

Medicare Code Editor

Installation Manual

z/OS Batch

ICD-9-CM MCE v34.0A - for data analysis purposes only

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Table of Contents

About this document.....	vii
Chapter 1: Introduction	9
Types of edits	9
Purpose of the software.....	9
Versions and date ranges.....	10
Chapter 2: Program output	13
Elements in the output report	13
Title line	13
Optional information	14
<i>Provider number</i>	14
<i>Patient information</i>	14
<i>Diagnosis codes(s)</i>	14
<i>Procedure code(s)</i>	14
Chapter 3: Installing the software.....	15
Installation media.....	15
eDownload instructions.....	16
Editor program installation	16
JCL library	16
Load library.....	17
Object library	19
Source library	20
Miscellaneous files installation	21
Test Database File	21
EBCDIC tables.....	22
Diagnosis EBCDIC Table.....	22
Procedure EBCDIC Table	24
I9 Source File	25
File 4 - English description VSAM file	26
<i>Layout of the description file</i>	26
Running the test program	27
Chapter 4: Running the program	31
Calling the editor.....	31
JCL for executing the program	32
Using the alternate interface.....	34
Chapter 5: The control block.....	35
DXPTR.....	36
NDXPTR	36

SGPTR.....	36
NSGPTR.....	36
AGEPTR.....	37
SEXPTR.....	37
DSTATPTR.....	37
PROVPTR.....	39
PPSPTR.....	39
LOSPTR.....	39
DATEPTR.....	39
VPTR.....	40
ADXFLGPTR.....	41
DXFLGPTR.....	42
PRFLGPTR.....	43
BUFFPTR.....	43
Flag values.....	45
DSCPTR.....	46
OPTPTR.....	46
Chapter 6: The report programs	47
MCE340PA.....	47
MCE340PB.....	47
MCE340PC.....	48
Uses for the report programs.....	49
MCE340PA.....	49
MCE340PB.....	49
MCE340PC.....	49
Appendix A: MCE software edits	51
1. Invalid diagnosis or procedure code.....	51
2. E-code as principal diagnosis.....	52
3. Duplicate of PDX.....	52
4. Age conflict.....	52
5. Sex conflict.....	52
6. Manifestation code as principal diagnosis.....	52
7. Non-specific principal diagnosis.....	52
8. Questionable admission.....	53
9. Unacceptable principal diagnosis.....	53
10. Non-specific O.R. procedure.....	53
11. Non-covered procedure.....	53
12. Open biopsy check.....	53
13. Bilateral procedure.....	54
14. Invalid age.....	54
15. Invalid sex.....	54
16. Invalid discharge status.....	54
17. Limited coverage.....	54
18. Wrong procedure performed.....	55
19. Procedure inconsistent with length of stay.....	55
Appendix B: Summary of changes	57
Software.....	57

Tables	57
Index	59

About this document

The intent of this software release is to assist any providers who may want to conduct any specific analysis using both the ICD-9 and the ICD-10 versions of MCE.

This manual contains the information needed to install version 34.0A 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 Centers for Medicare & Medicaid Services has approved this version of the Medicare Code Editor software and requires its use by Medicare fiscal intermediaries.

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, length of stay, 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-9-CM 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 & 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.

Please note: In order to be in synch with the MS-DRG Grouper version number there will not be a version 29 of the MCE.

Table 1. Program versions with discharge date ranges

MCE version	DRG version	Discharge date range
MCE 34.0A	DRG 34.0A	10/01/2016 - 09/30/2017
MCE 33.0A	DRG 33.0A	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
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 version	DRG version	Discharge date range
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 - VXX.X	mm/dd/yyyy
	PAGE 2	
	Patient ID 2933537	
Optional information	VER= XXX PROV= 000000000000002 PPS = 0	
	ED 1-10 = 00 00 00 00 00 00 00 00 00 00	
	ED11-20 = 00 00 00 00 01 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	
Provider number	EDT FLG = 02	
	PROVIDER: 000000000000002 (PPS STATUS UNKNOWN)	
Patient information	AGE: 31	
	LOS: 00011	
	SEX: 2 FEMALE	
	DISCHARGE STATUS: 01 HOME	
	DISCHARGE DATE: 20131004	
Diagnosis code(s)	ADMITTING DIAGNOSIS	
	72613 PARTIAL TEAR ROTATR CUFF 0	
	PRINCIPAL DIAGNOSIS	
	72613 Y PARTIAL TEAR ROTATR CUFF 0000000000000000	
	NO SECONDARY DIAGNOSES	
Procedure code(s)	PROCEDURES	
	8151 TOTAL HIP REPLACEMENT 0000010000000000	
	8154 TOTAL KNEE REPLACEMENT 0000010000000000	

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 and patient ID 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 (page [35](#)).

