. The value of this field should not be less than 20,000 bytes, though larger values are acceptable.

To use the alternate interface, substitute MCT300CA for MCT300CN and provide these two extra parameters. See the COBOL program ALTTEST, provided in the source library, for an example of how to set up a work area and pass it to MCT300CA.

Assembler programmers should note that the length of the work area is not given in the full word at element number 17 but rather a pointer to the full word containing the length is given at element number 17.

Sample JCL for running ALTTEST may be created by modifying the JCL shown in Figure 5 or 6. To modify the JCL, change all occurrences of COBTEST to ALTTEST and change MCT300CN to MCT300CA.

# 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.

Table 13 lists the control block and elements required for each system component. The first 15 elements are the same for both the editor and the print programs. The pointers from element number 16 on have different meanings depending on which component is being called.

**Table 13. Control block and elements of MCE system**

<b>Element Number</b>	<b>Editor pointers</b>	<b>Print program pointers</b>
1	DXPTR	DXPTR
2	NDXPTR	NDXPTR
3	PRPTR	PRPTR
4	NRPTR	NRPTR
5	AGEPTR	AGEPTR
6	SEXPTR	SEXPTR
7	DSTATPTR	DSTATPTR
8	PROVPTR	PROVPTR
9	PPSPTR	PPSPTR
10	LOSPTR	LOSPTR
11	DATEPTR	DATEPTR
12	VPTR	VPTR
13	ADXFLGPTR	ADXFLGPTR
14	DXFLGPTR	DXFLGPTR
15	PRFLGPTR	PRFLGPTR
16	BUFFPTR	BUFFPTR
17	n/a	DSCPTR
18	n/a	OPTPTR1
19	n/a	OPTPTR2
20	n/a	OPTPTR3
21	n/a	OPTPTR4
22	n/a	OPTPTR5
23	n/a	OPTPTR6

Element Number	Editor pointers	Print program pointers
24	n/a	OPTPTR7
25	n/a	OPTPTR8
26	n/a	OPTPTR9
27	n/a	OPTPTR10
28	n/a	OPTPTR11

The following pages explain the pointers listed in Table 13. Bit values, where documented, are numbered in a left-to-right order, with bit 0 being the left-most bit.

## DXPTR

Address of the area containing contiguous ICD-10-CM 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.

## NDXPTR

Address of a fullword containing the count of diagnoses entered into the area pointed to by DXPTR. Do not count blank space after the last filled diagnosis. The actual number of valid diagnoses must be entered. The editor only uses diagnoses up to the first blank field it finds and will reduce the number you give it accordingly. The number must be a binary (PIC 9(8) COMP) fullword. This must be a value of at least 2 (admit diagnosis and principal diagnosis), as at least two diagnoses must be present. The maximum number of codes allowed is 26. If greater than 26, the software uses only the first 26 fields in the buffer and ignores the rest.

## SGPTR

Address of the area containing contiguous ICD-10-PCS procedure codes. Each code must be seven bytes. Procedures are handled in the same manner as diagnoses by the system.

## NSGPTR

Address of a fullword containing the number of procedure codes. This is the maximum number that the area pointed to by SGPTR can hold. The number must be a binary (PIC 9(8) COMP) fullword. The maximum number of codes allowed is 25.

## AGEPTR

Address of 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.

## SEXPTR

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

## DSTATPTR

Address of 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, DSTATPTR should point to a constant with a value of 00. Table 14 lists the valid UB-04 discharge status codes in the software.

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

<b>Code</b>	<b>Description</b>
00	Unknown
01	Home, self care (routine)
02	Short term hospital
03	SNF
04	ICF (valid until 09/30/09) Cust/supp care (effective 10/01/09)
05	Other facility (valid until 03/31/08) Canc/child hosp (effective 04/01/08)
06	Home health service

<b>Code</b>	<b>Description</b>
07	Left against medical advice
08	Home IV service (deleted 10/01/05)
20	Died
21	Court/law enrnc (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)
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)

## PROVPTR

Address of an area containing the 15-byte Medicare provider number. This information is required for the summary record. Refer to BUFFPTR above for a detailed explanation.

## PPSPTR

Address of a 1-byte numeric variable which must be set to one of the values shown in Table 14. This information is required for the summary record. Refer to BUFFPTR above for details.

