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HITSP Resource Utilization Message Component

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1.0 INTRODUCTION

1.1 OVERVIEW

The HITSP Resource Utilization Message Component specifies the message and content necessary to report utilization and status of health provider resources to public health agencies. This specification reflects the current status of harmonization efforts between Health Level Seven (HL7) and the Organization for the Advancement of Structured Information Standards (OASIS).

1.2 COPYRIGHT PERMISSIONS

1.3 REFERENCE DOCUMENTS

This section provides a list of key reference documents and background material. If you are already familiar with this information, proceed to Section 2.0.

A list of key reference documents and background material is provided in the table below. These documents can be retrieved from www.hitsp.org.

Table 1-1 Reference Documents

Reference Document	Document Description
HITSP Acronyms List	Lists and defines the acronyms used in this document
HITSP Glossary	Provides definitions for relevant terms used by HITSP documents
TN900 - Security and Privacy	TN900 is a reference document that provides the overall context for use of the HITSP Security and Privacy constructs

1.4 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.

1.4.1 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. A conformant system must also implement all of the required interfaces within the scope, subset or implementation option that is selected from the associated Interoperability Specification.

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

1.4.2 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 interface 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.

2.0 COMPONENT DEFINITION

2.1 CONTEXT OVERVIEW

Public Health, Emergency Medical Services (EMS), and/or emergency management officials at local, state or national levels have a need to know the availability of hospital and other healthcare resources. The resource utilization information may be provided routinely or in response to a request. Where Health Level Seven (HL7) messages are used, recommended data elements are expressed as observations using existing HL7 messages and attributes.

HITSP has focused its work around an analysis of the Biosurveillance Use Case provided by the American Health Information Community (AHIC). This work has also been informed by the proceedings of the AHIC Biosurveillance Data Steering Group (BDSG).

HITSP has selected standards first in accordance with HITSP Tier 1 and Tier 2 criteria. The Agency for Healthcare Research and Quality United States Health Information Knowledgebase (AHRQ/USHIK) provides and maintains a metadata registry of health information data element definitions, values, and information models (www.ushik.org). HITSP worked with AHRQ/USHIK to evaluate the metadata and repository for use in standards selection using demographic and encounter data as a test case. The results will be used to extend this Interoperability Specification to additional domains and clinical data information exchange standards.

HITSP has selected standards with more options than might otherwise be defined between communication partners. As Biosurveillance is based upon a secondary use 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 Biosurveillance Information System (BIS), 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 provided by the AHIC BDSG.

2.1.1 COMPONENT CONSTRAINTS

Table 2-1 Component Constraints

Constraint	Constraint Section
No applicable constraints	

2.1.2 COMPONENT DEPENDENCIES

Table 2-2 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			

2.2 RULES FOR IMPLEMENTING

With regard to the messaging approach to support the exchange of hospital and health resource availability information, HITSP recommends that either of two acceptable specifications be utilized. The two specifications are the Emergency Data Hospital Availability Exchange (HAVE) Standard (enclosed within the Emergency Data Exchange Language Distribution Element (EDXL-DE) Version 1.0) for information exchange in an XML/SOAP/Web services environment, or the Health Level Seven (HL7) Observation Result Unsolicited (HL7 ORU) message constrained to transmit the Hospital Availability Exchange (HAVE) format dataset.

HL7 has a wide range of healthcare information interchange standards but has no standards specific to conveying healthcare utilization information. Hospital utilization information can be conveyed in an HL7 Observation Result Unsolicited (HL7 ORU) message as general observations. In the HL7 ORU message each hospital utilization statistic becomes an observation. The HL7 ORU message has been implemented in existing biosurveillance systems. This approach accommodates the large installed base of health information technology systems that rely on HL7 messaging methods.

The Organization for the Advancement of Structure Information Standards (OASIS) Emergency Data Exchange Language (EDXL) is a suite of emergency data message types including resource queries and requests, situation status, message routing instructions and the like, needed in the context of cross-disciplinary, cross-jurisdictional communications related to emergency response. It is the result of a project of the Disaster Management eGov Initiative of the Department of Homeland Security (DHS) as a means to enhance XML based interagency emergency data communications. DHS partnered with industry members of the Emergency Interoperability Consortium (EIC) to bring the work to OASIS for advancement and standardization.

HITSP has identified the Hospital Availability Exchange (HAVE) dataset as being closely aligned with the data elements identified by the Biosurveillance Data Steering Group. HAVE was derived from the results of the HAVBed project sponsored by the Agency for Health Resources and Quality. The Resource Utilization Message Component specifies the message and content necessary to report utilization and status of healthcare provider resources to public health agencies. This specification reflects the current status of harmonization efforts between HL7 and OASIS.

Biosurveillance resource availability message data are formatted into a HL7 V2.5 ORU^R01 message structure. The message has an OBR-4 Universal Service Identifier for either “Facility Summary Report” or a “Dynamic Resource Availability Report”, since the triggers and scenarios for sending are different.

Alternatively, the resource availability may be communicated as an XML document in accordance with the Organization for the Advancement of Structured Information Standards (OASIS) Emergency Data Exchange Language (EDXL) Hospital Availability Exchange (HAVE) Specification, once this Intended for Use standard is approved by OASIS.

2.2.1 DATA MAPPING

2.2.1.1 MESSAGE IMPLEMENTATION NOTES

- We have retained exact spellings from the OASIS/HAVE XML so that data mapping will not be affected
- The required container **“HospitalStatus”** is used as the report identifier in OBR-4
- Some container elements are not used because the choice was made to go to the sub-element as a specific observation to be passed. For guidance, XPaths are included and observations are grouped according to the schema
- The <HospitalResourcesStatus> element that provides information on the status of operations and resources of the organization were added since the last version of this component. Specifically, the “services” breakdown was specified by turning the subtype services listed into individual observations (the value in OBX-3). This detail was not in the previous HAVE specification used to map the message component
- We used the HL7 datatype for components rather than the OASIS data structure. For instance, the XAD datatype was used for address information rather than xAL: AddressType; therefore, the sub-elements for Address: FreeTextAddress, Country, AdministrativeArea, and PostCode were not captured separately

2.2.1.2 HL7 MESSAGING METHODOLOGY

HL7 Message Structure

The following message description portrays how the HL7 Observation Result Unsolicited message may be used to convey either the Daily Facility Summary message or the Dynamic Resource Availability message.

Table 2-3 ORU^R01 Observation Result Unsolicited Result Message Format

ORU^R01^ORU_R01	Unsolicited Observation Message
MSH	Message Header
OBR	Observations Request
[{	--- OBSERVATION begin
OBX	Observation related to OBR
{ [NTE] }	Notes and comments
}]	--- OBSERVATION end

The HL7 standard was written and published by Health Level Seven.

The text for the HL7 standard begins here:

HL7 Segment and Field Descriptions

This document uses the following table convention to describe HL7 messages and their segments and data elements used.