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, discharge date, and length of stay). Discharge status must be coded according to the UB-04 conventions. For a list of valid discharge status codes, see the "UB-04 discharge status codes" table (page [37](#)). Discharge date is displayed in the same format as the date was entered (i.e., yyyyymmdd). 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 "[Versions and date ranges](#)" on page [10](#).

Diagnosis codes(s)

The following diagnosis information is reported:

- ICD-9-CM admitting diagnosis code and English description
- ICD-9-CM principal diagnosis code and English description
- ICD-9-CM secondary diagnosis code(s) and English descriptions

Procedure code(s)

The ICD-9-CM 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.

After the following description of the installation media, the MCE system distribution contents are listed in a table.

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.

The content of the distribution is shown in the following table.

Table 2. MCE system distribution 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 following table lists the miscellaneous folder contents.

Table 3. Miscellaneous folder contents

File	File name	LRECL	BLKSIZE	Description
1	TESTDB	1400	18200	Test database
2	DXEBC	69	27945	EBCDIC DXTAB
3	SGEBC	69	27945	EBCDIC SGTAB
4	I9DSC	50	27950	I9 source code
5	Sample JCL	80	27920	Sample JCL library

eDownload instructions

This section contains instructions for downloading program files from either the Internet or CD for the MCE Software.

Editor program installation

All required software for executing the MCE editor 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
 - I9 Source file
 - Sample JCL

JCL library

The following steps download the JCL library.

1. Allocate a PDS on your mainframe with the following characteristics:
 - DSN = [e.g. YOURID.MCE340A.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 the following table into the pre-allocated PDS defined in step 1.

There is JCL to run sample COBOL interface programs. The following table lists the files contained in the miscellaneous folder.

Table 4. Sample JCL members

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

Load library

The load library is a sequential file, FTPLOAD.

The load library consists of the load modules for the MCE Editor. The entire load library is optional if you intend to use the object modules.

