RESOURCE AND PATIENT MANAGEMENT SYSTEM

IHS Code Mapping

(BCQM)

Technical Manual

Version 1.0 Patch 8
November 2021

Office of Information Technology
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Document Version History

Version	Date	Notes
1.0	January 2014	Initial version
1.1	May 2018	Updates
1.2	August 2019	Updates
1.3	August 2021	Updates

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Preface

This manual contains the technical manual for Indian Health Service (IHS) Code Mapping (BCQM) Version 1.0 Patch 8. This version contains code mappings to support the EHR certification and/or the 2015 Certified Health Information Technology (CHIT).

1.0   Introduction

This manual provides IHS site managers and developers with a technical description of the IHS Code Mapping routines, files, cross references, globals and other necessary information required to effectively manage and use the system.

All routines and files have a namespace starting with the letters "BCQM."

The file number range for this package is 9002022-9002023.

This application contains APIs callable by programmers to obtain a mapped code. Selected codes from the following tables are supported in this version:

- MEASUREMENT TYPE
- EXAM
- HEALTH FACTORS
- PCC INFANT FEEDING CHOICES
- EDUCATION TOPICS
- PCC ADDITIONAL FEEDING CHOICES
- PATIENT STATUS CODE (NUBC)
- IMMUNIZATION
- BI TABLE CONTRA REASON
- CLINICAL REVIEW ACTION
- SERVICE CATEGORY
- CPT
- ICD OPERATION/PROCEDURE

2.0   Implementation and Maintenance

The IHS Code Mapping application occupies the BCQM namespace. Globals and routines have the namespace BCQM.

2.1   System Requirements

VA Kernel (XU) Version 8.0 Patch 1018 or later

VA FileMan (DI) Version 22.0 Patch 1018 or later

2.2

BCQM Version 1.0 Patch 7

Security Keys

There are no security keys in this application.

3.0   Routines

This section includes a table that lists BCQM routines and their descriptions.

3.1   Routines and Descriptions

Table 3-1 provides a list of routines with comprehensive descriptions of the function. There are two routines in Version 1.0 Patch 8 they are listed below.

Table 3-1: BCQM Routines

Routine	Description
BCQMAPI	BCQMAPI ; GDIT/IHS/FS - MAGIC MAPPER API ;05/07/18 07:49;FS ;;1.0;IHS CODE MAPPING;;MAY 07, 2018;Build 15 ; MM(BCQMF,LOOKUP,LKFORM,VALUE1,VALUE2,VALUE3,VALUE4,VALUE5,VALUE6,BCQMDATE,RETVAL) ;PEP; table oriented magic mapper ;this API will be called to obtained code values based ;on an entry in a that file that is passed ; input: ; 1 - File number in which the code lives ; NEW FILE INTRODUCTION: ICD OPERATION/PROCEDURE (80.1) for ICD10 Procedure codes. ; 2 - lookup value into the table in file ; the caller must pass a value that will not fail a DIC lookup into the table ; must be a unique lookup value ; EXAM - pass standard IHS code, e.g. 34 ; ICD10 Procedures - pass standard IHS ICD10 code, e.g. 5A02210, F0636KZ, F003GZZ.. ; NOTE: there is no unique lookup value in EDUCATION topics so caller must pass the IEN of the topic ; there are tons of dupes ; 3 - lookup value format, is this an I (internal value IEN) or E - External value DEFAULT IS "E" ; VALUE1 - VALUE6 - additional values to check (e.g., exam result), these values ; will be used in the MUMPS code field as additional checks ; caller will have to be told what order to pass the values in for each table ; that will be in the technical documentation ; E.g. MEASUREMENT TYPE: VALUE1=RESULT, VALUE2=QUALIFIER;QUALIFIER;QUALIFIER, VALUE3=visit ien ; EXAM: VALUE1=RESULT, VALUE2=visit ien ; HEALTH FACTOR: == NO OTHER VALUES NEEDED ; EDUCATION: ==== NO OTHER VALUES NEEDED ; IMMUNIZATION: VALUE1=VISIT SERVICE CATEGORY ; ;SEE THE USER MANUAL FOR COMPLETE DESCRIPTION OF THIS API ; K @RETVAL ;I BCQMF'?.N1.".".N S BCQMF=$O(^DIC("B",BCQMF,0)) I '$G(BCQMF) Q "-1^invalid file number" ;no valid file # passed I '$D(^DD(BCQMF,0)) Q "-1^invalid file number" I '$D(^DIC(BCQMF,0)) Q "-1^invalid file number" S LOOKUP=$G(LOOKUP)