Name of structure being documented, e.g., HL7 Patient Identification SEGMENT							
SEQ	LEN	DT	OPT	RPT	TBL	Data Element Name	Description/Comments
	Where expanded descriptions/comments are needed, they will be placed in an additional multi-line row inserted immediately following each applicable data element. Otherwise, this extra row will not be present						

Table/Column Notes:

1. HL7 messages and the table contain only data elements (i.e., segments, fields, components, and sub-components) from HL7 Version 2.5 that are actually to be populated in a message. This applies even when messages have segments, fields, components, and sub-components that are not consecutive segments, fields, components, or sub-components.
2. A field which is not just a simple data element (i.e., the field contains a sub-structure of components) is always shown along with the component(s) that are to be populated in the message.
3. A component which is not just a simple data element (i.e., the component contains a sub-structure of sub-components) is always shown along with the sub-components that are to be populated in the message.
4. SEQ column – the HL7 segment's field number, and, where applicable, component and sub-component numbers as decimals; e.g., the data element SEQ number for the Universal Service ID of the Assigning Authority of Patient Identifier List in a PID Segment is shown as 3.4.2.
5. LEN column – value directly copied from HL7 standard segment table for completeness
6. DT column – value directly copied from HL7 standard segment table for completeness
7. OPT column – for fields and components that are displayed solely to show structure of the field, value copied directly from HL7 standard segment table. For fields, components, and sub-components that indicate actual data values to be populated in the message, one of the following codes:
   R -- Required; i.e., must always be populated in message

RE -- Required if data are available in sending system
O -- Optional; i.e., may be populated solely at discretion of sending system
C -- Conditional; i.e., depends on a Boolean statement that is contained in Description/Comments

8. RPT column – Y only if field repeats; components and sub-components only repeat within the context of a repeating field
9. TBL column – the relevant HL7 Table from which data element values are populated. If data element is from a source other than an HL7 table, the applicable Code Domain is entered in Descriptions/Comments
10. Data Element Name column – the HL7 standard name plus any other generally accepted short industry name useful in understanding the data to be populated for the data element
11. Description/Comments column – any information about the following attributes not already included, is included in the description/comments section, e.g.,:
    - Source – where data element is obtained; particularly if Source is not the sending system
    - Rationale – where used for cases/situations that aren't part of the norm
    - Code Domain – typically, where Code Domain is not an HL7 table

MSH – Message Header Segment

Use of the MSH segment is described in the Message Control portion of IHE-ITI TF-2 §C.1 along with IHE-ITI TF-2 Table C.1-1. Use of the MSH segment is described in IHE-ITI TF-2 §3.21.4.1.2.1. Further descriptions of MSH segment use are contained in the Message Control portion of IHE-ITI TF-2 §C.1 along with IHE-ITI TF-2 Table C.1-1. A HITSP Constraint on this usage is that data element MSH-5.1 must always be non-null valued.

PID – Patient Identification Segment

There is no patient level information in these Resource Utilization reports. The optional use of the PID segment is described in ANSI/HL7 V2.5-2003 §§ 7.4.2.

OBR – Observation Request Segment

In the reporting of clinical data, the OBR serves as the report header. It identifies the observation set represented by the following atomic observations. It includes the relevant ordering information when that applies. It contains many of the attributes that usually apply to all of the included observations.

The OBR - Observation Request Segment usage for results messages is described in the ANSI/HL7 V2.5-2003 §§ 7.4.1. There are no additional HITSP Biosurveillance constraints on this segment.

OBX – Observation Result Segment

The OBX - Observation Result Segment is described in the ANSI/HL7 V2.5-2003 §§ 7.4.2. There are no additional HITSP Biosurveillance constraints on this segment.

NTE – Notes and Comments Segment

The use of the NTE – Notes and Comments Segment is described in the ANSI/HL7 V2.5-2003 §§ 2.15.10. There are no additional HITSP Biosurveillance constraints on this segment. The notes will not contain any personally identifiable information as they are used to clarify the HAVE facility status observations.

The text for the HL7 standard ends here.

2.2.2 MINIMUM DATA-SET

Base Facility Data Elements

These are elements about the data source hospitals. The data may be collected as part of an implementation. These items rarely change, so they are not needed to be part of routine messaging; although, the first three elements are collected as part of the Hospital Availability Exchange (HAVE) data.

Table 2-4 Base Facility Data Elements

Data Element	Description	Source	Limit/Range/Vocabulary	Message Context	Data Type	Conditions for Use
Facility ID	The unique identifier of the sender		CMM IDs			
Facility Location	Address for the facility					
Facility Name	Name of main facility under which this facility operates					
Number of Licensed Beds	Total number of licensed beds					

Daily Facility Summary Report Elements

These data elements are expected to be available as part of the routine daily census reporting from ADT systems. This report may be sent if the HAVE functionality is not available.

Table 2-5 Data Mapping

Data Element	Description	Limit/Range of values	Data Source	Destination	Requirements/Pre-conditions	Additional Specification for Component
Admissions	Number of patients admitted to the hospital in the last 24 hour reporting period	Numeric	Once daily routine census report	OBX Segment: OBX-2 = SN OBX-3 = Admissions^Admissions Past 24 hours^HAVE OBX-5 = ^nn		
Date/Time of Message	The date and time the message was sent	Time stamp	Once daily routine census report	OBR-7 Observation Date/time	Required for every report	
Deaths	Number of patient deaths in the last 24 hour reporting period	Numeric	Once daily routine census report	OBX Segment: OBX-2 = SN OBX-3 = Deaths^Deaths Past 24 hours^HAVE OBX-5 = ^nn		
Discharges	Number of patients discharged from the hospital in the last 24 hour reporting period	Numeric	Once daily routine census report	OBX Segment: OBX-2 = SN OBX-3 = Discharges^Discharges Past 24 hours^HAVE OBX-5 = ^nn		
Facility ID	The unique identifier of the sender	CMM IDs	Once daily routine census report	MSH-4.2 Sending Facility Universal Identifier		
Facility Name	Name of main facility under which this facility operates		Once daily routine census report	MSH-4.1 Sending Facility Namespace ID		

Dynamic Resource Availability Report Elements (HAVE Message Data Elements)

These data elements may be routinely collected or collected only in response to a query. The interval may vary among regions, and increase in frequency during a disaster or other situation.

In the following tables, the term “organization” is used in this standard to refer to a hospital, a nursing care center, a trauma center, or any other organization whose resource availability can be usefully represented in an EDXL-HAVE document.

Table 2-6 Dynamic Resource Availability Report Elements - Report Metadata Mapping

Data Element	Description	Limit/Range of values	Data Source	Destination	Requirements/Pre-conditions	Additional Specification for Component
Hospital	The container element for reporting status of a hospital. The sub-elements under this container are: Organization EmergencyDepartmentStatus HospitalBedCapacityStatus ServiceCoverageStatus HospitalFacilityStatus HospitalResourcesStatus LastUpdateTime			Does not appear in the message– used the sub-categories to report	REQUIRED, "HAVE: May Use Multiple; Must be used for each reporting hospital status"	
HospitalStatus	The top level container element for reporting status of any number of hospitals			Used as the "report header" in OBR-4 - will repeat OBR segments for each Hospital/Organization	REQUIRED, MUST be used once for every instance of <Hospital>	
LastUpdateTime	The <LastUpdateTime> element provides information on the time that the information was last updated	HL7 Time Stamp		OBR-7 Observation Date/time	Required-Used for every instance of <Hospital>	

Table 2-7 Dynamic Resource Availability Report Elements – Hospital, Organization Information

Data Element	Description	Limit/Range of values	Data Source	Destination	Requirements/Pre-conditions	Additional Specification for Component
Organization Information	The container element for Organization information elements The generic element Organization refers to the entity, the status, and availability of which is being reflected in the status message			Not Passed In Message – This is a grouper for the organization information sent as the next date element(s) in the message	REQUIRED, MUST be used once and only once, top level container "– implies that the sub elements are required but they are marked as Optional	
Organization Information	The container element for Organization information elements The generic element Organization refers to the entity, the status, and availability of which is being reflected in the status message			Not Passed In Message – This is a grouper for the organization information sent as the next date element(s) in the message	REQUIRED, MUST be used once and only once, top level container "– implies that the sub elements are required but they are marked as Optional	

Table 2-8 Dynamic Resource Availability Report Elements – Hospital, Organization Name

Data Element	Description	Limit/Range of values	Data Source	Destination	Requirements/Pre-conditions	Additional Specification for Component
NameElement	Name of the Organization. Please refer to [OASIS CIQ]			Observation in OBX segment where OBX-2 = ST OBX-3 = NameElement^Name of the organization^HAVE OBX-5 = string		
SubDivisionName	The name of the sub division Organization. Please refer to [OASIS CIQ]			Observation in OBX segment where OBX-2 = ST OBX-3 = SubDivisionName^The name of the sub division Organization^HAVE OBX-5 = string		
Type	Type of Organization. For purposes of EDXL HAVE standard, this could be hospital, nursing center, trauma center etc. Please refer to [OASIS CIQ]			Observation in OBX segment where OBX-2 = CE OBX-3 = Type^Type of Organization^HAVE OBX-5 = code	Optional	

