Emergency Data Exchange Language (EDXL) Hospital AVailability Exchange (HAVE) Version 1.0

OASIS Standard Incorporating Draft Errata

21 July 2009

Specification URIs:
This Version:
http://docs.oasis-open.org/emergency/edxl-have/v1.0/errata/edxl-have-v1.0-os-errata-cd01.doc (Authoritative)
http://docs.oasis-open.org/emergency/edxl-have/v1.0/errata/edxl-have-v1.0-os-errata-cd01.pdf
http://docs.oasis-open.org/emergency/edxl-have/v1.0/errata/edxl-have-v1.0-os-errata-cd01.html

Previous Version:
http://docs.oasis-open.org/emergency/edxl-have/os/emergency_edxl_have-1.0-spec-os.doc (Authoritative)
http://docs.oasis-open.org/emergency/edxl-have/os/emergency_edxl_have-1.0-spec-os.pdf
http://docs.oasis-open.org/emergency/edxl-have/os/emergency_edxl_have-1.0-spec-os.html

Latest Version:
http://docs.oasis-open.org/emergency/edxl-have/v1.0/emergency_edxl_have-1.0.doc
http://docs.oasis-open.org/emergency/edxl-have/v1.0/emergency_edxl_have-1.0.pdf
http://docs.oasis-open.org/emergency/edxl-have/v1.0/emergency_edxl_have-1.0.html

Technical Committee:
OASIS Emergency Management Technical Committee

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Related work:
This specification is related to:

- EDXL-DE v1.0

The EDXL Distribution Element (DE) specification describes a standard message distribution framework for data sharing among emergency information systems using the XML-based Emergency Data Exchange Language (EDXL). This format may be used over any data transmission system, including but not limited to the SOAP HTTP binding.

Declared XML Namespace(s):
urn:oasis:names:tc:emergency:EDXL:HAVE:1.0

Abstract:

This Hospital AVailability Exchange (HAVE) describes a standard message for data sharing among emergency information systems using the XML-based Emergency Data Exchange Language (EDXL).

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This format may be used over any data transmission system, including but not limited to the SOAP HTTP binding.

Status:

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1 INTRODUCTION

1.1 OVERVIEW

1.1.1 PURPOSE

EDXL-HAVE specifies an XML document format that allows the communication of the status of a hospital, its services, and its resources. These include bed capacity and availability, emergency department status, available service coverage, and the status of a hospital's facility and operations.

1.1.2 HISTORY

In a disaster or emergency situation, there is a need for hospitals to be able to communicate with each other, and with other members of the emergency response community. The ability to exchange data in regard to hospitals' bed availability, status, services, and capacity enables both hospitals and other emergency agencies to respond to emergencies and disaster situations with greater efficiency and speed. In particular, it will allow emergency dispatchers and managers to make sound logistics decisions - where to route victims, which hospitals have the ability to provide the needed service. Many hospitals have expressed the need for, and indeed are currently using, commercial or self-developed information technology that allows them to publish this information to other hospitals in a region, as well as EOCs, 9-1-1 centers, and EMS responders via a Web-based tool.

Systems that are available today do not record or present data in a standardized format, creating a serious barrier to data sharing between hospitals and emergency response groups. Without data standards, parties of various kinds are unable to view data from hospitals in a state or region that use a different system – unless a specialized interface is developed. Alternatively, such officials must get special passwords and toggle between web pages to get a full picture. Other local emergency responders are unable to get the data imported into the emergency IT tools they use (e.g. a 9-1-1 computer-aided dispatch system or an EOC consequence information management system). They too must get a pass word and go to the appropriate web page. This is very inefficient. A uniform data standard will allow different applications and systems to communicate seamlessly.

1.1.3 STRUCTURE

The most important XML elements specified in this standard as part of the EDXL-HAVE document format are the following:

`<HospitalStatus>`

This is the overall top level container element for all the <Hospital> elements that may be present.

`<Hospital>`

This is the top level container element for each reporting organization. Each <Hospital> element has the following set of sub-elements.

`<Organization>`

The `<Organization>` element provides basic information about the name and location of the organization about which the status and availability is being reported.

`<EmergencyDepartmentStatus>`

The `<EmergencyDepartmentStatus>` element provides information on the ability of the emergency department of the organization to treat patients.

`<HospitalBedCapacityStatus>`

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The `<HospitalBedCapacityStatus>` element provides information on the status and availability of the bed capacity of the organization. The bed capacity information for specific bed types can be reported.

`<ServiceCoverageStatus>`

The `<ServiceCoverageStatus>` element provides information on the availability of specialty service coverage. This includes both the necessary staff and facilities. Some of the services capabilities are broken down into subtypes. This is to allow organizations to designate subtypes, if available. Others can report just the higher level specialties.

`<HospitalFacilityStatus>`

The `<HospitalFacilityStatus>` element provides information on the status of the facility. This includes information on the EOC and the capacity of the facility.

`<HospitalResourcesStatus>`

The `<HospitalResourcesStatus>` element provides information on the status of operations and resources of the organization.

`<LastUpdateTime>`

The `<LastUpdateTime>` element provides information on the time that the information was last updated.

This standard references element and type definitions specified in the following standards and profiles:

- [OASIS CIQ] – The CIQ standard is used for defining the name, address and location information in EDXL HAVE.
- [geo-oasis] – OASIS GML Profile – This profile is used to define the geo-location elements in EDXL HAVE.

1.2 TERMINOLOGY

The key words “MUST”, “MUST NOT”, “REQUIRED”, “SHALL”, “SHALL NOT”, “SHOULD”, “SHOULD NOT”, “RECOMMENDED”, “MAY”, and “OPTIONAL” in this document are to be interpreted as described in [RFC2119].

AHA	American Hospital Association
CIQ	Customer Information Quality
EDXL	Emergency Data Exchange Language
EOC	Emergency Operations Center
EOP	Emergency Operations Plan
EMS	Emergency Medical Services
GJXDM	Global Justice XML Data Model
GML	Geographic Markup Language
HAvBED	Hospital Bed Availability (HAvBED) Project
ICU	Intensive Care Unit

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NIEM	National Information Exchange Model
OBGYN	Obstetrics and Gynecology

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[edxl-have ReqSupp]

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2 DESIGN PRINCIPLES AND CONCEPTS

2.1 DESIGN PHILOSOPHY

The principles that guided the design of the HAVE include:

- Interoperability - The HAVE message should provide an interoperable mechanism to exchange healthcare organization information among different domains and among multiple systems
- Multi-Use Format – The HAVE message must be designed such that it can be used in everyday events, during mass disasters, and for incident preparedness.
- Flexibility – The design structure must be flexible such that it could be used by a broad range of applications and systems to report status and availability information

2.2 REQUIREMENTS FOR DESIGN

This standard was designed taking the following requirements into account:

1. Allow medical and healthcare organizations to communicate their status and availability information.
2. Be designed to allow its use by a wide variety of medical and healthcare organizations (including hospitals and nursing homes), along with other emergency response organizations (such as emergency management centers, public safety answering points, and dispatch centers).
3. Be able to be used as a payload or content element with the EDXL Distribution Element.
4. Allow the communication of status information of one or more organizations in a single exchange.
5. Allow the communication of the organization's status and availability information with regard to its facilities, operations, services, and resources.
6. Be designed to allow its use in normal operations, day-to-day emergencies and mass disasters.

2.3 EXAMPLE USAGE SCENARIOS

Use of HAVE during a mass disaster

A major disaster has occurred in a heavily populated city. A number of casualties are reported, and the Incident Commander (IC) needs to obtain a common operational picture on the status of the hospitals in the region, including the resources they can offer. The IC sends a message to the regional hospitals for an update on their status and bed availability information.

Hospitals receive this request, and use their respective systems to send HAVE messages. These messages contain the status of each hospital's emergency department, bed availability information, and the hospital's operations and facilities. These are accepted into the IC's Consequence Incident Management System (CIMS) tool, and similar tools used by other emergency response agencies (e.g. Computer-Aided Dispatch systems used in public safety answering points).

Use of HAVE during an everyday emergency

A car crash has occurred in a rural area resulting in two badly burned victims, according to on-scene public safety personnel. Before the EMS staff reaches the scene, EMS dispatch sends a request to nearby hospitals for a status of available burn services and burn beds.

A few hospitals respond to the request, and use the service coverage element in the HAVE message to specify the burn coverage available at their facilities. They in turn are able to assemble their burn teams in order to ensure that there is no delay in treatment. Based on the acquired information, the victims are taken to the nearest hospital with the required services.

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3 EDXL HOSPITAL AVAILABILITY EXCHANGE (HAVE) ELEMENT STRUCTURE

3.1 DOCUMENT OBJECT MODEL (NON-NORMATIVE)

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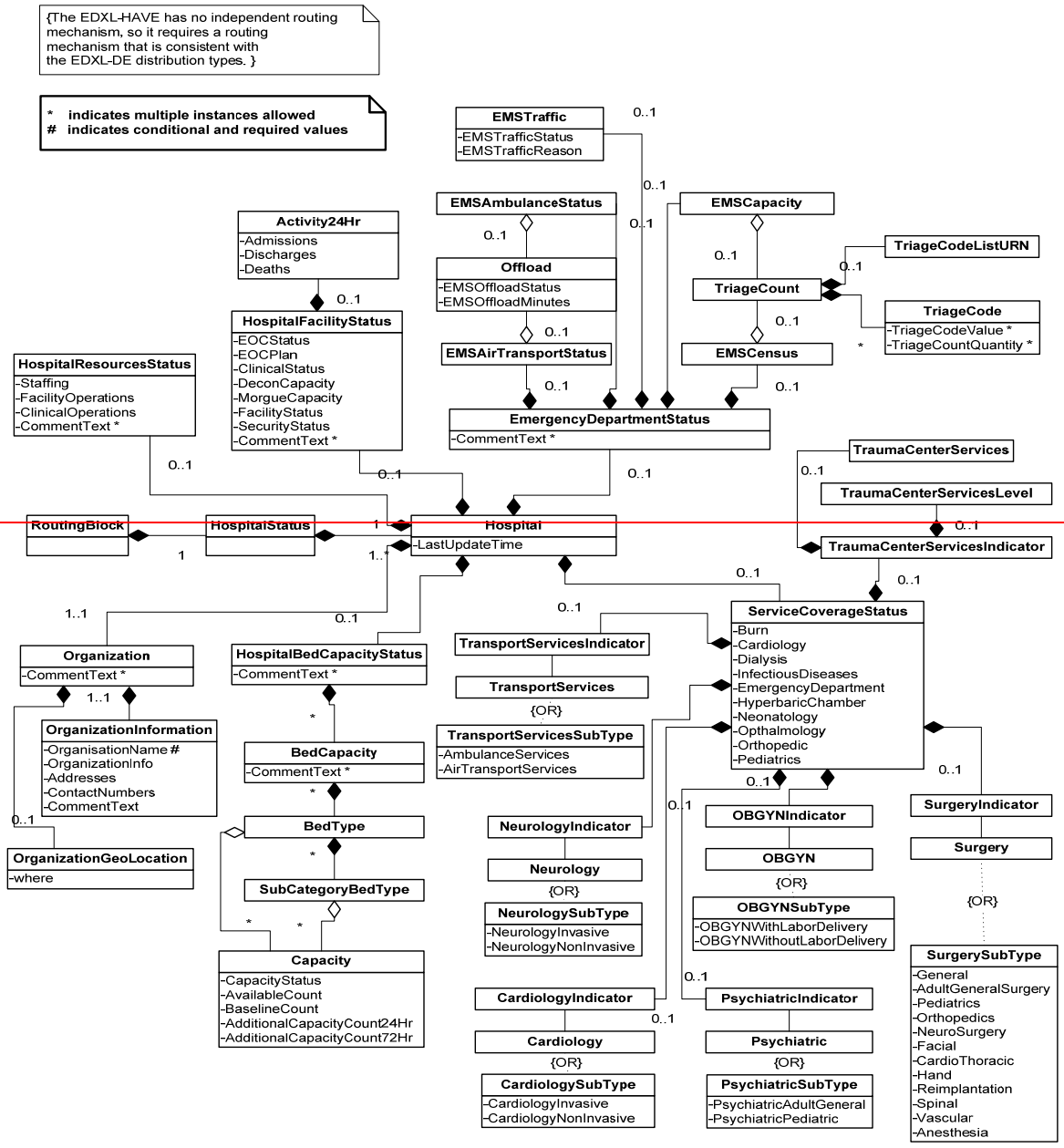