Routine	Description
	I $G(LOOKUP)="" Q "-1^no lookup valued passed" S LKFORM=$G(LKFORM) S BCQMDATE=$G(BCQMDATE) I BCQMDATE="" S BCQMDATE=DT S VALUE1=$G(VALUE1) S VALUE2=$G(VALUE2) S VALUE3=$G(VALUE3) S VALUE4=$G(VALUE4) S VALUE5=$G(VALUE5) S VALUE6=$G(VALUE6) ;NEW BCQMFIEL,BCQMFV,BCQMX,BCQMY,BCQMMAP,BCQMC,BCQMZ,S,BCQMS,D,C,X,Y S BCQMC=0 S BCQMX=$O(^BCQM(9002023,"B",BCQMF,0)) I 'BCQMX Q "-1^Table File not supported" ;do a DIC lookup of LOOKUP value into table BCQMF, then get the appropriate piece S DIC=BCQMF,DIC(0)="M",X=$S(LKFORM="I":"`"_LOOKUP,1:LOOKUP) D ^DIC I Y=-1 Q "-1^invalid lookup value" S BCQMFV=+Y S BCQMFIEL=$P(^BCQM(9002023,BCQMX,0),U,2) I BCQMFIEL]"" S BCQMFV=$$GET1^DIQ(BCQMF,BCQMFV,BCQMFIEL) I BCQMFV="" Q "-1^something went wrong" I $D(^BCQM(9002023,BCQMX,2)) X ^BCQM(9002023,BCQMX,2) ;CODE PUT IN FOR EDUCATION TOPIC BUT MIGHT BE ABLE TO BE USED FOR OTHER TABLES ;Now go through all entries in 9002023 for this file and execute M logic for value checks ;I BCQMF=9999999.09 S BCQMZ=VALUE1 D PROCESS S BCQMZ=VALUE2 D PROCESS S BCQMZ="*ANY*" D PROCESS Q BCQMC F BCQMZ=BCQMFV,"*ANY*" D PROCESS Q BCQMC PROCESS ; S BCQMY=0 F S BCQMY=$O(^BCQM(9002023,BCQMX,1,"B",BCQMZ,BCQMY)) Q:BCQMY'=+BCQMY D .S X=0 I $D(^BCQM(9002023,BCQMX,1,BCQMY,1)) X ^BCQM(9002023,BCQMX,1,BCQMY,1) I 'X Q ;doesn't match .;looks like we got a match so set up codes in retval arry .S BCQMS=0 F S BCQMS=$O(^BCQM(9002023,BCQMX,1,BCQMY,2,BCQMS)) Q:BCQMS'=+BCQMS D ..S D=$$GET1^DIQ(9002023.12,BCQMS_","_BCQMY_","_BCQMX,.03) ..I D]"",BCQMDATE'>D Q ;inactive ..S S=$$GET1^DIQ(9002023.12,BCQMS_","_BCQMY_","_BCQMX,.01) ..S C=$$GET1^DIQ(9002023.12,BCQMS_","_BCQMY_","_BCQMX,.02) ..I S]"",C]"" S BCQMC=BCQMC+1,@RETVAL@(BCQMC,S)=C Q MMMEAS ;test S X=$$MM(9999999.07,"BP","E","120/80",,,,,,DT,"OUT") W !,X,! ;ZW OUT Q MMEXAM ;test S X=$$MM("EXAM","09",,"RF",,,,,,DT,"OUT") W !,X,! ;ZW OUT Q

Routine	Description
	MMEDUC ;test KILL OUT S X=$$MM(9999999.09,1109,"I",,,,,,,DT,"OUT") W !,X,! ;ZW OUT Q MMICD10 ;test KILL OUT S X=$$MM(80.1,"F02Z5ZZ",,,,,,,,DT,"OUT") W !,X,! ;ZW OUT Q ; PRIMPOV() ;PEP - return SNOMED to use for primary pov Q $$GET1^DIQ(9002022,1,.02) ; EMERPOV() ;PEP - return SNOMED to use for V EMERGENCY VISIT (In Future, for now eCQM module will map it locally) Q ;$$GET1^DIQ(9002022,2,.02) ; HANDED(V,D,RETVAL) ;PEP = get snomed handedness K @RETVAL NEW X,Y,BCQMC I $G(V)="" Q "" S BCQMC=0 S X=$O(^BCQM(9002022,1,1,"B",V,0)) I 'X Q "" S Y=0 F S Y=$O(^BCQM(9002022,1,1,X,1,Y)) Q:Y'=+Y D .S BCQMC=BCQMC+1,@RETVAL@(BCQMC,"SNOMED")=$P($G(^BCQM(9002022,1,1,X,1,Y,0)),U,1) Q BCQMC TESTIMM ; S X=$$MM^BCQMAPI(9002084.81,16,"I",10,,,,,,DT,"CODES") ;input : ; 1 - file number of BI TABLE CONTRA REASON ; 2 - ien of entry in BI TABLE CONTRA REASON ; 3 - "I" - this tells the mapper you are passing internal ien vs external value ; 4 - ien of entry in the BI TABLE VACCINE GROUP ; 5-9 ARE BLANK ; 10 - date contraindication documented ; 11 - array you want the snomed codes to be passed back in ; output: ; E.G. CODES(1,"SNOMED")=315640000 ; CODES(2,"SNOMED")=1111111 ; you will only get back 1 or more snomed codes e.g. for flu anaphylaxsis you will get back 2 ; we have the second parameter to tell what coding system as some mappings also pass back "LOINC" codes ; although so far, imm contraindications will not pass back loinc codes. Q
BCQMUTL	BCQMUTL ; IHS/OIT/FBD - MAPPER UTILITIES ;05/07/2018 07:49;FS ;;1.0;IHS CODE MAPPING;;MAY 07, 2018;Build 49