Table 2-9 Dynamic Resource Availability Report Elements – Hospital, Organization Info, Address

Data Element	Description	Limit/Range of values	Data Source	Destination	Requirements/Pre-conditions	Additional Specification for Component
OperatingHourStart Time	Operating hour start time for the Organization ex: 09:00:00. Please refer to [OASIS CIQ]			Observation in OBX segment where OBX-2 = TS OBX-3 = OperatingHourStartTime^ Operating hour start time for the Organization^HAVE OBX-5 = code	Optional <SubDivisionName> SHOULD be used if the reporting Organization has a parent Organization If the <SubDivisionName> is used, the status being reported is that of the sub division Organization	
OperatingHour EndTime	Operating hour end time for the Organization ex: 17:00:00. Please refer to [OASIS CIQ]			Observation in OBX segment where OBX-2 = TS OBX-3 = OperatingHourEndTime^ Operating hour end time for the Organization^HAVE OBX-5 = code	Optional Organization Types to be managed as a HITSP Cross-TC effort for 2008	

Data Element	Description	Limit/Range of values	Data Source	Destination	Requirements/Pre-conditions	Additional Specification for Component
Address	One or more addresses of the Organization. Please refer to [OASIS CIQ] For the message, the components of the XAD data type Street Address, Other Designation, City, State or Province, Zip or Postal Code, Country, Address Type			Observation in OBX segment where OBX-2 = XAD OBX-3 = Address^ One or more addresses of the Organization^HAVE OBX-5 = Street Address1^Other Designation^City^State^Zip^Country^Type	Optional The geographic coordinates specified in <point> MUST match the address Note that there may be multiple addresses and the same OBX segment (separated by a tilde (~) between instances)	

Table 2-10 Dynamic Resource Availability Report Elements – Hospital, Organization

Data Element	Description	Limit/Range of values	Data Source	Destination	Requirements/Pre-conditions	Additional Specification for Component
OrganizationGeo Location	The container element for specifying the geo-coded address			Observation in OBX segment where OBX-2 = ST OBX-3 = OrganizationGeoLocation^The container element for specifying the geo-coded address^HAVE OBX-5 = string	Optional The geo-location MUST match the address specified in <OrganizationInformation>	

The following table references contact numbers which include all kinds of communication lines used for contact purposes (e.g. Phone, fax, mobile, pager, etc). Please refer to [OASIS CIQ]

Table 2-11 Dynamic Resource Availability Report Elements – Hospital, Contact Information

Data Element	Description	Limit/Range of values	Data Source	Destination	Requirements/Pre-conditions	Additional Specification for Component
ContactNumber Element	Universal telecommunication number structure plus other important information about the contact number, including media type and contact hours. For the message, the components of the XTN data type includes Telecommunication Use Code			Observation in OBX segment where OBX-2 = XTN OBX-3 = ContactNumberElement^ Universal telecommunication number structure^HAVE OBX-5 = <blank>^Telecom Use Code^Telecom EquipType^ Email Address^CountryCode^Area/City Code^ Local Number^Extension^ Any Text	Optional – can repeat for as many numbers as needed	

The following table references a set of emergency department status sub-elements used in HospitalStatus/Hospital. These Sub elements are:

- EMSTraffic – The container of all of the elements related to the status of operations of EMS traffic
- EMSCensus– The number of each triage patient type the overall hospital currently has
- EMSAmbulanceStatus – The container element to indicate the status and offload time for ground ambulance capabilities
- EMSAirTransportStatus – The container element to indicate the status and offload time for air ambulance capabilities
- CommentText – Open Comments field. Unless otherwise specified, the <CommentText> field pertains to the element preceding it

Table 2-12 Dynamic Resource Availability Report Elements – Hospital, Emergency Department, EMS Traffic

Data Element	Description	Limit/Range of values	Data Source	Destination	Requirements/ Pre-conditions	Additional Specification for Component
EMSTrafficStatus	Identifies the status of EMS traffic operations	Value must be one of: Normal - Accepting all EMS traffic Advisory - Experiencing specific resource limitations which may affect transport of some EMS traffic. Closed - Requesting re-route of EMS traffic to other facilities. NotApplicable - This hospital does not have an emergency department		OBX Segment: OBX-2 = CE OBX-3 = EMSTrafficStatus^Identifies the status of EMS traffic operations^HAVE OBX-5 = « coded result »		

Data Element	Description	Limit/Range of values	Data Source	Destination	Requirements/ Pre-conditions	Additional Specification for Component
EMSTrafficReason	Ability of this emergency department to receive patients via emergency medical services			OBX Segment: OBX-2 = CE OBX-3 = EMSTrafficReason^Used to report the contributing factor to the status specified in EMSTrafficStatus^HAVE OBX-5 = « coded result »	Limited to 199 characters	

Table 2-13 Dynamic Resource Availability Report Elements – Hospital, Emergency Department, Triage Count

Data Element	Description	Limit/Range of values	Data Source	Destination	Requirements/Pre-conditions	Additional Specification for Component
TriageCodeList URN	The name of a certified list maintained by the Community of Interest (COI) for the value referenced The list identifies the triage codes used by the particular community	DEFAULT is oasis:names:tc :emergency: have: 1.0:triagecolor code		OBX Segment: OBX-2 = CE OBX-3 = TriageCodeListURN^^HAVE OBX-5 = <TriageCodeListURN value>	Conditional: <Hospital> element MAY contain a <TriageCodeListURN> element as specified in the schema, but MUST NOT contain more than one such element If a <TriageCodeListURN> element is present within a <Hospital> element, it MUST precede the first <TriageCode> element within that <Hospital> element. If a <TriageCodeListURN> element is present within a <Hospital> element and is not empty, then the values of all the <TriageCodeValue> elements within that <Hospital> element MUST be interpreted according to the URN in the <TriageCodeListURN> element	

The table below contains an observation set that repeats multiple time to express first the <TriageCodeValue> as the first observation and the associated <TriageCountQuantity> as the second observation in the group. The observations are grouped using the same OBX-4-Set ID value.

Table 2-14 Dynamic Resource Availability Report Elements – Triage Code Grouping Structure

Data Element	Description	Limit/Range of values	Data Source	Destination	Requirements/Pre-conditions	Additional Specification for Component
TriageCodeValue	A value from a certified list maintained by the Community of Interest (COI) for the referenced element. This value and the quantity are reported as a pair of OBX segments	DEFAULT: CapacityTriageRed count CapacityTriageYellow count CapacityTriageGreen count CapacityTriageBlack count		OBX Segment: OBX-2 = CE OBX-3 = TriageCodeValue^^HAVE OBX-4 = matches OBX-4 in the TriageCount Quantity immediately following OBX-5 = <a triage code value>		The list of values SHOULD be from the list identified in <TriageCodeListURN> CONDITIONAL, MAY use multiple OBX pairs to express multiple TriageCode Value quantities
TriageCount Quantity	The integer value associated with theTriage Code value			OBX Segment: OBX-2 = SN OBX-3 = TriageCountQuantity^^HAVE OBX-4 = matches OBX-4 in the TriageCodeValue immediately preceding OBX-5 = nn		If a <TriageCode Value> is specified, a <TriageCountQuantity> element MUST be specified.