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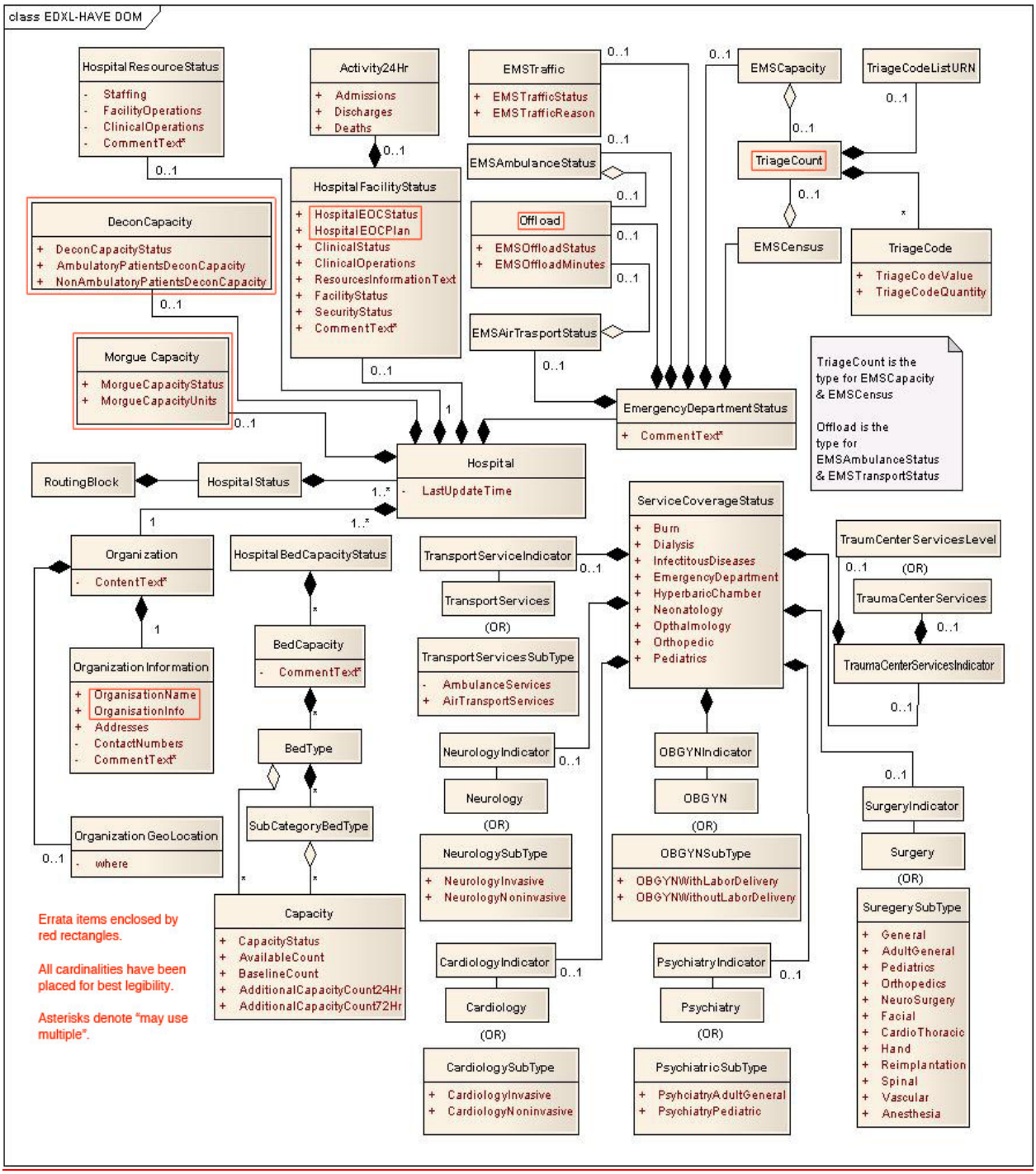

Figure 1: EDXL-HAVE DOM

3.2 DATA DICTIONARY

The following section provides additional clarification on interpreting the various fields identified in the data dictionary:

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The EDXL-HAVE schema is normative and is located here - http://docs.oasis-open.org/emergency/edxl-have/v1.0/edxl-have.xsd

The Data Dictionary is used to provide additional clarifications, except for the following entries which are normative:

- Element
- Usage
- Constraints

In the Data Dictionary, unless otherwise specified explicitly, the following entries are non-normative:

- Type
  - Note: In some cases, it refers to the complex types and these are normative. These exceptions are identified in the Data Dictionary, where applicable.
- Definition:
- Used In
- Comments
- Sub-elements

Note:

This standard does not specify any transport, distribution, or routing mechanism for an EDXL-HAVE document. One way of using this standard is by including one or more EDXL-HAVE documents in the payload of an EDXL-DE message.

3.2.1 HOSPITAL STATUS

Element	**`<have:HospitalStatus>`**
Type	`XML Structure`
Usage	**REQUIRED**, MUST be used once and only once, top level container.
Definition	The top level container element for reporting status of any number of hospitals.
Constraints	1. `<HospitalStatus>` MUST contain one or more <Hospital> elements.
Sub-elements	• Hospital
Used In	Top Level Element

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Element	**`<have:Hospital>`**
Type	`XML Structure`
Usage	**REQUIRED**, May Use Multiple; Must be used for each reporting hospital status.
Definition	The container element for reporting status of a hospital.
Sub-elements	• Organization • EmergencyDepartmentStatus • HospitalBedCapacityStatus • ServiceCoverageStatus • HospitalFacilityStatus • HospitalResourcesStatus • LastUpdateTime
Used In	HospitalStatus

3.2.2 ORGANIZATION

Note on CIQ

EDXL-HAVE uses the Customer Information Quality (CIQ) profile for defining the name, address and other details of the Organization.

This standard references certain XML elements and types, as specified in [OASIS CIQ], and provides recommendations on their use inside an EDXL-HAVE document. Those recommendations limit the choices available to an implementation of this standard in order to maximize interoperability.

The EDXL HAVE data dictionary only provides a high level overview of the CIQ elements that are used in this standard. It is highly recommended to refer to the OASIS CIQ Version 3.0 Specifications for implementation details and examples.

While EDXL-HAVE uses *Organization*, CIQ uses *Organisation.* In [OASIS CIQ] the spelling "organisation" is used whenever this word occurs in the name of an element specified in that standard. In contrast, the spelling "organization" is used in this standard whenever this word occurs in the name of an element specified in this standard. Obviously, when an element specified in [OASIS CIQ] is referenced within this standard, the original spelling (with an "s") is used for its name.

While CIQ provides a capability to specify geo-location by LocationByCoordinates and GeoRSS, EDXL-HAVE specifies the use of the OASIS GML profile – geo-oasis.

Please see Appendix C for a brief note on the OASIS CIQ Standard.

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Note on Organization

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.

Element	**`<have:Organization>`**
Type	`XML Structure`
Usage	**REQUIRED**, MUST be used once and only once.
Definition	The container element for Organization information elements.
Comments	1. The generic element Organization refers to the entity, the status and availability of which is being reflected in the status message.
Sub-elements	• OrganizationInformation • OrganizationGeoLocation
Used In	HospitalStatus/Hospital

Element	**`<have:OrganizationInformation>`**
Type	`XML Structure`
Usage	**REQUIRED**, MUST be used once and only once, top level container
Definition	The container element for Organization Information elements.
Sub-elements	• OrganisationName • OrganisationInfo • Addresses • ContactNumbers • CommentText
Used In	HospitalStatus/Hospital/Organization

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Element	`<have:OrganizationGeoLocation>`
Type	geo-oasis:~~WhereType~~where
Usage	**OPTIONAL**
Definition	The container element for specifying the geo-coded address.
Constraints	1. The geo-location MUST match the address specified in `<OrganizationInformation>`
Comments	1. This specification uses the OASIS GML profile for specifying the geo-location. 2. The type "geo-oasis:WhereType" is specified in [geo-oasis] as having a complex content that is a choice between five elements (See 3.2.8.4). 3. It is RECOMMENDED that the element `<gml:Point>` be used in an EDXL-HAVE document in preference to the other four elements. Note: See Appendix D
Used In	HospitalStatus/Hospital/Organization

3.2.3 EMERGENCY DEPARTMENT STATUS

Element	**`<have:EmergencyDepartmentStatus>`**
Type	`XML Structure`
Usage	**OPTIONAL**
Definition	The container of all of the elements related to the emergency department status.
Comments	1. It describes the ability of this emergency department to treat patients.

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Sub-elements	• EMSTraffic • EMSCapacity • EMSCensus • EMSAmbulanceStatus • EMSAirTransportStatus • CommentText
Used In	HospitalStatus/Hospital

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Element	**`<have:EMSTraffic>`**
Type	`XML Structure`
Usage	**OPTIONAL**
Definition	The container of all of the elements related to the status of operations of EMS traffic.
Comments	1. It defines the ability of this emergency department to receive patients via emergency medical services.
Sub-elements	• EMSTrafficStatus • EMSTrafficReason • CommentText
Used In	HospitalStatus/Hospital/EmergencyDepartmentStatus

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Element	`<have:EMSTrafficStatus>`
Type	`xsd:string with restrictions`
Usage	**OPTIONAL**
Definition	Identifies the status of EMS traffic operations.
Comments	Value must be one of: 1. Normal - Accepting all EMS traffic 2. Advisory - Experiencing specific resource limitations which may affect transport of some EMS traffic. 3. Closed - Requesting re-route of EMS traffic to other facilities. 4. NotApplicable - Not Applicable. This hospital does not have an emergency department.

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Used In	HospitalStatus/Hospital/EmergencyDepartmentStatus/EMSTraffic

Element	`<have:EMSTrafficReason>`
Type	`xsd:string with restrictions`
Usage	**OPTIONAL**
Definition	It is used to report the contributing factor to the status specified in `<EMSTrafficStatus>`.
Used In	HospitalStatus/Hospital/EmergencyDepartmentStatus/EMSTraffic

Element	`<have:EMSCapacity>`
Type	`TriageCount`
Usage	**OPTIONAL**
Definition	The number of each triage patient type the hospital can accept.
Comments	1. Please refer to Sec. 3.2.8.2~~5~~
Used In	HospitalStatus/Hospital/EmergencyDepartmentStatus

Element	`<have:EMSCensus>`
Type	`TriageCount`
Usage	**OPTIONAL**
Definition	The number of each triage patient type the overall hospital currently has.
Comments	1. Please refer to Sec 3.2.8.5
Used In	HospitalStatus/Hospital/EmergencyDepartmentStatus

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Element	`<have:TriageCodeListURN>`
Type	xsd:anyURI
Usage	CONDITIONAL
Definition	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.
Constraints	1. `<Hospital>` element MAY contain a `<TriageCodeListURN>` element as specified in the schema, but MUST NOT contain more than one such element. 2. If a `<TriageCodeListURN>` element is present within a `<Hospital>` element, it MUST precede the first `<TriageCode>` element within that `<Hospital>` element. 3. 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. 4. If a `<TriageCodeListURN>` element is not present within a <Hospital> element or it is present but empty, then the values of all the `<TriageCodeValue>` elements within that `<Hospital>` element MUST be interpreted according to the following URN: urn:oasis:names:tc:emergency:have:1.1:triagecolorcode which identifies the code list specified in the data dictionary entry for the element `<TriageCodeValue>`.
Used In	HospitalStatus/Hospital/EmergencyDepartmentStatus/EMSCensus~~/TriageCount~~ HospitalStatus/Hospital/EmergencyDepartmentStatus/EMSCapacity~~/TriageCount~~

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Element	`<have:TriageCode>`
Type	`Value and Associated Lists`
Usage	**OPTIONAL,** May use Multiple
Definition	The container element to specify the triage values and their quantity.
Constraints	1. Multiple instances of the `<TriageCodeValue>` MAY occur with a single `<TriageCodeListURN>` 2. Each `<TriageCodeValue>` and its associated `<TriageCountQuantity>` MUST be enclosed in `<TriageCode>`
Comments	1. The list and associated value(s) is in the form: `<have:TriageCodeListURN>urn:oasis:names:tc:emergency:have:1.0:tri`

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	`agecolorcode</have:TriageCodeListURN>`
	`<have:TriageCode>`
	`<have:TriageCodeValue>Red</have:TriageCodeValue>`
	`<have:TriageCountQuantity>20</have:TriageCountQuantity>`
	`</have:TriageCode>`
	
	where the content of `<TriageCodeListUrn>` is the Uniform Resource Name of a published list of values and definitions, and the content of `<TriageCodeListValue>` is a string (which may represent a number) denoting the value itself.