Routine	Description
	; TXICU(V) ;EP - IS THIS ADMISSION A TRANSFER TO AN ICU? I $G(V)="" Q 0 ;did this admission tx to a ward that is an ICU NEW X,Y,Z,D S D=$O(^DGPM("AVISIT",V,0)) I D="" Q 0 ;no admission data to look at ;check each icu ward and whether the patient transferred into it S Y=0,X=0 F S X=$O(^DIC(42.1,X)) Q:X'=+X!(Y) D .S W=$O(^BDGWD("B",X,0)) .I W="" Q .I $$GET1^DIQ(9009016.5,W,101,"I")'=1 Q ;NOT AN ICU .I $$FINDWARD($P(^AUPNVSIT(V,0),U,5),D,X,2) S Y=1 Q Y FINDWARD(DF,ADM,WARD,TT) ;-- find out if the ward is what they are looking for based on data N WDA,WIEN,TRAN,WD,RES S RES=0 S WDA=0 F S WDA=$O(^DGPM("APCA",DF,ADM,WDA)) Q:'WDA!($G(RES)) D . S WIEN=0 F S WIEN=$O(^DGPM("APCA",DF,ADM,WDA,WIEN)) Q:'WIEN!($G(RES)) D .. S TRAN=$P($G(^DGPM(WIEN,0)),U,2) .. Q:TRAN'=TT .. S WD=$$GET1^DIQ(405,WIEN,.06,"I") .. I WD[WARD S RES=WD Q Q $G(RES) ; ICU(V) ;EP - IS THE WARD AN ICU I $G(V)="" Q 0 NEW D,W S D=$O(^DGPM("AVISIT",V,0)) I D="" Q 0 S W=$$GET1^DIQ(405,D,.06,"I") I W="" Q 0 S W=$O(^BDGWD("B",W,0)) I W="" Q 0 S W=$$GET1^DIQ(9009016.5,W,101,"I") Q W FACTYPE(V) ;EP - RETURN FACILITY TYPE Q $$GET1^DIQ(4,V,13) HOSP(V) ;EP - IS THIS A HOSPITAL FACILITY TYPE? I $G(V)="" Q 0 I '$D(^AUPNVSIT(V,0)) Q 0 NEW A S A=$P(^AUPNVSIT(V,0),U,6) I 'A Q 0 I '$D(^DIC(4,A,0)) Q 0 S A=$$FACTYPE(A) I A="HOSPITAL" Q 1 Q 0 NURSEVAL(CLIN,PROV,TIU) ;EP - IS THIS A NURSE VISIT? I 'TIU Q 0 ;no tiu note

Routine	Description
	I CLIN=45 Q 1
	I CLIN=79 Q 1
	I CLIN="B4" Q 1
	I PROV="01" Q 1
	I PROV="05" Q 1
	I PROV=13 Q 1
	I PROV=14 Q 1
	I PROV=32 Q 1
	Q 0
	;
	;
	NHBRL(V) ;EP- IS THERE BOTH RIGHT AND LEFT NEWBORN HEARING?
	I '$G(V) Q ""
	NEW X,Y,Z,BCQMR,BCQML
	S (BCQMR,BCQML)=0
	S X=0 F S X=$O(^AUPNVXAM("AD",V,X)) Q:X'=+X D
	.I $$GET1^DIQ(9999999.15,$$GET1^DIQ(9000010.13,X,.01,"I"),.02)="39" S BCQMR=1
	.I $$GET1^DIQ(9999999.15,$$GET1^DIQ(9000010.13,X,.01,"I"),.02)="38" S BCQML=1
	I BCQMR+BCQML=2 Q 1
	Q 0
	ESTIM(V) ;EP - IS THIS AN ESTIMATE?
	;does a ";" piece of V contain qualifier "estimated"
	NEW X,Y,Z
	S Z=0
	F X=1:1 S Y=$P(V,";",X) Q:Y="" I $$UP^XLFSTR(Y)="ESTIMATED" S Z=1
	Q Z
	H72(V) ;EP - WAS THIS H visit adm date w/in 72 hours of a discharge date
	I $G(V)="" Q ""
	I '$D(^AUPNVSIT(V,0)) Q ""
	I $P(^AUPNVSIT(V,0),U,7)'="H" Q ""
	NEW X,Y,Z,A,P,D,G
	S P=$P(^AUPNVSIT(V,0),U,5)
	S G=0
	S A=$$VDTM^APCLV(V) ;get visit/admit date& time
	S D=0 F S D=$O(^AUPNVSIT("AAH",P,D)) Q:D="" S X=0
	F S X=$O(^AUPNVSIT("AAH",P,D,X)) Q:X=""!(G) D
	.Q:X=V ;same visit
	.S E=$$DDTM^APCLV(X) ;get disharge date/time
	.S Y=$$FMDIFF^XLFDT(A,E,2)
	.Q:Y>259200
	.Q:Y<0
	.S G=1
	.Q
	Q G
	AGEV(V) ;EP - age of patient on this visit
	I $G(V)="" Q ""
	I '$D(^AUPNVSIT(V,0)) Q "" ;no visit
	NEW P,A
	S P=$P(^AUPNVSIT(V,0),U,5)
	I 'P Q ""
	Q $$AGE^AUPNPAT(P,$$VD^APCLV(V))
	BWTV(V) ;EP - birth weight is detected (same date as DOB for patient) on this visit
	I $G(V)="" Q ""
	I $$ESTIM(V)'=0 Q "" ;IF AN ESTIMATE EXIST?

