

# HITSP Patient Level Quality Data Message Component

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HITSP/C34



*Submitted to:*

**Healthcare Information Technology Standards Panel**

*Submitted by:*

**Population Health Technical Committee**



## DOCUMENT CHANGE HISTORY

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# TABLE OF CONTENTS

<b>1.0</b>	<b>INTRODUCTION.....</b>	<b>5</b>
1.1	Overview.....	5
1.2	Component Construct Roadmap.....	5
1.3	Copyright Permissions.....	6
1.4	Reference Documents.....	7
<b>2.0</b>	<b>COMPONENT DEFINITION.....</b>	<b>9</b>
2.1	Context Overview .....	9
2.1.1	Component Constraints.....	9
2.1.2	Component Dependencies .....	10
2.2	Rules for Implementing.....	10
2.2.1	Data Structure .....	10
2.2.2	Cross – Reference Table Key .....	11
2.2.3	Patient Level Quality Data Message Data Set .....	11
2.2.4	Data Mapping .....	25
2.2.5	Guidelines and Examples.....	38
2.3	List of Standards.....	38
<b>3.0</b>	<b>TECHNICAL IMPLEMENTATION .....</b>	<b>42</b>
3.1	Conformance .....	42
3.1.1	Conformance Criteria .....	42
3.1.2	Conformance Scoping, Subsetting and Options .....	42
<b>4.0</b>	<b>APPENDIX .....</b>	<b>43</b>
<b>5.0</b>	<b>CHANGE HISTORY .....</b>	<b>44</b>
5.1	December 5, 2007 .....	44
5.2	December 13, 2007 .....	44



## FIGURES AND TABLES

Figure 1.2-1 Component Construct Roadmap .....	6
Table 2.1.1-1 Component Constraints .....	9
Table 2.1.2-1 Component Dependencies .....	10
Table 2.2.2-1 Data Element Cross Reference .....	11
Table 2.2.3-1 Data Element Cross Reference .....	11
Table 2.2.3-2 Base Facility Data Elements .....	12
Table 2.2.3-3 Patient Data Elements .....	12
Table 2.2.3-4 Clinical Data Elements .....	14
Table 2.2.4-1 Base Facility Data Mapping .....	25
Table 2.2.4-2 Patient Data Mapping .....	25
Table 2.2.4-3 Clinical Data Mapping .....	27
Table 2.3-1 List of Standards .....	38



## 1.0 INTRODUCTION

As an introduction to the HITSP Patient Level Quality Data Message Component, this section provides a high level overview of the information sharing scenario enabled by following this specification, provides a document map of the construct relationships for this specification, acknowledges the copyright protections that pertain, and provides links to key reference documents and background material. If you are already familiar with this information, proceed to Section 2.0 Component Definition.

### 1.1 OVERVIEW

This section describes the contents of this specification and provides a high level definition of this Component and background information about the underlying standards that the Component is based on.

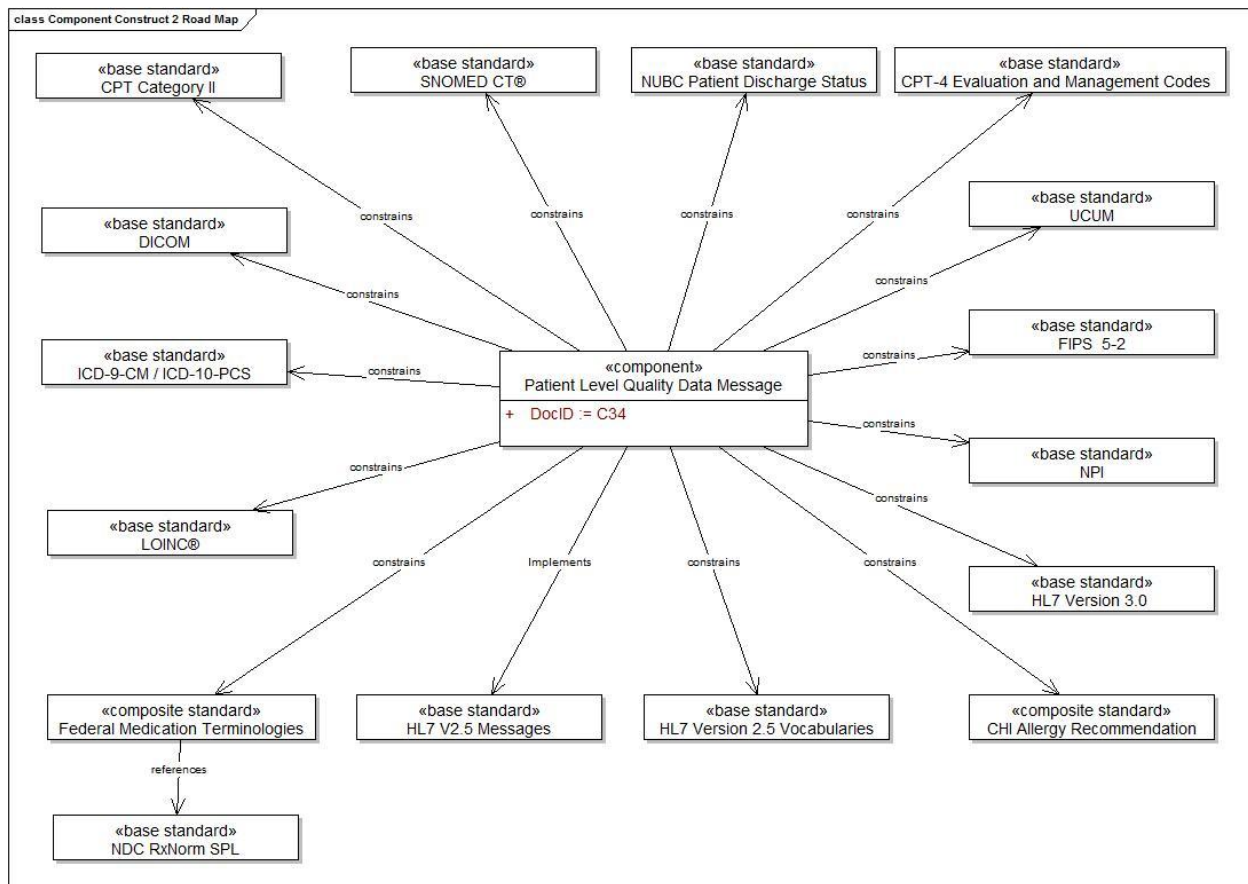
This Component supports the process of sending patient data from a Quality Message Sender to a Quality Message Receiver for further analysis and aggregation. Patient data are captured as part of the normal process of care performed by healthcare providers such as hospitals, emergency departments and outpatient clinics.

### 1.2 COMPONENT CONSTRUCT ROADMAP

Each HITSP Interoperability Specification (IS) is comprised of a suite of constructs that, taken as a whole, define how to integrate and constrain existing standards and specifications that will satisfy the requirements imposed by a given Use Case. The IS groups specific actions and actors to describe the relevant contexts using HITSP constructs that further identify and constrain standards where necessary. There are four types of HITSP constructs called Interoperability Specifications (IS), Transaction Packages (TP), Transactions (T), and Components (C). The current Patient Level Quality Data Message Component specification is used with other constructs to meet the requirements of one or more ISs. Review Section 1.2 (Interoperability Specification Construct Roadmap) from the relevant IS to better understand the context, dependencies, and relationships between the constructs that are used to meet the IS requirements. The roadmap in Figure 1.2-1 depicts primary standards that are selected, constrained, or referenced to define the atomic constructs used in an information exchange, or to meet an infrastructure requirement. Implementers should read the documents that describe the standards represented in the diagram for their details and specific uses.



**Figure 1.2-1 Component Construct Roadmap**



### 1.3 COPYRIGHT PERMISSIONS

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## 1.4 REFERENCE DOCUMENTS

This section contains links to key reference documents and background material.

The [HITSP Interoperability Specification Overview](#) provides the background information about the HITSP and its role in the overall U.S. efforts to realize large scale interoperability of health information. The document also provides a description of the HITSP process for healthcare standards harmonization and explains how to use the Interoperability Specifications and other related documents to inform your health IT product development or product refinement.

The conventions that are used to convey the full descriptions and usage of standards in the HITSP specifications are contained in the [HITSP Conventions List](#).

The acronyms used in this document are contained in the [HITSP Acronyms List](#).

The [HITSP Glossary](#) provides definitions for relevant terms used by HITSP documents.

The [HITSP Harmonization Framework](#) describes the current framework within which the Interoperability Specifications are built.

A Technical Note, [TN900 - Security and Privacy](#), has been developed as a reference document to provide the overall context for use of the HITSP Security and Privacy constructs. It includes the following:

- The scope, reference policy background, and Security and Privacy principles used in the development of the constructs
- A detailed description and schematics of the conceptual relationship between the Security and Privacy constructs
- A mapping of existing standards and constructs to be used in meeting the stated requirements of the AHIC Use Cases
- A list of identified gaps and the recommended approaches to resolving those gaps
- A roadmap for how the Security and Privacy constructs will evolve and eventually align with other HITSP Interoperability Specifications
- A conceptual framework for Security and Privacy management, including reference information on privacy policies, risk assessment, and risk management



- A glossary of terms used in all the Security and Privacy construct documents
- A description of the application of the Security and Privacy constructs to the HITSP Interoperability Specifications for the three initial AHIC Use Cases – Biosurveillance, Electronic Health Records - Laboratory Results Reporting, and Consumer Empowerment

HITSP will periodically update this Technical Note as required by the introduction of new contexts for use.





## 2.0 COMPONENT DEFINITION

A Component defines atomic constructs used to support an information exchange or to meet an infrastructure requirement. This is accomplished by:

- (a) Referencing one or more underlying standards
- (b) Specifying constraints and other rules for using the standards

### 2.1 CONTEXT OVERVIEW

This section provides a general description of the Component. It includes a detailed definition of the Component and the reason for its use. It also provides all the necessary background information that further describes the context in which the Component is needed, and the base or composite standard that the Component is based on.