**Table 15. PPS values**

<b>Value</b>	<b>Description</b>
0	PPS status unknown
1	PPS provider
2	Non-PPS provider

## LOSPTR

LOSPTR Address of a 3-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 0-999 are valid.

## DATEPTR

Address of the calendar discharge date (yyyymmdd) which 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 BUFFPTR) 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.

## VPTR

Address of a 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 DATEPTR. Table 16 lists the versions and date ranges.

**Table 16. Versions**

<b>MCE version</b>	<b>Date range</b>
30.0 (ICD-10)	10/01/2012 – 09/30/2013

## ADXFLGPTR

Address of 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.

## DXFLGPTR

Address of a 350-byte field containing the diagnosis code edits starting with the principal diagnosis. 14 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. Table 17 provides a description for each of the 14 edit bytes.

**Table 17. MCE diagnosis code edits**

Byte	MCE diagnosis edit
1	Invalid diagnosis code
2	Sex conflict
3	Age conflict
4	Questionable admission
5	Manifestation code as principal diagnosis
6	Nonspecific principal diagnosis
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: 0 = No age conflict 1 = Newborn 2 = Pediatric 3 = Maternity 4 = Adult
13	POA indicator invalid or missing (for future use)
14	Wrong procedure performed



## PRFLGPTR

Address of a 400-byte field containing the procedure code edits. 16 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. Table 18 provides a description for each of the 16 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	Limited coverage – Lung volume reduction surgery (LVRS)
8	Limited coverage – Lung transplant
9	Limited coverage – Combination heart/lung transplant
10	Limited coverage – Heart transplant
11	Limited coverage – Implant of heart assist system
12	Limited coverage – Intestine/multi-visceral transplant
13	Limited coverage – Liver transplant
14	Limited coverage – Kidney transplant
15	Limited coverage – Pancreas transplant
16	Limited coverage – Artificial heart transplant
17	Procedure inconsistent with LOS

## BUFFPTR

Address of 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

## The control block

---

information in this buffer, along with the provider number, PPS indicator, and edit flag. Table 19 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**

<b>Byte</b>	<b>Datatype</b>	<b>Description</b>
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
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 (versions 22.0-28.0 only) (not valid in I-10)
47	pic 99.	LVRS - Limited coverage
49	pic 99.	Lung transplant - Limited coverage
51	pic 99.	Combo heart/lung transpl - Limited coverage (not valid in I-10)
53	pic 99.	Heart transplant - Limited coverage
55	pic 99.	Implantable hrt assist - Limited coverage

## The control block

---

Byte	Datatype	Description
57	pic 99.	Intest/M. visceral transpl - Limited coverage
59	pic 99.	Liver transplant - Limited coverage
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 <b>Note:</b> Some discharge status codes are not valid for all date ranges. See Table 14 (page <a href="#">37</a> ).
69	pic 99.	Kidney transplant - Limited coverage
71	pic 99.	Pancreas transplant - Limited coverage
73	pic 99.	POA indicators invalid or missing (for future use)
75	pic 99.	Artificial heart transplant - Limited coverage
77	pic 99.	Wrong procedure performed
79	pic 99.	Procedure inconsistent with LOS
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 Table 20.

**Table 20. Edit flag values**

Value	Description
0	No errors

Value	Description
1	Pre-payment error Non-covered procedure Questionable admission Age conflict Sex conflict Invalid diagnosis and procedure code External causes of morbidity codes as principal diagnosis Manifestation as principal diagnosis Unacceptable principal diagnosis Invalid age, sex or discharge status Duplicate of PDX, Requires secondary dx Limited coverage Wrong procedure performed Procedure inconsistent with LOS
2	Post-payment error Non-specific diagnosis Non-specific procedure Bilateral procedure Biopsy check MSP alert
3	Both pre-payment and post-payment errors
4	Discharge date invalid or missing
50	MCE table (MCT300RT) could not be opened or is corrupted

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-10 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.

For MCT300PB and MCT300PC, at least two OPTPTRs must be present, and they must be the 17th and 18th pointers in the control block. The first OPTPTR (#17) must be the address of an area allocated to hold report lines. The second OPTPTR (#18) must be the address of a fullword into which the report programs (MCT300PB or MCT300PC) will place a binary (PIC 9(8) COMP) count of the actual number of report lines used. The remaining OPTPTRs can be used as described above. See The report program (page [47](#)) for a full explanation of the report programs.

