Integrating the Healthcare Enterprise

IHE Patient Care Coordination
Technical Framework Supplement

Clinical Mapping
(CMAP)

Rev. 1.2 - Trial Implementation

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Please verify you have the most recent version of this document. See here for Trial Implementation and Final Text versions and here for Public Comment versions.

Foreword

This is a supplement to the IHE PCC Technical Framework V11.0. Each supplement undergoes a process of public comment and trial implementation before being incorporated into the volumes of the Technical Frameworks.

This supplement is published on November 11, 2016 for trial implementation and may be available for testing at subsequent IHE Connectathons. The supplement may be amended based on the results of testing. Following successful testing it will be incorporated into the Patient Care Coordination Technical Framework. Comments are invited and may be submitted at http://www.ihe.net/PCC_Public_Comments.

This supplement describes changes to the existing technical framework documents.

"Boxed" instructions like the sample below indicate to the Volume Editor how to integrate the relevant section(s) into the relevant Technical Framework volume.

Amend Section X.X by the following:

Where the amendment adds text, make the added text **bold underline**. Where the amendment removes text, make the removed text **~~bold strikethrough~~**. When entire new sections are added, introduce with editor's instructions to "add new text" or similar, which for readability are not bolded or underlined.

General information about IHE can be found at: http://ihe.net.

Information about the IHE Patient Care Coordination domain can be found at: http://ihe.net/IHE_Domains.

Information about the organization of IHE Technical Frameworks and Supplements and the process used to create them can be found at: http://ihe.net/IHE_Process and http://ihe.net/Profiles.

The current version of the IHE IT Infrastructure Technical Framework can be found at: http://ihe.net/Technical_Frameworks.

CONTENTS

Introduction to this Supplement

This supplement modifies the following volumes:

Volume 1 – Adds a Clinical Mapping (CMAP) Profile to manage nomenclature transformations mapping to and from clinical terminologies.

Open Issues and Questions

None

Closed Issues

Could this profile be extended to include any nomenclature mapping to provide SNOMED, LOINC, RXNORM and other clinical mappings from other standard nomenclatures, clinical or non-clinical? YES

General Introduction

Appendix A - Actor Summary Definitions

Add the following actors to the IHE Technical Frameworks General Introduction list of actors:

Actor	Definition
Clinical Mapping Requestor ~~(See Note 1 for Requirements)~~	The Clinical Mapping Requestor identifies terms that need to be mapped and requests mappings for them. ~~in conjunction with a requesting actor provides a list of terms in a Translate Code Request transaction with:~~ ~~• Items to be mapped~~ ~~• Terminology of the items~~ • ~~targeted terminology for mapping~~
Clinical Mapper ~~(See Note 2 for Requirements)~~	The Clinical Mapper selects appropriate mappings for terms that it has been requested to map. ~~responds to the Translate Code Request transaction from the Clinical Mapping Requestor.~~ ~~The Clinical Mapper shall be:~~ ~~• Capable of handling multiple mapping tables to be invoked singularly or in combination depending on the terminologies to be mapped~~ • ~~Context mapping capable~~

Appendix B - Transaction Summary Definitions

Add the following transactions to the IHE Technical Frameworks General Introduction list of transactions:

Transaction	Definition
Translate Code	This transaction provides a term to be mapped to a specific terminology equivalent and receives a list of terms which may be used to represent the concept in the requested terminology.
Retrieve Code Mappings	This transaction supports retrieval of all mappings from a source terminology to a destination terminology.

Volume 1 – Profiles

X Clinical Mapping (CMAP) Profile

Mapping to and from clinical terminologies is important to handle situations in which:

- Device generated observations need to be converted to clinical terminologies for use in clinical decision making and record keeping
- Clinical terminologies need to be converted to charge capture / billing compatible terminologies for communicating diagnoses and procedures:
  - ICD-10 for international purposes
  - Others as needed for national extensions
- Clinical terminologies need to be converted to other clinical terminologies (future)

Benefits include:

- Significant time savings
- Data entry error reduction
- Consistency in practice to permit comparison and aggregation of data post-conversion

X.1 CMAP Actors, Transactions, and Content Modules

This section defines the actors, transactions, and/or content modules in this profile. General definitions of actors are given in the Technical Frameworks General Introduction Appendix A at http://ihe.net/Technical_Frameworks.