Table 2-15 Dynamic Resource Availability Report Elements – Hospital, Emergency Department, EMS Ambulance Status

Data Element	Description	Limit/Range of values	Data Source	Destination	Requirements/Pre-conditions	Additional Specification for Component
EMSAmbulance Status	The container element to indicate the status and offload time for ground ambulance capabilities. The time it takes to transfer care of a patient to hospital staff, thereby freeing the ambulance for assignment. Select from Normal or Delayed and/or specify the average offload average offload time in minutes			Not passed in the message Shown here as the container element for the offload data elements		
EMSOffloadStatus	Indicator of offload times of ambulance capabilities	Values: Normal – The time required to offload the patient is typical Delayed – The time required to offload the patient is longer than typical		OBX Segment: OBX-2 = CE OBX-3 = EMSOffloadStatus ^Indicator of offload times of ambulance capabilitie^HAVE OBX-5 = code (Normal or Delayed)		

Data Element	Description	Limit/Range of values	Data Source	Destination	Requirements/Pre-conditions	Additional Specification for Component
EMSOffload Minutes	Indicator of offload times of ambulance capabilities The time it takes to transfer care of a patient to hospital staff, thereby freeing the transport for assignment			OBX Segment: OBX-2 = SN OBX-3 = EMSOffloadMinutes^The average time to offload a patient, in minutes^TBD OBX-5 = ^nn		

Table 2-16 Dynamic Resource Availability Report Elements – Hospital, Emergency Department, EMS Air Transport Status

Data Element	Description	Limit/Range of values	Data Source	Destination	Requirements/Pre-conditions	Additional Specification for Component
EMSAirTransport Status	The container element to indicate the status and offload time for air ambulance capabilities Select from Normal or Delayed and/or specify the average offload average offload time in minutes			Not passed in the message Shown here as the container element for the offload data elements		
EMSOffloadStatus	Indicator of offload times of ambulance capabilities	Values: Normal – The time required to offload the patient is typical Delayed – The time required to offload the patient is longer than typical		OBX Segment: OBX-2 = CE OBX-3 = EMSOffloadStatus ^Indicator of offload times of ambulance capabilitie^HAVE OBX-5 = code (Normal or Delayed)		
EMSOffload Minutes	Indicator of offload times of ambulance capabilities. The time it takes to transfer care of a patient to hospital staff, thereby freeing the transport for assignment			OBX Segment: OBX-2 = SN OBX-3 = EMSOffloadMinutes^The average time to offload a patient, in minutes^TBD OBX-5 = ^nn		

Hospital Bed Capacity Status Section

In the tables below, HospitalStatus/Hospital is the container of all of the elements related to the hospital bed capacity and status. The table contains an an observation set that repeats multiple times to express the <BedType> as the first observation and the associated <Capacity> elements as the separate observations <CapacityStatus><AvailableCount><BaselineCount> that may follow. The observations are grouped using the same OBX-4-Set ID value.

Table 2-17 Dynamic Resource Availability Report Elements - BedCapacity grouping structure[1], [2]

Data Element	Description	Limit/Range of values	Data Source	Destination	Requirements/Pre-conditions	Additional Specification for Component
BedType	Enumerated list of available Bed Types	HAVE Values: AdultICU - Capacity status for adult ICU bed type. These can support critically ill or injured patients, including ventilator support This category includes all major subtypes of ICU beds, including neurological, cardiac, trauma, or medical, with the exception that this category does not include burn ICU beds PediatricICU Capacity status for pediatric ICU beds. This is similar to adult ICU beds, but for patients 17-years-old and younger. NeonatalICU Capacity status for neonatal ICU beds ED Capacity status for beds within the Emergency Department (ED) used for acute care NurseryBeds Capacity Status for Neonatal or newborn care beds including all bed types other than Neonatal ICU MedicalSurgical - Capacity status for medical-surgical beds These are also thought of as ward beds These beds may or may not include cardiac telemetry capability RehabLongTermCare – Capacity Status for Rehabilitation/Long term care beds Beds designated as long term care rehabilitation. These do		OBX Segment: OBX-2 = CE OBX-3 = TriageCodeValue^^HAVE OBX-4 = matches OBX-4 in the TriageCount Quantity immediately following OBX-5 = <a triage code value>	Each bed type (AdultICU, MedicalSurgical, etc.) MAY optionally contain a collection of named sub-categories The totals of sub-categories MAY equal the capacity data specified in the parent	

[1] HOSPITAL BED CAPACITY STATUS SECTION HospitalStatus/Hospital: The container of all of the elements related to the hospital bed capacity and status

[2] Start of <BedCapacity> grouping structure. Following is an observation set that repeats multiple times to express the <BedType> as the first observation and the associated <Capacity> elements as the separate observations <CapacityStatus><AvailableCount><BaselineCount> that may follow. The observations are grouped using the same OBX-4-Set ID value

Data Element	Description	Limit/Range of values	Data Source	Destination	Requirements/Pre-conditions	Additional Specification for Component
		not include floor beds Burn - Capacity status for burn beds These are thought of as burn ICU beds, either approved by the American Burn Association or self-designated These beds are NOT to be included in other ICU bed counts Pediatrics Capacity status for pediatrics beds. These are ward medical/surgical beds for patients 17-years-old and younger AdultPsychiatric Capacity status for adult psychiatric beds These are ward beds on a closed/locked psychiatric unit or ward beds where a patient will be attended by a sitter Pediatric Psychiatric Capacity status for pediatric psychiatric beds. These are ward beds on a closed/locked psychiatric unit or ward beds where a patient will be attended by a sitter NegativeFlowIsolation Capacity status for negative airflow isolation beds. These provide respiratory isolation. NOTE: This value may represent available beds included in the counts of other types OtherIsolation Capacity status for other isolation beds. These provide isolation where airflow is not a concern. NOTE: This value may represent available beds included in the counts of other types OperatingRooms Capacity status for operating rooms which are equipped staffed and could be made available for patient care in a short period of time				
BedType	Enumerated list of available Bed Types	HAVE Values: AdultICU - Capacity status for adult ICU bed type. These can support critically ill or injured patients, including ventilator support This category includes all major subtypes of ICU beds, including neurological, cardiac, trauma, or medical, with the exception that this category does not include burn ICU beds PediatricICU Capacity status for pediatric ICU beds. This is similar to adult		OBX Segment: OBX-2 = CE OBX-3 = TriageCodeValue^^HAVE OBX-4 = matches OBX-4 in the TriageCount Quantity immediately following OBX-5 = <a triage code value>	Each bed type (AdultICU, MedicalSurgical, etc.) MAY optionally contain a collection of named sub-categories The totals of sub-	

Data Element	Description	Limit/Range of values	Data Source	Destination	Requirements/Pre-conditions	Additional Specification for Component
		ICU beds, but for patients 17-years-old and younger. NeonatalICU Capacity status for neonatal ICU beds ED Capacity status for beds within the Emergency Department (ED) used for acute care NurseryBeds Capacity Status for Neonatal or newborn care beds including all bed types other than Neonatal ICU MedicalSurgical - Capacity status for medical-surgical beds These are also thought of as ward beds These beds may or may not include cardiac telemetry capability RehabLongTermCare – Capacity Status for Rehabilitation/Long term care beds Beds designated as long term care rehabilitation. These do not include floor beds Burn - Capacity status for burn beds These are thought of as burn ICU beds, either approved by the American Burn Association or self-designated These beds are NOT to be included in other ICU bed counts Pediatrics Capacity status for pediatrics beds. These are ward medical/surgical beds for patients 17-years-old and younger AdultPsychiatric Capacity status for adult psychiatric beds These are ward beds on a closed/locked psychiatric unit or ward beds where a patient will be attended by a sitter Pediatric Psychiatric Capacity status for pediatric psychiatric beds. These are ward beds on a closed/locked psychiatric unit or ward beds where a patient will be attended by a sitter NegativeFlowIsolation Capacity status for negative airflow isolation beds. These provide respiratory isolation. NOTE: This value may represent available beds included in the counts of other types OtherIsolation Capacity status for other isolation beds. These provide isolation where airflow is not a concern.			categories MAY equal the capacity data specified in the parent	

Data Element	Description	Limit/Range of values	Data Source	Destination	Requirements/Pre-conditions	Additional Specification for Component
		NOTE: This value may represent available beds included in the counts of other types OperatingRooms Capacity status for operating rooms which are equipped staffed and could be made available for patient care in a short period of time				
SubCategory BedType	Each bed type (AdultICU, MedicalSurgical, etc.) MAY optionally contain a collection of named sub-categories. Each bed type MAY have one or more named sub-type categories If one or more sub category bed types are used, they MUST be preceded by the parent <BedType> element. In this case, <CapacityStatus> of the parent Bed Type MUST not be 'NotAvailable'. Each parent <BedType> element and its associated sub-category bed types MUST be encapsulated with a <BedCapacity> element If the capacity counts of sub-category beds are specified, they MAY not equal the capacity count of the parent bed type In general, if capacities are specified using sub-category bed types, then only the <CapacityStatus> of the parent bed type	None specified in HAVE		OBX-2 = CE OBX-3 = SubCategoryBedType^The name of the sub-category bed type^TBD OBX-5 = code	If a <Capacity> element is specified, it pertains to the preceding <BedType> or <SubCategoryBed Type> element	