Routine	Description
	;add a mapping to LOINC 8339-4 when a birth weight is detected (same date as DOB for patient)
	;and when the Estimated Gestational Age is NOT available.
	I '$D(^AUPNVSIT(V,0)) Q "" ;no visit
	NEW P,I,A,IEN,WT
	S P=$P(^AUPNVSIT(V,0),U,5) ;Patient
	I 'P Q ""
	;WT > 0 V Measurement IEN without ENTERED IN ERROR
	S I="",IEN="",WT=$O(^AUTTMSR("B","WT","")) F S I=$O(^AUPNVMSR("AD",V,I)) Q:'I D
	.I $D(^AUPNVMSR(I,0)),'$D(^AUPNVMSR(I,2)),+$P(^AUPNVMSR(I,0),U,4)>0,+$P(^AUPNVMSR(I,0),U,1)=WT S IEN=I
	I 'IEN Q 0
	S A=$P($P(^AUPNVSIT(V,0),",",1),".",1)
	I 'A Q ""
	Q $$GET1^DIQ(2,P_",",.03,"I")=A
	CHKMODV(V,C,M) ;EP - GQ,GT or 95 modifier or no modifiers at all for the visit
	I $G(V)="" Q ""
	I $G(M)="" S M=1 ;M should be 0 to go for a 'No Modifiers' Check
	I '$D(^AUPNVSIT(V,0)) Q "" ;no visit
	I '$D(^AUPNVCPT("AD",V)) Q "" ;no vcpt
	NEW I,M1,M2,MGQ,MGT,M95,IEN
	S I=$O(^AUPNVCPT("AD",V,"")) ; V CPT IEN
	I 'I,'$D(^AUPNVCPT(I,0)) Q 0
	S I="",IEN="" F S I=$O(^AUPNVCPT("AD",V,I)) Q:'I D
	.I $D(^AUPNVCPT("B",C,I)) S IEN=I
	I 'IEN Q 0
	S M1=$P(^AUPNVCPT(IEN,0),U,8),M2=$P(^AUPNVCPT(IEN,0),U,9)
	I 'M1,'M2,'M Q 1
	I 'M Q 0 ;No Modifiers Failed
	S MGQ=$O(^DIC(81.3,"B","GQ","")),MGT=$O(^DIC(81.3,"B","GT","")),M95=$O(^DIC(81.3,"B","95","")) ;Modifiers Ref. data
	I (M1=MGQ)!(M1=MGT)!(M1=M95)!(M2=MGQ)!(M2=MGT)!(M2=M95) Q 1 ;Needed at least one of the following modifiers
	Q 0
	EKGFINDL() ;PEP - return EKG finding loinc
	Q "8601-7"

4.0   Files and Tables

4.1   File List

Table 4-1 provides information for files and tables.

Table 4-1: BCQM File List

File	Global	Filename
9002022	^BCQM(9002022	CQM MISC MAPPING
9002023	^BCQM(9002023,	CQM TABLE ORIENTED MAPPING

4.2   File Access

Table 4-2: BCQM File List

File (#)	Global	RD	WR	LYG	DD	DEL
9002022	^BCQM(9002022	@	@	@	@	@
9002023	^BCQM(9002023,	@	@	@	@	@

4.3   Cross References

```
INDEX AND CROSS-REFERENCE LIST -- FILE #9002022            10/23/13    PAGE 1
-------------------------------------------------------------------------------

File #9002022

  Traditional Cross-References:

  B     REGULAR
          Field:  DUMMY  (9002022,.01)
                  1)= S ^BCQM(9002022,"B",$E(X,1,30),DA)=""
                  2)= K ^BCQM(9002022,"B",$E(X,1,30),DA)

Subfile #9002022.01

  Traditional Cross-References:

  B     REGULAR
          Field:  HANDEDNESS  (9002022.01,.01)
                  1)= S ^BCQM(9002022,DA(1),1,"B",$E(X,1,30),DA)=""
                  2)= K ^BCQM(9002022,DA(1),1,"B",$E(X,1,30),DA)

Subfile #9002022.11

  Traditional Cross-References:

  B     REGULAR
          Field:  SNOMED  (9002022.11,.01)
                  1)= S ^BCQM(9002022,DA(2),1,DA(1),1,"B",$E(X,1,30),DA)=""
                  2)= K ^BCQM(9002022,DA(2),1,DA(1),1,"B",$E(X,1,30),DA)
```

```
INDEX AND CROSS-REFERENCE LIST -- FILE #9002023            10/23/13    PAGE 1
--------------------------------------------------------------------------------

File #9002023

  Traditional Cross-References:

  B    REGULAR
          Field:  FILE  (9002023,.01)
                  1)= S ^BCQM(9002023,"B",$E(X,1,30),DA)=""
                  2)= K ^BCQM(9002023,"B",$E(X,1,30),DA)

Subfile #9002023.01

  Traditional Cross-References:

  B    REGULAR
          Field:  LOOKUP VALUE  (9002023.01,.01)
                  1)= S ^BCQM(9002023,DA(1),1,"B",$E(X,1,30),DA)=""
                  2)= K ^BCQM(9002023,DA(1),1,"B",$E(X,1,30),DA)

Subfile #9002023.12

  Traditional Cross-References:

  B    REGULAR
          Field:  CODESET  (9002023.12,.01)
                  1)= S ^BCQM(9002023,DA(2),1,DA(1),2,"B",$E(X,1,30),DA)=""
                  2)= K ^BCQM(9002023,DA(2),1,DA(1),2,"B",$E(X,1,30),DA)
```