1. Pre-allocate a sequential file (PS) on your mainframe to receive the file using the following file characteristics:
 - DSN = [e.g. YOURID.MCE340A.FTPLOAD]
 - RECFM = FB
 - LRECL = 80
 - BLKSIZE = 3120
 - SPACE = (CYL(5,1),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.MCE340A.LOADLIB]
 - RECFM = U
 - BLKSIZE = 6233
 - SPACE = (CYL(5,2,5),RLSE)
4. Modify BUILDPPDS in library YOURID.MCE340A.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: BUILD PDS was FTP'd to the mainframe from the JCL library. The following JCL executes the utility, IKJEFT01, a terminal monitor program that executes the TSO commands via batch processing. This will populate the LOADLIB 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 ***
//*****
//BDLOAD EXEC PGM=IKJEFT01
//SYSTSPRT DD SYSOUT=*
//SYSTSIN DD *
    RECEIVE INDATASET ('YOURID.MCE340A.FTPLOAD')
                DATASET ('YOURID.MCE340A.LOADLIB')
/*
```

5. After you modify the BUILD PDS, execute the JCL.

Table 5. Load library contents

Number	Name	Description
1	ALTTEST	Sample COBOL program (alternate interface)
2	COBTEST	Sample COBOL (standard interface) program
3	MCE340CA	Control program (alternate interface)
4	MCE340CN	Control program (standard interface)
5	MCE340PA	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	ALTTEST	Sample COBOL program (alternate interface)
2	COBTEST	Sample COBOL (standard interface) program
3	MCE340CA	The main control program (alternate interface)
4	MCE340CN	The main control program (standard interface)
5	MCE340DT	Date calculation program
6	MCE340ED	Editor program
7	MCE340PA	Print program
8	MCE340PB	Print program
9	MCE340PC	Print program
10	MCE340RT	The editor tables
11	MCE340VS	VSAM code description program

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

The following steps download the object library.

1. Allocate a PDS on your mainframe with the following characteristics:
 - DSN = [e.g. YOURID.MCE340A.OBJLIB]
 - RECFM = FB
 - LRECL = 80
 - BLKSIZE = 27920
 - SPACE = (CYL(5,1,2),RLSE)
2. FTP in **BINARY mode** all of the files in the object library folder into the PDS allocated in step 1.

Source library

There are several datasets included on the distribution that are not needed for the editing 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 twelve members, as listed in the following table.

Table 7. Source library contents

Number	Name	Description
1	ALTTEST	Sample COBOL program (alternate interface)
2	COBTEST	Sample COBOL (standard interface) program
3	MCE340CA	Control program (alternate interface)
4	MCE340CN	Control program (standard interface)
5	MCE340DT	Date calculation program
6	MCE340ED	Editor program
7	MCE340PA	Print program
8	MCE340PB	Print program
9	MCE340PC	Print program
10	MCE340PR	Print macro
11	MCE340RT	Editor tables
12	MCE340VS	VSAM description file program

Comments are also included in the source programs, MCE340CN and MCE340UT, describing the modifications needed to convert the programs to VSE.

The following steps download the source library.

1. Allocate a PDS on your mainframe with the following characteristics:
 - DSN = [e.g. YOURID.MCE340A.SRCLIB]
 - RECFM = FB
 - LRECL = 80
 - BLKSIZE = 27920
 - SPACE = (CYL(5,1,4),RLSE)
2. FTP in ASCII mode all of the files in the source library folder into the PDS allocated in step 1.

Miscellaneous files installation

Test Database File

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.MCE340A.TESTDB
 - RECFM=FB
 - LRECL=1400
 - BLKSIZE=18200
 - SPACE=(CYL,(37,1),RLSE)
2. FTP in ASCII mode the TESTDB file from the miscellaneous folder to the mainframe, YOURID.MCE340A.TESTDB.

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
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	488-837	DXFLAGS	DXFLAGS
14	838-1262	SGFLAGS	SGFLAGS
15	1263-1400	MCEBUFF	MCEBUFF

EBCDIC tables

The tables that drive the editor are expressed in Extended Binary Coded Decimal Interchange Code (EBCDIC) as four files.

Diagnosis EBCDIC Table

Contains one row per ICD-9-CM diagnosis, with diagnosis attributes. The following steps load the Diagnosis EBCDIC table to the mainframe.

1. Allocate a sequential file (PS) using the following attributes:
 - DSN=YOURID.MCE340A.DXEBC
 - LRECL=69
 - BLKSIZE=27945
 - RECFM=FB
 - SPACE=(CYL(3),RLSE)
2. FTP the DXEBC file from the miscellaneous folder in ASCII mode into a mainframe sequential dataset, "YOURID.MCE340A.DXEBC".

Table 9. Diagnosis table

Name	Pos	Len	Description
dx	1	5	ICD-9-CM diagnosis
effdate	6	8	edit effective date
termdate	14	8	edit termination date
pediatric	22	1	diagnosis for pediatric only
misp	23	1	medicare as secondary payer
maternity	24	1	diagnosis for maternity only
nonspecific	25	1	nonspecific diagnosis
newborn	26	1	diagnosis for newborn only
manifestation	27	1	manifestation
female	28	1	diagnosis for female only
male	29	1	diagnosis for male only
mhc08	30	1	MDC 8
reqsdx	31	1	requires secondary diagnosis
ncov2	32	1	ncov2
qadm	33	1	questionable admission
unacceptable	34	1	unacceptable diagnosis

Name	Pos	Len	Description
adult	35	1	diagnosis for adult only
cc	36	1	cc
ncov3	37	1	ncov3
ncov4	38	1	ncov4
ncov5	39	1	ncov5
ncov2agelt78	40	1	ncov2agelt78
ncov2agelt64	41	1	ncov2agelt64
ncov6	42	1	ncov6
ncov7	43	1	ncov7
ncov89	44	1	ncov89
diabtypel	45	1	diabetes
UNUSED	46	1	UNUSED
UNUSED	47	1	UNUSED
clintrial	48	1	clinical trial
wrnproc	49	1	wrong procedure performed
UNUSED	50	20	UNUSED

Procedure EBCDIC Table

Contains one row per ICD-9-CM procedure, with procedure attributes. The following steps load the Procedure EBCDIC table to the mainframe.

1. Allocate a sequential file (PS) using the following attributes:
 - DSN=YOURID.MCE340A.SGEBBC
 - LRECL=69
 - BLKSIZE=27945
 - RECFM=FB
 - SPACE=(TRK(15),RLSE)
2. FTP the SGEBBC file from the miscellaneous folder in ASCII mode into a mainframe sequential dataset, "YOURID.MCE340A.SGEBBC".

Table 10. Procedure table

Name	Pos	Len	Description
sg	1	5	ICD-9-CM procedure
effdate	6	8	edit effective date
termdate	14	8	edit termination date
noncovered	22	1	noncovered procedure
biopsy	23	1	biopsy
UNUSED	24	1	UNUSED
bilateral	25	1	bilateral procedure
nonspecific	26	1	nonspecific procedure
or	27	1	or indicator
female	28	1	procedure for female only
male	29	1	procedure for male only
kidneyxp	30	1	kidney transplant
ncov8	31	1	ncov8
ncov9	32	1	ncov9
ncov6	33	1	ncov6
ncov7	34	1	ncov7
ncov45	35	1	ncov45
ncov2	36	1	ncov2
lcov_lvrs	37	1	limited coverage - LVRS
lcov_lungxp	38	1	limited coverage - lung transplant
lcov_heartlungxl	39	1	limited coverage - heart/lung transplant

Name	Pos	Len	Description
lcov_heartxp	40	1	limited coverage - heart transplant
lcov_heartsys	41	1	limited coverage - heart system transplant
lcov_intxp	42	1	limited coverage - intestine transplant
lcov_liver	43	1	limited coverage - liver transplant
UNUSED	44	1	UNUSED
ncov10a	45	1	ncov10a
ncov10b	46	1	ncov10b
ncov10c	47	1	ncov10c
ncov11	48	1	ncov11
ncov12agele60	49	1	ncov12agele60
lcov_kidneyxp	50	1	limited coverage - kidney transplant
lcov_pancreasxp	51	1	limited coverage - pancreas transplant
ncov13a	52	1	ncov13a
ncov13b	53	1	ncov13b
ncov45a	54	1	ncov45a
lcov_arheartxp	55	1	limited coverage - artificial heart transplant
los	56	1	length of stay
UNUSED	57	13	UNUSED

I9 Source File

The I9DSC 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 I9DSC file give you the option to bypass descriptions. For more information, see DSCPTR narrative (page [46](#)).

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.MCE340A.I9DSC
 - RECFM=FB
 - LRECL=50

- BLKSIZE=27950
 - SPACE=(CYL,(2,2),RLSE)
2. FTP in ASCII mode the I9DSC file from the miscellaneous folder to the mainframe YOURID.MCE340A.I9DSC.

File 4 - English description VSAM file

The following JCL is an example of how to load the English description file. The layout of the description file follows the JCL.