Figure X.1-1 shows the actors directly involved in the CMAP Profile and the relevant transactions between them. If needed for context, other actors that may be indirectly involved due to their participation in other related profiles are shown in dotted lines. Actors which have a mandatory grouping are shown in conjoined boxes.

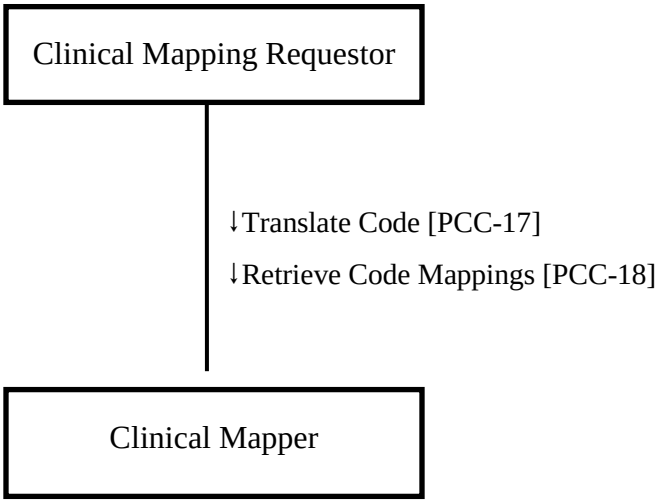


Figure X.1-1: CMAP Actor Diagram

Table X.1-1 lists the transactions for each actor directly involved in the CMAP Profile. To claim compliance with this profile, an actor shall support all required transactions (labeled "R") and may support the optional transactions (labeled "O").

Table X.1-1: Clinical Mapping Profile - Actors and Transactions

Actors	Transactions	Optionality	Reference
Clinical Mapping Requestor	Translate Code	R	PCC TF-2: 3.17
	Retrieve Code Mappings	O	PCC TF-2: 3.18
Clinical Mapper	Translate Code	R	PCC TF-2: 3.17
	Retrieve Code Mappings	O	PCC TF-2: 3.18

X.2 Clinical Mapping (CMAP) Actor Options

Options that may be selected for each actor in this profile are listed in the Table X.2-1 below.

Table X.2-1: Clinical Mapping - Actors and Options

Actor	Option Name	Reference
Clinical Mapping Requestor	Device Mapping	PCC TF-1:X.2.1
	Problem Mapping	PCC TF-1:X.2.2
	Retrievable Mappings	PCC TF-1:X.2.3
Clinical Mapper	Device Mapping	PCC TF-1:X.2.1
	Problem Mapping	PCC TF-1:X.2.2
	Retrievable Mappings	PCC TF-1:X.2.3

Note: An actor must implement at least one of the mapping options.

X.2.1 Device Mapping Option

The purpose of the Device Mapping Option is to support translation of IEEE medical device codes produced by personal health monitoring devices into LOINC codes commonly used for reporting measurements in EMR and other Health IT systems. Details for actors implementing this option can be found in the Translate Code transaction.

X.2.2 Problem Mapping Option

The purpose of the Problem Mapping Option is to support translation of SNOMED-CT codes produced by EMR and Health IT systems into ICD-10 codes commonly used for billing and population health reporting. Details for actors implementing this option can be found in the Translate Code transaction

X.2.3 Retrievable Mappings Option

The purpose of the retrievable mappings option is to identify Clinical Mapping Requester and Clinical Mapper Actors that support the Retrieve Code Mappings transaction.

- A Clinical Mapping Requester supporting the Retrievable Mappings Option SHALL implement the Retrieve Code Mappings transaction.
- A Clinical Mapper supporting the Problem Code Mapping Option SHALL implement the Retrieve Code Mappings transaction.

X.3 Required Actor Groupings

There are no required actor groupings.

X.4 Overview

The Clinical Mapping Profile supports the need of systems to translate codes from one terminology to another to support exchange of information between different systems. These translations are often needed at workflow boundaries where concepts used in one workflow have different names than those in another workflow. For example, in reporting device information to an EMR system, the device vendor may wish to capture device measurements of vital signs using

internationally recognized terminologies provided by those devices, but the EMR may need to report these measurements using different terminologies to support local requirements. Another example would be for cases where data captured to support clinical activity for diagnosis or treatment must then be used to facilitate charge capture processes.