Figure 4-1: Index and Cross Reference List

4.4   Table File

4.4.1   CQM MISC MAPPING

GLOBAL: ^BCQM(9002022

FILE #: 9002022

```
CONDENSED DATA DICTIONARY---CQM MISC MAPPING FILE (#9002022)UCI: DEV,DEV   VERSION:
1.0

STORED IN: ^BCQM(9002022,                                10/23/13    PAGE 1
--------------------------------------------------------------------------------

                                     FILE SECURITY
                           DD SECURITY    : @     DELETE SECURITY: @
                           READ SECURITY  : @     LAYGO SECURITY : @
```

```
                                         WRITE SECURITY : @
CROSS REFERENCED BY:
     DUMMY(B)



                              FILE STRUCTURE

FIELD      FIELD
NUMBER     NAME

.01        DUMMY (RF), [0;1]
.02        PRIMARY POV SNOMED (F), [0;2]
1          HANDEDNESS (Multiple-9002022.01), [1;0]
           .01  HANDEDNESS (MS), [0;1]
           1    SNOMED (Multiple-9002022.11), [1;0]
                .01  SNOMED (MRF), [0;1]
```

4.4.2   CQM TABLE ORIENTED MAPPING

GLOBAL: ^BCQM(9002003

FILE #: 9002023

```
CONDENSED DATA DICTIONARY---CQM TABLE ORIENTED MAPPING FILE (#9002023)UCI: DEV,DEV
VERSION: 1.0

STORED IN: ^BCQM(9002023,                                 10/23/13    PAGE 1
------------------------------------------------------------------------------

                                        FILE SECURITY
                              DD SECURITY    : @     DELETE SECURITY: @
                              READ SECURITY  : @     LAYGO SECURITY : @
                              WRITE SECURITY : @
CROSS REFERENCED BY:
     FILE(B)



                              FILE STRUCTURE

FIELD      FIELD
NUMBER     NAME

.01        FILE (RP1'), [0;1]
.02        FIELD TO USE FOR VALUE (F), [0;2]
1          LOOKUP VALUE (Multiple-9002023.01), [1;0]
           .01  LOOKUP VALUE (MF), [0;1]
           1    MUMPS CODE (K), [1;E1,245]
           2    CODESET (Multiple-9002023.12), [2;0]
                .01  CODESET (MS), [0;1]
                .02  CODE (F), [0;2]
                .03  INACTIVE DATE (D), [0;3]
2          TRANSFORM ON LOOKUP (K), [2;E1,245]
```

5.0   Internal Relations

There are no end user options in this build.

6.0   External Relations

6.1   External Calls

This package calls the following documented entry points:

```
Routine             is Invoked by:
  ^%DT                  |dd9002023.12
  $$DDTM^APCLV          BCQMUTL
  $$VD^APCLV            BCQMUTL
  $$VDTM^APCLV          BCQMUTL
  $$AGE^AUPNPAT         BCQMUTL
  $$MM^BCQMAPI          BCQMAPI
  ^DIC                  BCQMAPI
  ^DIM                  |dd9002022.11,|dd9002023,|dd9002023.01
*****   Cross Reference of all Routines   *****   OCT 23, 2013@14:29:28 page 4

Routine             is Invoked by:
  $$GET1^DIQ            BCQMAPI,BCQMUTL
  $$FMDIFF^XLFDT        BCQMUTL
  $$UP^XLFSTR           BCQMUTL


*****   END   **********   END   *****
```

6.2   Callable Routines

There are no callable routines; see Published Entry Points.

6.3   Published Entry Points

6.3.1 $$MM^BCQMAPI

This API is called to obtain a mapped SNOMED or LOINC code from an IHS code. Please note that the parameters passed in will differ depending on the IHS table being used.

MM(BCQMF,LOOKUP,LKFORM,VALUE1,VALUE2,VALUE3,VALUE4,VALUE5,VALUE6,BCQMDATE,RETVAL)

Parameter	Data Type	Description

BCQMF	File number of the table from which the lookup is being done.	Allowable values with Version 1.0 Patch 8:
		`9999999.07      MEASUREMENT TYPE`
		`9999999.15      EXAM`
		`9999999.64      HEALTH FACTORS`
		`9001202         PCC INFANT FEEDING CHOICES`
		`9999999.09      EDUCATION TOPICS`
		`9001203         PCC ADDITIONAL FEEDING CHOICES`
		`99999.04        PATIENT STATUS CODE (NUBC)`
		`9999999.14      IMMUNIZATION`
		`9002084.81      BI TABLE CONTRA REASON`
		`9999999.101     CLINICAL REVIEW ACTION`
		`9999999.26      SERVICE CATEGORY`
		`81              CPT`
		`80.1            ICD OPERATION/PROCEDURE`
		