```
//JOB CARD FOR YOUR INSTALLATION
/* *****
/* JCL TO INSTALL THE ENGLISH DESCRIPTION FILE
/* *****
// EXEC PGM=IDCAMS,REGION=1024K
//SYSPRINT DD SYSOUT=*
//INPUT DD DSN=YOURID.MCE340A.I9DSC,DISP=SHR
//SYSIN DD *
    DEFINE CLUSTER (NAME(YOURID.MCE340A.VSFILE) -
                    VOLUMES(VVVVVV) -
                    CISZ(2048) -
                    RECORDS(20041)) -
        DATA      (KEYS(10 0) -
                    RECORDSIZE(50 50) -
                    NAME(YOURID.MCE340A.VSFILE.DATA)) -
        INDEX      (NAME(YOURID.MCE340A.VSFILE.INDEX))
    REPRO INFILE(INPUT) -
          OUTDATASET(YOURID.MCE340A.VSFILE)
/*
```

Layout of the description file

The layout of the description file follows:

- The first 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.

The following figure is an example of the description file layout.

	Type of code	Code	Sequence #	From date	To date	Description
	1	E8841	00	19851001	20080930	F ALL FROM CLIFF
Line 2	1	E8842	01	19851001	19950930	F ALL FROM CHAIR OR BED
Line 3	1	E8842	02	19951001	20080930	F ALL FROM CHAIR

Figure 2: Example of the description file layout

Note: As illustrated in the example above, the "from" and "to" version numbers are replaced with "from" and "to" dates.

In the first line, the description for diagnosis code E8841 is valid for all MCE versions; therefore, the sequence number zero.

Diagnosis code E8842 has two entries on lines 2 and 3 because the description changed on 19951001. Since there are two entries, each entry is given a sequence number. The description for sequence number 01 is valid for MCE from 19851001 through 19950930. The description for sequence number 02 is valid from 19951001 to 20080930.

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. The following JCL is an example of a compile-link-go to execute the COBOL test program.

If you have not installed the ICD-9-CM description file, change line 58 in the COBOL test program to read:

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

Also, exclude the marked (†) line from the COBOL test program output (page [29](#)).

```
//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 PGM=IGYCRCTL,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 PGM=IEWL,PARM='LIST,MAP,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=YOURID.&PROD..OBJLIB,DISP=OLD
//
//GO EXEC PGM=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
//MCE340I9 DD DSN=YOURID.&PROD..VSFILE,DISP=SHR†
//RPTFILE DD SYSOUT=&SYSOUT,DCB=(RECFM=FA,BLKSIZE=81,BUFNO=1)
// PEND
//
//
//PROG1 EXEC COBUCLG,PROD=MCE340A
//
//LKED.SYSIN DD *
INCLUDE OBJECT(MCE340CN,MCE340ED,MCE340RT)
INCLUDE OBJECT(MCE340PA,MCE340VS,MCE340DT)
ENTRY COBTEST
NAME COBTEST
/*
```

If the test is successful, all return results should match the expected results on the test database input, and the report output should match.