There are two ways that mappings can be done. The system doing the mapping can obtain the information on how to map individual terms as needed (e.g., through a query to a terminology mapper), or it can obtain data describing how the mapping should be done for all terms at a single point in time (e.g., startup). The former capability supports all terminology mapping needs, but may have a performance penalty when a large number of mappings need to be performed. The latter capability works in cases where the number of terms to be mapped is small, and the rules by which the mapping is performed are well defined.

X.4.1 Concepts

A crosswalk is a mapping from one coding system to another in which concepts from the source coding system are mapped to concepts in the target code system. The simplest form of crosswalk is a lookup table. This form is often used to translate from local codes to codes from standard terminologies. The code translation process in these cases is depicted below.

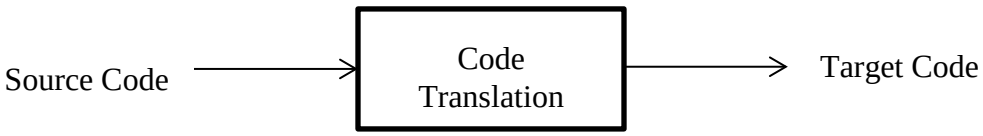


Figure X.4.1-1: Simple Translation

Lookup tables are often sufficient for many cases, but can be insufficient when concepts are defined at different levels of granularity, or when additional context is needed in order to perform the translation. For example, distinctions involving location or findings associated with a diagnosis may be encoded differently. In SNOMED-CT, the concepts associated with location and additional findings are usually separately encoded (post-coordinated) in a SNOMED-CT expression. In ICD-10 the location is directly associated in the code (pre-coordinated). Thus, a SNOMED-CT code describing a myocardial infarction could be translated into several different ICD-10 codes, depending upon where the infarct occurred, and whether or not there was an associated ST elevation finding in the ECG. The location information can appear elsewhere in the SNOMED-CT expression (e.g., post-coordinated in finding site), and would provide the location context that enables the mapping into ICD-10. This additional information needed to perform an accurate mapping is described as the input context.

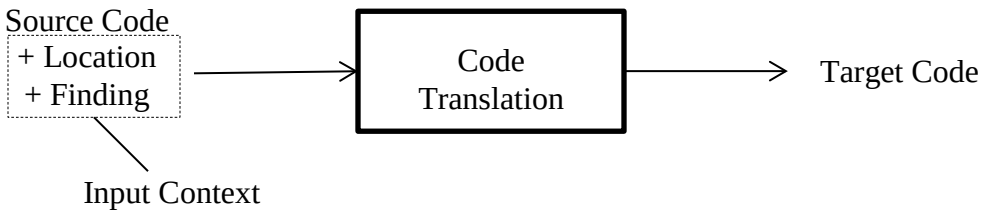


Figure X.4.1-2: Translation with Input Context

In the above case, performing the translation in reverse (from ICD-10 to SNOMED-CT) would lose information about location and ST elevation due to the way that SNOMED-CT uses post-coordination to encode these concepts. To preserve this, the translation can generate not just a code, but also other contextual information as part of the output. This additional information produced by the mapping is described as the output context.

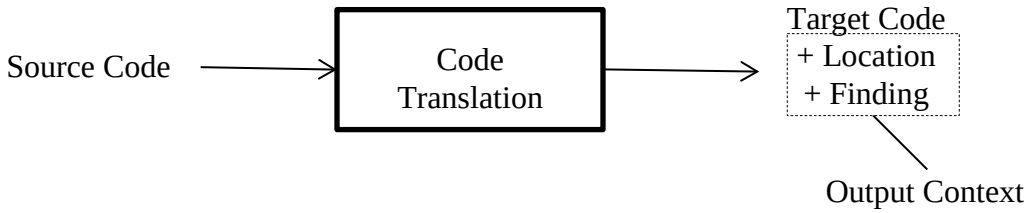


Figure X.4.1-3: Translation with Output Context

When the codes being transformed identify not just concepts, but also specific physical measurements, the values associated with those codes may also need to be transformed. For example, blood glucose could be reported in units of grams/liter (g/l) when using the source coding system and in units of milligrams per deciliter (mg/dl) in a target coding system. The source units would be part of the input context, and the units used with the target code, and the scale factor is simply another component of the output context.