Sub – elements	• TriageCodeValue • TriageCountQuantity
Used In	HospitalStatus/Hospital/EmergencyDepartmentStatus/EMSCensus~~/TriageCount~~ HospitalStatus/Hospital/EmergencyDepartmentStatus/EMSCapacity~~/TriageCount~~

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Element	`<have:TriageCodeValue>`
Type	`xsd:string`
Usage	**CONDITIONAL**, MAY use multiple
Definition	A value from a certified list maintained by the Community of Interest (COI) for the referenced element.
Constraints	1. The list of values SHOULD be from the list identified in `<TriageCodeListURN>` 2. If a `<TriageCodeValue>` is specified, a `<TriageCountQuantity>` element MUST be specified. Default Code List Values: • Red – Number of victims with immediate needs. • Yellow - Number of victims with delayed needs • Green - Number of victims with minor needs • Black - Number of deceased victims
Used In	HospitalStatus/Hospital/EmergencyDepartmentStatus/EMSCensus/TriageCode~~unt~~ HospitalStatus/Hospital/EmergencyDepartmentStatus/EMSCapacity/TriageCode~~unt~~

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Element	`<have:TriageCountQuantity>`
Type	`xsd:integer`

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Usage	**CONDITIONAL**, MAY use multiple
Definition	The integer value associated with the Triage Code value.
Constraints	1. If a `<TriageCodeValue>` is specified, a `<TriageCountQuantity>` element MUST be specified.
Used In	HospitalStatus/Hospital/EmergencyDepartmentStatus/EMSCensus/TriageCode HospitalStatus/Hospital/EmergencyDepartmentStatus/EMSCapacity/TriageCode

Example:

```
<have:EMSCapacity>
   <have:TriageCodeListURN>
urn:oasis:names:tc:emergency:have:1.0:triagecolorcode
</have:TriageCodeListURN>
<have:TriageCode>
<have:TriageCodeValue>Red</have:TriageCodeValue>
<have:TriageCountQuantity>20</have:TriageCountQuantity>
</have:TriageCode>
<have:TriageCode>
<have:TriageCodeValue>Yellow</have:TriageCodeValue>
<have:TriageCountQuantity>30</have:TriageCountQuantity>
</have:TriageCode>
<have:TriageCode>
<have:TriageCodeValue>Green</have:TriageCodeValue>
<have:TriageCountQuantity>40</have:TriageCountQuantity>
</have:TriageCode>
<have:TriageCode>
<have:TriageCodeValue>Black</have:TriageCodeValue>
<have:TriageCountQuantity>10</have:TriageCountQuantity>
</have:TriageCode>
</have:EMSCapacity>
```

Element	`<have:EMSAmbulanceStatus>`
Type	`Offload`
Usage	**OPTIONAL**
Definition	The container element to indicate the status and offload time for ground ambulance capabilities.
Comments	1. The time it takes to transfer care of a patient to hospital staff, thereby freeing the ambulance for assignment. 2. Select from Normal or Delayed and/or specify the average offload average offload time in minutes.
~~Sub-elements~~	~~CommentText~~

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Used In	HospitalStatus/Hospital/EmergencyDepartmentStatus

Element	`<have:EMSAirTransportStatus>`
Type	`Offload`
Usage	**OPTIONAL**
Definition	The container element to indicate the status and offload time for air ambulance capabilities.
Comments	1. The time it takes to transfer care of a patient to hospital staff, thereby freeing the ambulance for assignment. 2. Select from Normal or Delayed and/or specify the average offload average offload time in minutes.
Used In	HospitalStatus/Hospital/EmergencyDepartmentStatus

Element	`<have:EMSOffloadStatus>`
Type	`xsd:string with restrictions`
Usage	**OPTIONAL**
Definition	Indicator of offload times of ambulance capabilities.
Constraints	Values: 1. Normal – The time required to offload the patient is typical 2. Delayed – The time required to offload the patient is longer than typical.
Used In	HospitalStatus/Hospital/EmergencyDepartmentStatus/EMSAmbulanceStatus~~/Offload~~ HospitalStatus/Hospital/EmergencyDepartmentStatus/EMSAirTransportStatus~~/Offload~~

Element	`<have:EMSOffloadMinutes>`
Type	`xsd:integer`
Usage	**OPTIONAL**

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Definition	The average time to offload a patient, in minutes.
Used In	HospitalStatus/Hospital/EmergencyDepartmentStatus/EMSAmbulanceStatus~~/Offload~~ HospitalStatus/Hospital/EmergencyDepartmentStatus/EMSAirTransportStatus~~/Offload~~

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3.2.4 HOSPITAL BED CAPACITY STATUS

Note: Please refer to Appendix B for definitions for bed types.

Element	**`<have:HospitalBedCapacityStatus>`**
Type	`XML Structure`
Usage	**OPTIONAL**
Definition	The container of all of the elements related to the hospital bed capacity and status.
Constraints	1. For each of the bed types (AdultICU, MedicalSurgical, etc.), if needed, a collection of named sub-types MAY be provided. 2. A hospital MAY specify the number of sub-categories without specifying all of the sub-categories. 3. The totals of sub-categories MAY equal the capacity data specified in the parent.
Comments	`Example, a hospital may sub-categorize Adult ICU beds into Surgery, Cardiac, General and Neuro.`
Sub-elements	• BedCapacity
Used In	HospitalStatus/Hospital

Element	**`<have:BedCapacity>`**
Type	`XML Structure`
Usage	**CONDITIONAL;** May use multiple
Definition	Container element to identify the number of available beds.
Constraints	1. Multiple instances of `<BedCapacity>` elements MAY be specified. 2. Each parent `<BedType>` element and its associated sub-category bed types MUST be encapsulated with a `<BedCapacity>` element.
Sub-elements	• BedType • SubCategoryBedType • CommentText • Capacity

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Used In	HospitalStatus/Hospital/HospitalBedCapacityStatus

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Element	`<have:BedType>`
Type	`xsd:string with restrictions`
Usage	**OPTIONAL,** May use multiple
Definition	Enumerated list of available Bed Types.
Constraints	1. Each bed type (AdultICU, MedicalSurgical, etc.) MAY optionally contain a collection of named sub-categories. 2. The totals of sub-categories MAY equal the capacity data specified in the parent.
Comments	Values: 1. 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 neuro, cardiac, trauma, or medical, with the exception that this category does not include burn ICU beds. 2. PediatricICU • Capacity status for pediatric ICU beds. This is similar to adult ICU beds, but for patients 17-years-old and younger. 3. NeonatalICU • Capacity status for nenonatal ICU beds. 4. EmergencyDepartment • Capacity status for beds within the Emergency Department used for acute care. 5. NurseryBeds • Capacity Status for Neonatal or newborn care beds including all bed types other than Neonatal ICU 6. 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 7. RehabLongTermCare – Capacity Status for Rehabilitation/Long term care beds. • Beds designated as long term care rehabilitation. These do not include floor beds. 8. 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. 9. Pediatrics

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	• Capacity status for pediatrics beds. These are ward medical/surgical beds for patients 17-years-old and younger. 10. 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. 11. PediatricPsychiatric • 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 12. 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. 13. 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. 14. OperatingRooms • Capacity status for operating rooms which are equipped staffed and could be made available for patient care in a short period of time. `Example, a hospital may sub-categorize Adult ICU beds into Surgery, Cardiac, General and Neuro.`
Used In	HospitalStatus/Hospital/HospitalBedCapacityStatus/BedCapacity

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Element	`<have:SubCategoryBedType>`
Type	`xsd:string`
Usage	**OPTIONAL,** MAY use multiple
Definition	The name of the sub-category bed type
Constraints	1. Each bed type MAY have many one or more named sub-type categories. 2. 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'. 3. Each parent `<BedType>` element and its associated sub-category bed types MUST be encapsulated with a `<BedCapacity>` element. 4. If the capacity counts of sub-category beds are specified, they MAY not equal the capacity count of the parent bed type. 5. In general, if capacities are specified using sub-category bed types, then only the `<CapacityStatus>` of the parent bed type MUST be used, and this should reflect an 'Available' value. No assumptions should be made about capacities that

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	are not specified.
Comments	1. If a `<Capacity>` element is specified, it pertains to the preceding `<BedType>` or `<SubCategoryBedType>` element. Note: Please see example at the end of this section.
Used In	HospitalStatus/Hospital/HospitalBedCapacityStatus/BedCapacity

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Element	`<have:Capacity>`
Type	`xsd:string`
Usage	**OPTIONAL,** May use multiple
Definition	Container element to define the capacity information of each specified bed type or sub category bed type.
Constraints	1. `<BedType>` element or `<SubCategoryBedType>` elements MAY have a `<Capacity>` element. 2. In general, if capacities are specified using sub-category bed types, then only the `<CapacityStatus>` of the parent bed type MUST be used, and this MUST reflect an 'Available' value.
Comments	1. If a `<Capacity>` element is specified, it pertains to the preceding <BedType> or `<SubCategoryBedType>` element. 2. No assumptions must be made about bed capacities that are not specified.
Sub-elements	• CapacityStatus • AvailableCount • BaselineCount • AdditionalCapacityCount24Hr • AdditionalCapacityCount72Hr
Used In	HospitalStatus/Hospital/HospitalBedCapacityStatus/BedCapacity

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Element	`<have:CapacityStatus>`
Type	`xsd:string with restrictions`
Usage	**OPTIONAL**
Definition	Indicator of status of bed type or sub-category bed type.

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Constraints	1. Values: • VacantAvailable – The type of bed is available. • NotAvailable – The type of bed is not available.
Comments	1. No assumptions must be made about bed capacities that are not specified. 2. 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. Note: Please refer to appendix B
Used In	HospitalStatus/Hospital/HospitalBedCapacityStatus/BedCapacity/Capacity

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Element	`<have:AvailableCount>`
Type	`xsd:integer`
Usage	**OPTIONAL**
Definition	The number of vacant/available beds to which patients can be immediately transported.
Comments	1. These will include supporting space, equipment, medical material, ancillary and support services, and staff to operate under normal circumstances. 2. These beds are licensed, physically available and have staff on hand to attend to the patient who occupies the bed.
Used In	HospitalStatus/Hospital/HospitalBedCapacityStatus/BedCapacity/Capacity

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Element	`<have:BaselineCount>`
Type	`xsd:integer`
Usage	**OPTIONAL**
Definition	The maximum (baseline) number of beds in this category.
Used In	HospitalStatus/Hospital/HospitalBedCapacityStatus/BedCapacity/Capacity

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Element	`<have:AdditionalCapacityCount24Hr>`
Type	`xsd:integer`
Usage	**OPTIONAL**
Definition	Estimate of the beds, above the current number, that could be made vacant/available within 24 hours.
Comments	1. This includes institutional surge beds as well as beds made available by discharging or transferring patients.
Used In	HospitalStatus/Hospital/HospitalBedCapacityStatus/BedCapacity/Capacity

Element	`<have:AdditionalCapacityCount72Hr>`
Type	`xsd:integer`
Usage	**OPTIONAL**
Definition	Estimate of the beds, above the current number, that could be made vacant/available within 72 hours.
Comments	1. This includes institutional surge beds as well as beds made available by discharging or transferring patients.
Used In	HospitalStatus/Hospital/HospitalBedCapacityStatus/BedCapacity/Capacity

Example 1:

```
<have:HospitalBedCapacityStatus>

<have:BedCapacity>
 <have:BedType> AdultICU </have:BedType>
 <have:Capacity>
  <have:CapacityStatus> Available </have:CapacityStatus>
 </have:Capacity>
 <have:SubCategoryBedType> Surgery </have:SubCategoryBedType>
 <have:Capacity>
  <have:CapacityStatus> Vacant/Available </have:CapacityStatus>
  <have:AvailableCount> 40 </have:AvailableCount>
 </have:Capacity>
 <have:SubCategoryBedType> General </have:SubCategoryBedType>
 <have:Capacity>
  <have:CapacityStatus> Vacant/Available </have:CapacityStatus>
  <have:AvailableCount> 20 </have:AvailableCount>
 </have:Capacity>
</have:BedCapacity>
```


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Example 2:

```
<have:HospitalBedCapacityStatus>
 <have:BedCapacity>
  <have:BedType> AdultICU </have:BedType>
  <have:Capacity>
   <have:CapacityStatus> Available </have:CapacityStatus>
   <have:AvailableCount> 40 </have:AvailableCount>
  </have:Capacity>
 </have:BedCapacity>
</have:HospitalBedCapacityStatus>
```


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3.2.5 SERVICE COVERAGE STATUS

Element	`<have:ServiceCoverageStatus>`
Type	`XML Structure`
Usage	**OPTIONAL**
Definition	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.
Constraints	1. Either one – the parent category or the subcategories - MUST be used. Both MUST not be used together.
Comments	1. Some of the services capabilities are broken down into subtypes. This is to allow organizations to designate subtypes, if available. 2. If not, only the higher level specialties are reported. 3. Organizations can either report the parent category or report the subcategories.
Sub-elements	• Burn • CardiologyIndicator • Dialysis • EmergencyDepartment • HyperbaricChamber • InfectiousDiseases • Neonatology • NeurologyIndicator • OBGYNIndicator • Ophthalmology • Orthopedic • Pediatrics • PsychiatricIndicator • SurgeryIndicator • TransportServicesIndicator • TraumaCenterServicesIndicator • CommentText
Used In	HospitalStatus/Hospital

Element	`<have:Burn>`

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Type	`xsd:boolean`
Usage	**OPTIONAL**
Definition	The availability of burn center services.
Comments	Values: 1. "true" or "1" - This type of services is available. 2. "false" or "0" - This type of services is not available.
Used In	HospitalStatus/Hospital/ServiceCoverageStatus

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Element	`<have:CardiologyIndicator>`
Type	`XML Structure`
Usage	**OPTIONAL**
Definition	The container element for specifying the availability of Cardiology services.
Constraints	1. Either <have:Cardiology> OR <have:CardiologySubType> must be used - but must not be used together.~~Either one – the parent category or the subcategories – MUST be used. Both MUST not be used together.~~
Comments	1. This service capability is broken down into the below subcategories. This is to allow organizations to designate subcategories, if available. 2. Organizations can either report the parent category or report the subcategories.
Sub-elements	Choice: • Cardiology • CardiologySubType
Used In	HospitalStatus/Hospital/ServiceCoverageStatus

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Element	`<have:Cardiology>`
Type	`xsd:boolean`
Usage	**OPTIONAL**
Definition	The availability of cardiology services.