As Quality is based upon the repurposing of clinical data, the processes and data capture options are somewhat opportunistic, and associated data mining processes have more latitude in translation and data preparation processes. Since it is important to maximize the data sources to contribute data to the Quality Information System, information exchange selections include options for data capture from both legacy environments and emerging environments. Vocabulary, message, and content standards have been selected in consideration of providing the most comprehensive, machine-processable fulfillment of the data requirements.

See 4.0 Appendix for additional informative details.

#### 2.1.1 COMPONENT CONSTRAINTS

This section describes the constraints that limit the context in which the Component may be used. A constraint describes a rule that limits the use of the actors, actions or data within the given context, or to which the interactions must conform to be used within the described context. It is a description of the limits and scope of the interactions and can describe actions or events that are not part of the initial definition for the context.

**Table 2.1.1-1 Component Constraints**

Constraint Code	Constraint
	No applicable constraints

See 4.0 Appendix for informative details.



## 2.1.2 COMPONENT DEPENDENCIES

This section describes any specific mapping criteria for the standards underlying the Component. It elaborates on the relationships between different standards used by this Component, and how they map to each other. Additional required mapping criteria not currently enforced by the underlying standards, and any specific elements that are required for this mapping to succeed, are also provided.

**Table 2.1.2-1 Component Dependencies**

Standard/HITSP Component	Depends On (Name of standard/HITSP Component that it depends on)	Dependency Type (Pre-condition, Post-condition, General)	Purpose (Reason for this dependency)
	No applicable dependencies		

See 4.0 Appendix for informative details.

## 2.2 RULES FOR IMPLEMENTING

The following section documents the content of the Component. It provides the basics elements and secondary standards that are supported by this Component and the constraints that are being placed on those standards. Specifically, it describes the subset or constraints that are required for this Component, and the minimum attributes of the Component as it relates to the base or composite standards on which it is based.

### 2.2.1 DATA STRUCTURE

The patient-based Quality data elements are formatted into a HL7 V2.5 data structure that is the current standard suitable for the trigger event. The segments that are used within the messages are:

- Message Header Segment (MSH) – All messages will have a MSH segment
- Event Segment (EVN) – All ADT messages require an EVN segment
- Patient Identification Segment (PID) – All patient-level messages require a PID segment
- Patient Visit 1 Segment (PV1) – Most notably, Patient Class, Admit Date/time, Discharge Date/time and Discharge Disposition may be present in this segment
- Common Order Segment (ORC) – Captures order date/time and ordering provider
- Observation Request Segment (OBR) – Appears in both order and result messages; used to pass ordering information
- Observation (OBX) – Any message may contain OBX segments to carry those data elements marked to be passed as observations (that is, they are not HL7 attributes)
- Diagnosis (DG1) – Administrative Diagnoses are passed only in ADT or financial messages
- Procedures (PR1) – Procedures are passed only in ADT or financial messages
- Allergy Information Segment (AL1) – Allergies in “snapshot” mode may be passed in a series of AL1 segments that reside in ADT messages
- Pharmacy/Treatment Order Segment (RXO) – Specific to Substance Administration
- Pharmacy/Treatment Route Segment (RXR) – Specific to Substance Administration



- Adverse Reaction Segment (IAM) – This segment is only available in the ADT^A60 transaction
- Problem Detail Segment (PRB) – This segment is used to pass problem/diagnosis lists specific to the data source use of the Patient Problem Message type

Note that the output message formats must conform to the HL7 2.5 Abstract Message definitions contained in the Standard.

## 2.2.2 CROSS – REFERENCE TABLE KEY

**Table 2.2.2-1 Data Element Cross Reference**

DATA ELEMENT CROSS REFERENCE	
Data Element	Definition
Data Element	Data element name/identifier
Description	Quality data element description
Source	Source of the data element – where the data was created
Limit/Range/Vocabulary	Expected data values if data element has finite values Pre-coordinated vocabulary value set name or coding system from which values may be drawn
Destination/HL7 Context	Segment and field where the data element appears in the HL7 message and other context as required
HL7 Data Type	HL7 data type for the data element – indicates format and processing requirements
Conditions for Use	Describes all the prevailing conditions that are assumed to be in place to be able to use the data. States the need for a particular actor if one is involved

## 2.2.3 PATIENT LEVEL QUALITY DATA MESSAGE DATA SET

In fulfillment of Quality data and information requirements, the following provisional data dictionary was generated by the Population Health Technical Committee based upon interpretation of measure requirements provided by the Health Information Technology Expert Panel (HITEP). This list is currently under review by the National Quality Forum (NQF) HITEP. Standards selected or under consideration by the HITSP Population Health Technical Committee to constrain the vocabularies used for interoperability are provided.

**Table 2.2.3-1 Data Element Cross Reference**

DATA ELEMENT CROSS REFERENCE	
Column	Definition
HITEP Data Element	Data element name/identifier as listed by the American Health Information Community Expert Panel for the Identification of Core Data Elements and Prioritization of AQA and HQA Performance Measures for Electronic Healthcare Information Systems
Definition	Data element description as listed by American Health Information Community Expert Panel for the Identification of Core Data Elements and Prioritization of AQA and HQA Performance Measures for Electronic Healthcare Information Systems
Data Type	Type of data that is collected with this data element (coded, numeric, text, date/time)
Terminology	Expected data values if data element has finite values CHI-domain recommendations were followed if available
Comments	Pertinent comments and usage



**Table 2.2.3-2 Base Facility Data Elements**

BASE FACILITY DATA ELEMENTS					
HITEP*/Use Case Concept	HITEP Data Element	Definition	Data Type	Selected Standards	Comments
Facility Identifier	Facility Identifier	Unique facility identifier	Numeric	CMS IDs	
Facility Name	Facility Name	Name of facility	String		
Facility Location	Facility Location	City and State	Coded	FIPS	Can be used for practice location

**Table 2.2.3-3 Patient Data Elements**

PATIENT DATA ELEMENTS					
HITEP*/Use Case Concept	HITEP Data Element	Definition	Data Type	Selected Standards	Comments
Pseudonymized Data Linker	Pseudonymized Data Linker	A unique, randomly generated, encoded number that links to patient-level information (i.e., name and address) retained at the facility	Alphanumeric		Pseudo identifier resulting from the pseudonymization process
Encounter Date/Time	Encounter Date/Time	Time of the patient presentation for care ED arrival time (initial triage time) or the registration time for inpatients, or check-in time for ambulatory settings	Date/time field	HL7 Timestamp	Expected on ADT^A04 Registration (Outpatient and ED settings) ADT^A01 Admit transactions (Inpatients)
history-birth*	DOB	Date of birth	Date field	HL7 Timestamp	NOTE: May not be passing DOB for age over 89 due to HIPAA requirements
history-sex*	Sex	Patient sex	Coded	HL7 V3 Administrative Gender Code set: M Male F Female U Undifferentiated	Intent is to align with Foundations committee harmonization of sex codes (in process)
Visit data	Visit data	Electronic medical records billing codes	Coded	CPT Evaluation and Management Codes	
location-source/current/target*	Patient Class	General type of patient, e.g., Inpatient, Outpatient, Emergency	Coded	HL7 2.5.5 Table 0004 Patient Class	One of multiple data elements that can be leveraged to identify source/current/target



PATIENT DATA ELEMENTS					
HITEP*/Use Case Concept	HITEP Data Element	Definition	Data Type	Selected Standards	Comments
location-source/current/target*	Admission Source	This field indicates where the patient was admitted	Coded	Universal Billing codes (Uniform Bill Version 2007 (UB-04) Current UB Data Specification Manual)	One of multiple data elements that can be leveraged to identify source/current/target
location-source/current/target*	Admission Type	This field indicates the circumstances under which the patient was or will be admitted	Coded	Universal Billing codes (Uniform Bill Version 2007 (UB-04) Current UB Data Specification Manual)	One of multiple data elements that can be leveraged to identify source/current/target
Discharge Date/time	Discharge Date/time	Time of Inpatient discharge or release from ED	Date/time	HL7 Timestamp	
location-transfer type (AMA, routine)*	Discharge Disposition	Patient's anticipated location or status following the encounter (e.g. death, transfer to home/hospice/snf/AMA) – uses standard claims-based codes	Coded	Universal Billing codes (Uniform Bill Version 2007 (UB-04) Current UB Data Specification Manual)	Expected in Discharge (ADT^A03) transactions only
history-death*	Deceased indicator	Indicator on record that the patient is deceased	Boolean	HL7 Table 0136Yes/No Indicator	
Deceased Date/time	Deceased Date/time	If patient has died, deceased date/time	Date/time	HL7 Timestamp	



**Table 2.2.3-4 Clinical Data Elements**

CLINICAL DATA					
HITEP Concept	HITEP Data Element	Definition	Data Type	Selected Standards	Comments
<b>Problem Data</b>					
problem list*; history-behavioral (smoker)*; history-enrollment trial*; history-symptoms*	Problem Entry	Interdisciplinary patient issues, both chronic and acute, active and inactive. It is expected that behavioral risk factors (e.g. smoking) would be present on the problem list, significant past procedures or diagnoses, and any significant family history that would reflect a risk factor;  While we recognize that ICD9-CM is currently used in many systems, evolution toward SNOMED is preferred. NOTE: ICD-10 can be mapped (unidirectional) Reason for admission is not a separate data element on this list but could be reflected as a problem	Coded	SNOMED CT <sup>Error!</sup> Bookmark not defined.  ICD9-CM	HL7 Definition Chapter 12: A problem of a given individual can be described by formal diagnosis coding systems (such as DRGs, nursing terminologies, ICD9-CM, DSM, etc.) or by other professional descriptions of healthcare issues affecting an individual. Problems can be short-term or long-term in nature, chronic or acute, and have a status. In a longitudinal record, all problems may be of importance in the overall long-term care of an individual, and may undergo changes in status repeatedly. Problems are identified during patient visits, and may span multiple visits, encounters, or episodes of care
problem list*; history-behavioral (smoker)*; history-enrollment trial*; history-symptoms*	Problem Date	This is the range of time of which the problem was active for the patient	Timestamp	HL7 PPR – Patient Problem Message	
problem list*; history-behavioral (smoker)*; history-enrollment trial*; history-symptoms*	Problem Type	This is a fixed value indicating the level of medical judgment used to determine the existence of a problem	Coded	HL7 PPR – Patient Problem Message	