		`Example:  When attempting to obtain a mapped Snomed`
		`or Loinc for measurement type WT pass 9999999.07 as`
		`the first parameter.`

LOOKUP	Text (required)	A unique lookup value into the table referenced in parameter 1. This value must be a unique lookup value, it cannot be ambiguous to a ^DIC lookup into the file. The caller must pass a value that will not fail a DIC lookup. This is coupled with parameter 3 (LKFORM) to do a FileMan lookup. For any of these you can pass the IEN of the table entry with an "I" in LKFORM. If you pass an external value you must pass an "E" in LKFORM and it must be a unique lookup value. EDUCATION TOPICS - NOTE: there is no unique lookup value in EDUCATION topics so caller must pass the IEN of the topic and pass an "I" in parameter LKFORM.
LKFORM	Text	I – Internal value being passed in LOOKUP E – External value being passed in LOOKUP

Parameter	Data Type	Description

VALUE1	Text	NOTE: VALUE1 will differ depending on the file passed in BCQMF (parameter 1)
		`9999999.07      MEASUREMENT TYPE`
		  `-  Result of the measurement (.04 of V`
		     `MEASUREMENT) e.g if BP is passed in LOOKUP,`
		     `pass 140/90 in VALUE1 (not required)`
		`9999999.15      EXAM`
		  `-  Result of the exam (.04 of V EXAM)`
		`9999999.64      HEALTH FACTORS`
		  `-  Blank, no parameter value needed`
		`9001202         PCC INFANT FEEDING CHOICES`
		  `-  Blank, no parameter value needed`
		`9999999.09      EDUCATION TOPICS`
		  `-  Blank, no parameter value needed`
		`9001203         PCC ADDITIONAL FEEDING CHOICES`
		  `-  Blank, no parameter value needed`
		`99999.04        PATIENT STATUS CODE (NUBC)`
		  `-  Blank, no parameter value needed`
		`9999999.14      IMMUNIZATION`
		  `-  Blank, no parameter value needed`
		`9002084.81      BI TABLE CONTRA REASON`
		  `-  ien of entry in the BI TABLE VACCINE GROUP for`
		     `the vaccine for which the contraindication is`
		     `being documented`
		`9999999.101     CLINICAL REVIEW ACTION`
		  `-  Blank, no parameter value needed`
		`9999999.26      SERVICE CATEGORY`
		  `-  IHS Standard clinic code for clinic for the`
		     `visit (not required)`
		`81              CPT`
		  `-  Blank, no parameter value needed`
		
		`80.1            ICD OPERATION/PROCEDURE`
		  `-  Blank, no parameter value needed`

Parameter	Data Type	Description

VALUE2	Text	NOTE: VALUE2 will differ depending on the file passed in BCQMF (parameter 1)
		
		`9999999.07      MEASUREMENT TYPE`
		  - Any qualifiers on the V Measurement, separated by ";"
		
		`S AUPNY=0`
		`F  S AUPNY=$O(^AUPNVMSR(AUPNDA,5,AUPNY)) Q:AUPNY'=+AUPNY`
		`D`
		`  .S`
		`VALUE2=$$GET1^DIQ(9000010.015,AUPNY_","_AUPNDA,.01)_";"`
		`E.G.  "SITTING;ACTUAL"`
		`9999999.15      EXAM`
		  - The IEN of the visit to which the V EXAM is attached, if known.
		`9999999.64      HEALTH FACTORS`
		  - Blank, no parameter value needed
		`9001202         PCC INFANT FEEDING CHOICES`
		  - Blank, no parameter value needed
		`9999999.09      EDUCATION TOPICS`
		  - Blank, no parameter value needed
		`9001203         PCC ADDITIONAL FEEDING CHOICES`
		  - Blank, no parameter value needed
		`99999.04        PATIENT STATUS CODE (NUBC)`
		  - Blank, no parameter value needed
		`9999999.14      IMMUNIZATION`
		  - Blank, no parameter value needed
		`9002084.81      BI TABLE CONTRA REASON`
		  - Blank, no parameter value needed
		`9999999.101     CLINICAL REVIEW ACTION`
		  - Blank, no parameter value needed
		`9999999.26      SERVICE CATEGORY`
		  - If VALUE5 does not equal "FACETOFACE" set this to IHS standard code for the Admission Type (.07 of V Hospitalization, if the service category is "H" (VALUE 1).
		  - If VALUE5 equals "FACETOFACE" set this to the primary provider class code. E.g. 00 for physician.
		`81              CPT`
		  - Blank, no parameter value needed
		
		`80.1            ICD OPERATION/PROCEDURE`
		  - Blank, no parameter value needed

Parameter	Data Type	Description

VALUE3	Text	NOTE: VALUE3 will differ depending on the file passed in BCQMF (parameter 1)
		
