



International Classification of Diseases,  
Clinical Modification V.9

(ICD-9-CM)

Technical Manual

July 2003

## Revision History

Date	Revision	Description	Author
06/26/03	1.0	Initial Version	Crosskey, Johnny

## Table of Contents

Introduction.....	1
Implementation and Maintenance.....	2
Integrity Checker .....	2
Routines .....	3
Routines to Map.....	7
Routine List.....	7
Files.....	8
Globals to Journal .....	8
File List .....	8
Templates.....	8
File Flow .....	9
Exported Options .....	10
Archiving and Purging.....	11
External/Internal Relations .....	11
DBIA Agreements .....	11
Package-wide Variables.....	11
SACC Exemptions/Non-Standard Code .....	11
How to Generate On-Line Documentation.....	12
XIndex.....	12
List File Attributes .....	12
Security .....	13
General Security.....	13
Security Keys .....	13
VA FileMan Access Codes.....	13
Glossary .....	14

## Introduction

The International Classification of Diseases, Clinical Modification (ICD-9-CM) is a clinically modified statistical classification system that arranges diseases and injuries into groups according to established criteria. It is based on the ICD-9, which was designed for the classification of morbidity and mortality information for statistical purposes, and published by the World Health Organization (WHO).

\* These codes provide an effective means of communication between physicians, patients, and third parties.

ICD V. 18.0 provides the software to update the ICD files. ICD –9-CM consists of the following components:

- A tabular list containing a numerical list of disease code numbers in tabular form
- An alphabetical index to the disease entries
- A classification system for surgical, diagnostic, and therapeutic procedures. \*

Use of ICD-9-CM codes are approved by Centers for Medicare and Medicaid Services (CMS). Updates to these codes are released in the Federal Register by CMS in May/June of each year. These code updates include changes to the codes and code narratives. An electronic version of the updates is released by CMS in September, which must go into effect on October 1<sup>st</sup> of each year. CMS has a benchmark of 30 days beyond the effective date of October 1<sup>st</sup> for implementing these updates.

The ICD Technical Manual has been divided into major sections for easy use and is intended to be a reference document. While you are free to review the entire document, it is best used when selecting specific sections that contain the information sought for a particular need.

The Code Set Versioning package will affect ICD software in that it contains routines, globals, and data dictionary changes to recognize code sets for the ICD-9-CM. When implemented in applications that use ICD software, users will be allowed to select codes based upon a date that an event occurred, using the Standards Development Organization (SDO) established specific code that existed on that event date.

\*Information found in:

<http://www.thetown.com/healthcare/solutions/ICD9.asp>

## Implementation and Maintenance

There are no site-configurable features connected with the ICD package.

Total disk space requirements for the ICD globals are as follows:

Global	Blocks	Bytes Used
-----	-----	-----
ICD0	1,065	1,306,297
ICD9	7,503	10,675,858

TOTAL	Blocks	Bytes Used
-----	-----	-----
	8,568	11,982,155

### *Integrity Checker*

ICD V. 18.0 uses the KIDS integrity checker. Under the installation option of the Kernel Installation Distribution System Menu, select “Verify Checksums in Transport Global” to ensure that the routines are correct.

## Routines

### Callable Routines

Below are the available APIs for this ICD release.

#### ICD Operation/Procedure Code Basic Information

\$\$ICDOP^ICDCODE(CODE,CDT,DFN,SRC)

Input:

CODE - ICD Operation/Procedure code,  
           ien or .01 format, REQUIRED  
 CDT - active as of date, default = today (FileMan format)  
       If CDT < 10/1/1978, use 10/1/1978.  
       If CDT > DT, validate with newest In/Activation Dates  
       If CDT is year only, use first of the year  
       If CDT is year and month only, use first of the month  
 DFN = not in use. Included in anticipation of future need.  
 SRC - SCREEN SOURCE  
       If '\$G(SRC), level 1, Level 2 only.  
       If \$G(SRC), include level 3.