CLINICAL DATA					
HITEP Concept	HITEP Data Element	Definition	Data Type	Selected Standards	Comments
problem list*; history-behavioral (smoker)*; history-enrollment trial*; history-symptoms*	Problem Name	This is a text description of the problem suffered	Text	HL7 PPR – Patient Problem Message	
problem list*; history-behavioral (smoker)*; history-enrollment trial*; history-symptoms*	Problem Code	This value is a code describing the problem according to a specific vocabulary of problems	Coded	HL7 PPR – Patient Problem Message	
adverse_drug_event-allergy*	Allergies	Allergies/adverse reactions only related to medications or food substances	Coded	CHI Allergy Recommendation (HL7 Allergen type code /Allergen reaction code – use SNOMED CT code here/ and need coded value for Allergen (UNII – Unique Ingredient Identifier derived from FDA SRS and EPA Substance Registry System for non-drug chemicals, RXNORM – including brand-name, NDF-RT – to drug class rather than brand name), SNOMED CT <sup>Error! Bookmark not defined.</sup> for allergy type, severity, reaction	NOTE: Assumption – allergies/adverse reactions only related to medications
adverse_drug_event-intolerance*	Substance Intolerance	Actual or anticipated side effects that may represent exclusions for measures	Coded	SNOMED CT <sup>Error! Bookmark not defined.</sup> ICD9-CM	NOTE: ICD-10 can be mapped (unidirectional)
Adverse Event Entry					
Adverse Event Data	Adverse Event Date	This is a date that expresses when this particular allergy or intolerance was known to be active for the patient	Timestamp	HL7 Timestamp	



CLINICAL DATA					
HITEP Concept	HITEP Data Element	Definition	Data Type	Selected Standards	Comments
Adverse Event Data	Adverse Event Type	Describes the type of product and intolerance suffered by the patient. The type of product shall be classified with respect to whether the adverse event occurs in relationship with a medication, food, or environmental or other product. The adverse event should also be classified more specifically as an allergy, non-allergy intolerance, or just adverse reaction if that level of detail is not known	Coded	SNOMED CT Preferred Terms for Adverse Event Type	
<b>Product in support of Adverse Event Data</b>					
Adverse Event Data	Product Free-Text	This is the name or other description of the product or agent that causes the intolerance	Text		
Adverse Event Data	Product Coded	This value is a code describing the product	Coded		
<b>Reaction in support of Adverse Event Data</b>					
Adverse Event Data	Reaction Free-Text	This is the reaction that may be caused by the product or agent	Text		
Adverse Event Data	Reaction Coded	This value is a code describing the reaction	Coded		
<b>Severity in support of Adverse Event Data</b>					
Adverse Event Data	Severity Free-Text	This is a description of the level of severity of the allergy or intolerance	Text		
Adverse Event Data	Severity Coded	This value is a code describing the level severity of the allergy or intolerance	Coded	SNOMED CT Preferred Terms for Severity	
<b>Diagnosis Data</b>					
diagnosis-inpt (admission/discharge)*; diagnosis-outpt (billing)*	Diagnoses	Administrative diagnoses (e.g. those used for billing). Will use the Patient Class field to identify encounter type (inpatient, outpatient, etc.) Administrative Diagnosis must include	Coded	ICD9-CM/ICD10	The previously available SNOMED CT to ICD9-CM statistical mapping has been enhanced to include a SNOMED CT to ICD9-CM rule based





CLINICAL DATA					
HITEP Concept	HITEP Data Element	Definition	Data Type	Selected Standards	Comments
		diagnosis type (e.g. admitting, working, final) and priority (e.g. priority=1)			reimbursement map. The mapping has been completed and is currently being evaluated by the National Library of Medicine (NLM) and vendor community (NOTE: ICD-10 can be mapped (unidirectional)). Further validation will be done by AHIMA
Diagnosis Type	Diagnosis Type	Type of diagnosis being sent (admitting, working, final)	IS (coded)	HL7 2.5 User-defined Table 0052 - Diagnosis Type	
Diagnosis Priority	Diagnosis Priority	Data element used to indicate Principal diagnosis in message	ID (coded)	HL7 Table 0359 – Diagnosis Priority	
Vital Signs					
physical exam-vitals*	Blood Pressure – Diastolic Observation Date/Time	Systolic/Diastolic blood pressure measurement and the date/time that it was performed	Numeric  Timestamp	LOINC for observation identifier, UCUM Blood Pressure Unit Code	
physical exam-vitals*	Blood Pressure – Systolic Observation Date/Time	Systolic/Diastolic blood pressure measurement and the date/time that it was performed	Numeric  Timestamp	LOINC for observation identifier, UCUM Blood Pressure Unit Code	
physical exam-vitals*	Pulse Oximetry Observation Date/Time	Pulse oximetry reading and the date/time that it was performed	NM/SN (Numeric or Structured Numeric)	LOINC for observation identifier	NOTE: in addition to the HITEP data element type list
Procedures and diagnostic tests					
diagnostic study-ordered*; procedure-ordered (consult)*; laboratory-order*	Procedure Ordered	Study that was ordered (e.g. laboratory, radiology, echo LVEF) Must include order date/time, and procedure name. This	Coded	SNOMED CT, LOINC/DICOM, CPT Category II <sup>i</sup>	Possible Gap in reconciling data with workflow Must include order date/time, and

<sup>i</sup> We recognize the existence of CPT II as a new administrative coding system to collect measurement required data elements. The long-term goal for interoperability is to use clinical terminology allowing the repurposing of data created as part of routine clinical care delivery. For the short term, CPT II codes may be useful to capture required data for measurement calculation, especially with respect to exclusion criteria inherent in many measures. The Technical Committee has recommended standards and terminologies to enable clinical data element standardization, which will require work effort by EHRs, receiving systems and clinical measurement and guideline developers. Such standardization will support repurposing of routine clinical care data for quality measurement without interposition of additional coding schema such as CPT II.



CLINICAL DATA					
HITEP Concept	HITEP Data Element	Definition	Data Type	Selected Standards	Comments
		will be the name of the ordered procedure, radiology or laboratory service as the ordering system knows it Assumption –Order date/time useful for measures for measures that ask whether the order was written			procedure name. This will be the name of the ordered procedure, radiology or laboratory service as the ordering system knows it NOTE: this is subject to harmonization of terms across HITSP TCs GAP: Recommend to LOINC, SNOMED CT, and CPT to develop AND harmonize a suitable coded value set to express order test name and code values
procedure-inpatient (end/closure)*; procedure-inpatient (start/incision)*; procedure-outpatient*; procedure-past procedure history (pacer)*	Procedure Performed	Study exclusive of laboratory; (e.g. radiology, echo LVEF). It is expected that some procedures will be found as components of a physical examination Must include procedure date/time Supports measures based on a prior trigger event	Coded	CPT-4, ICD-9, SNOMED CT	NOTE: ICD-10 can be mapped (unidirectional)
Provider Identifier	Provider Identifier	Unique provider (clinician) identifier		NPI	Need clarification from HITEP regarding provider-patient relationship (e.g. attending, admitting, PCP, consultant) required for attribution. The provider roles are provided as reference but require resolution of GAP for full implementation GAP: Business rule applied to the attribution needs to be defined
history-primary care provider*	Provider Role	Function or responsibility assumed by a provider in the context of a healthcare			The provider roles are provided as reference but require resolution of Overlap



### HITSP Patient Level Quality Data Message Component

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CLINICAL DATA					
HITEP Concept	HITEP Data Element	Definition	Data Type	Selected Standards	Comments
		event. Role information documents a person's association with an identified healthcare activity. Examples include primary care provider, transcriptionist, reviewer, and consulting physician			for full implementation  Overlap: Role term is used in various standards differently
Other Clinical Data Elements					
communication-provider-pt (instructions, counseling)*	Documentation of communication: provider to patient	Documentation of communication: provider to patient (paper or verbal) E.g., Discharge instructions		SNOMED CT, LOINC	SEE GAP NOTE: HL7 Consultation notes out for ballot (constraint on CCD) See Gap Derived Element and phase II plans Refer to the procedure section for procedure occurrence and result
communication-provider-provider (consult)*	Documentation of communication: provider to provider	Consult between clinicians (e.g. an eye exam with appropriate components)		Consultation note coded in SNOMED CT <sup>Error!</sup> Bookmark not defined.	Likely to be text in existing systems, some may be codified in nursing terminologies which can be mapped to SNOMED <sup>Error!</sup> Bookmark not defined.
history-care classification (CMO, DNR/I, pal care)*	Care Classification	Care classification of comfort measures only, DNR, or DNI (e.g. palliative care)		Consultation note coded in SNOMED CT <sup>Error!</sup> Bookmark not defined.	(See SNOMED CT Procedure 133918004)3858970 08 – Care Regimes Management GAP: "Comfort level only" is inconsistently defined and applied, requires standardization for equal application of measures and exclusion criteria. Referred to HITEP
Medication Data					
medication-inpatient order ("on discharge")*; medication-outpatient order*	Medication Ordered	May be expressed in a medication list. Drug name/standardized code, and ordered date/time is minimally	Coded	Federal Medication Terminologies, CVX, CPT	Prefer RxNORM, NDF-RT, and CVX for Immunizations; CPT codes should be mapped to CVX