		`9999999.07      MEASUREMENT TYPE`
		`  -   IEN of the visit to which the V Measurement is`
		`      attached.`
		`9999999.15      EXAM`
		`  -  Blank, no parameter valued needed`
		`9999999.64      HEALTH FACTORS`
		`  -  Blank, no parameter value needed`
		`9001202         PCC INFANT FEEDING CHOICES`
		`  -  Blank, no parameter value needed`
		`9999999.09      EDUCATION TOPICS`
		`  -  Blank, no parameter value needed`
		`9001203         PCC ADDITIONAL FEEDING CHOICES`
		`  -  Blank, no parameter value needed`
		`99999.04        PATIENT STATUS CODE (NUBC)`
		`  -  Blank, no parameter value needed`
		`9999999.14      IMMUNIZATION`
		`  -  Blank, no parameter value needed`
		`9002084.81      BI TABLE CONTRA REASON`
		`  -  Blank, no parameter value needed`
		`9999999.101     CLINICAL REVIEW ACTION`
		`  -  Blank, no parameter value needed`
		`9999999.26      SERVICE CATEGORY`
		`  -   If VALUE5 does not equal "FACETOFACE" set this`
		`      to UB code for the admission type (6101 of V`
		`      Hospitalization).  Must be the code.`
		`  -   If VALUE5 does equal "FACETOFACE" set this to`
		`      a 1 if there is a V NOTE (TIU NOTE) attached`
		`      to the visit, if there is no V NOTE pass a 0.`
		`81              CPT`
		`  -  Blank, no parameter value needed`
		`80.1            ICD OPERATION/PROCEDURE`
		`  -  Blank, no parameter value needed`

VALUE4	Text	This parameter will only be set when the file is 9999999.26 and VALUE5 is not equal to "FACETOFACE". Set it to the name of the admission source if the visit is a hospitalization. (field 6102 in V Hospitalization)
VALUE5	Text	If you are attempting to find mapped codes for the FACE TO FACE field in the VISIT file then set this to "FACETOFACE".
VALUE6	Text	Blank
BCQMDATE	Date in FileMan format	Date of Visit, if not passed will default to DT.

Parameter	Data Type	Description
RETVAL	Name of array to pass values back in	Name of Array, e.g. CODE Return value will be: ARRAY(counter,code type)=code E.g.: to get the mapped SNOMED and LOINC codes for depression screening exam: S X=$$MM^BCQMAPI(9999999.15,36,"E","PO",,,,,,DT,"CODES") ZW CODES CODES(1,"SNOMED")=428181000124104 CODES(2,"SNOMED")=171207006

Examples:

Measurement Type:

Input

To obtain the SNOMED and LOINC codes for measurement type PHQ2 with a result of 2:

S X=$$MM^BCQMAPI(9999999.07,measurement type,"E",result,qualifiers,visit ien,,,,date,output array)

S X=$$MM^BCQMAPI(9999999.07,"PHQ2","E",2,,123456,,,,DT,"CODES")

Output

CODES(1,"SNOMED")=428171000124102

CODES(2,"SNOMED")=171207006

CODES(3,"LOINC")="73832-8"

Exam Type:

Input

To obtain the SNOMED and LOINC codes for exam type Depression Screening with a result of positive:

S X=$$MM^BCQMAPI(9999999.15,exam type,"E",result,visit ien,,,,,date,output array)

S X=$$MM^BCQMAPI(9999999.15,36,"E","PO",3299976,,,,,DT,"CODES")

Output

CODES(1,"SNOMED")=428181000124104

CODES(2,"SNOMED")=171207006

Health Factors

Input

To obtain the SNOMED and LOINC codes for health factor CURRENT SMOKER,EVERY DAY:

S X=$$MM^BCQMAPI(9999999.64,health factor code,"E",,,,,,,date,output array)

S X=$$MM^BCQMAPI(9999999.64,"F108","E",,,,,,,DT,"CODES")

Output

CODES(1,"SNOMED")=449868002

CODES(2,"LOINC")="68535-4"

ICD Operation/Procedure

Input

To obtain the SNOMED code for ICD10 code CURRENT SMOKER,EVERY DAY:

S X=$$MM^BCQMAPI(80.1,ICD 10 code,,,,,,,,date,Output Array)
S X=$$MM^BCQMAPI(80.1,"F02Z5ZZ",,,,,,,,DT,"CODE")

Output

CODE(1,"SNOMED")=410081009

6.4   Exported Options

There are no exported options.

7.0   Security Keys

There are no security keys.

8.0   Archiving and Purging

There is no archiving and purging in this package.

9.0   Documentation Resources

This section describes a few methods to generate online technical documentation.

9.1   How to Generate Online Documentation

The file number range for this package is 9002022-9002023. The namespace is BCQM. All templates, routines, screen forms, etc., begin with BCQM.

This section describes some methods by which users can generate IHS CODE MAPPING technical documentation. Online technical documentation pertaining to the IHS RPMS clinical reporting software, in addition to that which is located in the help prompts and on the help screens throughout the IHS RPMS Code Mapping package, can be generated through the use of several kernel options. These include, but are not limited to, the sections that follow.

9.2   System Documentation

Online VPS system documentation can be generated using several kernel options, including, but not limited to:

- %INDEX

- Menu Management

- Inquire Option

- Print Option File

- VA FileMan

- Data Dictionary Utilities

- List File Attributes

For more option listings and further information about other utilities that supply online technical information, see the Decentralized Hospital Computer Program (DHCP) Kernel Reference manual.