```
MEDICARE CODE EDITOR - V34.0                08/03/2016 PAGE    1
LAST RECORD
PROVIDER: Provider Number (NON-PPS)
AGE:    30
LOS: 00008
SEX: 2 FEMALE
DISCHARGE STATUS: -1 UNKNOWN
DISCHARGE DATE: 20131001
ADMITTING DIAGNOSIS
 81251  SUPRACONDYL FX HUMER-OPN           0
PRINCIPAL DIAGNOSIS
 81303  MONTEGGIA'S FX-CLOSED             00000000000000
SECONDARY DIAGNOSES
 81303  MONTEGGIA'S FX-CLOSED             00000000100000
 81303  MONTEGGIA'S FX-CLOSED             00000000100000
PROCEDURES
 9021   BACT SMEAR-EYE                     0000000000000000
 8857   CORONARY ARTERIOGRAM NEC           0000000000000000
 0159   OTHER BRAIN EXCISION              0000000000000000
INVALID DISCHARGE STATUS
```


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 (page [35](#)).
- 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 MCE340CN that determines the MCE version to be called based on the date of discharge.

MCE340CN 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 versions (2.0 through 34.0A), 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 (page [35](#)).

JCL for executing the program

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

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

```
//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 PGM=IGYCRCTL,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 PGM=IEWL,PARM='LIST,MAP,AMODE=31,RMODE=ANY',
// COND=(5,LT,COB)
//SYSLIB DD DSN=CEE.SCEELKED,DISP=SHR
//SYSLMOD DD DSN=&&G0SET(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 PGM=COBTEST,COND=((5,LT,COB),(5,LT,LKED))
//STEPLIB DD DISP=SHR,DSN=&&G0SET
// DD DISP=SHR,DSN=CEE.SCEERUN
//INFILE DD DSN=YOURID.&PROD..TESTDB,DISP=SHR
//SYSPRINT DD SYSOUT=&SYSOUT
//RPTFILE DD SYSOUT=&SYSOUT,DCB=(RECFM=FA,BLKSIZE=81,BUFNO=1)
// PEND
//*
//PROG1 EXEC COBUCLG,PROD=MCE340A
//*
//LKED.SYSIN DD *
INCLUDE OBJECT(MCE340CN,MCE340ED,MCE340RT)
ENTRY COBTEST
NAME COBTEST
/*
```

This is an example of JCL to edit and call the report program. If you have not installed the ICD-9-CM description file, exclude the marked (†) line from the JCL to edit and call the report 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 PGM=IGYCRCTL,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 PGM=IEWL,PARM='LIST,MAP,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=YOURID.&PROD..OBJLIB,DISP=OLD
/*
//GO EXEC PGM=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
//MCE340I9 DD DSN=YOURID.&PROD..VSFILE,DISP=SHR †
//RPTFILE DD SYSOUT=&SYSOUT,DCB=(RECFM=FA,BLKSIZE=81,BUFNO=1)
// PEND
/*
//PROG1 EXEC COBUCLG,PROD=MCE340A
/*
//LKED.SYSIN DD *
INCLUDE OBJECT(MCE340CN,MCE340ED,MCE340T)
INCLUDE OBJECT(MCE340PA,MCE340VS,MCE340DT)
ENTRY COBTEST
NAME COBTEST
/*
```

Using the alternate interface

The alternate editor control program, (MCE340CA) operates the same as the standard editor control program (MCE340CN) 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 20,000 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 (page [35](#)).

The following table gives the additional work area parameters required by the alternate interface.

Table 11. Work area parameters

Element number	Editor pointers	Full word pointer to...
17	WORKAREA	A buffer of at least 20,000 bytes.
18	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 MCE340CA for MCE340CN 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 MCE340CA.

Assembler programmers should note that the length of the work area is not given in the full word at element number 18 but rather a pointer to the full word containing the length is given at element number 18.

Sample JCL for running ALTTEST may be created by modifying the JCL. To modify the JCL, change all occurrences of COBTEST to ALTTEST and change MCE340CN to MCE340CA.

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 table lists the control block and elements required for each system component. The first 16 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 12. Control block and elements of MCE system

Element Number	Editor pointers	Print program pointers
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 the above table. 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-9-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-9-CM 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. The following table lists the valid UB-04 discharge status codes in the software.

Table 13. 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) 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
07	Left against medical advice
08	Home IV service (valid until 09/30/2005)
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)

Code	Description
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	Short Term Hospital 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)
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)

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 the following table. This information is required for the summary record. Refer to BUFFPTR above for details.

Table 14. PPS values

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

LOSPTR

Address of a 5-byte field containing the length of stay of the patient, in days, 1 through 45291, which is used to determine length of stay conflicts.

DATEPTR

Address of 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 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. The following table lists the versions and date ranges.

Please note: In order to be in synch with the MS-DRG Grouper version number there will not be a version 29 of the MCE.