Output: string:

          ien^CODE NUMBER^IDENTIFIER^MDC24^OPERATION/PROCEDURE^^^^^I  
 CD EXPANDED^STATUS^SEX^INACTIVE DATE^ACTIVATION DATE^MSG  
       where the pieces are:

- 1 internal entry number of code in ^ICD0
- 2 CODE NUMBER (.01 field)
- 3 IDENTIFIER (#2 field)
- 4 MDC24 (#5 field)
- 5 OPERATION/PROCEDURE (#4 field)
- 6 ICD EXPANDED (#8 field)
- 7 STATUS (from .02 of #66 multiple) where 0:inactive;  
       1:active
- 8 SEX (#9.5 field) M:MALE, F:FEMALE, blank if non-  
       specific
- 9 INACTIVE DATE (from .01 of #66 multiple)
- 10 ACTIVATION DATE (from .01 of #66 multiple)
- 11 MSG (states: CODE TEXT MAY BE INACCURATE)

-or-

-1^error message

NOTE: Use of the INACTIVE FLAG field (#100) can produce  
 unpredictable results if one is NOT using this API.

**ICD Operation/Procedure Code Basic Information**

\$ICDDX^ICDCODE (CODE,CDT,DFN,SRC)

Input: CODE - ICD Diagnosis code, ien or .01 format, REQUIRED  
 CDT - active as of date, default = today (FileMan format)  
 If CDT < 10/1/1978, use 10/1/1978.  
 If CDT > DT, validate with newest In/Activation Dates  
 If CDT is year only, use first of the year  
 If CDT is year and month only, use first of the month  
 DFN = not in use. Included in anticipation of future

need.

SRC - SCREEN SOURCE  
 If '\$G(SRC), level 1, Level 2 only.  
 If \$G(SRC), include level 3.

Output: string:

ien^CODE NUMBER^IDENTIFIER^DIAGNOSIS^UNACCEPTABLE AS  
 PRINCIPAL DX^MAJOR DIAGNOSTIC CATEGORY  
 ien^MDC13^COMPLICATION/COMORBIDITY^ICD EXPANDED^STATUS^SEX^INACTIVE  
 DATE^MDC24^MDC25^AGE Low^AGE High^ACTIVATION DATE^MSG

where the pieces are:

- 1 internal entry number of code in ^ICD9
- 2 CODE NUMBER (.01 field)
- 3 IDENTIFIER (#2 field)
- 4 DIAGNOSIS (#3 field)
- 5 UNACCEPTABLE AS PRINCIPAL DX (#101 field)
- 6 MAJOR DIAGNOSTIC CATEGORY ien (#5 field)
- 7 MDC13 (#5.5 field)
- 8 COMPLICATION/COMORBIDITY (#70 field)
- 9 ICD EXPANDED (#8 field)
- 10 STATUS (from .02 of #66 multiple) where 0:inactive;  
1:active
- 11 SEX (#9.5 field) M:MALE, F:FEMALE, blank if non-specific
- 12 INACTIVE DATE (from .01 of #66 multiple)
- 13 MDC24 (#5.7 field)
- 14 MDC25 ((#5.9 field)
- 15 AGE LOW (#14 field)
- 16 AGE HIGH (#15 field)
- 17 ACTIVATION DATE (from .01 of #66 multiple)
- 18 MSG (states: CODE TEXT MAY BE INACCURATE)

-or-

-1^error message

NOTE: Use of the INACTIVE FLAG field (#100) can produce unpredictable results if one is NOT using this API.

**ICD Description**

\$\$ICDD^ICDCODE(CODE,OUTARR,CDT)

Input:

CODE - ICD code REQUIRED  
 OUTARR - array to store description  
           name of array - e.g. "ABC" or "ABC("TEST")"  
           or temp array.  
           Default = ^TMP("ICDD",\$J)  
 CDT - Date to screen against - not used currently,  
       Included in anticipation of future need.  
       Default = Today (FileMan format)  
       If CDT < 10/1/1978, use 10/1/1978.  
       If CDT > DT, use DT  
       If CDT is year only, use first of the year  
       If CDT is year and month only, use first of the month

Output:

# of lines  
 @OUTARR(1-n) lines of description  
 @OUTARR(n) = (Alert stating: CODE TEXT MAY BE

INACCURATE)

-or-

-1^error message

**ICD Code IEN**

\$\$CODEN^ICDCODE(CODE,FILE)

Input:

CODE - ICD code REQUIRED  
 FILE - File Number in which to check for ICD code  
       80 for ICD Diagnosis file  
       80.1 for ICD Opereration/Procedure file