9.2.1   %INDEX

The %INDEX option analyzes the structure of a routine to determine, in part, if the routine adheres to RPMS programming standards. The output can include the following components:

- Compiled list of errors and warnings

- Routine listings

- Local variables

- Global variables

- Naked globals

- Label references

- External references

Running %INDEX for a specified set of routines allows users to discover any deviations from RPMS programming standards that exist, and to see how routines interact with one another (i.e., which routines call or are called by other routines).

To run %INDEX for the IHS RPMS Clinical Reporting package, specify the **BCQM** namespace at the "Routine(s)?>" prompt.

9.2.2   Inquire Option

The Inquire menu management option provides the following information about a specified option:

- Option name

- Menu text

- Option description

- Type of option

- Lock (if any)

In addition, all items on the menu are listed for each menu option. To secure information about IHS RPMS Clinical Reporting options, you must specify the BCQM namespace.

9.2.3   Print Option File

> **Note**:   There are no options in the application.

9.2.4   List File Attributes

This VA FileMan option allows users to generate documentation pertaining to files and file structure. The standard format of this option provides the following data dictionary information for a specified file:

- File name and description

- Identifiers

- Cross-references

- Files pointed to by the file specified

- Files that point to the file specified

- Input, print, and sort templates

In addition, the following applicable data is supplied for each field in the file:

- Field name, number, title, and description

- Global location

- Help prompt

- Cross-references

- Input transform

- Date last edited

- Notes

Using the Global Map format of this option generates an output that lists the following information:

- All cross references for the file selected

- Global location of each field in the file

- Input, print, and sort templates

For a comprehensive listing of CLINICAL files, see Section 4.0

9.3   Online Help

In addition to system documentation, RPMS includes special help displays for most menu options and data entry prompts. Typing a single question mark (**?**) at the "Select Option" prompt displays information related to the current option, where:

Typing	Displays
A single question mark (**?**)	A list of all options accessible from the current option
Two question marks (**??**)	A list of all accessible options and their formal names
Three question marks (**???**)	A brief description for each option in a menu
A single question mark (**?**) followed by an option name (**?OPTION**)	Extended help, if available, for that option

10.0   SAC Requirements

N/A.

Glossary

Archiving

The storage of historical or little-used data off-line (often on tape).

Banner

A line of text with a user's name and domain.

Browser

An interactive application that displays ASCII text on a terminal that supports a scroll region. The text can be in the form of a word-processing field or sequential local or global array. The user is allowed to navigate freely within the document.

Callable Entry Points

Places in a routine that can be called from an application program.

Caret (^)

A circumflex, also known as an "up-hat," used as a piece delimiter in a global. The caret is denoted as "^" and is typed by pressing SHIFT-6 on the keyboard.

Cross Reference

An indexing method whereby files can include presorted lists of entries as part of the stored database. Cross references (x-refs) facilitate look-up and reporting.

Entry Point

A point within a routine that is referenced by a "DO" or "GOTO" command from a routine internal to a package.

File

A set of related records or entries treated as a single unit.

FileMan

The database management system for RPMS.

Global

In MUMPS, global refers to a variable stored on disk (global variable) or the array to which the global variable may belong (global array).

ICD

International Classification of Diseases.

INDEX (%INDEX)

A kernel utility used to verify routines and other MUMPS code associated with a package. Checking is done according to current ANSI MUMPS standards and RPMS programming standards. This tool can be invoked through an option or from direct mode (>D ^%INDEX).

IRM

Information Resource Management. The IHS personnel responsible for information systems management and security.

Kernel

The set of MUMPS software utilities that function as an intermediary between the host operating system and application packages, such as Laboratory and Pharmacy. The kernel provides a standard and consistent user and programmer interface between application packages and the underlying MUMPS implementation. These utilities provide the foundation for RPMS.

Menu

A list of choices for computing activity. A menu is a type of option designed to identify a series of items (other options) for presentation to the user for selection. When displayed, menu-type options are preceded by the word "Select" and followed by the word "option," as in "Select Menu Management option:" (the menu's select prompt).

Namespace

A unique set of 2 to 4 alpha characters that are assigned by the database administrator to a software application.

Option

An entry in the Option file. As an item in a menu, an option provides an opportunity for users to select it, thereby invoking the associated computing activity. Options may also be scheduled to run in the background, non-interactively, by TaskMan.

Queuing

A request that a job be processed at a later time rather than within the current session.

Routine

A program or sequence of instructions called by a program that may have some general or frequent use. MUMPS routines are groups of program lines that are saved, loaded, and called as a single unit via a specific name.

UCI

User Class Identification. A computing area.

Utility

A callable routine line tag or function. A universal routine usable by anyone.

Variable

A character or group of characters that refers to a value. MUMPS recognizes three types of variables: local variables, global variables, and special variables. Local variables exist in a partition of the main memory and disappear at signoff. A global variable is stored on disk, potentially available to any user. Global variables usually exist as parts of global arrays.

Acronym List

Acronym	Term Meaning
DHCP	Decentralized Hospital Computer Program
ICD	International Classification of Diseases
HIS	Indian Health Service
IRM	Information Resource Management
MU2	Meaningful Use II
RPMS	Resource and Patient Management System
UCI	User Class Identification

Contact Information

If you have any questions or comments regarding this distribution, please contact the IHS IT Service Desk.

Phone: (888) 830-7280 (toll free)

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