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Comments	Values:
	1. “true” or “1” - This type of services is available.
	2. “false” or “0” - This type of services is not available.
	`Example:`
	`<have:ServiceCoverageStatus>`
	`<have:CardiologyIndicator>`
	`  <have:Cardiology>true</have:Cardiology>`
	`</have:CardiologyIndicator>`
	`</have:ServiceCoverageStatus>`
	
	`Example:`
	`<have:ServiceCoverageStatus>`
	`  <have:CardiologyIndicator>`
	`  <have:CardiologySubType>`
	`  <have:CardiologyInvasive>true</have:CardiologyInvasive>`
	`  <have:CardiologyNonInvasive>false</have:CardiologyNonInvasive>`
	`  </have:CardiologySubType>`
	`  </have:CardiologyIndicator>`
	`</have:ServiceCoverageStatus>`

Used In	HospitalStatus/Hospital/ServiceCoverageStatus/CardiologyIndicator

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Element	`<have:CardiologySubType>`
Type	`XML Structure`
Usage	**OPTIONAL**
Definition	The container element for specifying the availability of Cardiology services that are broken down into sub-types.
Sub-elements	Choices: • CardiologyInvasive • CardiologyNonInvasive
Used In	HospitalStatus/Hospital/ServiceCoverageStatus/CardiologyIndicator

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Element	`<have:CardiologyInvasive>`
Type	`xsd:boolean`
Usage	**OPTIONAL**
Definition	The availability of cardiology-invasive services.

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Comments	Values: 1. “true” or “1” - This type of services is available. 2. “false” or “0” - This type of services is not available.
Used In	HospitalStatus/Hospital/ServiceCoverageStatus/CardiologyIndicator/CardiologySubType

Element	`<have:CardiologyNonInvasive>`
Type	`xsd:boolean`
Usage	**OPTIONAL**
Definition	The availability of cardiology-non-invasive services.
Comments	Values: 1. “true” or “1” - This type of services is available. 2. “false” or “0” - This type of services is not available.
Used In	HospitalStatus/Hospital/ServiceCoverageStatus/CardiologySubType

Element	`<have:Dialysis>`
Type	`xsd:boolean`
Usage	**OPTIONAL**
Definition	The availability of dialysis services.
Comments	Values: 1. “true” or “1” - This type of services is available. 2. “false” or “0” - This type of services is not available.
Used In	HospitalStatus/Hospital/ServiceCoverageStatus

Element	`<have:EmergencyDepartment>`
Type	`xsd:boolean`
Usage	**OPTIONAL**

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Definition	The availability of Emergency Department services.
Comments	Values: 1. “true” or “1” - This type of services is available. 2. “false” or “0” - This type of services is not available.
Used In	HospitalStatus/Hospital/ServiceCoverageStatus

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Element	`<have:HyperbaricChamber>`
Type	`xsd:boolean`
Usage	**OPTIONAL**
Definition	The availability of hyperbaric chamber services for decompression and/or wound care.
Comments	Values: 1. “true” or “1” - This type of services is available. 2. “false” or “0” - This type of services is not available.
Used In	HospitalStatus/Hospital/ServiceCoverageStatus

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Element	`<have:InfectiousDiseases>`
Type	`xsd:boolean`
Usage	**OPTIONAL**
Definition	The availability of infectious diseases services.
Comments	Values: 1. “true” or “1” - This type of services is available. 2. “false” or “0” - This type of services is not available.
Used In	HospitalStatus/Hospital/ServiceCoverageStatus

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Element	`<have:Neonatology>`

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Type	`xsd:boolean`
Usage	**OPTIONAL**
Definition	The availability of neonatology services.
Comments	Values: 1. "true" or "1" - This type of services is available. 2. "false" or "0" - This type of services is not available.
Used In	HospitalStatus/Hospital/ServiceCoverageStatus

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Element	`<have:NeurologyIndicator>`
Type	`XML Structure`
Usage	**OPTIONAL**
Definition	The container element for specifying the availability of Neurology services.
Constraints	1. Either one – the parent category or the subcategories - MUST be used. Both MUST not be used together.
Comments	1. This service capability is broken down into the below subcategories. This is to allow Organizations to designate subcategories, if available. 2. Organizations can either report the parent category or report the subcategories.
Sub-elements	Choices: • Neurology • NeurologySubType
Used In	HospitalStatus/Hospital/ServiceCoverageStatus

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Element	`<have:Neurology>`
Type	`xsd:boolean`
Usage	**OPTIONAL**
Definition	The availability of neurology services.

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Comments	Values: 1. “true” or “1” - This type of services is available. 2. “false” or “0”- This type of services is not available.
Used In	HospitalStatus/Hospital/ServiceCoverageStatus/NeurologyIndicator

Element	`<have:NeurologySubType>`
Type	`XML Structure`
Usage	**OPTIONAL**
Definition	The container element for specifying the availability of Neurology services that are broken down into sub-types.
Sub-elements	Choice: • NeurologyInvasive • NeurologyNonInvasive
Used In	HospitalStatus/Hospital/ServiceCoverageStatus/NeurologyIndicator

Element	`<have:NeurologyInvasive>`
Type	`xsd:boolean`
Usage	**OPTIONAL**
Definition	The availability of Neurology-Invasive services, including invasive catheterization.
Comments	Values: 1. “true” or “1” - This type of services is available. 2. “false” or “0”- This type of services is not available.
Used In	HospitalStatus/Hospital/ServiceCoverageStatus/NeurologyIndicator/NeurologySubType

Element	`<have:NeurologyNonInvasive>`
Type	`xsd:boolean`

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Usage	**OPTIONAL**
Definition	The availability of Neurology-Non-Invasive services with no invasive catheterization capability.
Comments	Values: 1. "true" or "1" - This type of services is available. 2. "false" or "0" - This type of services is not available.
Used In	HospitalStatus/Hospital/ServiceCoverageStatus/NeurologyIndicator/NeurologySubType

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Element	`<have:OBGYNIndicator>`
Type	`XML Structure`
Usage	**OPTIONAL**
Definition	The container element for specifying the availability of OBGYN services.
Constraints	1. Either one – the parent category or the subcategories - must be used. Both MUST not be used together.
Comments	1. This service capability is broken down into the below subcategories. This is to allow Organizations to designate subcategories, if available. 2. Organizations can either report the parent category or report the subcategories.
Sub-elements	Choices: • OBGYN • OBGYNSubType
Used In	HospitalStatus/Hospital/ServiceCoverageStatus

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Element	`<have:OBGYN>`
Type	`xsd:boolean`
Usage	**OPTIONAL**
Definition	The availability of OBGYN services ~~with labor delivery services~~.
Comments	Values: 1. "true" or "1" - This type of services is available.

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	2. “false” or “0” - This type of services is not available.
Used In	HospitalStatus/Hospital/ServiceCoverageStatus/OBGYNIndicator

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Element	`<have:OBGYNSubType>`
Type	`XML Structure`
Usage	**OPTIONAL**
Definition	The container element for specifying the availability of OBGYN services that are broken down into sub-types.
Sub-elements	Choice: • OBGYNWithLaborDelivery • OBGYNWithoutLaborDelivery
Used In	HospitalStatus/Hospital/ServiceCoverageStatus/OBGYNIndicator

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Element	`<have:OBGYNWithLaborDelivery>`
Type	`xsd:boolean`
Usage	**OPTIONAL**
Definition	The availability of OBGYN services with labor delivery services.
Comments	Values: 1. “true” or “1” - This type of services is available. 2. “false” or “0” - This type of services is not available.
Used In	HospitalStatus/Hospital/ServiceCoverageStatus/OBGYNIndicator/OBGYNSubType

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Element	`<have:OBGYNWithoutLaborDelivery>`
Type	`xsd:boolean`
Usage	**OPTIONAL**
Definition	The availability of OGYN Services without Labor Delivery Services.

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Comments	Values: 1. “true” or “1” - This type of services is available. 2. “false” or “0” - This type of services is not available.
Used In	HospitalStatus/Hospital/ServiceCoverageStatus/OBGYNIndicator/OBGYNSubType

Element	`<have:Ophthalmology>`
Type	`xsd:boolean`
Usage	**OPTIONAL**
Definition	The availability of Ophthalmology services.
Comments	Values: 1. “true” or “1” - This type of services is available. 2. “false” or “0” - This type of services is not available.
Used In	HospitalStatus/Hospital/ServiceCoverageStatus

Element	`<have:Orthopedic>`
Type	`xsd:boolean`
Usage	**OPTIONAL**
Definition	The availability of orthopedic services.
Comments	Values: 1. “true” or “1” - This type of services is available. 2. “false” or “0” - This type of services is not available.
Used In	HospitalStatus/Hospital/ServiceCoverageStatus

Element	`<have:Pediatrics>`
Type	`xsd:boolean`

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Usage	**OPTIONAL**
Definition	The availability of pediatric services.
Comments	Values: 1. "true" or "1" - This type of services is available. 2. "false" or "0" - This type of services is not available.
Used In	HospitalStatus/Hospital/ServiceCoverageStatus

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Element	`<have:PsychiatricIndicator>`
Type	`XML Structure`
Usage	**OPTIONAL**
Definition	The container element for specifying the availability of Psychiatric services.
Constraints	1. Either one – the parent category or the subcategories - MUST be used. Both MUST not be used together.
Comments	1. This service capability is broken down into the below subcategories. This is to allow Organizations to designate subcategories, if available. 2. Organizations MAY either report the parent category or report the subcategories.
Sub-elements	Choices: • Psychiatric • PsychiatricSubType
Used In	HospitalStatus/Hospital/ServiceCoverageStatus

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Element	`<have:Psychiatric>`
Type	`xsd:boolean`
Usage	**OPTIONAL**
Definition	The availability of psychiatric services.
Comments	Values: 1. "true" or "1" - This type of services is available.

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	2. “false” or “0” - This type of services is not available.
Used In	HospitalStatus/Hospital/ServiceCoverageStatus/PsychiatricIndicator

Element	`<have:PsychiatricSubType>`
Type	`XML Structure`
Usage	**OPTIONAL**
Definition	The container element for specifying the availability of Psychiatric services that are broken down into sub-types.
Sub-elements	Choice: 1. PsychiatricAdultGeneral 2. PsychiatricPediatric
Used In	HospitalStatus/Hospital/ServiceCoverageStatus/PsychiatricIndicator

Element	`<have:PsychiatricAdultGeneral>`
Type	`xsd:boolean`
Usage	**OPTIONAL**
Definition	Availability of Adult General Psychiatric services.
Comments	1. Sub-type element of the psychiatric services. 2. Values: • ”true” or “1” - This type of services is available. • “false” or “0” - This type of services is not available.
Used In	HospitalStatus/Hospital/ServiceCoverageStatus/PsychiatricIndicator/PsychiatricSubType

Element	`<have:PsychiatricPediatric>`
Type	`xsd:boolean`

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Usage	**OPTIONAL**
Definition	Availability of Pediatric Psychiatric services.
Comments	1. Sub-type element of the psychiatric services. 2. Values: • "true" or "1" - This type of services is available. • "false" or "0" - This type of services is not available.
Used In	HospitalStatus/Hospital/ServiceCoverageStatus/PsychiatricIndicator/PsychiatricSubType

Element	`<have:SurgeryIndicator>`
Type	`XML Structure`
Usage	**OPTIONAL**
Definition	The container element for specifying the availability of Surgery services.
Constraints	1. Either one – the parent category or the subcategories - MUST be used. Both MUST not be used together.
Comments	1. This service capability is broken down into the below subcategories. This is to allow Organizations to designate subcategories, if available. 2. Organizations MAY either report the parent category or report the subcategories. ~~2.~~3. Surgery Services and Surgical Services are used interchangeably.
Sub-elements	Choices: • Surgery • SurgerySubType
Used In	HospitalStatus/Hospital/ServiceCoverageStatus

Element	`<have:Surgery>`
Type	`xsd:boolean`
Usage	**OPTIONAL**
Definition	The availability of surgery services.