Data Element	Description	Limit/Range of values	Data Source	Destination	Requirements/Pre-conditions	Additional Specification for Component
	MUST be used, and this should reflect an 'Available' value. No assumptions should be made about capacities that are not specified					

Table 2-18 Dynamic Resource Availability Report Elements - BedCapacity grouping structure

Data Element	Description	Limit/Range of values	Data Source	Destination	Requirements/Pre-conditions	Additional Specification for Component
CapacityStatus	Indicator of status of bed type or sub-category bed type	HAVE Values: VacantAvailable – The type of bed is available NotAvailable – The type of bed is not available		OBX Segment: OBX-2 = CE OBX-3 = CapacityStatus^^HAVE OBX-4 = matches OBX-4 in the <BedType> observation immediately preceding OBX-5 = code (VacantAvailable or NotAvailable)	No assumptions must be made about bed capacities that are not specified Vacant/Available Beds refers to beds that are vacant and to which patients can be immediately transported These will include supporting space, equipment, medical material, ancillary and support services and staff to operate under normal circumstances These beds are licensed, physically available and have staff on hand to attend to the patient who occupies the bed	
AvailableCount	The number of vacant/available beds to which patients can be immediately transported	Integer		OBX Segment: OBX-2 = SN OBX-3 = AvailableCount^^HAVE OBX-4 = matches OBX-4 in the <BedType> observation immediately preceding OBX-5 = nn	These will include supporting space, equipment, medical material, ancillary and support services, and staff to operate under normal circumstances These beds are licensed, physically available and have staff on hand to attend to the patient who occupies the bed	

Data Element	Description	Limit/Range of values	Data Source	Destination	Requirements/Pre-conditions	Additional Specification for Component
BaselineCount	The maximum (baseline) number of beds in this category	Integer		OBX Segment: OBX-2 = CE OBX-3 = BaselineCount^^HAVE OBX-4 = matches OBX-4 in the <BedType> observation immediately preceding OBX-5 = nn	Optional	
AdditionalCapacity Count24Hr	Estimate of the beds, above the current number, that could be made vacant/available within 24 hours	Integer		OBX Segment: OBX-2 = SN OBX-3 = AdditionalCapacityCount24 Hr^^HAVE OBX-4 = matches OBX-4 in the <BedType> observation immediately preceding OBX-5 = nn	This includes institutional surge beds as well as beds made available by discharging or transferring patients	
AdditionalCapacityCount72 Hr	Estimate of the beds, above the current number, that could be made vacant/available within 72 hours	Integer		OBX Segment: OBX-2 = CE OBX-3 = BaselineCount^^HAVE OBX-4 = matches OBX-4 in the <BedType> observation immediately preceding OBX-5 = nn	This includes institutional surge beds as well as beds made available by discharging or transferring patients	

The following table refers to the container element of all the elements of service coverage. This includes both the necessary staff and facilities. Indicator of the availability of specialty service coverage

Table 2-19 Dynamic Resource Availability Report Elements – Hospital, Service Coverage Status

Data Element	Description	Limit/Range of values	Data Source	Destination	Requirements/Pre-conditions	Additional Specification for Component
Burn	The availability of burn center services	"true" or "1" - This type of services is available "false" or "0" - This type of services is not available		OBX-2 = CE OBX-3 = Burn^The availability of burn center services^HAVE OBX-5 = true or false		
Cardiology	The container element for specifying the availability of Cardiology services This service capability is broken down into the below subcategories. This is to allow organizations to designate subcategories, if available Organizations can either report the parent category or report the subcategories	"true" - This type of service is available "false" - This type of service is not available		OBX-2 = CE OBX-3 = CardiologyIndicator^The availability of cardiology services^HAVE OBX-5 = true or false	Either one – the parent category or the subcategories - MUST be used Both MUST NOT be used together	

Table 2-20 Dynamic Resource Availability Report Elements – Hospital, Coverage Status, Cardiology Indicator

Data Element	Description	Limit/Range of values	Data Source	Destination	Requirements/Pre-conditions	Additional Specification for Component
CardiologyInvasive	The availability of cardiology-invasive services	"true" - This type of service is available "false" - This type of service is not available		OBX-2 = CE OBX-3 = CardiologyInvasive^The availability of cardiology-invasive services^HAVE OBX-5 = true or false		if choose to report cardiology sub-categories
CardiologyNonInvasive	The availability of cardiology non-invasive services	"true" - This type of service is available "false" - This type of service is not available		OBX-2 = CE OBX-3 = CardiologyNonInvasive^The availability of cardiology-non-invasive services^HAVE OBX-5 = true or false		if choose to report cardiology sub-categories

Table 2-21 Dynamic Resource Availability Report Elements – Hospital, Service Coverage Status

Data Element	Description	Limit/Range of values	Data Source	Destination	Requirements/Pre-conditions	Additional Specification for Component
Dialysis	The availability of dialysis services	"true" - This type of service is available "false" - This type of service is not available		OBX-2 = CE OBX-3 = Dialysis^The availability of dialysis services^HAVE OBX-5 = true or false		
EmergencyDepartment	The availability of Emergency Department services	"true" - This type of service is available "false" - This type of service is not available		OBX-2 = CE OBX-3 = EmergencyDepartment^The availability of Emergency Department services^HAVE OBX-5 = true or false		
Hyperbaric Chamber	The availability of hyperbaric chamber services for decompression and/or wound care	"true" - This type of service is available "false" - This type of service is not available		OBX-2 = CE OBX-3 = HyperbaricChamber^The availability of hyperbaric chamber services for decompression and/or wound care^HAVE OBX-5 = true or false		
InfectiousDiseases	The availability of infectious diseases services	"true" - This type of service is available "false" - This type of service is not available		OBX-2 = CE OBX-3 = InfectiousDiseases^The availability of infectious disease services^HAVE OBX-5 = true or false		
Neonatalogy	The availability of neonatology services	"true" - This type of service is available "false" - This type of service is not available		OBX-2 = CE Neonatology^The availability of neonatology services^HAVE OBX-5 = true or false		
Neurology	The availability of neurology services (Parent category)	"true" - This type of service is available "false" - This type of service is not available		OBX-2 = CE OBX-3 = Neurology^The availability of neurology services^HAVE OBX-5 = true or false	Either one – the parent category or the subcategories that follow - MUST be used Both MUST NOT be used together	

Table 2-22 Dynamic Resource Availability Report Elements – Optional Information, Coverage Status, Neurology Indicator

Data Element	Description	Limit/Range of values	Data Source	Destination	Requirements/Pre-conditions	Additional Specification for Component
NeurologyInvasive	The availability of neurology-Invasive services, including invasive catheterization This is a neurology subcategory that may be used in place of the neurology parent	"true" - This type of service is available "false" - This type of service is not available		OBX-2 = CE OBX-3 = NeurologyInvasive^The availability of neurology invasive services^HAVE OBX-5 = true or false	Either one – the parent category or the subcategories that follow - MUST be used Both MUST NOT be used together	
NeurologyNonInvasive	The availability of neurology-Non-Invasive services with no invasive catheterization capability This is a neurology subcategory that may be used in place of the neurology parent	"true" - This type of service is available "false" - This type of service is not available		OBX-2 = CE OBX-3 = NeurologyNonInvasive^The availability of neurology-non-Invasive services with no invasive catheterization capability^HAVE OBX-5 = true or false	Either one – the parent category or the subcategories that follow - MUST be used Both MUST NOT be used together	

Table 2-23 Dynamic Resource Availability Report Elements – Hospital, Service Coverage Status, OB/GYN Indicator