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

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

## MCT300PA

This standard report program (format A) prints each patient record on a separate page. MCT300PA output is written to a file with the DD name RPTFILE which can be allocated to the printer, a disk, or media file. RPTFILE is opened on the initial call to MCT300PA. In order to close RPTFILE, MCT300PA must be called with Register 1 set to a value of zero (for COBOL, a CALL MCT300PA 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.

## MCT300PB

This report program (format B) is the same as above, except instead of printing, a mirror of the report page is returned with a count of lines. The first position of each line is the carriage control character, having one of the values shown in Table 21.

**Table 21. Carriage control character values**

<b>Value</b>	<b>Explanation</b>
1	Skip to new page before printing line
0	Space two lines before printing current line
Blank	Normal print spacing

## MCT300PC

This report program (format C) returns a series of taglines, one tagline for each diagnosis and procedure on the patient record. The tagline will include any error messages. Each line follows a coded tag which explains the tagline. The tag numbers are 4-byte numerics. There will be two or more lines with the same tag number if more than one error is found for the same diagnosis or procedure. Taglines are explained in Table 22.

**Table 22. MCT300PC tagline format**

<b>Tag number</b>	<b>Tagline</b>
0101-0116	Diagnosis line, with 101 as the admitting diagnosis, 102 as the principal diagnosis, 103 as the first secondary diagnosis, etc.
0201-0215	Procedure line, with 201 as the first listed procedure, 202 the second, etc.
0301	Line indicating invalid discharge disposition
0401	Line indicating invalid age
0501	Line indicating invalid sex

Table 23 is an example of the taglines that might be returned by MCT300PC.

**Table 23. MCT300PC tagline example**

<b>Positions 1-4</b>	<b>Positions 5-104</b>
0101	R53.83 Other fatigue
0102	E11.22 Type 2 diabetes mellitus with diabetic chronic kidney disease
0103	N18.1 Chronic kidney disease, stage 1
0201	06HY33Z Insertion of Infusion Device into Lower Vein, Percutaneous Approach
0202	0H57XZD Destruction of Abdomen Skin, Multiple, External Approach
0301	Invalid discharge disposition

## Uses for the report programs

The MCE user may utilize the report programs in a variety of ways. Some uses are suggested below. In each example, your interface program would do the flag testing and decide whether or not to call one of the print programs.

Remember that for MCT300PB and MCT300PC, the first two OPTPTRs are used for passing and receiving line information. Refer to Chapter 5 for an explanation of the OPTPTRs.

To run the report programs, Register 1 must again be pointing to the control block.



## MCT300PA

MCT300PA 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, MCT300PA could be called for each record, whether or not any flags were set, which could produce a large volume of print output.

MCT300PA output could be written to a media or disk file for later printing.

## MCT300PB

MCT300PB could be called if you wanted to have all of the basic information in the standard report, but wanted to insert lines or edit the report before printing. Your interface program must allocate sufficient space for holding a full report. It must also control all I/O to the printer, as MCT300PB does not actually generate any printing.

The allocated area can be calculated by multiplying the expected maximum number of lines by 99 (the maximum number of characters per line).

## MCT300PC

MCT300PC could be called if you wanted the editor information for each diagnosis and procedure, but wanted to integrate it with other information tailored to your own reporting requirements.

Your interface program must allocate space. In this instance, the space requirement would be:

maximum diagnosis (NDXPTR value) + maximum procedures (NSGPTR value) +3) x  
104(maximum diagnosis (NDXPTR value) + maximum procedures (NSGPTR value) +3) x 104

If English descriptions are bypassed, the above statement is excluded. For more information, see DSCPTR in chapter 5.