Table 15. Versions

MCE version	Date range
2.0	03/01/1984 – 09/30/1986
3.0	10/01/1986 – 09/30/1987
4.0	10/01/1987 – 09/30/1988
5.0	10/01/1988 – 09/30/1989
6.0	10/01/1989 – 09/30/1990
7.0	10/01/1990 – 09/30/1991
8.0	10/01/1991 – 09/30/1992
9.0	10/01/1992 – 09/30/1993
10.0	10/01/1993 – 09/30/1994
11.0	10/01/1994 – 09/30/1995
12.0	10/01/1995 – 09/30/1996
13.0	10/01/1996 – 09/30/1997
14.0	10/01/1997 – 09/30/1998
15.0	10/01/1998 – 06/30/1999
15.1	07/01/1999 – 09/30/1999
16.0	10/01/1999 – 09/30/2000
17.0	10/01/2000 – 09/30/2001
18.0	10/01/2001 – 09/30/2002
19.0	10/01/2002 – 09/30/2003
20.0	10/01/2003 – 09/30/2004
21.0	10/01/2004 – 09/30/2005
22.0	10/01/2005 – 09/30/2006
23.0	10/01/2006 – 09/30/2007
24.0	10/01/2007 – 03/31/2008
24.1	04/01/2008 – 09/30/2008

MCE version	Date range
25.0	10/01/2008 – 09/30/2009
26.0	10/01/2009 – 09/30/2010
27.0	10/01/2010 – 09/30/2011
28.0	10/01/2011 – 09/30/2012
30.0	10/01/2012 – 09/30/2013
31.0	10/01/2013 – 09/30/2014
32.0	10/01/2014 – 09-30/2015
33.0A	10/01/2015 – 09-30/2016
34.0A	10/01/2016 – 09/30/2017

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. The following table provides a description for each of the 14 edit bytes.

Table 16. 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	E-code 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 425-byte field containing the procedure code edits. 17 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 17 edit bytes.

Table 17. 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 length of stay

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 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 44, 47 through 62, and 69 through 80, 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 (*).

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.

Table 18. Buffer description

Byte	Datatype	Description
1	pic 9(15).	Medicare provider number
16	pic 9.	PPS indicator
17	pic 99.	Invalid ICD-9-CM 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.	* E-code as principal dx
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
43	pic 99.	Non-covered procedure
45	pic 99.	*Bilateral procedure
47	pic 99.	LVRS - Limited coverage
49	pic 99.	Lung transplant - Limited coverage
51	pic 99.	Combo heart/lung transpl - Limited coverage
53	pic 99.	Heart transplant - Limited coverage
55	pic 99.	Implantable hrt assist - Limited coverage
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 Note: Some discharge status codes are not valid for all date ranges. For details, see the "UB-04 discharge status codes" table (page 37).

Byte	Datatype	Description
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 length of stay
81	pic X(56).	filler
137	pic 99.	MCE edit flag indicator

Flag values

The MCE edit flag is set by the software to values shown in the following table. EDflag is not set for admitting diagnosis.

Table 19. Edit flag values

Value	Description
0	No errors
1	Pre-payment error Non-covered procedure Questionable admission Age conflict Sex conflict Invalid ICD-9-CM code E-code 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 length of stay
2	Post-payment error Non-specific diagnosis Non-specific procedure Bilateral procedure Biopsy check MSP alert (versions 2.0–17.0 only)

Value	Description
3	Both pre-payment and post-payment errors
4	Discharge date invalid or missing
50	MCE table (MCE340RT) could not be opened or is corrupted

DSCPTR

Used with the report programs. This is the address of a binary (PIC 9(8) COMP) fullword indicating whether the ICD-9-CM 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 MCE340PB and MCE340PC, at least two OPTPTRs must be present, and they must be the 18th and 19th pointers in the control block. The first OPTPTR (#18) must be the address of an area allocated to hold report lines. The second OPTPTR (#19) must be the address of a fullword into which the report programs (MCE340PB or MCE340PC) 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 chapter 6 (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

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

MCE340PA

This standard report program (format A) prints each patient record on a separate page. MCE340PA 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 MCE340PA. In order to close RPTFILE, MCE340PA must be called with Register 1 set to a value of zero (for COBOL, a CALL MCE340PA 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.

MCE340PB

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 the following table.

Table 20. Carriage control character values

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

MCE340PC

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 the following table.

Table 21. MCE340PC tagline format

Tag number	Tagline
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

The following table is an example of the taglines that might be returned by MCE340PC.

Table 22. MCE340PC tagline example

Positions 1-4	Positions 5-84
0101	V1087 Hx of thyroid malignancy
0102	V1087 Hx of thyroid malignancy Unacceptable principal diagnosis
0103	462 Acute pharyngitis
0201	064 Complete thyroidectomy
0202	403 Regional lymph node exc
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 MCE340PB and MCE340PC, the first two OPTPTRs are used for passing and receiving line information. Refer to chapter 5 for an explanation of the OPTPTRs (page [46](#)).