Data Element	Description	Limit/Range of values	Data Source	Destination	Requirements/Pre-conditions	Additional Specification for Component
OBGYNIndicator	The container element for specifying the availability of OBGYN services. This service capability is broken down into the below subcategories. This is to allow organizations to designate subcategories, if available Organizations can either report the parent category or report the subcategories			(not passed in message – this is a placeholder for XML structure)	Either one – the parent category <OBGYN> or the subcategories that follow - MUST be used Both MUST NOT be used together	
OBGYN	The availability of OBGYN services with labor delivery services (PARENT)	"true" - This type of service is available "false" - This type of service is not available		OBX-2 = CE OBX-3 =OBGYN^The availability of neurology services^HAVE OBX-5 = true or false	Either one – the parent category or the subcategories that follow - MUST be used Both MUST NOT be used together	

Data Element	Description	Limit/Range of values	Data Source	Destination	Requirements/Pre-conditions	Additional Specification for Component
OBGYNWithLabor Delivery	The availability of OBGYN services with labor delivery services	"true" - This type of service is available "false" - This type of service is not available		OBX-2 = CE OBX-3 = OBGYNWithLaborDelivery ^The availability of OBGYN services with labor delivery services^HAVE OBX-5 = true or false		
OBGYNWithout LaborDelivery	The availability of OBGYN services without labor delivery services	"true" - This type of service is available "false" - This type of service is not available		OBX-2 = CE OBX-3 = OBGYNWithoutLaborDelivery^ The availability of OBGYN services without labor delivery services^HAVE OBX-5 = true or false		

Table 2-24 Dynamic Resource Availability Report Elements – Hospital, Service Coverage Status

Data Element	Description	Limit/Range of values	Data Source	Destination	Requirements/Pre-conditions	Additional Specification for Component
Ophthalmology	The availability of ophthalmology services	"true" - This type of service is available "false" - This type of service is not available		OBX-2 = CE OBX-3 = Ophthalmology^The availability of ophthalmology services^HAVE OBX-5 = true or false		
Orthopedic	The availability of orthopedic service	"true" - This type of service is available "false" - This type of service is not available		OBX-2 = CE OBX-3 = Orthopedic^The availability of orthopedic service^HAVE OBX-5 = true or false		
Pediatrics	The availability of pediatric services	"true" - This type of service is available "false" - This type of service is not available		OBX-2 = CE OBX-3 = Pediatrics^The availability of pediatric services^HAVE OBX-5 = true or false		

Table 2-25 Dynamic Resource Availability Report Elements – Hospital Service Coverage Status, Psychiatric Indicator

Data Element	Description	Limit/Range of values	Data Source	Destination	Requirements/Pre-conditions	Additional Specification for Component
PsychiatricIndicator	The container element for specifying the availability of Psychiatric services. This service capability is broken down into the below subcategories. This is to allow organizations to designate subcategories, if available Organizations can either report the parent category or report the subcategories			(not passed in message – this is a placeholder for XML structure)	Either one – the parent category <Psychiatric> or the subcategories that follow - MUST be used Both MUST NOT be used together	
Psychiatric	The availability of psychiatric services (PARENT)	"true" - This type of service is available "false" - This type of service is not available		OBX-2 = CE OBX-3 = Psychiatric^The availability of psychiatric services^HAVE OBX-5 = true or false	Either one – the parent category or the subcategories that follow - MUST be used Both MUST NOT be used together	
PsychiatricAdult General	Availability of adult general Psychiatric services Sub-type element of the psychiatric services	"true" - This type of service is available "false" - This type of service is not available		OBX-2 = CE OBX-3 = PsychiatricAdultGeneral^The availability of psychiatric adult general services^HAVE OBX-5 = true or false		
PsychiatricPediatric	Availability of pediatric psychiatric services Sub-type element of the psychiatric services	"true" - This type of service is available "false" - This type of service is not available		OBX-2 = CE OBX-3 = PsychiatricPediatric^The availability of psychiatric pediatricservices^HAVE OBX-5 = true or false		

Table 2-26 Dynamic Resource Availability Report Elements – Hospital, Service Coverage Status, Surgery Indicator

Data Element	Description	Limit/Range of values	Data Source	Destination	Requirements/Pre-conditions	Additional Specification for Component
SurgeryIndicator	The container element for specifying the availability of surgery services. This service capability is broken down into the below subcategories. This is to allow Organizations to designate subcategories, if available Organizations can either report the parent category or report the subcategories			(not passed in message – this is a placeholder for XML structure)	Either one – the parent category <Surgery> or the subcategories that follow - MUST be used Both MUST NOT be used together	
Surgery	The availability of surgery services (PARENT)	"true" - This type of service is available "false" - This type of service is not available		OBX-2 = CE OBX-3 = Surgery^The availability of surgery services^HAVE OBX-5 = true or false	Either one – the parent category or the subcategories that follow - MUST be used Both MUST NOT be used together	
General	The availability of general surgery services	"true" - This type of service is available "false" - This type of service is not available		OBX-2 = CE OBX-3 = General^The availability of general surgery services^HAVE OBX-5 = true or false		
Adult General Surgery	The availability of adult general surgery services	"true" - This type of service is available "false" - This type of service is not available		OBX-2 = CE OBX-3 = AdultGeneralSurgery^The availability of adult general surgery services^HAVE OBX-5 = true or false		
Pediatrics	The availability of pediatric general surgical services	"true" - This type of service is available "false" - This type of service is not available		OBX-2 = CE OBX-3 = Pediatrics^ The availability of adult general surgery services^HAVE OBX-5 = true or false		
Orthopedics	The availability of orthopedic surgical services	"true" - This type of service is available "false" - This type of service is not available		OBX-2 = CE OBX-3 = Orthopedics^The availability of Orthopedic surgical services^HAVE OBX-5 = true or false		

Data Element	Description	Limit/Range of values	Data Source	Destination	Requirements/Pre-conditions	Additional Specification for Component
NeuroSurgery	The availability of neurosurgery services	"true" - This type of service is available "false" - This type of service is not available		OBX-2 = CE OBX-3 = NeuroSurgery^The availability of Neurosurgery services^HAVE OBX-5 = true or false		
Facial	The availability of facial surgical services	"true" - This type of service is available "false" - This type of service is not available		OBX-2 = CE OBX-3 = Facial^The availability of facial surgical services^HAVE OBX-5 = true or false		
CardioThoracic	The availability of cardiothoracic surgical services	"true" - This type of service is available "false" - This type of service is not available		OBX-2 = CE OBX-3 = CardioThoracic^The availability of cardiothoracic surgical services^HAVE OBX-5 = true or false		
Hand	The availability of hand surgical services	"true" - This type of service is available "false" - This type of service is not available		OBX-2 = CE OBX-3 = Hand^The availability of hand surgical services^HAVE OBX-5 = true or false		
Reimplantation	The availability of reimplantation services	"true" - This type of service is available "false" - This type of service is not available		OBX-2 = CE OBX-3 = Reimplantation^The availability of reimplantation surgical services^HAVE OBX-5 = true or false		
Spinal	The availability of spinal surgical services	"true" - This type of service is available "false" - This type of service is not available		OBX-2 = CE OBX-3 = Spinal^The availability of spinal surgical services^HAVE OBX-5 = true or false		
Vascular	The availability of vascular surgical services	"true" - This type of service is available "false" - This type of service is not available		OBX-2 = CE OBX-3 = Vascular^The availability of vascular surgical services^HAVE OBX-5 = true or false		

Data Element	Description	Limit/Range of values	Data Source	Destination	Requirements/Pre-conditions	Additional Specification for Component
Anesthesia	The availability of anesthesia services	"true" - This type of service is available "false" - This type of service is not available		OBX-2 = CE OBX-3 = Anesthesia^The availability of Anesthesia services^HAVE OBX-5 = true or false		

Table 2-27 Dynamic Resource Availability Report Elements – Hospital, Service Coverage Status, Transport Service Indicator