### HITSP Patient Level Quality Data Message Component

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20071213 V1.0

CLINICAL DATA					
HITEP Concept	HITEP Data Element	Definition	Data Type	Selected Standards	Comments
		required for measures that look at if a particular drug was ordered. Dose, strength, dispensed amount, and number of refills may also be necessary to express the selected measure; Immunizations and therapy should be expressed as clinical vaccine formulation (CVX)			codes ; Where CVX codes do not exist and there is a CPT code, CPT codes may be used. NOTE GAP in the completeness of the CPT/CVX mapping – Refer to terminology developers. Overlap in the terminology and update schedules. NOTE: timeliness is less of an issue for quality measures than for clinical decision support – Roadmap request to resolve gap/overlap
Medication-discontinue order*	Order Control	This element relates to a measure expecting antibiotics to stop within 24 hours after the end of surgery. If continued past 24 hours without cause, this may increase resistance/complications	Coded	HL7 Table 0119 - Order control codes	Review with HITEP whether this is sufficient.  Can support medication discontinue order: GAP in process: Referred to HITEP: Can or should measures add other ways of determining a short duration of medication for appropriate measure definition? Process GAP to reflect the discontinuation efficiently: the intent of continuing medications for no more than 24 hrs after procedure can be met without writing a discontinue order. The intent might also be met by an exact number of meds written post-op with appropriate frequency, so discontinue order as a data element might not be needed
Authorizing provider	Authorizing provider	Medication	XCN (Extended	NPI	



CLINICAL DATA					
HITEP Concept	HITEP Data Element	Definition	Data Type	Selected Standards	Comments
		prescriber/orderer	Coded Name)		
Medication-inpatient administered (first, last, route)*	Medication administered	Medication administered in a controlled setting such as ED, ambulatory surgical centers, inpatient. Timing (e.g., which dose, first, last) depends upon the measure	Coded	RxNorm	NOTE: This data element is expected to be harmonized with the output of the HITSP medication management efforts
Medication-inpatient administered (first, last, route)*	Medication administered Route	Route of medication administration	Coded	RxNorm	May use HL7 Table 0162 Route of Administration
Medication-inpatient administered (first, last, route)*	Medication Administration date/time	Date/time that medication was administered in a controlled setting such as ED, ambulatory surgical centers, inpatient	TS (Timestamp)	HL7 Timestamp	NOTE: This data element is expected to be harmonized with the output of the HITSP medication management efforts
medication-outpatient duration	Number of doses prescribed (quantity ordered)	Used to determine whether patient received the number of days of therapy needed to meet the quality criteria	Numeric		Outpatient duration is a derived data element to be derived from number of doses prescribed and dose frequency
medication-outpatient duration	Dose frequency	Ordered daily frequency of the medication	Coded		Outpatient duration is a derived data element to be derived from number of doses prescribed and dose frequency NOTE: GAP – we have selected a user defined table; Refer to HL7 and NCPDP to identify a standard coded value set for this concept
Refills	Refills	This field defines the number of times the requested dispense amount can be given to the patient, subject to local regulation. Refers to outpatient only	Numeric		Could be used to compute days supplied for the entire order
medication-outpatient duration	Days Supplied	This field specifies the quantity dispensed on the original fill (first fill) of a prescription when that amount is not the same as the quantity to	Numeric		GAP: Outpatient duration – not available in wide enough implementation to expect this will be



CLINICAL DATA					
HITEP Concept	HITEP Data Element	Definition	Data Type	Selected Standards	Comments
		be used in refills			sufficient
medication-outpatient duration	Order expiration date/time (document-based)	The date, including time if applicable, when the order is no longer valid; Dispenses and administrations are not continued past this date for an order instance	TS (Timestamp)	HL7 Timestamp	Based upon the type of information that can be conveyed in the implementation, the computation for medication outpatient duration may differ
medication-outpatient duration	Fulfillment history (document-based)	History of dispenses for this order. Comprised of Fulfillment History Components	Loops of PVD (Prescriber), PVD (Pharmacy) and DRU (Drug) Segments to relay up to 300 history occurrences, within Medication History Response mapped to CDA		Based upon the type of information that can be conveyed in the implementation, the computation for medication outpatient duration may differ
medication-outpatient duration	Dispense Date (document-based)	Fulfillment History Component: The date of this dispense	TS (Timestamp)		Based upon the type of information that can be conveyed in the implementation, the computation for medication outpatient duration may differ
medication-outpatient duration	Quantity Dispensed (document-based)	Fulfillment History Component: The actual quantity of product supplied in this dispense. Note: this is comprised of both a numeric value and a unit of measure	Numeric, Unit of measure		Based upon the type of information that can be conveyed in the implementation, the computation for medication outpatient duration may differ
medication-outpatient duration	Fill number (document-based)	Fulfillment History Component: The fill number for the history entry. Identifies this dispense as a distinct event of the prescription	Numeric		Based upon the type of information that can be conveyed in the implementation, the computation for medication outpatient duration may differ
medication-outpatient duration	Fill status (document-based)	Fulfillment History Component. The fill event status is typically "complete" indicating the fill event has been, or is expected to be picked up. A status of "aborted" indicates that the dispense was never picked up (e.g., "returned to stock")	Coded	HL7 Table 0119 - Order control codes	Based upon the type of information that can be conveyed in the implementation, the computation for medication outpatient duration may differ



CLINICAL DATA					
HITEP Concept	HITEP Data Element	Definition	Data Type	Selected Standards	Comments
<b>Study Findings/Test Results – Laboratory</b>					
laboratory-order*	Resulted test	The identifier code for the specific test component resulted	Coded	LOINC Laboratory Test Identifiers include analytes, specimen source, methods, and sensitivity tests for drugs	
laboratory-result*	Result value	Laboratory test results including susceptibilities, serologies, non-organisms; coded value	SN or NM (Numeric) or Coded	SNOMED-CT (non-numeric laboratory such as organisms and other coded results)	
laboratory-result*	Result unit	Units for numeric result context	Coded	Unified Code for Units of Measure (UCUM) Expressions	GAP: Units may be text data currently
Report date/time	Report date/time	Laboratory microbiology result date/time	TS (Timestamp)	HL7 Timestamp	
Result status	Result status	Status of report (preliminary, final, corrected)	ID (Coded)	HL70123 Result Status	
laboratory-result*	Test interpretation	Interpretation of test result by the laboratory, including the susceptibility test interpretation	IS (Coded)	HL70078 Abnormal Flags	
<b>Study Findings/Test Results – Radiology and Other Studies</b>					
diagnostic study-ordered*; procedure-ordered (consult)*;	Test Performed	Radiology and other diagnostic test information (e.g. radiology findings, echocardiogram results, LVEF)	Coded	CPT+ Textual Description which can include modification	
Report date/time	Report date/time	Report/Reading Date. This date is updated with report corrections and addenda	TS (Timestamp)	HL7 Timestamp	
Result status	Result status	Status of report (preliminary, final, corrected)	ID (Coded)	HL70123 Result Status	
diagnostic study-result (EKG, LVEF, radiology)*	Result value	Study findings exclusive of laboratory (e.g., radiology findings, echocardiogram LVEF)	SN or NM (Numeric) or Coded	DICOM (structured report), SNOMED-CT ICD9-CM/ICD-10, CPT Category II <sup>i</sup>	
diagnostic study-	Impressions	Interpretation of study,	Coded	DICOM	Most likely text



CLINICAL DATA					
HITEP Concept	HITEP Data Element	Definition	Data Type	Selected Standards	Comments
result (EKG, LVEF, radiology)*		by provider of service including diagnosis and impressions		(structured report), SNOMED CT <sup>Error!</sup> Bookmark not defined. Or ICD9-CM	(alphanumeric) NOTE: ICD-10 can be mapped (unidirectional)





## 2.2.4 DATA MAPPING

This section describes the specific data elements used by this Component. Due to the potentially large number of data elements in a particular standard, only the fields that HITSP is constraining differently from the standard will be described here.

The following cross-reference table portrays where the data elements for Patient Level Quality could be found at the data source, as well as where it should map to a standard HL7 2.5 output message for data aggregation.

**Table 2.2.4-1 Base Facility Data Mapping**

Data Element	Description	Limit/Range of values	Data Source	Destination	Requirements/Pre-conditions
Facility Identifier	Unique facility identifier	CMS IDs, Hierarchical Designator	Numeric – if not in source message, added for destination	MSH-4.1 Sending Facility - Universal ID	All messages
Facility Name	Name of facility	Hierarchical Designator	String – if not in source message, added for destination	MSH-4.2 Sending Facility - Namespace	All messages
Facility Location	City and State	FIPS, Coded	This is “master file” info that is collected at start-up – not passed in every patient-level message		Can be used for practice location

**Table 2.2.4-2 Patient Data Mapping**

Data Element	Description	Limit/Range of values	Data Source	Destination	Requirements/Pre-conditions
Pseudonymized Patient ID /Randomized Data Linker	A unique, randomly generated, encoded number that links to patient-level information (i.e., name and address) retained at the facility	HL7 CX Datatype (extended composite ID with check digit)	Generally, uses Medical record number	PID-3 Patient Identifier List.	Required in every message
Encounter Date/Time	Time of the patient presentation for care: ED arrival time (initial triage time) or the registration time for inpatients, or check-in time for ambulatory settings	HL7 Timestamp (TS)	ADT/Census transactions	PVI-44 Admit/Register Date/time	Expected on ADT^A04 Registration (Outpatient and ED settings) ADT^A01 Admit transactions (Inpatients)