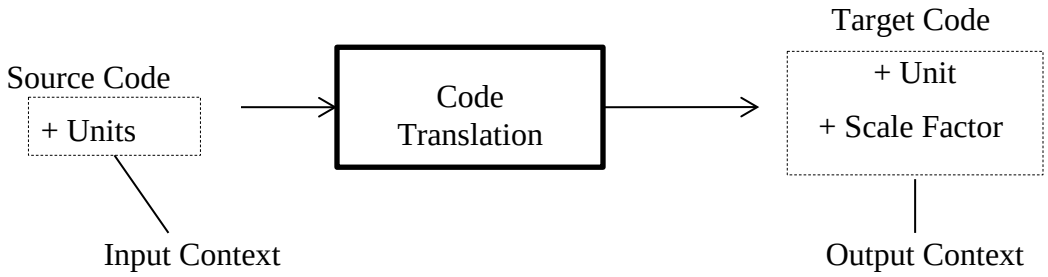


Figure X.4.1-4: Translation with Input and Output Context and Scale Factor

Crosswalks represent clinical knowledge that may be complex to implement but which changes infrequently. Systems which must perform translation between coding systems can be configured to cache translations, refreshing translations periodically.

The translation can sometimes be performed locally using a mapping table. This is useful in cases where a small number of codes need to be translated periodically but frequently, and the translation is not complicated.

In other cases, translation may not be simply expressed as a mapping table, or the data used to support the implementation may be proprietary and thus not shared all at once. Thus, the CMAP Profile supports access to individual translations (which could be cached and refreshed according to policy), and provides an optional transaction enabling all translations to be accessed in a tabular format.

X.4.2 Use Cases

X.4.2.1 Use Case #1: Medical Vital Sign Observation Monitoring Discrete Data Retrospective Utilization

This use case addresses the recording of vital signs monitoring data from an IHE PCD compliant device using IEEE 11073 nomenclature to the EMR in LOINC.

Providers can view patient data generated by patient care devices in an inpatient setting or outpatient encounter room, but when that same provider accesses his or her EMR application that data is not readily available. Getting semantically correct clinical data from patient care devices into clinical applications is generally not achieved today for a couple of reasons:

- The applicable nomenclature from medical devices, IEEE 11073-10101, is not one of the clinically approved nomenclatures in most if not all countries, reducing the incentive to use IEEE 11073 data in clinical applications. The update under review, IEEE 11073-10101a, is also not one of the approved clinical nomenclatures as well.
- There are no commonly accepted mappings of IEEE 11073-10101 to clinical nomenclatures (LOINC and SNOMED-CT® primarily) for clinical measures although

there are vendors who have done so as proprietary interfaces. The result is that there is no reliable way to translate data captured using IEEE terminology to LOINC for systems needing it.

As a result, much of this numeric data generated from medical applications is either not available in clinical or research systems or reentered at significant cost and risk of error. The missing link is a mapping service that can be accessed in a straightforward manner by clinical applications to transform IEEE clinical observations to LOINC nomenclature.

Benefits that can be derived from applications utilizing these mappings include:

- **Improved data collection and patient safety**: Much of the clinical data would no longer need to be reentered from the device to the clinical application, effectively reducing costs and eliminating risks of neglecting to record the data or making transcription errors.
- **Improved patient care**: Additional medical device observation data would be available to clinicians. Increased observation data would be included in the patient's chart as well as in near real time to the clinical application for clinical decision support.

The benefits would apply to a high volume of work including any scenario involving devices providing vital sign observations. This volume would increase as more clinical observations are added beyond vital signs.

This use case involves the monitoring of vital signs in an inpatient setting (e.g., an ICU, Step Down, Observation, or General / Surgical unit). Vital signs are generally available at the point of care visually from monitoring displays. What is not available and is addressed by this use case is the ability to view and analyze vital signs in time sequence retrospectively for patient care or study purposes.

Preconditions:

The patient is transported to an inpatient room. The patient is attached to a monitor to collect core vital signs observations; including the following:

- Body Temperature
- BP Diastolic
- BP Systolic
- Heart Rate
- O_2 % BldC Oximetry
- Respiratory Rate

Use case actions:

1. Medical device observations are transmitted using IEEE 11073 nomenclature.
2. The EMR receives these observations.
3. It requests translations of the IEEE nomenclature codes into LOINC codes via this profile.