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Comments	Values: • "true" or "1" - This type of services is available. • "false" or "0" - This type of services is not available.
Used In	HospitalStatus/Hospital/ServiceCoverageStatus/SurgeryIndicator

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Element	`<have:SurgerySubType>`
Type	`xsd:boolean`
Usage	**OPTIONAL**
Definition	The container element for specifying the availability of surgery services that are broken down into sub-types.
Sub-elements	• General • AdultGeneralSurgery • Pediatrics • Orthopedics • NeuroSurgery • Facial • CardioThoracic • Hand • Reimplantation • Spinal • Vascular • Anesthesia
Used In	HospitalStatus/Hospital/ServiceCoverageStatus/SurgeryIndicator

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Element	`<have:General>`
Type	`xsd:boolean`
Usage	**OPTIONAL**
Definition	The availability of general surgical services.
Comments	1. Sub-type element of the adult general services.

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	2. Values: • "true" or "1" - This type of services is available. • "false" or "0" - This type of services is not available.
Used In	HospitalStatus/Hospital/ServiceCoverageStatus/SurgeryIndicator/SurgerySubType

Element	`<have:AdultGeneralSurgery>`
Type	`xsd:boolean`
Usage	**OPTIONAL**
Definition	The availability of adult general services.
Comments	1. Sub-type element of the adult general services. 2. Values: • "true" or "1" - This type of services is available. • "false" or "0" - This type of services is not available.
Used In	HospitalStatus/Hospital/ServiceCoverageStatus/SurgeryIndicator/SurgerySubType

Element	`<have:Pediatrics>`
Type	`xsd:boolean`
Usage	**OPTIONAL**
Definition	The availability of Pediatrics general surgical services.
Comments	1. Sub-type element of pediatrics general surgical services. 2. Values: • "true" or "1" - This type of services is available. • "false" or "0" - This type of services is not available.
Used In	HospitalStatus/Hospital/ServiceCoverageStatus/SurgeryIndicator/SurgerySubType

Element	`<have:Orthopedics>`

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Type	`xsd:boolean`
Usage	**OPTIONAL**
Definition	The availability of Orthopedic surgical services.
Comments	1. Sub-type element of orthopedic surgical services. 2. Values: • ”true” or “1” - This type of services is available. • ”false” or “0” - This type of services is not available.
Used In	HospitalStatus/Hospital/ServiceCoverageStatus/SurgeryIndicator/SurgerySubType

Element	`<have:NeuroSurgery>`
Type	`xsd:boolean`
Usage	**OPTIONAL**
Definition	The availability of Neurosurgery services.
Comments	1. Sub-type element of neurosurgery services. 2. Values: • “true” or “1” - This type of services is available. • “false” or “0” - This type of services is not available.
Used In	HospitalStatus/Hospital/ServiceCoverageStatus/SurgeryIndicator/SurgerySubType

Element	`<have:Facial>`
Type	`xsd:boolean`
Usage	**OPTIONAL**
Definition	The availability of facial surgical services.
Comments	1. Sub-type element of facial surgery services. 2. Values: • ”true” or “1” - This type of services is available. • ”false” or “0” - This type of services is not available.

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Used In	HospitalStatus/Hospital/ServiceCoverageStatus/SurgeryIndicator/SurgerySubType

Element	`<have:CardioThoracic>`
Type	`xsd:boolean`
Usage	**OPTIONAL**
Definition	The availability of cardiothoracic surgical services.
Comments	1. Sub-type element of cardiothoracic services. 2. Values: • "true" or "1" - This type of services is available. • "false" or "0" - This type of services is not available.
Used In	HospitalStatus/Hospital/ServiceCoverageStatus/SurgeryIndicator/SurgerySubType

Element	`<have:Hand>`
Type	`xsd:boolean`
Usage	**OPTIONAL**
Definition	The availability of hand surgery services.
Comments	1. Sub-type element of hand surgery services. 2. Values: • "true" or "1" - This type of services is available. • "false" or "0" - This type of services is not available.
Used In	HospitalStatus/Hospital/ServiceCoverageStatus/SurgeryIndicator/SurgerySubType

Element	`<have:Reimplantation>`
Type	`xsd:boolean`
Usage	**OPTIONAL**

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Definition	The availability of reimplantation surgical services.
Comments	1. Sub-type element of reimplantation surgical services. 2. Values: • Available - This type of services is available. • NotAvailable - This type of services is not available.
Used In	HospitalStatus/Hospital/ServiceCoverageStatus/SurgeryIndicator/SurgerySubType

Element	`<have:Spinal>`
Type	`xsd:boolean`
Usage	**OPTIONAL**
Definition	The availability of spinal surgical services.
Comments	1. Sub-type element of spinal surgical services. 2. Values: • ”true” or “1” - This type of services is available. • “false” or “0” - This type of services is not available.
Used In	HospitalStatus/Hospital/ServiceCoverageStatus/SurgeryIndicator/SurgerySubType

Element	`<have:Vascular>`
Type	`xsd:boolean`
Usage	**OPTIONAL**
Definition	The availability of vascular surgical services.
Comments	1. Sub-type element of vascular surgery services. 2. Values: • ”true” or “1” - This type of services is available. • ”false” or “0” - This type of services is not available.
Used In	HospitalStatus/Hospital/ServiceCoverageStatus/SurgeryIndicator/SurgerySubType

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Element	`<have:Anesthesia>`
Type	`xsd:boolean`
Usage	**OPTIONAL**
Definition	The availability of anesthesia services.
Comments	1. Sub-type element of anesthesia services. 2. Values: • "true" or "1" – This type of services is available. • "false" or "0" – This type of services is not available.
Used In	HospitalStatus/Hospital/ServiceCoverageStatus/SurgeryIndicator/SurgerySubType

Element	`<have:TransportServicesIndicator>`
Type	`XML Structure`
Usage	**OPTIONAL**
Definition	The container element for specifying the availability of Transport services.
Constraints	1. Either one – the parent category or the subcategories - MUST be used. Both MUST not be used together.
Comments	1. This service capability is broken down into the below subcategories. This is to allow Organizations to designate subcategories, if available. 2. Organizations MAY either report the parent category or report the subcategories.
Sub-elements	Choices: • TransportServices • TransportServicesSubType
Used In	HospitalStatus/Hospital/ServiceCoverageStatus

Element	`<have:TransportServices>`
Type	`xsd:boolean`
Usage	**OPTIONAL**

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Definition	The availability of transport services.
Comments	Values: 1. “true” or “1” - This type of services is available. 2. “false” or “0” - This type of services is not available.
Used In	HospitalStatus/Hospital/ServiceCoverageStatus/TransportServicesIndicator

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Element	`<have:TransportServicesSubType>`
Type	`xsd:boolean`
Usage	**OPTIONAL**
Definition	The container element for specifying the availability of Transport Services that are broken down into sub-types.
Comments	Values: 1. “true” or “1” - This type of services is available. 2. ”false” or “0” - This type of services is not available.
Sub-elements	• AirTransportServices • AmbulanceServices
Used In	HospitalStatus/Hospital/ServiceCoverageStatus/TransportServicesIndicator

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Element	`<have:AirTransportServices>`
Type	`xsd:boolean`
Usage	**OPTIONAL**
Definition	The availability of air-transport services.
Comments	1. Sub-element of transport services. 2. Values: • “true” or “1” - This type of services is available. • ”false” or “0” - This type of services is not available.
Used In	HospitalStatus/Hospital/ ServiceCoverageStatus/TransportServicesIndicator/TransportServicesSubType

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Element	`<have:AmbulanceServices>`
Type	`xsd:boolean`
Usage	**OPTIONAL**
Definition	The availability of transport services.
Comments	1. Sub-element of Transport Services 2. Values: • ”true” or “1” - This type of services is available. • ”false” or “0” - This type of services is not available.
Used In	HospitalStatus/Hospital/ ServiceCoverageStatus/TransportServicesIndicator/TransportServicesSubType

Element	`<have:TraumaCenterServicesIndicator>`
Type	`XML Structure`
Usage	**CONDITIONAL**; MUST be used once, if any sub-elements are used
Definition	The container element for specifying the availability of Trauma center services.
Constraints	1. Either one – the parent category or the subcategories - MUST be used. Both MUST not be used together.
Comments	1. This service capability is broken down into the below subcategories. This is to allow Organizations to designate subcategories, if available. 2. Organizations MAY either report the parent category or report the subcategories.
Sub-elements	Choices: • TraumaCenterServices • TraumaCenterServicesLevel
Used In	HospitalStatus/Hospital/ServiceCoverageStatus

Element	`<have:TraumaCenterServices>`

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Type	`xsd:boolean`
Usage	**OPTIONAL**
Definition	The availability of trauma center services.
Comments	Values: 1. "true" or "1" - This type of services is available. 2. "false" or "0" - This type of services is not available.
Used In	HospitalStatus/Hospital/ServiceCoverageStatus/TraumaCenterServicesIndicator

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Element	`<have:TraumaCenterServicesLevel>`
Type	`xsd:string with restrictions`
Usage	**OPTIONAL**
Definition	The service level of the trauma center.
Comments	1. Values: • Level1 • Level2 • Level3 • Level4 2. For definitions please refer to the American College of Surgeons - http://www.facs.org/trauma/hospitallevels.pdf
Used In	HospitalStatus/Hospital/ServiceCoverageStatus/TraumaCenterServicesIndicator

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3.2.6 HOSPITAL FACILITY STATUS

Element	**`<have:HospitalFacilityStatus>`**
Type	`XML Structure`
Usage	**OPTIONAL**
Definition	The container of all of the elements related to the status of the facility. The elements in `<FacilityStatus>` provide a general status of the facility.
Sub-elements	• HospitalEOCStatus • HospitalEOCPlan • ClinicalStatus • DeconCapacity • MorgueCapacity • FacilityStatus • SecurityStatus • Activity24Hr • CommentText
Used In	HospitalStatus/Hospital

Element	`<have:HospitalEOCStatus>`
Type	`xsd:string with restrictions`
Usage	**OPTIONAL**
Definition	Whether the Emergency Operations Center (EOC) is currently operating.
Comments	1. 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. 2. Default Value: Inactive Note: An EOC is a location that is activated in a disaster or emergency from which the overall command, control, communications and coordination are conducted.