Data Element	Description	Limit/Range of values	Data Source	Destination	Requirements/Pre-conditions
DOB	Date of birth	HL7 Timestamp (TS)	ADT/Census transactions – PID-7 Date of Birth	PID-7 Date of Birth in YYYYMMDD format	Could be in any message – recommend ADT as source of truth
Sex	Patient sex	HL7 2.5 Table 001 Administrative Sex, IS (user-defined codes)	Most ADT messages carry Sex in PID-8	HL7 V3 Administrative Gender Code set: M Male F Female U Undifferentiated	Intent is to align with Foundations committee harmonization of sex codes (in process)
Visit data	Electronic medical records billing codes	CPT Evaluation and Management Codes, Coded	Billing/financial system	PR1 (Procedure) Segments in ADT message	
Patient Class	General type of patient, e.g., Inpatient, Outpatient, Emergency	HL7 2.5 Table 0004 Patient Class	Required for all PV1 usage, so should be readily available in ADT messages	PV1-2 Patient Class	
Admission Source	Where the patient was admitted	UB2007 FL20 "Source of Admission" passed as HL7 IS (user defined codes) datatype	ADT/Census transactions	PV1-14 Admit Source	May be collected on ADT^A01 Admit transactions only
Admission Type	This field indicates the circumstances under which the patient was or will be admitted	UB2007 FL 19 "Type of Admission" passed as HL7 IS (user defined codes) datatype	ADT/Census transactions	PV1-4 Admission Type	May be collected on ADT^A01 Admit transactions only
Discharge Date/time	Time of Inpatient discharge or release from ED	HL7 Timestamp (TS)	ADT/Census transactions	PVI-45 Discharge Date/time	Expected on ADT^A03 Discharge transactions (Inpatient and ED settings)
Discharge Disposition	Patient's anticipated location or status following the encounter (e.g., death, transfer to home/hospice/snf/AMA) – uses standard claims-based codes	Universal Billing (Uniform Bill Version 2007 (UB-04) Current UB Data Specification Manual), IS (user-defined codes)	PV1-36 in A03 Discharge messages HL7 User-defined Table 0112 - Discharge Disposition = UB2007 FL22	PV1-36 Discharge Disposition	Expected in Discharge (ADT^A03) transactions only
Deceased indicator	Indicator on record that the patient is deceased	HL7 Table 0136 Yes/No Indicator, Coded (Y/N)	PID-30 Death Indicator on ADT/Census Record	PID-30 Death Indicator	
Deceased Date/time	If patient has died, deceased date/time	HL7 Timestamp (TS)	PID-29 Patient Death Date and Time on ADT/Census record	PID-29 Patient Death Date and Time	



**Table 2.2.4-3 Clinical Data Mapping**

Data Element	Description	Limit/Range of values	Data Source	Destination	Requirements/Pre-conditions
<b>Problem Data</b>					
Problems	Interdisciplinary patient issues, chronic and acute, active and inactive. It is expected that behavioral risk factors (e.g. smoking), significant past procedures or diagnoses, and any significant family history that would reflect a risk factor would be present on the problem list;  While we recognize that ICD9-CM is currently used in many systems, evolution toward SNOMED is preferred;  Reason for admission is not a separate data element on this list but could be reflected as a problem	SNOMED CT ICD9-CM	Problem Lists Interdisciplinary plan of care Parts of H&P: Medical History Family History Risk Factors Social/behavioral History Reason for Admission field in PV2-3 in many ADT records	HL7 PPR Patient Problem Message (Events PC1, PC2, PC3)  Problem Detail Segment PRB-3 Problem ID	HL7 Definition Chapter 12: A problem of a given individual can be described by formal diagnosis coding systems (such as DRGs, NANDA Nursing Diagnosis, ICD9, DSM, etc.) or by other professional descriptions of healthcare issues affecting an individual. Problems can be short- or long-term in nature, chronic or acute, and have a status. In a longitudinal record, all problems may be of importance in the overall long-term care of an individual, and may undergo changes in status repeatedly. Problems are identified during patient visits, and may span multiple visits, encounters, or episodes of care.
<b>Problem Entry</b>					
Problem Date	This is the range of time of which the problem was active for the patient	Timestamp	HL7 PPR – Patient Problem Message PRB-7 Problem Established Date/Time	HL7 PPR – Patient Problem Message PRB-7 Problem Established Date/Time	
Problem Type	This is a fixed value indicating the level of medical judgment used to determine the existence of a problem	Coded	HL7 PPR – Patient Problem Message PRB-10 Problem Classification or PRB-11 Problem Management Discipline	HL7 PPR – Patient Problem Message PRB-10 Problem Classification or PRB-11 Problem Management Discipline	
Problem Name	This is a text description of the problem suffered	Text	HL7 PPR – Patient Problem Message PRB-3.1 Problem ID - Code	HL7 PPR – Patient Problem Message PRB-3.1 Problem ID - Code	
Problem Code	This value is a code describing the problem according to a specific vocabulary of problems	Coded	HL7 PPR – Patient Problem Message PRB-3.1 Problem ID - Text	HL7 PPR – Patient Problem Message PRB-3.1 Problem ID - Text	



Data Element	Description	Limit/Range of values	Data Source	Destination	Requirements/Pre-conditions
Allergies	Allergies/adverse reactions only related to medications or food substances	CHI Allergy Recommendation (HL7 Allergen type code /Allergen reaction code – use SNOMED code here/ and need coded value for Allergen (UNII – Unique Ingredient Identifier from FDA, RXNORM – including brand-name, NDF-RT – to drug class rather than brand name), SNOMED CT for allergy type, severity, reaction EPA Substance Registry System for non-drug chemicals), Coded	AL1 Patient Allergy Information Segments in ADT messages	AL1 Patient Allergy Information Segments in ADT messages	
Substance Intolerance	Actual or anticipated side effects that may represent exclusions for measures	SNOMED CT ICD-9, Coded	Clinical record	OBX segment (treat as an observation)	
Adverse Event Entry					
Adverse Event Date	This is a date that expresses when this particular allergy or intolerance was known to be active for the patient	Timestamp	ADT - Update Adverse Reaction Information (Event A60) IAM-11 Onset Date IAM-13 Reported Date/Time	ADT - Update Adverse Reaction Information (Event A60) IAM-11 Onset Date IAM-13 Reported Date/Time	



Data Element	Description	Limit/Range of values	Data Source	Destination	Requirements/Pre-conditions
Adverse Event Type	Describes the type of product and intolerance suffered by the patient. The type of product shall be classified with respect to whether the adverse event occurs in relationship with a medication, food, or environmental or other product. The adverse event should also be classified more specifically as an allergy, non-allergy intolerance, or just adverse reaction if that level of detail is not known	SNOMED CT Preferred Terms for Adverse Event Type	ADT/ACK - Update Adverse Reaction Information (Event A60) IAM-2 Allergen Type Code	ADT/ACK - Update Adverse Reaction Information (Event A60) IAM-2 Allergen Type Code	
Product					
Product Free-Text	This is the name or other description of the product or agent that causes the intolerance		ADT/ACK - Update Adverse Reaction Information (Event A60) IAM-3 Allergen Code/Mnemonic/Description	ADT/ACK - Update Adverse Reaction Information (Event A60) IAM-3 Allergen Code/Mnemonic/Description	
Product Coded	This value is a code describing the product		ADT/ACK - Update Adverse Reaction Information (Event A60) IAM-3 Allergen Code/Mnemonic/Description	ADT/ACK - Update Adverse Reaction Information (Event A60) IAM-3 Allergen Code/Mnemonic/Description	
Reaction					
Reaction Free-Text	This is the reaction that may be caused by the product or agent		ADT/ACK - Update Adverse Reaction Information (Event A60) IAM-4 Allergy Reaction Code (text component)	ADT/ACK - Update Adverse Reaction Information (Event A60) IAM-4 Allergy Reaction Code (text component)	
Reaction Coded	This value is a code describing the reaction		ADT/ACK - Update Adverse Reaction Information (Event A60) IAM-4 Allergy Reaction Code (code component)	ADT/ACK - Update Adverse Reaction Information (Event A60) IAM-4 Allergy Reaction Code (code component)	
Severity					
Severity Free-Text	This is a description of the level of severity of the allergy or intolerance		ADT/ACK - Update Adverse Reaction Information (Event A60) IAM-4 Allergy Severity Code (text component)	ADT/ACK - Update Adverse Reaction Information (Event A60) IAM-4 Allergy Severity Code (text component)	



Data Element	Description	Limit/Range of values	Data Source	Destination	Requirements/Pre-conditions
Severity Coded	This value is a code describing the level severity of the allergy or intolerance	SNOMED CT Preferred Terms for Severity	ADT/ACK - Update Adverse Reaction Information (Event A60) IAM-4 Allergy Severity Code (coded component)	ADT/ACK - Update Adverse Reaction Information (Event A60) IAM-4 Allergy Severity Code (coded component)	
<b>Diagnosis Data</b>					
Diagnoses	Administrative diagnoses (e.g., those used for billing). Will use the Patient Class field to identify encounter type (inpatient, outpatient, etc.)	ICD9-CM/ICD10, Coded	DG1-3 Diagnosis Code - DG	Most ADT messages may contain diagnosis information; BAR (financial) messages often carry the final diagnosis	Expecting mostly ICD-9 diagnosis codes, but SNOMED CT or other vocabulary may be used
Diagnosis Type	Type of diagnosis being sent (admitting, working, final)	HL7 2.5 User-defined Table 0052 - Diagnosis Type, IS (coded)	DG1-6 Diagnosis Type	Diagnosis Type is specific to DG1 use and a required element for the DG1 segment	Diagnosis Type is specific to DG1 use and a required element for the DG1 segment
Diagnosis Priority	Data element used to indicate Principal diagnosis in message	HL7 Table 0359 - Diagnosis Priority, ID (coded)	DG1-15 Diagnosis Priority	Diagnosis Priority is not a required field, and some sources may use the order of the DG1 segments to indicate priority	Note that this field is not required in the DG1 segment but is usually used when a group of final diagnoses are sent, to indicate the primary/principal diagnosis for billing
<b>Vital Signs</b>					
Blood Pressure - Diastolic Observation Date/Time	Systolic/Diastolic blood pressure measurement and the date/time that it was performed	LOINC for observation identifier, UCUM Blood Pressure Unit Code, NM/SN (Numeric or Structured Numeric)	Clinical system	OBX segment where Observation Identifier is code TBD that represents BP-Systolic and observation date/time is OBX-14	
Blood Pressure - Systolic Observation Date/Time	Systolic/Diastolic blood pressure measurement and the date/time that it was performed	LOINC for observation identifier, UCUM Blood Pressure Unit Code, NM/SN (Numeric or Structured Numeric)	Clinical system	OBX segment where Observation Identifier is code TBD that represents BP-Diastolic and observation date/time is OBX-14	