Figure 7 illustrates a compile-link-go including the standard report program (MCT300PA). If English descriptions are bypassed, the line marked with the dagger (†) is excluded.

```

//JOB CARD FOR YOUR INSTALLATION
//* *****
//* THIS JOB IS USED TO COMPILE, LINK AND RUN THE MCE
//* COBOL TEST PROGRAM, COBTEST.
//*
//* BOTH OBJECT AND LOAD MODULES ARE TEMPORARY.
//* *****
//COBUCLG PROC SYSOUT=*
//* COBOL FOR MVS COMPILE AND LINK
//COB EXEC_RGM=IGYRCTL,PARM='RENT,NODYNAM'
//STEPLIB DD DSN=IGYV3R4.SIGYCOMP,DISP=SHR
//SYSLIB DD DSN=YOURID.&PROD.,SRCLIB,DISP=SHR
//SYSPRINT DD SYSOUT=&SYSOUT
//SYSIN DD DSN=YOURID.&PROD.,SRCLIB(COBTEST),DISP=SHR
//SYSUT1 DD UNIT=SYSDA,SPACE=(CYL,(1,1))
//SYSUT2 DD UNIT=SYSDA,SPACE=(CYL,(1,1))
//SYSUT3 DD UNIT=SYSDA,SPACE=(CYL,(1,1))
//SYSUT4 DD UNIT=SYSDA,SPACE=(CYL,(1,1))
//SYSUT5 DD UNIT=SYSDA,SPACE=(CYL,(1,1))
//SYSUT6 DD UNIT=SYSDA,SPACE=(CYL,(1,1))
//SYSUT7 DD UNIT=SYSDA,SPACE=(CYL,(1,1))
//SYSLIN DD DSN=&&LOADSET,UNIT=SYSDA,DISP=(MOD,PASS),
//      SPACE=(TRK,(3,3)),DCB=BLKSIZE=800
//*
//LKED EXEC_RGM=IEWL,PARM='LIST,MARAMODE=31,RMODE=ANY',
//      COND=(5,LT,COB)
//SYSLIB DD DSN=CEE.SCEELKED,DISP=SHR
//SYSLMOD DD DSN=&&GOSET(COBTEST),UNIT=SYSDA,DISP=(,PASS),
//      SPACE=(CYL,(5,1,5))
//SYSUT1 DD UNIT=SYSDA,SPACE=(CYL,(1,1))
//SYSPRINT DD SYSOUT=&SYSOUT
//SYSLIN DD DSN=&&LOADSET,DISP=(OLD,DELETE)
//      DD DDNAME=SYSIN
//OBJECT DD DSN=YOURID.&PROD.,OBJLIB,DISP=OLD
//*
//GO EXEC_RGM=COBTEST,COND=((5,LT,COB),(5,LT,LKED))
//STEPLIB DD DISP=SHR,DSN=&&GOSET
//      DD DISP=SHR,DSN=CEE.SCEERUN
//INFILE DD DSN=YOURID.&PROD.,TESTDB,DISP=SHR
//SYSPRINT DD SYSOUT=&SYSOUT
//MCE30DSC DD DSN=YOURID.&PROD.,VSFILE,DISP=SHR +
//RPTFILE DD SYSOUT=&SYSOUT,DCB=(RECFM=FA,BLKSIZE=81,BURNO=1)
//      PEND
//*
//PROG1 EXEC COBUCLG,PROD=MCE300.I10
//*
//LKED.SYSIN DD *
INCLUDE OBJECT(MCT300CN,MCT300ED,MCT300RT)
INCLUDE OBJECT(MCT300PA,MCT300VS,MCT300DT)
ENTRY COBTEST
NAME COBTEST
/*

```

Figure 7: Example of print JCL using a COBOL interface program

# 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 and Medicaid Services (CMS).

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

1. Invalid diagnosis or procedure code
2. External causes of morbidity 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

## 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 causes of morbidity codes as principal diagnosis

External causes of morbidity codes 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. External causes of morbidity codes are ICD-10-CM codes beginning with the letter V through Y.

## 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 (12–55 years inclusive), and adult (15–124 years inclusive).

## 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). In these cases, the diagnosis 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-10-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.





# Appendix B. Summary of changes

Modifications made to the Medicare Code Editor (MCE) software and effective in this ICD-10 release are summarized below.

## Software

ICD-10 MCE version 30.0 with an effective date range of 10/01/2012–09/30/2013.

## Tables

The tables have been updated with information for ICD-10 MCE software version 30.0.

## Documentation

The following new edit was added:

### **Procedure inconsistent with LOS**

The following code was added:

5A1955Z      Respiratory Ventilation, greater than 96 consecutive hours

The following code lists for edits were updated. For more information, refer to chapter 2 of the Definitions of Medicare Code Edits guide.

- Diagnoses for adult
- Unacceptable principal diagnosis
- Non-covered procedures
- Manifestation code as principal diagnosis
- Diagnoses for males only
- Procedures for males only
- Diagnoses for females only
- Procedures for females only



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