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	Note: The EOC is typically activated in disasters or other special situations, and this term is NOT intended to indicate whether the clinical emergency department is open for patient care.
Used In	HospitalStatus/Hospital/HospitalFacilityStatus

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Element	`<have:HospitalEOCPlan>`
Type	`xsd:string with restrictions`
Usage	**OPTIONAL**
Definition	Whether the hospital has activated its Emergency Operations Plan (EOP)
Comments	Values: 1. Active 2. Inactive Note: An EOC Plan documents operations during an emergency, including the process to activate or inactivate the EOC.
Used In	HospitalStatus/Hospital/HospitalFacilityStatus

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Element	`<have:ClinicalStatus>`
Type	`xsd:string with restrictions`
Usage	**OPTIONAL**
Definition	The clinical status of the facility.
Comments	Values: 1. Normal - Hospital clinical resources are operating within normal conditions. 2. Full - Hospital clinical resources are exceeded and acceptable care cannot be provided to additional patients. Diversion or community surge response is required.
Used In	HospitalStatus/Hospital/HospitalFacilityStatus

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Element	`<have:DeconCapacity>`

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Type	`xsd:string`
Usage	**OPTIONAL**
Definition	The container element for Decon capacity.
Sub-elements	• DeconCapacityStatus • AmbulatoryPatientsDeconCapacity • NonAmbulatoryPatientsDeconCapacity
Used In	HospitalStatus/Hospital/HospitalFacilityStatus

Element	`<have:DeconCapacityStatus>`
Type	`xsd:string with restrictions`
Usage	**OPTIONAL**
Definition	The capacity for chemical/biological/radiological patient decontamination.
Comments	Values: 1. Inactive - Not being used, but available if needed 2. Open - In use and able to accept additional patients 3. Full - In use at maximum capacity 4. Exceeded - Needs exceed available capacity
Used In	HospitalStatus/Hospital/HospitalFacilityStatus/DeconCapacity

Element	`<have:AmbulatoryPatientsDeconCapacity>`
Type	`xsd:integer`
Usage	**OPTIONAL**
Definition	The number of ambulatory patients which can be decontaminated over time (typically an hour).
Used In	HospitalStatus/Hospital/HospitalFacilityStatus/DeconCapacity

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Element	`<have:NonAmbulatoryPatientsDeconCapacity>`
Type	`xsd:integer`
Usage	**OPTIONAL**
Definition	The number of non-ambulatory patients which can be decontaminated over time (typically an hour).
Used In	HospitalStatus/Hospital/HospitalFacilityStatus/DeconCapacity

Element	`<have:MorgueCapacity>`
Type	`xsd:string`
Usage	**OPTIONAL**
Definition	The status of the morgue capacity.
Sub-elements	• MorgueCapacityStatus • MorgueCapacityUnits
Used In	HospitalStatus/Hospital/HospitalFacilityStatus~~/DeconCapacity~~

Element	`<have:MorgueCapacityStatus>`
Type	`xsd:string with restrictions`
Usage	**OPTIONAL**
Definition	The status of the morgue capacity.
Comments	Values: 1. Open - Space is available 2. Full - All normal space is in use 3. Exceeded - Storage needs exceed available space
Used In	HospitalStatus/Hospital/HospitalFacilityStatus/MorgueCapacity

Element	`<have:MorgueCapacityUnits>`

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Type	`xsd:integer`
Usage	**OPTIONAL**
Definition	The number of vacant/available units to which victims can be immediately transported.
Used In	HospitalStatus/Hospital/HospitalFacilityStatus/MorgueCapacity

Element	`<have:FacilityStatus>`
Type	`xsd:string with restrictions`
Usage	**OPTIONAL**
Definition	The status of the facility.
Comments	Values: 1. Normal - No conditions exist that adversely affect the general operations of the facility. 2. Compromised - General operations of the facility have been affected due to damage, operating on emergency backup systems, or facility contamination. 3. Evacuating - Indicates that a hospital is in the process of a partial or full evacuation. 4. Closed - Indicates that a hospital is no longer capable of providing services and only emergency services/restoration personnel may remain in the facility.
Used In	~~HospitalStatus/Hospital/~~HospitalStatus/Hospital/HospitalFacilityStatus

Element	`<have:SecurityStatus>`
Type	`xsd:string with restrictions`
Usage	**OPTIONAL**
Definition	The status of security procedures in the hospital.
Comments	Values: 1. Normal - The hospital is operating under routine security procedures. 2. 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. 3. RestrictedAccess - Based on security needs, the hospital has activated procedures to allow access to the facility through a reduced number of controlled

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	entrances. 4. Lockdown - Based on security needs, the hospital has activated procedures to control entry to the facility to authorized persons only. 5. Quarantine - Based on a public health emergency, the entry and exit of the facility is controlled by public health officials.
Used In	HospitalStatus/Hospital/HospitalFacilityStatus

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Element	`<have:Activity24Hr>`
Type	`XML Structure`
Usage	**OPTIONAL**
Definition	The container element for reporting activities in the last 24 hours.
Comments	1. The time is relative to the timestamp of the `<LastUpdateTime>` of the `<Hospital>` element.
Sub-elements	• Admissions • Discharges • Deaths
Used In	HospitalStatus/Hospital/HospitalFacilityStatus

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Element	`<have:Admissions>`
Type	`xsd:integer`
Usage	**OPTIONAL**
Definition	The number of admissions in the last 24 hours.
Comments	1. The time is relative to the timestamp of the `<LastUpdateTime>` of the `<Hospital>` element.
Used In	HospitalStatus/Hospital/HospitalFacilityStatus/Activity24Hr

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Element	`<have:Discharges>`
Type	`xsd:integer`

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Usage	**OPTIONAL**
Definition	The number of discharges in the last 24 hours.
Comments	1. The time is relative to the timestamp of the `<LastUpdateTime>` of the `<Hospital>` element.
Used In	HospitalStatus/Hospital/HospitalFacilityStatus/Activity24Hr

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Element	`<have:Deaths>`
Type	`xsd:integer`
Usage	**OPTIONAL**
Definition	The number of deaths in the last 24 hours.
Comments	1. The time is relative to the timestamp of the `<LastUpdateTime>` of the `<Hospital>` element.
Used In	HospitalStatus/Hospital/HospitalFacilityStatus/Activity24Hr

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3.2.7 HOSPITAL RESOURCES STATUS

Element	**`<have:HospitalResourcesStatus>`**
Type	`XML Structure`
Usage	**OPTIONAL**
Definition	The container for all the elements related to the operations of the facility.
Sub-elements	• Staffing • FacilityOperations • ClinicalOperations • ResourcesInformationText • CommentText
Used In	HospitalStatus/Hospital

Element	`<have:Staffing>`
Type	`xsd:string with restrictions`
Usage	**OPTIONAL**
Definition	The status of general staffing in the organization.
Comments	Values: 1. Adequate – Meets the current needs. 2. Insufficient – Current need is not being met and impacts the operations of the hospital. Note: Specific shortage in one or more departments should be noted in the comments.
Used In	HospitalStatus/Hospital/HospitalResourcesStatus

Element	`<have:FacilityOperations>`
Type	`xsd:string with restrictions`

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Usage	**OPTIONAL**
Definition	The status of supplies necessary for facility operations.
Comments	Values: 1. Adequate – Meets the current needs. 2. Insufficient – Current needs are not being met.
Used In	HospitalStatus/Hospital/HospitalResourcesStatus

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Element	`<have:ClinicalOperations>`
Type	`xsd:string with restrictions`
Usage	**OPTIONAL**
Definition	The status of supplies necessary for clinical operations.
Comments	Values: 1. Adequate – Meets the current needs 2. Insufficient – Current needs are not being met
Used In	HospitalStatus/Hospital/HospitalResourcesStatus

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Element	`<have:ResourcesInformationText>`
Type	`xsd:string; May use multiple`
Usage	**OPTIONAL**
Definition	The type of resources and their status or count.
Constraints	1. Multiple values are allowed and each resource type SHOULD be enclosed with a `<ResourcesInformationText>` element.

Comments	2. This is an open format text field.
	`Ex:`
	`<have:ResourcesInformationText> Ventilators - 40 are Available`
	`</have:ResourcesInformationText>`
	`<have:ResourcesInformationText> Atropine - 20 Caches are Available`
	`</have:ResourcesInformationText>`

Used In	HospitalStatus/Hospital/HospitalResourcesStatus

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3.2.8 SUPPORTING ELEMENTS AND TYPES (Normative)

3.2.8.1 Elements

Element	`<have:CommentText>`
Type	`xsd:string`
Usage	**OPTIONAL**, May use Multiple
Definition	Open Comments field. Unless otherwise specified, the `<CommentText>` field pertains to the element preceding it.

Comments	1. There are no normative requirements imposed on the content of this element. 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.
	`Ex:`
	`<have:DeconCapacity> Full <have:DeconCapacity>`
	`<have:CommentText> We expect the capacity to be exceeded shortly`
	`<have:CommentText>`
	Note: In the above example, the `<CommentText>` pertains to the `<DeconCapacity>` element.

Used In	HospitalStatus/Hospital//Organization HospitalStatus/Hospital/HospitalBedCapacityStatus/BedCapacity HospitalStatus/Hospital/HospitalFacilityStatus Hospital/HospitalResourcesStatus HospitalStatus/Hospital/EmergencyDepartmentStatus HospitalStatus/Hospital/ServiceCoverageStatus

Element	`<have:LastUpdateTime>`
Type	`xsd:datetime`
Usage	**REQUIRED**
Definition	The last time the information was updated.
Constraints	Each <~~h~~Hospital> element MUST have one and only one ~~a~~ `<LastUpdateTime>`

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Used In	HospitalStatus/Hospital

3.2.8.2 TYPES

Type Name (normative)	`TriageCount`
Definition	The type of a container element for the number of each triage patient type the overall hospital currently has or that it can accept.
Sub-elements	• TriageCodeListURN • TriageCode
Used In	HospitalStatus/Hospital/EmergencyDepartmentStatus/EMSCensus HospitalStatus/Hospital/EmergencyDepartmentStatus/EMSCapacity

Type Name (normative)	`Offload`
Definition	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.
Sub-elements	• EMSOffloadStatus • EMSOffloadMinutes
Used In	HospitalStatus/Hospital/EmergencyDepartmentStatus/EMSAmbulanceStatus HospitalStatus/Hospital/EmergencyDepartmentStatus/EMSAirTransportStatus

3.2.8.3 geo-oasis Elements

Element	`<gml:Point>`
Type	`geo-oasis:SimplePositionType`
Usage	**OPTIONAL**
Definition	Point property element containing a pair of coordinates representing latitude then longitude in the World Geodetic System 1984 [WGS84] coordinate reference system.

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Comments	1. The geo-coded address of the civil location.
	`<OrganizationGeoLocation>`
	`<gml:Point>`
	`<gml: pos>45.256 -71.92></gml: pos>`
	`</gml:Point>`
	`</OrganizationGeoLocation>`
	Note: See Appendix D for note on OASIS GML profile.

Used In	HospitalStatus/Hospital/Organization/OrganizationInformation/OrganizationGeoLocation

3.2.8.4 CIQ Elements

Element	**`<OrganisationName>`**
Type	`xnl:OrganistionNameType`
Usage	**CONDITIONAL**
Definition	The name of the Organization. Please refer to [OASIS CIQ]
Constraints	1. Either the `<OrganisationName>` or the `<OrganistionID>` MUST be present.
Sub-elements	• NameElement • SubDivisionName
Attribute	• OrganisationID: A unique identifier for the Organization. Please refer to [OASIS CIQ] 1. For the purposes of this document, `<OrganisationID>` is used to specify the identifier for the healthcare Organization.
Attribute	• OrganisationIDType: The name of the provider that has provided the identification scheme. This could also be the name a particular identification list. Please refer to [OASIS CIQ] 1. There are different identification schemes that provide unique identifiers to healthcare Organizations. This element can be used to provide a reference to the classification/identification scheme that is being used. `Example: American Hospital Association`
Constraints	1. If `<OrganisationID>` is used, `<OrganisationIDType>` MUST be used.

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Used In	HospitalStatus/Hospital/Organization/OrganizationInformation

Element	`<NameElement>`
Type	`xsd:string`
Usage	**OPTIONAL**
Definition	Name of the Organization. Please refer to [OASIS CIQ]
Used In	HospitalStatus/Hospital/Organization/OrganizationInformation/OrganisationName

Element	`<SubDivisionName>`
Type	`xsd:string`
Usage	**OPTIONAL**
Definition	The name of the sub division Organization. Please refer to [OASIS CIQ]
Constraints	1. `<SubDivisionName>` SHOULD be used if the reporting Organization has a parent Organization.