Data Element	Description	Limit/Range of values	Data Source	Destination	Requirements/Pre-conditions
Pulse Oximetry Observation Date/Time	Pulse oximetry reading and the date/time that it was performed	LOINC for observation identifier, NM/SN (Numeric or Structured Numeric)	Clinical system	OBX segment where Observation Identifier is code TBD that represents Pulse Oximetry reading and observation date/time is OBX-14	NOTE: Optional; in addition to the HITEP data element type list
<b>Procedures and Diagnostic Tests</b>					
Procedure Ordered	Study that was ordered (e.g., laboratory, radiology, echo LVEF). Must include order date/time, and procedure name. This will be the name of the ordered procedure, radiology or laboratory service as the ordering system knows it.  Assumption –Order date/time useful for measures that ask whether the order was written	SNOMED CT, LOINC/DICOM, Coded	Order Entry system	OMG order message type – this is the value in OBR-4 Universal Service ID	NOTE: This is subject to harmonization of terms across HITSP TCs  GAP: Recommend to LOINC, SNOMED CT, and CPT to develop AND harmonize a suitable coded value set to express order test name and code values
Procedure Performed	Study exclusive of laboratory; (e.g., radiology, echo LVEF). It is expected that some procedures will be found as components of a physical examination Must include procedure date/time. Supports measures based on a prior trigger event	CPT, ICD9-CM, SNOMED CT, Coded	Billing/financial information (FT1 segment)  OBR-44 Procedure Code may be used to associate one code with a result/test	One or more PR1 Segments in ADT Messages	
Provider Identifier	Unique provider (clinician) identifier	NPI	Billing/financial information (FT1-20 Performed By Code; FT1-21 Ordered By Code)  Ordered by information from Order Entry – may also be present in the result message  Physicians on record in ADT/Census system	ORC-12 Ordering Provider (Orders) OBR-15 Ordering Provider (Results) PV1-6 Attending Doctor PV1-7 Referring Doctor PV1-8 Consulting Doctor	Need clarification from HITEP regarding provider-patient relationship (e.g., attending, admitting, PCP, consultant) required for attribution  The provider roles are provided as reference but require resolution of GAP for full implementation  GAP: Business rule applied to the attribution needs to be defined



Data Element	Description	Limit/Range of values	Data Source	Destination	Requirements/Pre-conditions
Provider Role	Function or responsibility assumed by a provider in the context of a healthcare event. Role information documents a person's association with an identified healthcare activity. Examples include primary care provider, transcriptionist, reviewer, and consulting physician.	TBD – See Overlap	Physicians on record in ADT/Census system have role specified in the attribute (Admitting, Attending, Consulting)  The Role Segment is used in this message to communicate providers not specified elsewhere	ROL-3 Role Code	The provider roles are provided as reference but require resolution of Overlap for full implementation  Overlap: Role term is used in various standards differently
<b>Other Clinical Data Elements</b>					
Documentation of communication: provider to patient	Documentation of communication: provider to patient (paper or verbal) (e.g., discharge instructions)	SNOMED CT, LOINC	Clinical System	Observation in OBX segment - LOINC for the observation (variable), and SNOMED CT for the result  May be a need for other communication methods	Likely to be text in existing systems, some may be codified in nursing terminologies which can be mapped to SNOMED
Documentation of clinician-to-clinician communications	Consult between clinicians (e.g. an eye exam with appropriate components)	Consultation note coded in SNOMED CT	Clinical System	Observation in OBX segment	NOTE: HL7 Consultation notes out for ballot (constraint on CCD)  SEE GAP: Derived Element and phase II plans  Refer to the procedure section for procedure occurrence and result
Care Classification	Care classification of comfort measures only, DNR, or DNI (e.g. palliative care) or history of enrollment in a clinical trial, which may be used to exclude from a particular quality measure	SNOMED CT	DNR status may be in ADT message as Advanced Directives field	Observation in OBX segment	(See SNOMED CT Procedure 133918004)385897008 – Care Regimes Management  GAP: "Comfort level only" is inconsistently defined and applied; requires standardization for equal application of measures and exclusion criteria Referred to HITEP
<b>Medication Data</b>					





Data Element	Description	Limit/Range of values	Data Source	Destination	Requirements/Pre-conditions
Medication Ordered	Expressed as CPT – therapy. May be expressed in a medication list. Drug name/standardized code, and ordered date/time is minimally required for measures that look at if a particular drug was ordered. Dose, strength, dispensed amount, and number of refills may also be necessary to express the selected measure	Federal Medication Terminologies, CPT, Coded	Order Entry or Pharmacy, ePrescribing	HL7 RDS^O13 Pharmacy Dispense Message RXO-1 Requested Give Code	Prefer RxNORM, NDF-RT
Authorizing provider	Medication prescriber/orderer	NPI, HL7 XCN (Extended Coded Name)	Order Entry or Pharmacy, ePrescribing	HL7 RDS^O13 Pharmacy Dispense Message ORC-12 Ordering Provider	
Order Control	This element relates to a measure expecting antibiotics to stop within 24 hours after the end of surgery. If continued past 24 hours without cause, this may increase resistance/complications	Coded - HL7 Table 0119 - Order control codes	HL7 Order message – ORC-1 value NOTE THAT PRE-2.5, this is most likely implemented as the ORM^O01 General Order Message	HL7 RDS^O13 Pharmacy Dispense Message – ORC-1 Order Control value	Review with HITEP whether this is sufficient. Can support medication discontinue order: GAP: Referred to HITEP: Can or should measures add other ways of determining a short duration of medication for appropriate measure definition? Process gap to reflect the discontinuation efficiently: the intent of continuing medications for no more than 24 hrs after procedure can be met without writing a discontinue order. The intent might also be met by an exact number of medications written post-op with appropriate frequency, so discontinue order as a data element might not be needed



Data Element	Description	Limit/Range of values	Data Source	Destination	Requirements/Pre-conditions
Medication administered	Medication administered in a controlled setting such as ED, ambulatory surgical centers, inpatient. Timing (e.g., which dose, first, last) depends upon the measure.	RxNorm, Coded	MAR or Clinical Record	HL7 RAS^O17 Pharmacy/Treatment Administration Message RXA-5 Administered Code	NOTE: This data element is expected to be harmonized with the output of the HITSP medication management efforts
Medication administered Route	Route of medication administration	RxNorm, Coded	MAR or Clinical Record	HL7 RAS^O17 Pharmacy/Treatment Administration Message RXR-1 Route	May use HL7 Table 0162 Route of Administration
Medication Administration date/time	Date/time that medication was administered in a controlled setting such as ED, ambulatory surgical centers, inpatient	HL7 Timestamp, TS (Timestamp)	MAR or Clinical Record	HL7 RAS^O17 Pharmacy/Treatment Administration Message RXA-3 Date/time Start of Administration RXA-4 Date/time End of Administration	NOTE: This data element is expected to be harmonized with the output of the HITSP medication management efforts
Number of doses prescribed (quantity ordered)	Used to determine whether patient received the number of days of therapy needed to meet the quality criteria	Numeric	HL7 Message Type OMP – Pharmacy/ Treatment Order Message or HL7 Message Type RDE – Pharmacy/Treatment Encoded Order Message	HL7 RDS^O13 Pharmacy Dispense Message RXO-23 is Total Daily Dose RXO-11 Requested Dispense Amount/ RXO-12 Requested Dispense Units	Outpatient duration is a derived data element to be derived from number of doses prescribed and dose frequency
Dose frequency	Ordered daily frequency of the medication	Coded	HL7 Message Type OMP – Pharmacy/ Treatment Order Message or HL7 Message Type RDE – Pharmacy/Treatment Encoded Order Message HL7 TQ1 -3-Repeat Pattern (Timing/Quantity segment usage) in either OMP or RDE message type or more likely in the ORC-7 Quantity/Timing field that was made obsolete for 2.5	HL7 RDS^O13 Pharmacy Dispense Message HL7 TQ1 -3-Repeat Pattern (Timing/Quantity segment usage) in either OMP or RDE message type	Outpatient duration is a derived data element to be derived from number of doses prescribed and dose frequency  NOTE: GAP: We have selected a user defined table; Refer to HL7 and NCPDP identify a standard coded value set for this concept
Refills	This field defines the number of times the requested dispense amount can be given to the patient, subject to local regulation. Refers to outpatient only	Numeric	HL7 OMP or RDE message type RXO-13 Number of Refills attribute	HL7 RDS^O13 Pharmacy Dispense Message RXO-13 Number of Refills attribute	Could be used to compute days supplied for the entire order