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

MCE340PA

MCE340PA 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, MCE340PA could be called for each record, whether or not any flags were set, which could produce a large volume of print output.

MCE340PA output could be written to a media or disk file for later printing.

MCE340PB

MCE340PB 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 MCE340PB does not actually generate any printing.

The allocated area can be calculated by multiplying the expected maximum number of lines by 81 (the maximum number of characters per line).

MCE340PC

MCE340PC 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 84.

If English descriptions are bypassed, the above statement is excluded. For more information, see DSCPTR in chapter 5 (page [46](#)).

The following JCL illustrates a compile-link-go including the standard report program (MCE340PA). 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 PGM=IGYCRCTL,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 PGM=IEWL,PARM='LIST,MAP,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=YOURID.&PROD..OBJLIB,DISP=OLD
//
//GO EXEC PGM=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
//MCE340I9 DD DSN=YOURID.&PROD..VSFILE,DISP=SHR †
//RPTFILE DD SYSOUT=&SYSOUT,DCB=(RECFM=FA,BLKSIZE=81,BUFNO=1)
// PEND
//
//PROG1 EXEC COBUCLG,PROD=MCE340A
//
//LKED.SYSIN DD *
INCLUDE OBJECT(MCE340CN,MCE340ED,MCE340RT)
INCLUDE OBJECT(MCE340PA,MCE340VS,MCE340DT)
ENTRY COBTEST
NAME COBTEST
/*
```

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. E-code 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
14. Invalid age
15. Invalid sex
16. Invalid discharge status
17. Limited coverage
18. Wrong procedure performed
19. Procedure inconsistent with length of stay

Note: Effective 10/01/01, the MSP (Medicare as secondary payer) alert edit was discontinued and will appear for claims processed using MCE versions 2.0–17.0 only.

Note: Effective 10/01/07, the non-specific principal diagnosis edits and non-specific O.R. procedure edits were discontinued and will appear for claims processed using MCE version 2.0–23.0 only.

Note: Effective 10/01/10, the open biopsy check edit was discontinued and will appear for claims processed using MCE versions 2.0–26.0 only.

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 ICD-9-CM codes. If an entered code does not agree with any code on the internal list, the entered code is considered invalid or as having an invalid or missing 4th, 5th, or 6th digit.

Note: Effective 10/01/1994, the Invalid 4th or 5th digit edit was discontinued and the Invalid diagnosis or procedure code edit displayed in its place.

2. E-code as principal diagnosis

E-codes 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. E-codes are all ICD-9-CM diagnosis codes that begin with the letter E.

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-9-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-9-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

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 E-codes indicate that the wrong procedure was performed.

19. Procedure inconsistent with length of stay

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 the current release are summarized in the sections that follow.

Software

- Basic changes to accommodate table and date range modifications.
- Code description files have been updated.
- New version 34.0A with an effective date range of 10/01/2016–09/30/2017.

Tables

The tables have been updated with information for MCE software versions 2.0 through 34.0A.

Index

A

Admit diagnosis (ADXFLGPTR).....	41
ADXFLGPTR (admit diagnosis)	41
Age conflict.....	52
Age data type.....	31
Age in years (AGEPTR)	37
AGEPTR (age in years)	37
Alternate interface	34
ALTTEST.....	17
ALTTEST load library members.....	17
ALTTSTGO	17

B

Bilateral procedure	54
Buffer (BUFFPTR).....	43
Buffer description	44
BUFFPTR (buffer)	43

C

Calling the editor	31
Carriage control character.....	47
CBTSTJCL (run sample COBOL program).....	17
Clinical edits	9
COBOL program	17
COBOL test program	27
output	29
COBOLPRT (run sample COBOL program and print output).....	17
COBTEST	17
COBTEST load library members.....	17
COBTSTGO	17
Code edits	9
Coding errors.....	9
Coverage edits	9

D

Data elements of the output report.....	13
Date data type	27
Date format.....	39
Date of report	13
Date ranges for all versions	10
DATEPTR (discharge date)	39
Description file	
layout.....	26
loading	26
Diagnoses data type	31

Diagnosis code edit (DXFLGPTR)	42
Diagnosis codes (DXPTR)	36
Diagnosis table.....	22
Discharge date	
and version used.....	10
format.....	14
Discharge date (DATEPTR).....	39
Discharge date ranges	10
Discharge status	31
valid codes	37
Discharge status code (DSTATPTR)	37
Discharge status data type.....	31
