Emergency Data Exchange Language (EDXL) Hospital AVailability Exchange (HAVE) Version 2.0

Working Draft 02

?? October 2014

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Additional artifacts:

This prose specification is one component of a Work Product which also includes:

* XML schemas: (list file names or directory name)
* Other parts (list titles and/or file names)

Related work:

This specification replaces or supersedes:

* *Emergency Data Exchange Language (EDXL) Hospital AVailability Exchange (HAVE) Version 1.0*. 22 December 2009. OASIS Standard Incorporating Approved Errata. <http://docs.oasis-open.org/emergency/edxl-have/v1.0/errata/edxl-have-v1.0-os-errata-os.html>

This specification is related to:

* *Emergency Data Exchange Language (EDXL) Distribution Element v1.0*, <http://docs.oasis-open.org/emergency/edxl-de/v1.0/EDXL-DE_Spec_v1.0.pdf>
* *Emergency Data Exchange Language (EDXL) Resource Messaging v1.0*, <http://docs.oasis-open.org/emergency/edxl-rm/v1.0/errata/EDXL-RM-v1.0-OS-errata-os.html>
* *Emergency Data Exchange Language Common Types v1.0*, <http://docs.oasis-open.org/emergency/edxl-ct/v1.0/edxl-ct-v1.0.html>
* *Emergency Data Exchange Language Customer Information Quality v1.0*, <http://docs.oasis-open.org/emergency/edxl-ciq/v1.0/edxl-ciq-v1.0.html>

Declared XML namespaces:

* list namespaces declared within this specification

Abstract:

Summary of the technical purpose of the document.

Status:

This [Working Draft](http://www.oasis-open.org/committees/process.php#dWorkingDraft) (WD) has been produced by one or more TC Members; it has not yet been voted on by the TC or [approved](http://www.oasis-open.org/committees/process.php#committeeDraft) as a Committee Draft (Committee Specification Draft or a Committee Note Draft). The OASIS document [Approval Process](http://www.oasis-open.org/committees/process.php#standApprovProcess) begins officially with a TC vote to approve a WD as a Committee Draft. A TC may approve a Working Draft, revise it, and re-approve it any number of times as a Committee Draft.

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# Introduction

## Purpose

The ongoing goal of the Emergency Data eXchange Language (EDXL) project is to facilitate emergency information sharing and data exchange across the local, state, tribal, national and non-governmental organizations of different professions that provide emergency response and management services. EDXL accomplishes this goal by focusing on the standardization of specific messages (messaging interfaces) to facilitate emergency communication and coordination particularly when more than one profession or governmental jurisdiction is involved.

The current roster of published EDXL Standards includes:

* The [Common Alerting Protocol v1.2](https://www.oasis-open.org/standards" \l "capv1.2) (EDXL-CAP) specification, with various dedicated profiles
* The [Distribution Element v2.0](https://www.oasis-open.org/standards" \l "edxlde-v1.0) (EDXL-DE) specification
* The [Hospital AVailability Exchange v1.0](https://www.oasis-open.org/standards" \l "edxlhave-v1.0) (EDXL-HAVE) specification
* The [Resource Messaging v1.0](https://www.oasis-open.org/standards" \l "edxlrm-v1.0) (EDXL-RM) specification
* The Situation Reporting v1.0 (EDXL-SitRep) specification

The primary purpose of EDXL-HAVE is to provide an XML-based reporting format that allows information to be shared about a coalition of healthcare facilities including the communication of the status of a healthcare facility, its services, and its resources. These include bed capacity and availability, emergency department status, staffing levels, available service coverage, and the status of a healthcare facilities operations and resources.

The primary audience for EDXL-HAVE is the broad community that interacts with healthcare facilities and it is intended to be used as a tool to automate information flow in and out of the healthcare network. It is not intended to be a tool used for internal administration of healthcare facilities as other standards organizations (e.g. Health System Level Seven International – [www.hl7.org](http://www.hl7.org)) already handle this domain.

## 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.

The Hospital Availability Exchange standard was created to make sharing information about the state of hospitals for day-to-day and crisis use. Initially it was focused purely on hospitals but it has been extended to handle sharing information about the broader health network, including long-term care facilities, urgent care clinics, and temporary aid centres.

HAVE 1.0 was released on 22 December 2009. Since the release of HAVE 1.0, there have been multiple operational uses of HAVE, including the aftermath of the 2010 Haiti Earthquake. In many of the operational uses, there were modified schema used to add services that were not in HAVE 1.0, to convey other aspects of the data, and to handle the sharing of information about non-hospital facilities (e.g. clinics, temporary locations). The use of the HAVE 1.0 standard was encouraging but the shortfalls needed to be addressed. To that end, in 2010 the OASIS EM-TC voted to re-open the HAVE standard with the goal of creating a HAVE 2.0 standard.