Comments	1. If the `<SubDivisionName>` is used, the status being reported is that of the sub division Organization.
	`Example:`
	`<xnl:OrganisationName>`
	`<NameElement> ABC Hospital </NameElement>`
	`<SubDivisionName> ABC Hospital at Location A </SubDivisionName>`
	`</xnl:OrganisationName>`

Used In	HospitalStatus/Hospital/Organization/OrganizationInformation/OrganisationName

Element	`<OrganisationInfo>`
Type	`XML Structure`
Usage	**OPTIONAL**
Definition	General details about the Organization. Please refer to [OASIS CIQ]

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Sub-elements	• Type • OperatingHourStartTime • OperatingHourEndTime
Used In	HospitalStatus/Hospital/Organization/OrganizationInformation

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Element	`<Type>`
Type	`xsd:string`
Usage	**OPTIONAL**
Definition	Type of Organization. For purposes of EDXL HAVE standard, this could be hospital, nursing center, trauma center etc. Please refer to [OASIS CIQ]
Comments	1. For purposes of EDXL HAVE standard, this could be hospital, nursing center, trauma center etc. `Example: Hospital, Nursing Center etc.`
Used In	HospitalStatus/Hospital/Organization/OrganizationInformation/OrganisationInfo

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Element	`<OperatingHourStartTime>`
Type	`xsd:time`
Usage	**OPTIONAL**
Definition	Operating hour start time for the Organization ex: 09:00:00. Please refer to [OASIS CIQ]
Used In	HospitalStatus/Hospital/Organization/OrganizationInformation/OrganisationInfo

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Element	`<OperatingHourEndTime>`
Type	`xsd:time`
Usage	**OPTIONAL**
Definition	Operating hour end time for the Organization ex: 17:00:00. Please refer to [OASIS CIQ]
Used In	HospitalStatus/Hospital/Organization/OrganizationInformation/OrganisationInfo

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Element	`<Addresses>`
Type	`XML Structure`
Usage	**OPTIONAL**
Definition	The container element for the specifying the address of the Organization. Please refer to [OASIS CIQ]
Sub-elements	• HospitalStatus/Hospital/Address
Used In	HospitalStatus/Hospital/Organization/OrganizationInformation

Element	`<Address>`
Type	`xAL:AddressType`
Usage	**OPTIONAL**
Definition	One or more addresses of the Organization. Please refer to [OASIS CIQ]
Constraints	1. The geographic coordinates specified in `<point>` MUST match the address.
Comments	1. For the purposes of the EDXL-HAVE specification, the below elements of the `xAL: AddressType` satisfy the usage requirements. . 2. Use of the other sub elements of <Address> element other than the ones listed below is left to the choice of implementers, but care should be exercised as it can result in interoperability issues.
Sub-elements	• FreeTextAddress • Country • AdministrativeArea • PostCode
Used In	HospitalStatus/Hospital/Organization/OrganizationInformation/Addresses

Element	`<FreeTextAddress>`
Type	`XML Structure`

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Usage	**OPTIONAL**
Definition	The container element for specifying the address in free text form. Please refer to [OASIS CIQ]
Sub-elements	• AddressLine
Used In	HospitalStatus/Hospital/Organization/OrganizationInformation/Addresses/Address

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Element	`<AddressLine>`
Type	`xsd:string`
Usage	**OPTIONAL; Multiple**
Definition	One of the lines of the address of the Organization. If the address of the Organization consists of a single line, this element contains the entire address. If the address consists of multiple lines, this element contains one of those lines. Please refer to [OASIS CIQ]
Comments	1. Free format address representation. An address can have more than one line. The order of the `<xAL: AddressLine>` elements needs to be preserved.
Used In	HospitalStatus/Hospital/ Organization/OrganizationInformation/Addresses/Address/FreeTextAddress

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Element	`<Country>`
Type	`xAL:CountryType`
Usage	**OPTIONAL**
Definition	The details of the country. Please refer to [OASIS CIQ]
Sub-elements	• NameElement
Used In	HospitalStatus/Hospital/Organization/OrganizationInformation/Addresses/Address

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Element	`<AdministrativeArea>`

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Type	XML Structure
Usage	**OPTIONAL**
Definition	Details of the top level area division in the country. Ex: State, District, Province etc. Please refer to [OASIS CIQ].
Sub-elements	• NameElement • SubAdministrativeArea
Used In	HospitalStatus/Hospital/Organization/OrganizationInformation/Addresses/Address

Element	<SubAdministrativeArea>
Type	XML Structure
Usage	**OPTIONAL**
Definition	The next level of sub-division of the area. Ex: county etc. Please refer to [OASIS CIQ].
Sub-elements	• NameElement
Used In	HospitalStatus/Hospital/ Organization/OrganizationInformation/Addresses/Address/AdministrativeArea

Element	<PostCode>
Type	XML Structure
Usage	**OPTIONAL**
Definition	A container for a single free text or structured post code. Please refer to [OASIS CIQ]
Sub-elements	• Identifier
Used In	HospitalStatus/Hospital/Organization/OrganizationInformation/Addresses/Address

Element	<Identifier>

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Type	xAL:IdentifierType
Usage	**OPTIONAL**
Definition	The post code is formatted to country-specific rules. Ex: SW3 0A8-1A, 600074, 2067 etc. Please refer to [OASIS CIQ]
Used In	HospitalStatus/Hospital/Organization/OrganizationInformation/Addresses/Address/PostCode

Example 1:

```
<a:Address>
   <a:FreeTextAddress>
          <a:AddressLine>P O Box 455</a:AddressLine>
          <a:AddressLine >Billerica, MA 01821</a:AddressLine >
   </a:FreeTextAddress>
</a:Address>
```

Example 2:

```
<a:Address>
   <a: Country>USA</Country>
   <a:AdministrativeArea>
          <a:NameElement>MA</a:NameElement>
   </a:AdministrativeArea>
   <a:SubAdministrativeArea>
          <a:NameElement>Billerica</a:NameElement>
   </a:SubAdministrativeArea>
   <PostCode>01821</PostCode>
</a:Address>
```

Element	<ContactNumbers>
Type	XML Structure
Usage	**OPTIONAL**
Definition	All kinds of communication lines used for contact purposes. Ex:. phone, fax, mobile, pager, etc. Please refer to [OASIS CIQ]
Sub-elements	• ContactNumber
Used In	HospitalStatus/Hospital/Organization/OrganizationInformation

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Element	`<ContactNumber>`
Type	`XML Structure`
Usage	**OPTIONAL**
Definition	Universal telecommunication number structure. Please refer to [OASIS CIQ]
Comments	1. The attributes of this element carry important information about the contact number (see [OASIS CIQ], Sec 6.2.4).
Attributes	• CommunicationMediaType • ContactHours
Used In	HospitalStatus/Hospital/Organization/OrganizationInformation/ContactNumbers

Example – Contact Phone Number

```
<p:ContactNumber p:CommunicationMediaType="Telephone" p:ContactHours="9:00AM -
5:00PM">
   <p:ContactNumberElement
p:ElementType="CountryCode">61</p:ContactNumberElement>
   <p:ContactNumberElement p:ElementType="AreaCode">2</p:ContactNumberElement>
   <p:ContactNumberElement
p:ElementType="LocalNumber">94338765</p:ContactNumberElement>
</p:ContactNumber>
```


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4 CONFORMANCE

4.1 CONFORMANCE TARGETS

The two following conformance targets are defined in order to support the specification of conformance to this standard:

a) EDXL-HAVE Report;

b) EDXL-HAVE Report Producer.

An EDXL-HAVE Report is an XML 1.0 document whose syntax and semantics are specified in this standard. An EDXL-HAVE Report Producer is a software entity that produces EDXL-HAVE reports.

NOTE – There is no conformance target corresponding to the consumers of EDXL-HAVE reports because this standard does not specify any requirements that apply specifically to them.

4.2 CONFORMANCE AS AN EDXL-HAVE REPORT

An XML 1.0 document is a conforming EDXL-HAVE Report if and only if:

a) it is valid according to the schema located at http://docs.oasis-open.org/emergency/edxl-have/v1.0/edxl-have.xsd; and

b) the content of its elements and the values of its attributes meet all the additional mandatory requirements specified in section 3.

4.3 CONFORMANCE AS AN EDXL-HAVE REPORT PRODUCER

A software entity is a conforming EDXL-HAVE Report Producer if and only if:

it is constructed in such a way that any XML document produced by it and present in a place in which a conforming EDXL-HAVE Report is expected (based on contextual information) is indeed a conforming EDXL-HAVE Report according to this standard.

The condition in (1) above can be satisfied in many different ways. Here are some examples of possible scenarios:

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- a standard protocol (say, EDXL-DE) transfers messages carrying EDXL-HAVE reports; a client has sent a request for an EDXL-HAVE report to a server which claims to be a conforming EDXL-HAVE Report Producer, and has received a response which is therefore expected to carry a conforming EDXL-HAVE Report;
- a local test environment has been set up, and the application under test (which claims to be a conforming EDXL-HAVE Report Producer) has the ability to produce a EDXL-HAVE report and write it to a file in a directory in response to a request coming from the testing tool; the testing tool has sent many requests to the application under test and is now verifying all the files present in the directory, which is expected to contain only conforming EDXL-HAVE Reports;
- an EDXL-HAVE Report is attached to an email message which, according to a prior agreement between sender and recipients, is expected to carry a conforming EDXL-HAVE Report as an attachment;
- an EDXL-HAVE Report has been published at a location on the World Wide Web from where it can be retrieved by an authorized person by using the HTTP protocol, and the producer has created the expectation that that location will contain a conforming EDXL-HAVE Report.

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A. EDXL-HAVE EXAMPLE (NON-NORMATIVE)

Note: The example shown below is for informative purposes only and is a snippet of the schema – to illustrate the content. This example will not validate and ~~A~~an actual XML sample will be contained in EDXL-DE or similar routing block structure.

```
<?xml version="1.0" encoding="UTF-8"?>
<have:HospitalStatus
xsi:schemaLocation="urn:oasis:names:tc:emergency:EDXL:HAVE:1.0 edxl-
have_cs01.xsd" xmlns="urn:oasis:names:tc:emergency:EDXL:HAVE:1.0"
xmlns:n3="http://www.georss.org/georss" xmlns:gml="http://www.opengis.net/gml"
xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
xmlns:xal="urn:oasis:names:tc:ciq:xal:3"
xmlns:xnl="urn:oasis:names:tc:ciq:xnl:3"
xmlns:xpil="urn:oasis:names:tc:ciq:xpil:3">

<have:Hospital>

 <have:Organization>
  <have:OrganizationInformation>
   <xnl:OrganisationName>
    <xnl:NameElement>ABC Hospital</xnl:NameElement>
   </xnl:OrganisationName>
          <xpil:OrganisationInfo xpil:Type="Hospital"
          xpil:OperatingHourStartTime="09:00:00.0Z"
          xpil:OperatingHourEndTime="18:00:00.0Z"/>
   <xpil:Addresses>
    <xpil:Address>
     <xal:FreeTextAddress>
      <xal:AddressLine>
         P O Box 455, Billerica, MA 0182, USA
      </xal:AddressLine>
     </xal:FreeTextAddress>
    </xpil:Address>
   </xpil:Addresses>
  </OrganizationInformation>
  <OrganizationGeoLocation>
   <gml:Point>
    <gml:pos>3.14159265358979E0</gml:pos>
   </gml:Point>
  </have:OrganizationGeoLocation>
 </have:Organization>


 <have:EmergencyDepartmentStatus>
  <have:EMSTraffic>
   <have:EMSTrafficStatus>Normal</have:EMSTrafficStatus>
  </have:EMSTraffic>
  <have:EMSCapacity>
   <have:TriageCount>
    <have:TriageCodeListURN> oasis:names:tc:emergency:have:1.0:triagecolorcode
   </have:TriageCodeListURN>
   <have:TriageCode>
    <have:TriageCodeValue>Red</have:TriageCodeValue>
    <have:TriageCountQuantity>20</have:TriageCountQuantity>
   </have:TriageCode>
   <have:TriageCode>
    <have:TriageCodeValue>Yellow</have:TriageCodeValue>
    <have:TriageCountQuantity>30</have:TriageCountQuantity>
```


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```
      </have:TriageCode>
      <have:TriageCode>
       <have:TriageCodeValue>Green</have:TriageCodeValue>
       <have:TriageCountQuantity>40</have:TriageCountQuantity>
      </have:TriageCode>
      <have:TriageCode>
       <have:TriageCodeValue>Black</have:TriageCodeValue>
       <have:TriageCountQuantity>10</have:TriageCountQuantity>
       </have:TriageCode>
      </have:TriageCount></have:EMSCapacity>
    <have:EMSAmbulanceStatus>
      <have:Offload>
       <have:EMSOffloadStatus>Normal</have:EMSOffloadStatus>
        <have:EMSOffloadMinutes>20</have:EMSOffloadMinutes>
       </have:Offload>
    </have:EMSAmbulanceStatus>
  </have:EmergencyDepartmentStatus>

<have:HospitalBedCapacityStatus>
  <have:BedCapacity>
    <have:BedType>AdultICU</have:BedType>
    <have:Capacity>
      <have:CapacityStatus>Vacant/Available</have:CapacityStatus>
      <have:AvailableCount>40</have:AvailableCount>
      <have:BaselineCount>60</have:BaselineCount>
    </have:Capacity>
  </have:BedCapacity>

  <have:BedCapacity>
    <have:BedType>Burn</have:BedType>
      <have:Capacity>
       <have:CapacityStatus>Vacant/Available</have:CapacityStatus>
       <have:AvailableCount>30</have:AvailableCount>
      <have:BaselineCount>50</have:BaselineCount>
    </have:Capacity>
  </have:BedCapacity>

<have:BedCapacity>
  <have:BedType>MedicalSurgical</have:BedType>
    <have:Capacity>
      <have:CapacityStatus>Vacant/Available</have:CapacityStatus>
      <have:AvailableCount>20</have:AvailableCount>
      <have:BaselineCount>30</have:BaselineCount>
    </have:Capacity>
  </have:BedCapacity>
</have:HospitalBedCapacityStatus>


<have:ServiceCoverageStatus>
  <have:Burn>true</have:Burn>

  <have:CardiologyIndicator>
    <have:Cardiology>true</have:Cardiology>
  </have:CardiologyIndicator>