4. The translated codes are then used to store the observation values in the patient record.

Postconditions:

Medical device observations are available in the EMR.

X.4.2.2 Use Case #2: Creating Billing Documents from Clinical Encounter Documentation

Healthcare payers often require the use of ICD-10 terminology for billing and reporting uses. However, other terminologies, such as SNOMED-CT are often used to capture problems in the EMR.

Preconditions:

A patient visits his or her doctor for a scheduled ambulatory encounter. During the course of the encounter, the doctor documents relevant clinical facts about the patient in the EMR system. When documenting the patient's problems, the EMR system assists the doctor to code each problem with appropriate codes selected from SNOMED-CT.

Use Case Actions:

1. Following the encounter, the practice billing clerk creates a bill by extracting relevant data from the EMR system.
2. The billing system requests translations for the relevant SNOMED-CT codes to ICD-10 codes for use in the bill.
3. The billing system submits the SNOMED-CT code to the clinical mapping service.
4. If additional modifiers provided are insufficient, the mapping service reports additional modifiers it needs to provide more accurate mappings.
5. The billing system can supply these additional modifiers and request the translation again for more accurate mappings (NOTE: This can also be done pre-emptively in step 3).
6. Once it has all required data, the mapping system returns the appropriate ICD-10 code for use by the billing system.

Post Condition:

The billing system is able to create a bill using the appropriate ICD-10 codes.

X.5 Clinical Mapping (CMAP) Security Considerations

The process of Clinical Mapping need not contain personal health information (PHI). The specifications selected for the CMAP Profile transactions do not typically include PHI, although context information (e.g., age, gender, or rare disease codes) could in fact represent PHI in certain contexts. Thus, implementers may wish to encrypt the communications channel using the IHE ATNA Profile.

Services providing clinical mappings affect the content of patient records where translations of codes are being used. To ensure appropriate translations and verify the identity of these service

providers, the service should be authenticated. Some services may be offered only to licensed users by vendors, and so the system accessing the service, or the user of the service should also be authenticated. The IHE ATNA Profile offers capabilities for mutual system authentication. The IHE EUA, XUA and IUA Profiles can be used to support individual user authentication.

The data and algorithms used to implement a translation service for clinical mappings represent a significant technical investment by providers of translation services. Those service providers may not be interested or willing to support distribution of the intellectual property which enables local implementation of translations without using a service. The Retrieve Code Mappings transaction is optional for this reason. Service users can still access translations in a standard format, but must process each one individually.

Translating codes in real time as they are encountered within a system through the interfaces specified in this profile could result in excessive use of network bandwidth. This could especially be the case when translating remote monitoring data. Given that code translations are slowly changing resources, the protocol enables caching of responses, at both the application and lower levels.

X.6 Clinical Mapping (CMAP) Cross Profile Considerations

This profile may be used with a Device Observation Consumer from the IHE PCD Device Enterprise Communication (DEC) Profile. It enables the Device Observation Consumer to translate specific IEEE observation codes contained in the HL7®[1] v2.6 message produced by the PCD-01: Communicate Device Data transaction into clinically usable LOINC.

[1] HL7 is the registered trademark of Health Level Seven International.

Volume 2 – Transactions

Add Section 3.17

3.17 Translate Code [PCC-17]

3.17.1 Scope

This transaction is used to translate a code from one coding system to another.

3.17.2 Actor Roles

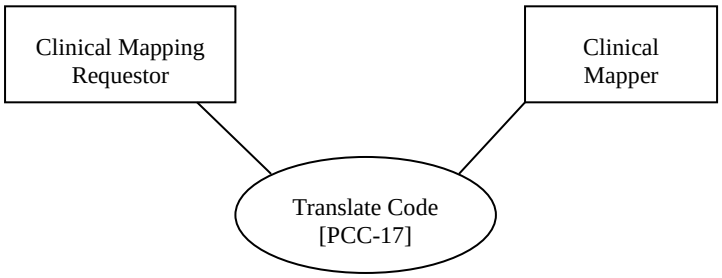


Figure 3.17.2-1: Use Case Diagram

Table 3.17.2-1: Actor Roles

Actor:	Clinical Mapping Requester
Role:	An information system requesting a mapping of a code from one vocabulary to another.
Actor:	Clinical Mapper
Role:	An information system that responds to a mapping request