The schema released with HAVE 2.0 contains errors that make it unusable. This working document is intended to correct those errors and introduce additional capability that may be immediately useful in the 2014 Ebola outbreak.

## Structure of the EDXL Hospital Availability Exchange Specification

The EDXL-HAVE 2.0 document structure is defined using successively more detailed or constrained artifacts in the form of textual descriptions, diagrams, figures, tables and Appendices. The EDXL-HAVE XML Schema is also provided separately. The overall structure of the EDXL-HAVE report is first represented in an Element Reference Model (ERM). The ERM is the foundation from which individual constraint schemas (individual situation report types) are defined.

The structure of the EDXL-HAVE standard is defined in the following sections:

* Section 2 summarizes the design principles of the standard and shows several usage scenarios;
* Section 3 provides an informal overview of EDXL-HAVE. In particular:
  + Section 3.1 presents an extensive definition of a HAVE report;
  + Section 3.2 describes essential supporting elements in the EDXL Common Types collection, including the use of EDXL Extensions;
  + Section 3.3 presents the Element Reference Model (ERM) which shows the abstract structural relationships of the main components of EDXL-HAVE;
  + Section 3.4 discusses how the distribution requirements for EDXL-HAVE messages may be met through several mechanisms, including EDXL-Distribution Element (DE) and as general data payloads;
  + Section 3.5 presents a summary of the elements that make up a HAVE message.
* Section 4 The Data Dictionary formally defines each element contained in the EDXL-HAVE standard message.
* Section 5 provides conformance information.

These sections together define the message structure, message element definitions, optionality and

cardinality.

## 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].

In addition, within this Specification, the keyword “CONDITIONAL” should be interpreted as potentially “REQUIRED” or “OPTIONAL” depending on the surrounding context. The term “REQUIRED” means that empty elements or NULL values are NOT allowed.

## Normative References

[CAP-1.2] *Common Alerting Protocol Version 1.2*. 01 July 2010. OASIS Standard. <http://docs.oasis-open.org/emergency/cap/v1.2/CAP-v1.2-os.html>.

[DATETIME] P. Biron and A. Malhotra, XML Schema Part 2: Datatypes Second Edition. 28 October 2004. W3C REC-xmlschema-2,, Sec 3.2.7, dateTime. <http://www.w3.org/TR/xmlschema-2>

[EDXL-CT] Joerg, W. Committee Specification Draft Emergency Data ExchangeLanguage Common Types*.* November 2011. OASIS. <http://docs.oasis-open.org/emergency/edxl-ct/v1.0/csd01/>

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**[OGC 04-092r4]** *GML 3.1.1 schemas*. 2004. Open Geospatial Consortium. [http://schemas.opengis.net/gml/3.1.1/](http://schemas.opengis.net/gml/3.1.1/" \o "blocked::http://schemas.opengis.net/gml/3.1.1/)..

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**[WGS 84]** *Department of Defense World Geodetic System*. 1984*.* National Geospatial Intelligence Agency*.* <http://earth-info.nga.mil/GandG/wgs84/index.html>

**[XML 1.0]** T. Bray, Extensible Markup Language (XML) 1.0 (Fourth Edition). February 2004. W3C REC-XML-20040204. [http://www.w3.o](http://www.w3.org/TR/REC-xml/)[rg/TR/REC-xml/](http://www.w3.org/TR/REC-xml/)

## Non-Normative References

**[AHIC-BIODATA]** *BioSurvellience Data Elements*. American Health Information Community (AHIC), BioSurvellience Data Working Group. <http://www.hhs.gov/healthit/ahic/bio_main.html>

**[EDXL-EXT]** ?????

**[GJXDM]** *Global Justice XML Data Model (GJXDM) Data Dictionary*. Global, Office of Justice Programs. [http://it.ojp.](http://it.ojp.gov/topic.jsp?topic_id=43)[gov/topic.jsp?topic\_id=43](http://it.ojp.gov/topic.jsp?topic_id=43)

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**[HAVBED-DATA]** *Hospital Bed Availability (HAvBED) Project – Definitions and Data Elements: AHRQ Releases Standardized Hospital Bed Definitions*. Agency for Healthcare Research and Quality (AHRQ): [http://www.ahrq.](http://www.ahrq.gov/research/havbed/definitions.htm" \o "http://www.ahrq.gov/research/havbed/definitions.htm)[gov/re](http://www.ahrq.gov/research/havbed/definitions.htm" \o "http://www.ahrq.gov/research/havbed/definitions.htm)[s](http://www.ahrq.gov/research/havbed/definitions.htm" \o "http://www.ahrq.gov/research/havbed/definitions.htm)[earch/havbed/definitions.htm](http://www.ahrq.gov/research/havbed/definitions.htm" \o "http://www.ahrq.gov/research/havbed/definitions.htm)