  <have:Dialysis>true</have:Dialysis>
  <have:EmergencyDepartment>true</have:EmergencyDepartment>
  <have:HyperbaricChamber>false</have:HyperbaricChamber>
  <have:InfectiousDisease>false</have:InfectiousDisease>
  <have:Neonatology>true</have:Neonatology>

  <have:NeurologyIndicator>
    <have:Neurology>true</have:Neurology>
  </have:NeurologyIndicator>
```


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```
 <have:OBGYNIndicator>
  <have:OBGYN>true</have:OBGYN>
 </have:OBGYNIndicator>

 <have:Ophthalmology>true</have:Ophthalmology>
 <have:Orthopedic>true</have:Orthopedic>
 <have:Pediatrics>text</have:Pediatrics>

 <have:PsychiatricIndicator>
  <have:Psychiatric>true</have:Psychiatric>
 </have:PsychiatricIndicator>

 <have:SurgeryIndicator>
  <have:SurgerySubType>
    <have:AdultGeneralSugery>true</have:AdultGeneralSugery>
    <have:CardioThoracic>true</have:CardioThoracic>
   </have:SurgerySubType>
  </have:SurgeryIndicator>

 <have:TransportServicesIndicator>
  <have:TransportServices>true</have:TransportServices>
 </have:TransportServicesIndicator>

 <have:TraumaCenterServicesIndicator>
  <have:TraumaCenterServices>true</have:TraumaCenterServices>
  <have:TraumaCenterServicesLevel>Level2</have:TraumaCenterServicesLevel>
 </have:TraumaCenterServicesIndicator>
</have:ServiceCoverageStatus>


<have:HospitalFacilityStatus>
 <have:ClinicalStatus>Normal</have:ClinicalStatus>
 <have:FacilityStatus>Normal</have:FacilityStatus>
 <have:SecurityStatus>Normal</have:SecurityStatus>
</have:HospitalFacilityStatus>



<have:HospitalResourcesStatus>
 <have:Staffing>Adequate</have:Staffing>
 <have:FacilityOperations>Adequate</have:FacilityOperations>
 <have:ClinicalOperations>Adequate</have:ClinicalOperations>
 <have:ResourcesInformationText>
  20 ventilators are available
 </have:ResourcesInformationText>
 <have:ResourcesInformationText>
  Atropine - 20 caches are available
 </have:ResourcesInformationText>
</have:HospitalResourcesStatus>


 <have:LastUpdateTime>2001-12-17T09:30:47.0Z</have:LastUpdateTime>


</have:Hospital>


</have:HospitalStatus>
```


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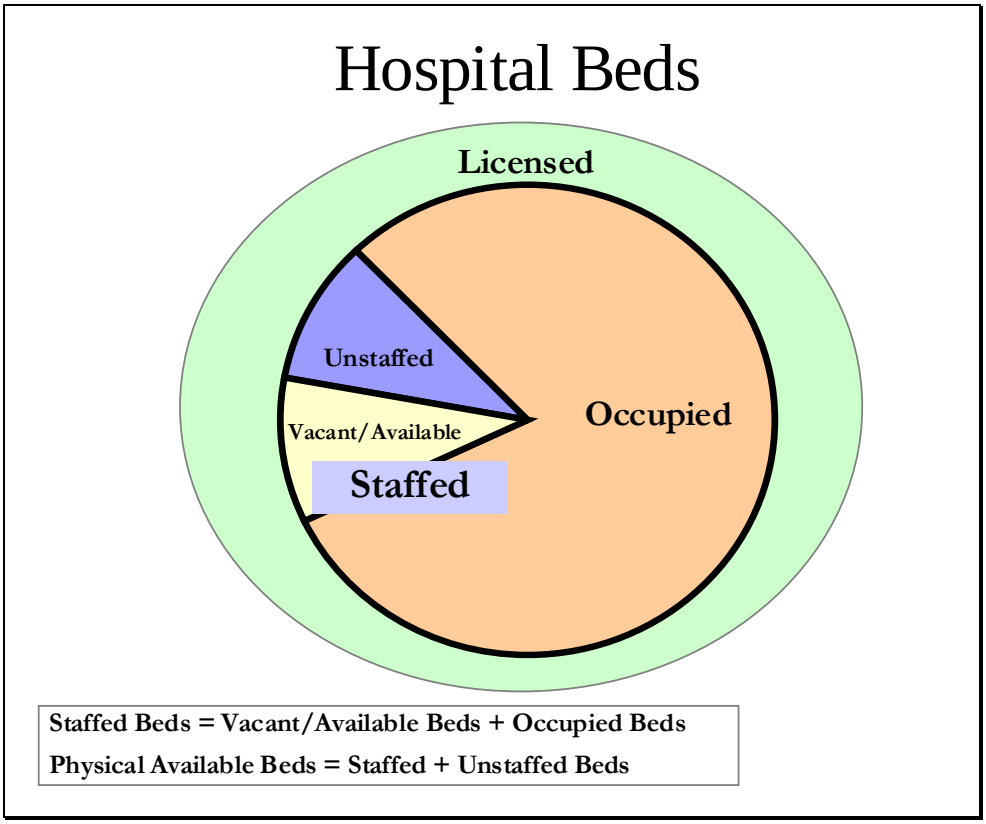
B. BED TYPES AND CAPACITY - DEFINITIONS (NON-NORMATIVE)

Note: The definitions are used from the HAvBED report [HAvBED Report].

These standardized definitions were vetted by a working group assembled by Denver Health with members from Federal and State governments, hospitals around the nation, and the private sector in the United States of America.

Hospital Bed Definitions

Vacant/Available Beds refers to beds that are vacant and to which patients can be immediately transported. These must 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.



A description of the types of beds includes the following:

- **Adult Intensive Care (ICU):** beds that can support critically ill/injured patients, including ventilator support

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- **Medical/Surgical**: also thought of as “Ward” beds

- **Burn**: 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.)

- **Pediatric ICU**: as for Adult ICU, but for patients 17 years and younger

- **Pediatrics**: “Ward Medical/Surgical” beds for patients 17 and younger

- **Psychiatric**: “ward” beds on a closed/locked psychiatric unit or ward beds where a patient will be attended by a sitter.

- **Negative Pressure/Isolation**: - Beds provided with negative airflow, providing respiratory isolation. NOTE: This value may represent available beds included in the counts of other types.

- **Operating Rooms**: – An operating room that is equipped and staffed and could be made available for patient care in a short period of time.

Bed Availability Definitions

The bed availability estimates are defined as below:

- **24 hr Beds Available:** This value represents an informed estimate as to how many vacant (staffed, unoccupied) beds for each bed type above the current number that could be made available within 24 hours. This would include created institutional surge beds as well as beds made available by discharging/transferring patients.

- **72 hr Beds Available:** This value represents an informed estimate as to how many vacant (staffed, unoccupied) beds for each bed type above the current number that could be made available within 72 hours. This would include created institutional surge beds as well as beds made available by discharging/transferring patients.

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C. OASIS CUSTOMER INFORMATION QUALITY (CIQ) (NON-NORMATIVE)

CIQ Overview

The objective of the OASIS CIQ TC is to deliver a set of XML Specifications for defining, representing, interoperating and managing party information (e.g. name, address, party specific information including party relationships) that are truly open, vendor neutral, industry and application independent, and importantly "Global" (ability to represent international data formats such as different types of party names and addresses used in 241+ countries).

The CIQ TC's XML Name, Address and Party languages (version 3.0) define universal structures for name, address entities, party, and party relationship entities. It consists of the following components:

> Note: This section only provides a brief overview and includes a subset – that is relevant to EDXL-HAVE- of the CIQ specification. The purpose is to provide an overview – users are encouraged to look at the OASIS CIQ TC website for complete information - http://www.oasis-open.org/committees/tc_home.php?wg_abbrev=ciq

Name	Description
xNL extensible Name Language	xNL defines an XML format to represent party name information. A party name could be a "Person" or an "Organization". An "Organization" could be educational institutions like school, university, college, etc, clubs, associations, industry groups, not-for-profit bodies, consortiums, user groups, etc.
xAL extensible Address Language	xAL defines an XML format to represent address data. It includes: hospitals, airports, businesses, educational institutions etc.
xPIL extensible Party Information Language	xPIL defines XML specifications to represent party centric data. Party centric data includes: • Address, E-mail address, URL, Contact numbers (Mobile, Pager, Fax, Landline, etc)

CIQ Usage in EDXL-HAVE

EDXL HAVE uses Party information (xPIL) in the CIQ specifications for its naming and address requirements. For the purposes of HAVE, the naming and location elements (street address) elements are used. The use of other elements is left to implementation choices.

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D. ACKNOWLEDGEMENTS

The following individuals have participated in the creation of this specification and are gratefully acknowledged:

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- Rex Brooks, Individual
- Werner Joerg, IEM
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- Tom Merkle, Lockheed Martin
- Bryan Small, ESI Acquisition, Inc.
- Anthony Sangha, Raining Data Corporation
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E. REVISION HISTORY

Revision	Date	Editor	Changes Made
Public Review Version 05	04 March 2008	Sukumar Dwarkanath	• Changed document status to 'Public Review Draft 05'
Public Review Version 4 Revision 01	29 February 2008	Sukumar Dwarkanath	• Deleted non-UTF character (') in schema – changed from 'Available' to Available in schema documentation. • Corrected typo in schema – changed *AmubulatoryPatientsDeconCapacity* to *AmbulatoryPatientsDeconCapacity*
Public Review Version 4	08 February 2008	Sukumar Dwarkanath	• Changed document name and status to 'Public Review Draft 04'
Public Review Version 3 Revision 02	06 February 2008	Sukumar Dwarkanath	• Schema: Modified element 'MorgueCapacityStatus to be of type 'xsd: string with restrictions; enumerations include 'Open', 'Full' and 'Exceeded' • Schema: Corrected typo: 'AdultGeneralSurgery'
Public Review Version 3 Revision 01	30 January 2008	Sukumar Dwarkanath	• Modified schema to change imported file from "xpil.xsd" to "xPIL.xsd" • Changed [namespaces] reference to "T. Bray et al" • Changed [XML 1.0] reference to "T. Bray et al"; changed link to "http://www.w3.org/TR/REC-xml/" • Replaced [dateTime] reference with "P. Biron and A. Malhotra, XML Schema Part 2: Datatypes Second Edition, http://www.w3.org/TR/xmlschema-2, W3C REC-xmlschema-2, Sec 3.2.7, dateTime (http://www.w3.org/TR/xmlschema-2/#dateTime), October 28 2004" • Modified examples to include namespaces
Public Review Version 3	10 October 2007	Sukumar Dwarkanath	• Included Conformance section as per OASIS guidelines • Made changes following internal TC review. These changes are highlighted here in: http://www.oasis-open.org/committees/document.php?document_id=25471&wg_abbrev=emergency
Public Review Version 3.0	29 June 2007	Sukumar Dwarkanath	• Made changes following the public review period. These changes are highlighted in the EDXL HAVE Issues List v4.2 - http://www.oasis-open.org/committees/download.php/24513/EDXL_HAVE_IssuesList_v4.3.xls
Public Review Version 2.0	13 November 2006	Sukumar Dwarkanath	• Changed document status from 'Public Review Draft 1.0 Revision 01' to 'Public Review Draft 2.0' • Changed approval date to '02 November 2006'
Public Review Version 1.0 Revision 01	23 October 2006	Sukumar Dwarkanath	• Changed datatype of <LocationPostalCodeID> from 'Integer' to 'String' • Changed Cardinality of Capacity element from '0 to *' to '0 to 1'; modified DOM to reflect changes • Renamed <Bed> to <BedType> • Renamed <SubCategoryBed> to <SubCategoryBedType> • Removed Maximum limit enumeration – 60 Mts – from <EMSOffloadMinutes>

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			• Changed datatype of <ServiceCoverageStatus> element to xsd:boolean type • Changed datatype of Surgery element to xsd:boolean • Replaced OGC GML Profile schema with new version of schema; replaced schema diagram • Modified EDXL-HAVE schema; modified EDXL-HAVE example • Formatted document to be consistent with OASIS template • Added metadata - This Version and Previous version; corrected IPR Policy note – changed year from '2005' to '2006'; corrected IPR note – Changed 'wsrf' to 'emergency'; removed Organization affiliation from Editor Name; corrected numbering of sections 3.2.6 and 3.2.7; added Non-normative changes; removed Corporate Affiliations from List of Associate Members in Appendix; modified key word list. • Added Revision History Table • Formatted element names, datatype, and parent elements. • Renamed appendix C.1 - geo-oasis ELEMENTS

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