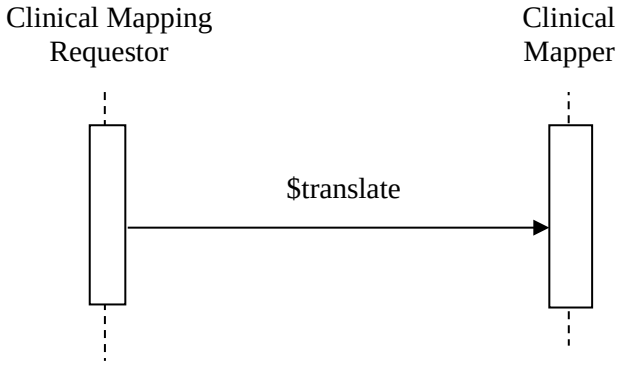
3.17.3 Referenced Standards

HL7® FHIR®[2] standard DSTU 2.0[3]

[2] FHIR is the registered trademark of Health Level Seven International.

[3] http://hl7.org/fhir/DSTU2/index.html on April 27, 2016

3.17.4 Interaction Diagram



3.17.4.1 Translate Code

The Translate Code transaction is implemented through the FHIR $translate operation on a ConceptMap resource. The details of this transaction are described below under Message Semantics. That operation defines a mechanism by which codes can be translated from one coding system to another.

3.17.4.1.1 Trigger Events

The Clinical Mapping Requester can request a code to be translated at several points in time:

1. It may periodically make requests for information on how to translate codes which will be saved and applied repeatedly during normal operation of the system.
2. It may receive information using a particular code and dynamically request translation of that code into a different coding system.

3.17.4.1.2 Message Semantics

The message is a FHIR operation with the input and output parameters shown below in Table 3.17.4.1.2-1. The name of the operation is $translate, and it is applied to ConceptMap resources. It is sent synchronously in JSON format from the Clinical Mapping Requester to the Clinical Mapper using an HTTP or HTTPS GET request.

The URL for this operation is: [base]/ConceptMap/$translate

Where [base] is the base URL for the Clinical Mapper.

Table 3.17.4.1.2-1: $translate Message Parameters

Parameter	Card.	Data Type	Description
Input Parameters			
code	1..1	code	The code to translate.
system	1..1	uri	The system for the code that is to be translated.
target	1..1	uri	A URI identifying the target value set from which the translated code should come from.
dependency	0..*		Additional context may be necessary to identify a mapping. Each **dependency** parameter identifies some piece of context information that could be used to facilitate mapping.
dependency. element	1..1	uri	The element part of the parameter provides a reference to a model element holding a coded value from which the additional context information is obtained. This can be an element in a FHIR resource, a specific reference to a data element in a different specification (e.g., v2) or a general reference to a kind of data field, or a reference to a value set with an appropriately narrow definition.
dependency. coding	0..1	CodeableConcept	Describes the additional coded context information. NOTE: Either dependency.coding shall be present, or dependency.cmap:value, but not both.
dependency. coding. codeSystem	1..1	uri	The code system in the referenced element.
dependency. coding. code	1..1	string	Value of the referenced element
dependency. cmap:value	0..1	Quantity	The value of the referenced element. NOTE: Either dependency. coding shall be present, or dependency.cmap:value, but not both.
Output Parameters			
result	1..1	boolean	A value of true or false indicating whether a mapping could be performed.
message	0..1	string	Error details when result = false, warnings if result = true
match	0..*		Details about a mapped code. Multiple codes may be matched.
match. equivalence	0..1	code	A code indicting the strength of the match.
match. concept	0..1	Coding	The mapped code.
match. product	0..*		A mapping may produce additional context information. Each product parameter identifies some piece of context produced by a mapping. (See also dependency above.)
match.product. element	1..1	uri	A reference to a model element that would hold a coded value where the produced context is used.
match.product. concept	0..1	Coding	The coded result in the referenced element. NOTE: Either product.concept or product.cmap:range SHALL be present, but not both.
match.product. concept. codeSystem	1..1	uri	The code system in the referenced element.