Data Element	Description	Limit/Range of values	Data Source	Destination	Requirements/Pre-conditions	Additional Specification for Component
TransportServices Indicator	The container element for specifying the availability of Transport services. This service capability is broken down into the below subcategories. This is to allow Organizations to designate subcategories, if available Organizations can either report the parent category or report the subcategories			(not passed in message – this is a placeholder for XML structure)	Either one – the parent category <TransportServices> or the subcategories that follow - MUST be used Both MUST NOT be used together	
TransportServices	The availability of transport services (PARENT)	"true" - This type of service is available "false" - This type of service is not available		OBX-2 = CE OBX-3 = TransportServices ^The availability of transport services^HAVE OBX-5 = true or false		
AirTransport Services	The availability of air transport services	"true" or "1" - This type of service is available "false" or "0" - This type of service is not available		OBX-2 = CE OBX-3 = AirTransportServices^The availability of air-transport services^HAVE OBX-5 = true or false		

Data Element	Description	Limit/Range of values	Data Source	Destination	Requirements/Pre-conditions	Additional Specification for Component
AmbulanceServices	The availability of transport services	"true" or "1" - This type of service is available "false" or "0" - This type of service is not available		OBX-2 = CE OBX-3 = AmbulanceServices^The availability of transport services^HAVE OBX-5 = true or false		

Table 2-28 Dynamic Resource Availability Report Elements – Hospital, Service Coverage Status, Trauma Center Service Indicator

Data Element	Description	Limit/Range of values	Data Source	Destination	Requirements/Pre-conditions	Additional Specification for Component
TraumaCenter ServicesIndicator	The container element for specifying the availability of Trauma center services either one – the parent category or the subcategories that follow - MUST be used Both MUST not be used together			(not passed in message – this is a placeholder for XML structure)	Either one – the parent category <TraumaCenterServices> or the subcategories that follow - MUST be used Both MUST NOT be used together	
TraumaCenter Services	The availability of trauma center services (PARENT)	"true" or "1" - This type of service is available "false" or "0" - This type of service is not available		OBX-2 = CE OBX-3 = TraumaCenterServices CoverageStatus^The availability of trauma center services^HAVE OBX-5 = true or false		

Data Element	Description	Limit/Range of values	Data Source	Destination	Requirements/Pre-conditions	Additional Specification for Component
TraumaCenter ServicesLevel	The service level of the trauma center	Values: Level1 Level2 Level3 Level4 For definitions please refer to the American College of Surgeons - http://www.facs.org/trauma/hospitallevels.pdf		OBX-2 = CE OBX-3 = TraumaCenterServicesLevelCoverageStatus^The service level of the trauma center^HAVE OBX-5 = code (e.g., Level1)		

Hospital Facility Status Section

The following table refers to the container element of all of the elements related to the status of the facility. The elements in <FacilityStatus> provide a general status of the facility

Table 2-29 Dynamic Resource Availability Report Elements – Hospital, Hospital Facility Status

Data Element	Description	Limit/Range of values	Data Source	Destination	Requirements/Pre-conditions	Additional Specification for Component
HospitalEOCStatus	Whether the Emergency Operations Center (EOC) is currently operating An EOC is a location that is activated in a disaster or emergency from which the overall command, control, communications and coordination are conducted	Values: Active – Indicates that the EOC has been activated. An activated EOC is fully staffed and operational Inactive – Indicates that the EOC is not activated. Default Value: Inactive		OBX Segment: OBX-2 = CE OBX-3 = HospitalEOCStatus^Whether the Emergency Operations Center (EOC) is currently operating^HAVE OBX-5 =code (Active or Inactive)		
HospitalEOCPlan	Whether the hospital has activated its Emergency Operations Plan (EOP) An EOC Plan documents operations during an emergency, including the process to activate or inactivate the EOC	Values: Active Inactive		OBX Segment: OBX-2 = CE OBX-3 = HospitalEOCPlan^Whether the hospital has activated its Emergency Operations Plan^HAVE OBX-5 =code		

Data Element	Description	Limit/Range of values	Data Source	Destination	Requirements/Pre-conditions	Additional Specification for Component
ClinicalStatus	The clinical status of the facility	HAVE Values: Normal - Hospital clinical resources are operating within normal conditions Full - Hospital clinical resources are exceeded and acceptable care cannot be provided to additional patients Diversion or community surge response is required		OBX-2 = CE OBX-3 = 'ClinicalStatus^ The clinical status of the facility^TBD' OBX-5 = code (e.g., Normal, Full)		

Table 2-30 Dynamic Resource Availability Report Elements – Hospital, Hospital Facility Status, Decon Capacity

Data Element	Description	Limit/Range of values	Data Source	Destination	Requirements/Pre-conditions	Additional Specification for Component
DeconCapacity	The container element for Decon capacity Sub-elements are DeconCapacityStatus AmbulatoryPatientsDeconCapacity NonAmbulatoryPatientsDeconCapacity			Not passed in message – this is here as an XML placeholder		
DeconCapacity Status	The capacity for chemical/biological/radiological patient decontamination	HAVE Values: Inactive - Not being used, but available if needed Open - In use and able to accept additional patients Full - In use at maximum capacity Exceeded - Needs exceed available capacity		OBX Segment: OBX-2 = CE OBX-3 = 'DeconCapacityStatus^ The capacity for chemical/biological/radiological patient decontamination^ HAVE' OBX-5 = code (Inactive, Open, Full, Exceeded)		

Data Element	Description	Limit/Range of values	Data Source	Destination	Requirements/Pre-conditions	Additional Specification for Component
AmbulatoryPatients DeconCapacity	The number of ambulatory patients which can be decontaminated over time (typically an hour)	Integer		OBX Segment: OBX-2 = SN OBX-3 = 'AmbulatoryPatientsDeconCapacity^The number of ambulatory patients which can be decontaminated over time (typically an hour)^HAVE' OBX-5 = ^nn		
NonAmbulatory PatientsDecon Capacity	The number of non-ambulatory patients which can be decontaminated over time (typically an hour)	Integer		OBX Segment: OBX-2 = SN OBX-3 = 'NonAmbulatoryPatientsDeconCapacity^ The number of non-ambulatory patients which can be decontaminated over time (typically an hour)^HAVE' OBX-5 = ^nn		

Table 2-31 Dynamic Resource Availability Report Elements – Hospital, Hospital Facility Status, Morgue Capacity

Data Element	Description	Limit/Range of values	Data Source	Destination	Requirements/Pre-conditions	Additional Specification for Component
MorgueCapacity	The status of the morgue capacity			Not in message – here as an XML placeholder		
MorgueCapacity Status	The status of the morgue capacity	Values: Open - Space is available Full - All normal space is in use Exceeded - Storage needs exceed available space		OBX Segment: OBX-2 = CE OBX-3 = 'MorgueCapacityStatus^The status of the morgue capacity^HAVE' OBX-5 =code (Open, Full, Exceeded)		
MorgueCapacity Units	The number of vacant/available units to which victims can be immediately transported	Integer		OBX Segment: OBX-2 = SN OBX-3 = 'MorgueCapacityUnits^The status of the morgue capacity^HAVE' OBX-5 =^nn		

Table 2-32 Dynamic Resource Availability Report Elements – Hospital, Hospital Facility Status

Data Element	Description	Limit/Range of values	Data Source	Destination	Requirements/Pre-conditions	Additional Specification for Component
FacilityStatus	The status of the facility	HAVE Values: Normal - No conditions exist that adversely affect the general operations of the facility Compromised - General operations of the facility have been affected due to damage, operating on emergency backup systems, or facility contamination Evacuating - Indicates that a hospital is in the process of a partial or full Closed – Indicates that a hospital is no longer capable of providing services and only emergency services/restoration personnel may remain in the facility		OBX Segment: OBX-2 = CE OBX-3 = HospitalFacilityStatus^The status of the facility^HAVE OBX-5= code (e.g., Normal, Compromised, Evacuating)		
SecurityStatus	The status of the facility	Normal - The hospital is operating under routine security procedures Elevated - The hospital has activated increased security procedures (awareness, surveillance) due to a potential threat, or specific security related event i.e., increase in local threat level, VIP, bomb threat Restricted Access - Based on security needs, the hospital has activated procedures to allow access to the facility through a reduced number of controlled entrances Lockdown - Based on security needs, the hospital has activated procedures to control entry to the facility to authorized persons only Quarantine - Based on a public health emergency, the entry and exit of the facility is controlled by public health officials		OBX Segment: OBX-2 = CE OBX-3 = HospitalSecurityStatus^The status of security procedures in the hospital^HAVE OBX-5 = code (e.g., Normal, Elevated, RestrictedAccess, Lockdown, Quarantine)		