Data Element	Description	Limit/Range of values	Data Source	Destination	Requirements/Pre-conditions
Days Supplied	<p>This field specifies the quantity dispensed on the original fill (first fill) of a prescription when that amount is not the same as the quantity to be used in refills. One use case is when a new medication is being prescribed and the prescriber wants to determine if the patient will tolerate the medication. The prescriber indicates that the medication should be filled for an initial amount of 30 tablets and, if tolerated, refilled using a quantity of 100 tablets. In this case, RXE-39 would contain 30 and RXE-10 would contain 100.</p> <p>If this field is not populated, then the initial dispense amount is the same as RXE-10.</p> <p>The units are identified in RXE-11</p>	Numeric	<p>HL7 RDE (pharmacy encoded order message type)</p> <p>RXE-10 Dispense Amount or RXE-13 Initial Dispense Amount</p>	<p>HL7 RDS^O13 Pharmacy Dispense Message</p> <p>RXE-10 Dispense Amount or RXE-13 Initial Dispense Amount</p>	<p>GAP: Outpatient duration—not available in wide enough implementation to expect this will be sufficient</p>
Order expiration date/time (document-based)	<p>The date, including time if applicable, when the order is no longer valid. Dispenses and administrations are not continued past this date for an order instance. Based upon the type of information that can be conveyed in the implementation, the computation for medication outpatient duration may differ</p>	TS (Timestamp)	<p>HL7 RDE (pharmacy encoded order message type)</p> <p>TQ1-8 End Date/time</p>	<p>HL7 RDS^O13 Pharmacy Dispense Message</p> <p>TQ1-8 End Date/time</p>	



Data Element	Description	Limit/Range of values	Data Source	Destination	Requirements/Pre-conditions
Fulfillment history (document-based)	History of dispenses for this order. Comprised of Fulfillment History Components. Based upon the type of information that can be conveyed in the implementation, the computation for medication outpatient duration may differ	Loops of PVD (Prescriber), PVD (Pharmacy) and DRU (Drug) Segments to relay up to 300 history occurrences, within Medication History Response mapped to CDA	HL7 RDS^O13 Pharmacy Dispense Message RXD-7 Prescription Number RXD-8 Number of Refills Remaining RXD-12 Total Daily Dose	HL7 RDS^O13 Pharmacy Dispense Message RXD-7 Prescription Number RXD-8 Number of Refills Remaining RXD-12 Total Daily Dose	
Dispense Date (document-based)	Fulfillment History Component: The date of this dispense. Based upon the type of information that can be conveyed in the implementation, the computation for medication outpatient duration may differ	TS (Timestamp)	HL7 RDS^O13 Pharmacy Dispense Message RXD-3 Date/Time Dispensed	HL7 RDS^O13 Pharmacy Dispense Message RXD-3 Date/Time Dispensed	
Quantity Dispensed (document-based)	Fulfillment History Component: The actual quantity of product supplied in this dispense. Note: this is comprised of both a numeric value and a unit of measure. Based upon the type of information that can be conveyed in the implementation, the computation for medication outpatient duration may differ	Numeric, Unit of measure	HL7 RDS^O13 Pharmacy Dispense Message RXD-4 Actual Dispense Amount RXD-5 Actual Dispense Units	HL7 RDS^O13 Pharmacy Dispense Message RXD-4 Actual Dispense Amount RXD-5 Actual Dispense Units	
Fill status (document-based)	Fulfillment History Component. The fill event status is typically "complete" indicating the fill event has been, or is expected to be picked up. A status of "aborted" indicates that the dispense was never picked up (e.g., "returned to stock"). Based upon the type of information that can be conveyed in the implementation, the computation for medication outpatient duration may differ	CE (Coded)	HL7 RDS^O13 Pharmacy Dispense Message ORC-1 Order Control Codes such as "DF- Order/service refill request denied" "OF- Order/service refilled as requested" "UF- Unable to refill"	HL7 RDS^O13 Pharmacy Dispense Message ORC-1 Order Control Codes such as "DF- Order/service refill request denied" "OF- Order/service refilled as requested" "UF- Unable to refill"	



Data Element	Description	Limit/Range of values	Data Source	Destination	Requirements/Pre-conditions
Derived attributes (e.g., continuous use of beta blockers over 6 months)	Continuous use or other derived variables need to have base elements and algorithm needed to compute so that patient level data can be sent to aggregator for computing by the physician. The measure definition needs to clearly identify what data elements are required to calculate 'continuous use'				Understood to be a lower priority. GAP: Measures need to define derivation for accurate implementation
<b>Study Findings/Test Results – Laboratory</b>					
Resulted test	The identifier code for the specific test component resulted	LOINC Laboratory Test Identifiers include analytes, specimen source, methods, and sensitivity tests for drugs, Coded	Ancillary reporting system	ORU Message – OBX-3 Observation Identifier	
Result value	Laboratory test results including susceptibilities, serologies, non-organisms; coded value	SNOMED-CT (non-numeric laboratory such as organisms and other coded results), SN or NM (Numeric) or Coded	Ancillary reporting system	ORU Message – OBX-5 Observation Result	
Result unit	Units for numeric result context	Unified Code for Units of Measure (UCUM) Expressions, Coded	Ancillary reporting system	ORU Message – OBX-6 Units	GAP: Units may be text data currently
Report date/time	Laboratory microbiology result date/time	HL7 Timestamp, TS (Timestamp)	Ancillary reporting system	ORU Message – OBR-22 Results/Report Status Change Date/time	
Result status	Status of report (preliminary, final, corrected)	HL70123 Result Status, ID (Coded)	Ancillary reporting system	ORU Message – OBR-25 Result/Report Status	
Test interpretation	Interpretation of test result by the laboratory, including the susceptibility test interpretation	HL70078 Abnormal Flags, IS (Coded)	Ancillary reporting system	ORU Message – OBX-8 Abnormal Flags	



Data Element	Description	Limit/Range of values	Data Source	Destination	Requirements/Pre-conditions
<b>Study Findings/Test Results – Radiology and Other Studies</b>					
Test Performed	Radiology and other diagnostic test information (e.g. radiology findings, echocardiogram results, LVEF)	CPT+ Textual Description which can include modification	Ancillary reporting system	ORU Message – OBX-3 Observation Identifier	
Report date/time	Report/Reading Date This date is updated with report corrections and addenda	HL7 Timestamp	Ancillary reporting system	ORU Message – OBR-22 Results/Report Status Change Date/time	
Result status	Status of report (preliminary, final, corrected)	HL70123 Result Status	Ancillary reporting system	ORU Message – OBR-25 Result/Report Status	
Result value	Study findings exclusive of laboratory (e.g., radiology findings, echocardiogram LVEF)	DICOM (structured report), SNOMED-CT, ICD9-CM/ICD-10, CPT Category	Ancillary reporting system	ORU Message – OBX-5 Observation Result	
Impressions	Interpretation of study, by provider of service including diagnosis and impressions	DICOM (structured report), SNOMED CT Or ICD9-CM	Ancillary reporting system	ORU Message – OBX-5 Observation Result	Most likely text (alphanumeric)

### 2.2.5 GUIDELINES AND EXAMPLES

This section provides additional guidelines and examples that support the underlying base or composite standards for this Component. It describes how these specifications differ from the underlying standards, and provides guidelines and examples for implementation.

No additional information at this time.

## 2.3 LIST OF STANDARDS

It is important to understand that the standards selected here are within the context of the specific Use Case requirements and do not necessarily reflect selection in other contexts. The following standards are used to implement this Component specification:

**Table 2.3-1 List of Standards**

Standard	Description
American Medical Association (AMA) Current Procedural Terminology (CPT®) Fourth Edition (CPT-4); CPT Evaluation and Management Codes	A uniform coding system used primarily to identify medical services and procedures furnished by physicians and other healthcare professionals. Visit <a href="http://www.ama-assn.org">www.ama-assn.org</a> for more information



Standard	Description
Centers for Medicare and Medicaid Services (CMS) National Provider Identifier (NPI)	NPI is a unique 10-digit identification number issued to healthcare providers in the United States by the Centers for Medicare and Medicaid Services (CMS). All individual HIPAA covered healthcare providers (physicians, nurses, dentists, chiropractors, physical therapists, etc.) or organizations (hospitals, home healthcare agencies, nursing homes, residential treatment centers, group practices, laboratories, pharmacies, medical equipment companies, etc.) must obtain an NPI for use in all HIPAA standard transactions, even if a billing agency prepares the transaction. Once assigned, a provider's NPI is permanent and remains with the provider regardless of job or location changes. Visit <a href="http://www.cms.gov">www.cms.gov</a> for more information
Consolidated Health Informatics (CHI)	The Consolidated Health Informatics (CHI) initiative is one of the Office of Management and Budget's (OMB) eGov initiatives. CHI is a collaborative effort to adopt health information interoperability standards, particularly health vocabulary and messaging standards, for implementation in federal government systems. Originally, CHI identified a portfolio of 24 health domains that later expanded to 27. CHI adopted 20 uniform standards for electronic exchange of clinical information to be used across the federal health enterprise. Phase I ended in May 2004. In Phase II, CHI is focusing on Implementation of adopted standards, Maintenance of adopted standards, and Identification and adoption of new standards. Visit <a href="http://www.hhs.gov">www.hhs.gov</a> for more information
Digital Imaging and Communications in Medicine (DICOM) Attribute Level Confidentiality Supplement: # 55	Adds a mechanism for selective protection of individual attributes within arbitrary DICOM service-object pair (SOP) instances. It may be used to achieve protection of identifying information, e.g., a reversible anonymization or pseudonymization of DICOM SOP instances while continuing to use unmodified lower level message and protocol services for network transfer, storage, and media exchange of composite image information objects. Visit <a href="http://medical.nema.org">medical.nema.org</a> for more information
Federal Information Processing Standards (FIPS) Codes for the Identification of the States, the District of Columbia and the Outlying Areas of the United States, and Associated Areas Publication # 5-2, May, 1987	A set of two-digit numeric codes and a set of two-letter alphabetic codes for representing the 50 states, the District of Columbia and the outlying areas of the United States, and associated areas. The standard covers all land areas under the sovereignty of the United States, the freely associated states of Federated States of Micronesia and Marshall Islands, and the trust territory of Palau. Visit <a href="http://www.itl.nist.gov">www.itl.nist.gov</a> for more information. NOTE: ASC X12 transactions and ASC X12N Implementation Guides do not allow use of this standard; instead they require use of the U.S. Postal Service's National Zip Code and Post Office Directory -- which provides similar alphabetic code values
Federal Medication Terminologies	A set of controlled terminologies and code sets developed and maintained as part of a collaboration between the Food and Drug Administration, National Library of Medicine, Veterans Health Administration, National Cancer Institute and Agency for Healthcare Research and Quality related to medications, including medication proprietary and nonproprietary names, clinical drug code (RxNorm); ingredient names and Unique Ingredient Identifiers (UNII); routes of administration, dosage forms, and units of presentation from the NCI Thesaurus (NCIt); and certain pharmacological drug classes from the National Drug File Reference Terminology (NDF-RT) .  The Federal Medication Terminology leverages medication models maintained by the Food and Drug Administration (ex. UNII, NDC Codes), National Library of Medicine (RxNorm), the Veterans Health Administration (NDF-RT), and the National Cancer Institute (NCIt).  Information on the Federal Medication Terminologies may be found and downloaded from the NCI Web portal terminology resources page at <a href="http://www.cancer.gov/cancertopics/terminologyresources/FMT">www.cancer.gov/cancertopics/terminologyresources/FMT</a>