Parameter	Card.	Data Type	Description
match.product.concept.code	1..1	string	The code produced as a result of the mapping. Either product.concept.code or product.
match.product.cmap:range	0..1	Range	The value range produced as a result of the mapping. NOTE: Either product.concept or product.cmap:range SHALL be present, but not both.
match.cmap:scalingFactor	0..1	decimal	The scaling factor produced as a result of the mapping.
cmap:dependency	0..*		The dependency output parameter may be present to specify which additional dependencies should be specified to obtain a better match.
cmap:dependency.element	1..1	uri	The element part of the parameter provides a reference to a model element holding a coded value from which the additional context information would be obtained.
cmap:dependency.codeSystem	0..1	uri	If the model element described above refers to a coded concept, this field shall contain the code system that should be used to represent the value of the referenced element.

3.17.4.1.3 Expected Actions

1. The Clinical Mapping Requester shall send a $translate request to the Clinical Mapper.
2. Upon receipt of a $translate request, the Clinical Mapper SHALL identify the appropriate mapping tables to apply to the $translate request.
3. If vocabulary mapping from the **system** to the **target** vocabulary is not supported (e.g., NDC to CPT), the mapper SHALL return a **result** parameter of false. The **message** parameter should indicate that no translation is possible between the two vocabularies.
4. If vocabulary mapping from the **system** to the **target** vocabulary is supported,
   a. If the specified **code** can be mapped to one or more codes,
      i. A **match** parameter SHALL be produced to record each matched code identified.
      ii. The **result** parameter SHALL be set to true.
   b. If the specified **code** cannot be mapped to one or more codes,
      i. The **match** parameter SHALL NOT be present.
      ii. The **result** parameter SHALL be set to false.
   c. If the specified code can be mapped to multiple different codes depending on additional context not already specified in the **dependency** parameter, then additional contexts that support a better mapping shall be reported in the **dependency** output parameters.

3.17.4.1.4 Expected Actions for the Device Mapping Option

When a mapping is being requested for an IEEE nomenclature code to LOINC and the Device Mapping Option is supported:

The Clinical Mapping Requestor SHALL populate the input parameters such that:

1. The **code** parameter SHALL be populated with a value from the IEEE nomenclature.
2. The **system** parameter SHALL be populated with “urn:std:iso:11073:10101”.
3. The **target** parameter SHALL be populated with “http://loinc.org”.
4. At most one **dependency** parameter SHALL be present. If present:
    a. The **dependency.element** parameter SHALL have the value of “Observation.valueQuantity.units”.
    b. The **dependency.codeSystem** parameter SHALL have the value “urn:std:iso:11073:10101”.
    c. The **dependency.code** parameter SHALL have a value selected from the IEEE nomenclature specifying the reporting unit associated with the measurement.

The Clinical Mapper shall return a Parameters resource such that:

1. The **outcome** parameter, if present contains a code from the LOINC terminology.
2. When a mapping is found:
    a. Exactly one **product** element SHALL be present where **product.element** parameter has the value of “Observation.valueQuantity.units” and:
        i. The **product.codeSystem** parameter SHALL have the value “http://unitsofmeasure.org”.
        ii. The **product.code** parameter SHALL have a value selected from UCUM specifying the reporting unit associated with the measurement.
    b. At most one **cmap:scalingFactor** element SHALL be present.

3.17.4.1.5 Expected Actions for the Problem Mapping Option

When a mapping is being requested for SNOMED-CT term to ICD-10 and the Problem Mapping Option is supported:

The Clinical Mapping Requestor shall populate the input parameters such that:

1. The **code** parameter SHALL be populated with a value from SNOMED-CT.
2. The **system** parameter SHALL be populated with “http://snomed.info/sct”.
3. The **target** parameter SHALL be populated with “http://hl7.org/fhir/sid/icd-10” or other ICD-10 derived coding system as determined by regional policy.
4. Multiple **dependency** parameters MAY be present.

a. The value of **dependency.element** parameter MAY contain a value from the set of values listed below. This material is derived from the US National Library of Medicine technical documentation for their SNOMED CT to ICD-10 map[4].

Table 3.17.4.1.5-1: SNOMED CT Mapping Dependency Elements

Element	Description
Condition.onsetAge	The age of the patient at the time of onset of the disease.
Condition.patient. gender	The gender of the patient.
Condition.location. site	The site of the condition. ICD-10 codes may vary depending on the body site affected.
Condition.location. site. modifier	The laterality or other modifier on ambiguous body sites. For example, when the condition is a fracture of the arm (specified in site above), different ICD-10 codes might be produced depending on whether it was the left or right arm, or the upper or lower part of the arm.

b. When **dependency.element** parameter contains Condition.onsetAge, **dependency.cmap:value** SHALL be set to the patient age at onset.