Output: ien~global root

where global root is:  
       "^ICD9(" - File 80  
       "^ICD0(" - File 80.1

or -1~error message

**ICD Code from IEN**

\$\$CODEC^ICDCODE(CODE,FILE)

Input:

CODE - ien of ICD code REQUIRED  
 FILE - File Number in which to check for ICD code  
       80 for ICD Diagnosis file  
       80.1 for ICD Opereration/Procedure file

Output: ICD code, -1 if not found

**ICD Code Status**

\$\$STATCHK^ICDAPIU(CODE,CDT)



Input	CODE CDT	ICD Code Date for which the code applies	
Output	2-Piece String containing the code's status and code IEN if the code exists, else -1		
	Possible results are:		
	1 ^ IEN	Active Code	
	0 ^ IEN	Inactive Code	
	0 ^ -1	Code not Found	
Case 1:	Not Valid		0^-1
	Fails Pattern Match for Code		
Case 2:	Never Active		0^IEN
	No Active/Inactive Date		
Case 3:	Active, Never Inactive		1^IEN
	Has an Activation Date		
	No Inactivation Date		
Case 4:	Active, but later Inactivated		0^IEN
	Has an Activation Date		
	Has an Inactivation Date		
Case 5:	Active, and not later Inactivated		1^IEN
	Has an Activation Date		
	Has an Inactivation Date		
	Has a Newer Activation Date		
Case 6:	Fails Time Test		0^-1

**ICD Activation History**

\$\$HIST^ICDAPIU(CODE,ARY)

Input

CODE	ICD Code
.ARY	Array, passed by Reference

Output Returns ARY(0) or, -1 if error

ARY(0) = Number of Activation History Entries  
 ARY(<date>) = STATUS (1 is active)  
 ARY("IEN") = <ien>

**ICD Next Code**

\$\$NEXT^ICDAPIU(CODE)

Input:

CODE = ICD Code REQUIRED

Output:

The Next ICD Code, Null if none

**ICD Previous Code**

\$\$PREV^ICDAPIU(CODE)

Input:

CODE = ICD Code REQUIRED

Output:  
 The Previous ICD Code, Null if none

**ICD Activation/Inactivation Period**

PERIOD^ICDAPIU(CODE,ARY)

Input:

CODE - ICD Code REQUIRED  
 .ARY - Array, passed by Reference REQUIRED

Output:

ARY(0) = IEN^Selectable  
 Where IEN = -1 if error  
 Selectable = 0 if a VA Only code  
 ARY(Act\_date) = Inactivation Date^Short Name Text

***Routines to Map***

The ICD routines are not recommended for mapping.

***Routine List***

Steps to obtain routines contained in the ICD package.

1. Programmer Options Menu
2. Routine Tools Menu
3. First Line Routine Print Option
4. Routine Selector: **ICD\***

## Files

The ICD data dictionaries may not be modified. The file descriptions of these files will be so noted.

### ***Globals to Journal***

There are no globals to journal in the ICD package.

### ***File List***

<u>File #</u>	<u>File Name</u>	<u>Global</u>
80	ICD DIAGNOSIS	^ICD9(
80.1	ICD OPERATION/PROCEDURE	^ICD0(

The following are the steps you may take to obtain information concerning the files and templates contained in the ICD package.

### ***Templates***

1. VA FileMan Menu
2. Print File Entries Option
3. Output from what File:     **Print Template**  
  **Sort Template**
4. Sort by: **Name**
5. Start with name: **ICD**
6. Within name, sort by: **<RET>**
7. First print field: **Name**

## ***File Flow***

1. VA FileMan Menu
2. Data Dictionary Utilities Menu
3. List File Attributes Option
4. Enter File # or range of File #s
5. Select Listing Format: **Standard**
6. You will see what files point to the selected file. To see what files the selected file points to, look for fields that say "POINTER TO".

## Exported Options

The following are the steps you may take to obtain information concerning the menus and exported options contained in the ICD package.