DRG versions in software	10
DRGs, how determined.....	9
DSCPTR (report descriptions)	46
DSTATPTR (discharge status code).....	37
Duplicate of PDX.....	52
DXFLGPTR (diagnosis code edit).....	42
DXPTR (diagnosis codes).....	36

E

EBCDIC data format	31
EBCDIC Procedure table	24
Edit	
age conflict.....	52
bilateral procedure	54
duplicate of PDX	52
invalid age	54
invalid diagnosis or procedure code	51
invalid discharge status	54
invalid sex	54
limited coverage.....	54
manifestation code as principal diagnoses	52
non-covered procedure.....	53
non-specific principal diagnosis	52
open biopsy check	53
procedure inconsistent with LOS	55
questionable admission	53
sex conflict	52
unacceptable principal diagnosis.....	53
Edit changes in this release	57
Edit flag values.....	45
Edits	
clinical	9
codes	9
coverage	9
types of	9
Elements of the output report.....	13
English description	
procedure code	14
English description files.....	15
Error messages	

tagline	48	JCL using a COBOL interface program	50
F		L	
File 1, JCL library	16	Layout of description file	26
File 4, English description file.....	26	Limited coverage	54
Files		Link-editing	
description.....	15	Assembler subroutines	15
Fiscal intermediary	vii	List of MCE edits	51
Flag values		M	
edit	45	Manifestation code as principal diagnosis	52
Folder contents		MCE	
grouper.....	15	control block.....	31, 35
Format		edit list.....	51
for entering dates	39	installation	15
of test database	21	report programs	47
Format A report program.....	47	MCE tables.....	15
Format B report program.....	47	MCE versions	
Format C report program	48	list of.....	10
Format of date entry.....	14	on output reports.....	13
G		MCTxxxPA report program	47
Grouper		MCTxxxPB report program	47
folder contents	16	MCTxxxPC report program	48
testing	15	tagline example.....	48
Grouper program		tagline format	48
object library.....	15	Medicare patients	9
H		Medicare provider (PROVPTR).....	39
Hospital type.....	14	N	
How to determine MCE version for claim		NDXPTR (number of dx codes)	36
processing.....	14	Non-covered procedure	53
I		Non-specific principal diagnosis.....	52
Input file records.....	31	NSGPTR (number of procedure codes)....	36
Installation media	15	Number of dx codes (NDXPTR).....	36
Installation of the English description file ..	26	Number of procedure codes (NSGPTR) ...	36
Installing the software	15	O	
Interface		Object library	
alternate	34	members	19
Interface program		Open biopsy check.....	53
requirements	31	Optional information	
Invalid age	54	patient	14
Invalid diagnosis or procedure code	51	Optional information (OPTPTR).....	46
Invalid discharge status.....	54	OPTPTR (optional information).....	46
Invalid sex	54	Output	
Invoking the program	31	COBOL test program	29
J		MCTxxxPA report program	47
JCL library (file 1)	17	MCTxxxPB report program	47
		MCTxxxPC report program.....	48
		Output report	13

data elements	13	Report programs	47
date generated	13	control block	46
diagnosis codes	14	format A	47
error message location	14	uses of	49
example	13	format B	47
MCE version	13	uses of	49
optional information	14	format C	48
patient information	14	uses of	49
procedure codes	14	how to use	49
provider number	14	optional lines	46
title line	13	Requires secondary dx	53
 		Run	
P		sample COBOL program (CBTSTJCL) ..	17
Patient information	14	sample COBOL program and print output	
Patient record		(COBOLPRT)	17
printing	47	 	
Physician number	14	S	
PPS indicator data type	31	Sample JCL	17
PPS status (PPSPTR)	39	for edit-only procedure	32
PPS values	39	for edit-print procedure	33
PPSPTR (PPS status)	39	to edit test database in COBOL	
PRFLGPTR (procedure code edit)	43	environment	28
Print programs	15	to install English description file	26
Printing		Sex (SEXPTR)	37
patient record	47	Sex conflict	52
Procedure		Sex data type	31
moving	31	SEXPTR (sex)	37
tagline	48	SGPTR (procedure codes)	36
Procedure code	14	Software edits	57
Procedure code description	14	Source library	
Procedure code edit (PRFLGPTR)	43	members	20
Procedure codes (SGPTR)	36	 	
Procedure table	24	T	
Procedures data type	31	Tables	
Program edits	51	changes in this release	57
Program tables	15	Tables installed	15
Prospective payment system	9	Taglines	48
Provider number	14	diagnosis	48
Provider number data type	31	error messages	48
PROVPTR (Medicare provider)	39	procedure	48
Purpose of the software	9	Test database	15
 		format	21
Q		Testing	
Questionable admission	53	grouper	15
 		Title line	13
R		Title VI, Social Security Amendment	9
Ranges for valid data entry	9	 	
Report		U	
example	13	UB-04 discharge disposition codes	37
generated claim summary	13	Unacceptable principal diagnosis	53
Report descriptions (DSCPTR)	46	Uses for the report programs	49

V

Version ID and date flag (VPTR).....	40
Versions	
in the software.....	10
of DRGs	10
VPTR (version ID and date flag)	40