The Clinical Mapper SHALL return a Parameters resource such that:

1. The **match** parameter, if present SHALL be populated with a code from ICD-10 or derived coding system as determined by regional policy.
2. If additional context is necessary, SHALL populate one or more **dependency** parameters. Such parameters if present:
   a. SHOULD contain a **dependency.element** from the values listed in Table 3.17.4.1.5 -1 above.

The Clinical Mapper SHALL support the dependencies listed in Table 3.17.4.1.5 -1 above. At the very least, use of these values SHALL NOT cause the $translate request to fail or be rejected. The Clinical Mapper SHOULD use these values to product better mappings when present. Other dependency values may be supported.

3.18 Retrieve Code Mappings [PCC-18]

3.18.1 Scope

This transaction is used to retrieve the table used to perform code mapping.

[4] See http://www.nlm.nih.gov/research/umls/mapping_projects/snomedct_to_icd10cm.html

3.18.2 Actor Roles

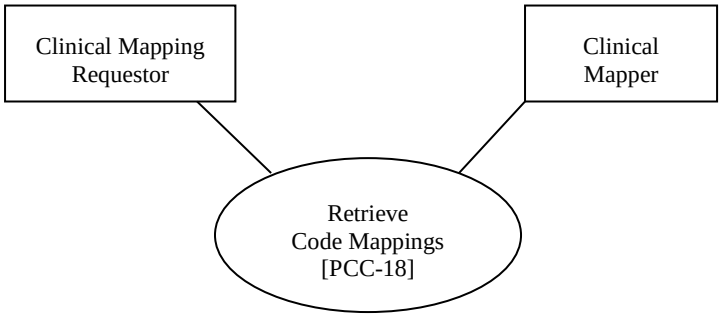


Figure 3.18.2-1: Use Case Diagram

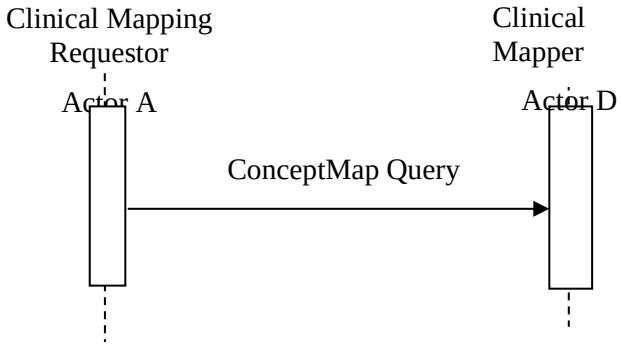
Table 3.18.2-1: Actor Roles

Actor:	Clinical Mapping Requester
Role:	An information system requesting the table of mappings from one code system to another.
Actor:	Clinical Mapper
Role:	An information system that responds to the request

3.18.3 Referenced Standards

HL7® FHIR® standard DSTU 2.0

3.18.4 Interaction Diagram



3.18.4.1 Retrieve Code Mapping

The Retrieve Code Mapping transaction is implemented through the FHIR ConceptMap query operation.

3.18.4.1.1 Trigger Events

The Clinical Mapping Requester can request the mapping table when it is preparing itself to map several codes from one coding system to another.

3.18.4.1.2 Message Semantics

The message is a FHIR query requesting a ConceptMap resource using an HTTP GET and the source and target query parameters.

The URL for this operation is:
[base]/ConceptMap?source=*sourceCodingURI*&target=*targetCodingURI*

Where [base] is the base URL for the Clinical Mapper.

3.18.4.1.3 Expected Actions

The Clinical Mapper will return all ConceptMap resources that support mapping from the coding system identified by *sourceCodingURI* to the coding system specified in *targetCodingURI*.

3.18.5 Security Considerations

Clinical Mapping tables often represent intellectual property that may only be available to licensed users. To protect this IP, the Clinical Mapper may require the channel over which the request is made to be encrypted, and the system making the request to be authenticated. The IHE ATNA Profile can be used to provide these capabilities.