### Menu Diagrams

1. Programmers Options
2. Menu Management Menu
3. Display Menus and Options Menu
4. Diagram Menus
5. Select User or Option Name:

### Exported Options

1. VA FileMan Menu
2. Print File Entries Option
3. Output from what File: **OPTION**
4. Sort by: **Name**
5. Start with name: **ICD**
6. Within name, sort by: **<RET>**
7. First print field: **Name**

## Archiving and Purging

Archiving and purging capabilities are not applicable as the data is a national table.

## External/Internal Relations

Minimums of VA FileMan V. 21.0, Kernel V. 8.0, PCE V. 1.0, and PIMS (MAS) V. 5.3 are required to run this package.

### ***DBIA Agreements***

The following are the steps you may take to obtain the database integration agreements for the ICD package.

#### **DBIA Agreements - Custodial Package**

1. FORUM
2. DBA Menu
3. Integration Agreements Menu
4. Custodial Package Menu
5. Active by Custodial Package Option
6. Select Package Name: **ICD**

#### **DBIA Agreements - Subscriber Package**

1. FORUM
2. DBA Menu
3. Integration Agreements Menu
4. Subscriber Package Menu
5. Print Active by Subscriber Package Option
6. Start with subscriber package: **ICD**

## Package-wide Variables

There are no package-wide variables in the ICD package.

### ***SACC Exemptions/Non-Standard Code***

There are no SACC exemptions/non-standard codes in the ICD package.

## How to Generate On-Line Documentation

This section describes some of the various methods by which users may secure ICD technical documentation. On-line technical documentation pertaining to the ICD software, in addition to that, which is located in the help prompts, may be generated through utilization of several Kernel options. These include XINDEX and VA FileMan List File Attributes. Further information about other utilities, which supply on-line technical documentation, may be found in the Kernel Reference Manual.

### ***XIndex***

This option analyzes the structure of a routine(s) to determine in part if the routine(s) adheres to **VistA** Programming Standards. The XINDEX output may include the following components: compiled list of errors and warnings, routine listing, local variables, global variables, naked globals, label references, and external references. By running XINDEX for a specified set of routines, the user is afforded the opportunity to discover any deviations from **VistA** Programming Standards which exist in the selected routine(s) and to see how routines interact with one another, that is, which routines call or are called by other routines.

To run XINDEX for the ICD package, specify the following namespace at the "routine(s) ?>" prompt: ICD\*. ICD initialization routines, which reside in the UCI in which XINDEX is being run, as well as local routines found within the ICD namespace, should be omitted at the "routine(s) ? >" prompt. To omit routines from selection, preface the namespace with a minus sign (-).

### ***List File Attributes***

This VA FileMan option allows the user to generate documentation pertaining to files and file structure. Utilization of this option via the "Standard" format will yield the following data dictionary information for a specified file(s): file name and description, identifiers, cross-references, files pointed to by the file specified, files which point to the file specified, input templates, print templates, and sort templates. In addition, the following applicable data is supplied for each field in the file: field name, number, title, global location, description, help prompt, cross-reference(s), input transform, date last edited, and notes.

Using the "Global Map" format of this option generates an output which lists all cross-references for the file selected, global location of each field in the file, input templates, print templates, and sort templates. For a comprehensive listing of CPT files, please refer to the Files section of this manual.

## Security

### *General Security*

The ICD data dictionaries may not be modified. The file descriptions of these files will be so noted.

### *Security Keys*

There are no security keys in the ICD package.

### *VA FileMan Access Codes*

Below is a list of recommended VA FileMan access codes associated with each file contained in the CPT package. This list may be used to assist in assigning users appropriate VA FileMan access codes.

<u>FILE NUMBER</u>	<u>FILE NAME</u>	<u>DD ACCESS</u>	<u>RD ACCESS</u>	<u>WR ACCESS</u>	<u>DEL ACCESS</u>	<u>LAYGO ACCESS</u>
80	ICD DIAGNOSIS	@	D	@	@	@
81.1	ICD OPERATION/ PROCEDURE	@	D	@	@	@



**Glossary**

API	Application Programmer Interface
CMS	Centers for Medicare and Medicaid Services
CSV	Code Set Versioning
DBIA	Database Integration Agreement
ICD-9-CM	International Classification of Diseases, Clinical Modification V. 9
KIDS	Kernal Installation Distribution System
SDO	Standard Development Organization
VISTA	Veterans Health Information Systems and Technology Architecture
WHO	World Health Organization