The following table refers to the container element for reporting activities in the last 24 hours. The time is relative to the timestamp of the <LastUpdateTime> of the <Hospital> element

Table 2-33 Dynamic Resource Availability Report Elements – Hospital, Hospital Status, Hospital Facility Status

Data Element	Description	Limit/Range of values	Data Source	Destination	Requirements/Pre-conditions	Additional Specification for Component
Admissions	The number of admissions in the last 24 hours The time is relative to the timestamp of the <LastUpdateTime> of the <Hospital> element	Integer		OBX Segment: OBX-2 = SN OBX-3 = Admissions^ The number of admissions in the last 24 hours^HAVE OBX-5 = ^nn		
<Discharges>	The number of discharges in the last 24 hours The time is relative to the timestamp of the <LastUpdateTime> of the <Hospital> element	Integer		OBX Segment: OBX-2 = SN OBX-3 = Discharges^Discharges Past 24 hours^HAVE OBX-5 = ^nn		
<Deaths>	The number of deaths in the last 24 hours The time is relative to the timestamp of the <LastUpdateTime> of the <Hospital> element	Integer		OBX Segment: OBX-2 = SN OBX-3 = Deaths^ The number of deaths in the last 24 hours^HAVE OBX-5 = ^nn		

Hospital Resources Status Section

The following table refers to container for all the elements related to the operations of the facility. The elements in <HospitalResourcesStatus> provide a general status of the facility

Table 2-34 Dynamic Resource Availability Report Elements – Hospital Status, Hospital Resource Status

Data Element	Description	Limit/Range of values	Data Source	Destination	Requirements/Pre-conditions	Additional Specification for Component
Staffing	The status of general staffing in the organization NOTE: Specific shortage in one or more departments should be noted in the comments	HAVE Values: Adequate - Meets the current needs Insufficient – Current need is not being met and impacts the operations of the hospital		OBX-2 = CE OBX-3 ='Staffing^The status of general staffing in the organization^HAVE' OBX-5 = code (e.g., Adequate, Insufficient)		

Data Element	Description	Limit/Range of values	Data Source	Destination	Requirements/Pre-conditions	Additional Specification for Component
FacilityOperations	The status of supplies necessary for facility operations	HAVE Values: Adequate - Meets the current needs Insufficient – Current need is not being met and impacts the operations of the hospital		OBX-2 = CE OBX-3 = 'FacilityOperations^The status of supplies necessary for facility operations ^HAVE OBX-5 = code (e.g., Adequate, Insufficient)		
ClinicalOperations	The status of supplies necessary for clinical operations	HAVE Values: Adequate - Meets the current needs Insufficient – Current need is not being met and impacts the operations of the hospital		OBX-2 = CE OBX-3 = 'ClinicalOperations^The status of supplies necessary for clinical operations^HAVE OBX-5 = code (e.g., Adequate, Insufficient)		
Resources InformationText	The type of resources and their status or count. Multiple values are allowed and each resource type SHOULD be enclosed with a <ResourcesInformationText> element	String		OBX-2 = ST OBX-3 = 'ClinicalOperations^The status of supplies necessary for clinical operations^HAVE OBX-5 = string (e.g., Ventilators - 40 are Available)	Optional May use multiple	

Table 2-35 Dynamic Resource Availability Report Elements – Hospital Status, Hospital, Hospital Resource Status

Data Element	Description	Limit/Range of values	Data Source	Destination	Requirements/Pre-conditions	Additional Specification for Component
Staffing	The status of general staffing in the organization NOTE: Specific shortage in one or more departments should be noted in the comments	HAVE Values: Adequate - Meets the current needs Insufficient – Current need is not being met and impacts the operations of the hospital		OBX-2 = CE OBX-3 ='Staffing^The status of general staffing in the organization^HAVE' OBX-5 = code (e.g., Adequate, Insufficient)		

Table 2-36 Dynamic Resource Availability Report Elements - Supporting Element – Comments

Data Element	Description	Limit/Range of values	Data Source	Destination	Requirements/Pre-conditions	Additional Specification for Component
CommentText	Open Comments field. Unless otherwise specified, the <CommentText> field pertains to the element preceding it This element can be used	This element may contain any text that the creator of the document considers useful, and such text will be understood as referring to the element that precedes it, unless it explicitly references a different element in the EDXL-HAVE document		NTE-3 Comment in NTE Segment	NTE Segment immediately following the reference observation	

2.3 STANDARDS

2.3.1 REGULATORY GUIDANCE

Table 2-37 Regulatory Guidance

Standard	Description
No applicable regulatory guidance	

2.3.2 SELECTED STANDARDS

Table 2-38 Selected Standards

Standard	Description[3]
Health Level Seven (HL7) Version 2.5[4]	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, 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. For more information visit www.hl7.org
Organization for the Advancement of Structured Information Standards (OASIS) Emergency Data Exchange Language (EDXL) Hospital Availability Exchange (HAVE) Version 1.0	Specifies an XML-formatted document that allows healthcare provider organizations to communicate specific utilization information and status of a facility (e.g., hospital, trauma center, nursing home) and its resources; including bed capacity and availability, emergency department status, the available service coverage, and the status of a hospital's facility and operations. HAVE is initially intended for use in disaster or emergency situations. For more information visit www.oasis-open.org

2.3.3 INFORMATIVE REFERENCE STANDARDS

Table 2-39 Informative Reference Standards

Standard Name	Description
No applicable informative reference standards	

[3] The HL7 specifications and constraints provided by this Component are aligned with the OASIS HAVE V1.0 standard

[4] HITSP references HL7 2.5.1 messaging for lab results reporting and HL7 2.5 for other messages. Future maintenance work will move toward referencing a single HL7 version across HITSP documents.

3.0 APPENDIX

The following sections include relevant materials referenced throughout this document.

No additional information at this time.

4.0 CHANGE HISTORY

The following sections provide the details of updates made to this document.

4.1 DECEMBER 5, 2007

4.1.1 OVERALL

- Updated document to conform to the new template

4.1.2 SECTION 2.2

- Added clarification of how to incorporate the web services support for OASIS HAVE

4.1.3 SECTION 2.2.1

- Updated specification to align with the final OASIS HAVE Specification
- Added clarity about how the data elements map to the HAVE schema

4.2 DECEMBER 13, 2007

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

4.3 AUGUST 20, 2008

This document has been modified to reflect the updated HITSP approach to categorizing standards as Regulatory Guidance, Selected Standards, and Informative References.

The following standard has been removed:

- Organization for the Advancement of Structured Information Standards (OASIS) Emergency Data Exchange Language (EDXL) Distribution Element (DE)

4.4 AUGUST 27, 2008

Upon approval by the HITSP Panel on August 27, 2008, this document is now Released for Implementation.

4.5 DECEMBER 10, 2008

Removed the following standard from Table 2-39 Informative Reference Standards and placed in Table 2-38 Selected Standards:

- Organization for the Advancement of Structured Information Standards (OASIS) Emergency Data Exchange Language (EDXL) Hospital Availability Exchange (HAVE) Version 1.0

Minor editorial changes were made to this construct.

4.6 DECEMBER 18, 2008

Upon approval by the HITSP Panel on December 18, 2008, this document is now Released for Implementation.

4.7 JUNE 30, 2009

Changes were made to tables in Section 2.2.2 Minimum Data-Set. Tables were broken out into smaller individual tables.

Minor editorial changes were made to this document. Boilerplate text was removed for simplification. The term “actor” was replaced with “interface”.

4.8 JULY 8, 2009

Upon approval by the HITSP Panel on July 8, 2009, this document is now Released for Implementation.