Standard	Description
Health Level Seven (HL7) Version 2.5	The HL7 Version 2.5 Messaging Standard is an application protocol for electronic data exchange in healthcare. It and prior versions have widespread use in the U.S. and internationally. Both message formats and value sets / code tables (e.g., diagnosis type, gender, patient class, result status, specimen collection method, abnormal flags, observation result status codes interpretation, and timestamp format) are contained in the standard. Of particular focus for HITSP Interoperability Specifications are message formats described in Chapters 2, 3, 5, and 7 including patient demographic (ADT) and lab result reporting. These are also used within composite standards from IHE for Patient Identity Cross-Referencing and Feed (PIX), Patient Demographics Query (PDQ), and Acknowledgements. Visit <a href="http://www.hl7.org">www.hl7.org</a> for more information
Health Level Seven (HL7) Version 3.0	The HL7 Version 3.0 Messaging Standard is an application protocol for electronic data exchange in healthcare. Version 3.0 is based on a Reference Information Model (RIM); which is used to instantiate various message formats. Value sets / code tables are contained in the standard. Visit <a href="http://www.hl7.org">www.hl7.org</a> for more information
Integrating the Healthcare Enterprise (IHE) IT Infrastructure Technical Framework (ITI-TF) Revision 3.0	The IHE IT Infrastructure Technical Framework defines specific implementations of established standards to achieve integration goals that promote appropriate sharing of health information to support optimal patient care. IHE Integration Profiles offer a common language that healthcare professionals and vendors may use in communicating requirements for the integration of products. The current version of the ITI-TF, rev.3.0 for Final Text, specifies the IHE transactions defined and implemented as of December 9, 2006. The latest version of the IHE Technical Framework is available at <a href="http://www.ihe.net">www.ihe.net</a>
International Classification of Diseases, 9th Revision, Clinical Modifications (ICD-9-CM)	The International Classification of Diseases, 9th Revision, Clinical Modification (ICD-9-CM), Volumes I, II (diagnoses) and III (procedures) describes the classification of morbidity information for statistical purposes and for the indexing of healthcare records by diseases and procedures. Visit <a href="http://www.cdc.gov/nchs">www.cdc.gov/nchs</a> for more information
International Classification of Diseases, 10th Revision, Procedure Coding System (ICD-10-PCS)	The International Classification of Diseases, 10th Revision, Procedure Coding System (ICD-10-PCS), describes the classification of inpatient procedures for statistical purposes and for the indexing of healthcare records by procedures. ICD-10-PCS is a procedural coding system managed by the Centers for Medicare and Medicaid Services (CMS). Visit <a href="http://www.cms.hhs.gov">www.cms.hhs.gov</a> for more information
International Health Terminology Standards Development Organisation (IHTSDO) Systematized Nomenclature of Medicine Clinical Terms (SNOMED CT®)	SNOMED CT consists of a technical design, core content architecture, and Core content. SNOMED CT Core content includes the technical specification of SNOMED CT and fully integrated multi-specialty clinical content. The Core content also includes a concepts table, description table, relationships table, history table, ICD-9-CM mapping, and Technical Reference Guide. Additionally, SNOMED CT provides a framework to manage language dialects, clinically relevant subsets, qualifiers and extensions, as well as concepts and terms unique to particular organizations or localities. Visit <a href="http://www.ihtsdo.org">www.ihtsdo.org</a> for more information
Logical Observation Identifiers Names and Codes (LOINC®)	A database of universal identifiers for laboratory and other clinical observations. The laboratory portion of the LOINC database contains the usual categories of chemistry, hematology, serology, microbiology (including parasitology and virology), and toxicology; as well as categories for drugs and the cell counts typically reported on a complete blood count or a cerebrospinal fluid cell count. Antibiotic susceptibilities are a separate category. The clinical portion of the LOINC database includes entries for vital signs, hemodynamics, intake/output, EKG, obstetric ultrasound, cardiac echo, urologic imaging, gastroendoscopic procedures, pulmonary ventilator management, selected survey instruments, and other clinical observations. Visit <a href="http://www.loinc.org">www.loinc.org</a> for more information
National Library of Medicine (NLM) Unified Medical Language System (UMLS) RxNorm	Provides standard names for (1) clinical drugs and (2) drug dose forms as administered to a patient. Also provides links from clinical drugs, both branded and generic, to their active ingredients, drug components (active ingredient + strength), and related brand names. Food and Drug Administration (FDA) National Drug Codes (NDCs) for specific drug products and many of the drug vocabularies commonly used in pharmacy management and drug interaction software are additionally linked to RxNorm. Visit <a href="http://www.nlm.nih.gov">www.nlm.nih.gov</a> for more information





Standard	Description
National Uniform Billing Committee (NUBC) Uniform Bill Version 2007 (UB-04) Current UB Data Specification Manual Field 22, Patient Discharge Status, Codes	A code set identifying status of patient discharge on an institutional claim (e.g., inpatient, outpatient, hospice, home care). Visit <a href="http://www.nubc.org">www.nubc.org</a> for more information.
Unified Code for Units of Measure (UCUM) Expressions	A code system intended to include all units of measures being contemporarily used in international science, engineering, and business. The purpose is to facilitate unambiguous electronic communication of quantities together with their units. The focus is on electronic communication, as opposed to communication between humans. Visit <a href="http://aurora.regenstrief.org">aurora.regenstrief.org</a> for more information



## 3.0 TECHNICAL IMPLEMENTATION

### 3.1 CONFORMANCE

This section describes the conformance criteria, which are objective statements of requirements that can be used to determine if a specific behavior, function, interface, or code set has been implemented correctly.

#### 3.1.1 CONFORMANCE CRITERIA

In order to claim conformance to this construct specification, an implementation must satisfy all the requirements and mandatory statements listed in this specification, the associated HITSP Interoperability Specification, its associated construct specifications, as well as conformance criteria from the selected base and composite standards.

Claims of conformance may only be made for the overall HITSP Interoperability Specification with which this construct is associated.

#### 3.1.2 CONFORMANCE SCOPING, SUBSETTING AND OPTIONS

A HITSP Interoperability Specification must be implemented in its entirety for an implementation to claim conformance to the specification. HITSP may define the permissibility for actor scoping, subsetting or implementation options by which the specification may be implemented in a limited manner. Such scoping, subsetting and options may extend to associated constructs, such as this construct. This construct must implement all requirements within the selected scope, subset or options as defined in the associated Interoperability Specification to claim conformance.



## 4.0 APPENDIX

The following sections include relevant materials referenced throughout this document.

***Informative details regarding the contextual use of this construct:***

This Component provides the messaging solution for both a Messaging Source and Clinical Repository Source of data. The Messaging Source uses a number of HL7 trigger events to capture Quality data from ADT, order, result, and medication administration messages. The Clinical Repository Source will use a single ORU^R01 (Unsolicited Observation Message) to convey the data elements for Quality as they are queried out of the repository.

NOTE: This construct must be reviewed in the context of the Use Case Interoperability Specification for dependencies and restrictions that may impose Anonymization and Pseudonymization privacy enhancement constraints and resulting construct dependencies on the information content.



## 5.0 CHANGE HISTORY

The following sections provide the history of all changes made to this document since the last publication.

### 5.1 DECEMBER 5, 2007

The changes in this cycle address the following:

#### Section 2.2.1:

- Updated list of triggers to accommodate additional medication data elements

#### Section 2.3:

- Tables in section 2.3: added new column to identify the HITEP or Use Case derived concept mapping to the HITEP Data Element
- Data element Cross Reference: renamed data element reference from AHIC Data Element to HITEP Data Element
- Updated table numbers
- Updated Sex Selected standard to reflect HL7 V3 administrative Gender Code set in anticipation of alignment with the Foundations Committee recommendations for administrative sex
- Added Admission Source to Patient Data Elements
- Added Admission Type to Patient Data Elements
- Added Number of doses prescribed to Clinical Data Elements
- Added Dose frequency to Clinical Data Elements
- Added Refills to Clinical Data Elements
- Added Days Supplied to Clinical Data Elements
- Added Order Control to Clinical Data Elements
- Specified CVX for immunizations

#### Section 2.4:

- Updated Sex Selected standard to reflect HL7 V3 administrative Gender Code set in anticipation of alignment with the Foundations Committee recommendations for administrative sex
- Added Admission Source to Patient Data Mapping
- Added Admission Type to Patient Data Mapping
- Added Number of doses prescribed to Clinical Data Mapping
- Added Dose frequency to Clinical Data Mapping
- Added Refills to Clinical Data Mapping
- Added Days Supplied to Clinical Data Mapping
- Added Order Control to Clinical Data Mapping

### 5.2 DECEMBER 13, 2007

Upon approval by the HITSP Panel on December 13, 2007, this document is now Released for Implementation.