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[HAVE-REQSUP] *EDXL HAVE Requirements Supplement*. January 2006. OASIS. <http://www.oasis-open.org/committees/download.php/16400/>

[HAVE-SRS] *EDXL HAVE Standard Requirements Specification*. January 2006. OASIS. <http://www.oasis-open.org/committees/download.php/16399/>

**[HL7]** Health Level Seven International. - <http://www.hl7.org/>.

**[RM-DATAREQ]** *EDXL Resource Messaging (RM) Draft Requirements Specification*. OASIS. <http://www.oasis-open.org/committees/download.php/14310/>

**[VHHA-TERM]** *Statewide Hospital Status Information System Terminology and Data Collection Elements*. Virginia Hospital & Healthcare Association (VHHA). h[ttp://www.oasis-open.org/committees/download.php/18019](ttp://www.oasis-open.org/committees/download.php/18019 )

# Design Principles & Concepts (non-normative)

Below are some of the guiding principles behind the development of EDXL-HAVE:

* Support day-to-day and crisis use of the standard.
* Facilitate sharing of information amongst the general public, all levels of government, first nation/tribal, international, and non-governmental organizations.
* Provide a simple information report that allows first responders, emergency managers, community leaders, politicians, and other stakeholders to get a quick glimpse of the state of the health network in a community.
* Provide a non-invasive way for health facilities to keep the communities that they serve abreast of developments that impact their ability to provide care.
* Be respectful of the boundaries of internal health facility information and the information that is relevant externally.
* Separation of EDXL-HAVE reports from being tied to a particular method of delivery.
* Use and reuse of data, content, and models developed by other initiatives that align with EDXL-HAVE.
* Provide a baseline set of services, operations, and resources to allow health facilities to start using HAVE quickly, while allowing for controlled extension where warranted.

## Requirements for Design

The OASIS EM-TC tasked the EDXL-HAVE Sub-committee to review HAVE 1.0 and propose Errate, Minor, and Major versions. The detailed tasking can be reviewed at:

<https://www.oasis-open.org/apps/org/workgroup/emergency-have/download.php/38356/EDXL-HAVE-SC-SOP_DRAFT_dpm.docx>

## Example Usage Scenarios

The following scenarios illustrate how EDXL-HAVE 2.0 Working Draft 02 can be used in the field.

### Day-to-Day – Dialysis Patient:

On a routine pickup a social worker picks up an elderly patient that needs routine maintenance. Normally the dialysis is performed at the closest facility, but the social worker knows that the small facility’s dialysis unit is not operating due to an equipment failure. A quick query to view the local health facilities presents several within a 20-minute drive, sothe social worker places a call and coordinates with one of the alternate facilities.

### First Responder – Responding with Critical Care

As the result of a multi-unit residential fire, ambulances are dispatched and the Incident Commander indicates that there are 2 critical and 3 serious burn victims. The nearest hospital can only take in 2 burn victims normally, but the current state of the burn unit is not known. By examining the state of the local facilities, officials can coordinate which victims are to be taken to the surrounding health facilities.

### Mass-Scale Vaccination Clinics

Under pandemic conditions a community is implementing a vaccination program with the hospitals, urgent care clinics, private clinics, and temporary clinics providing vaccinations. The public, key officials, and the media can have immediate visibility into the wait times and service availability at each of the vaccination sites. EDXL-HAVE provides the ability to display service availability for each facility, referenced on a map, by colour code and to provide an indication of wait times if they are available.

### Disaster Response:

Following a major earthquake in the developing world, NGOs, various government responders, and local officials (and non-officials) establish temporary health-care facilities to meet the urgent and non-urgent health needs of those injured or killed by the earthquake and ensuing issues. Coordination of multiple dimensions are critical: what services are available, what is the capacity of the facilities, what resources they are missing or can share, where are the facilities located, who are the official points of contacts, what agency is running the facility, what are the hours operation, etc. <<INTENT here is to cover the disaster scenario…>>

As the event unfolds there is a Cholera outbreak due to damaged sanitation. There is a clear need identified to track 2 particular services (e.g. Cholera Vaccination and Cholera Treatment) that were too specific to be part of the default HAVE 2.0 services taxonomy. After a meeting of the coordinating agencies, the data being shared is extended to include Cholera Vaccination and Cholera Treatment services, including the standard metrics (capacity, colour code for status, etc.) << INTENT of this section is to communicate that HAVE 2.0 can adapt to in-field needs >>

# EDXL HAVE

Section 3 of this Standard is ***normative unless otherwise stated***. If any differences are found between any XML schema and its associated model, diagram, table or other artifact or text, then the XML schema shall always take precedence and the other artifact(s) must be changed to match the XML schema.

Note: Please report any such errors to OASIS.

## HAVE Report Definition (non-normative)

The HAVE Report is a single EDXL message that is intended to provide sharing of the services, operations, and capacities of health facilities. Health facilities in HAVE include hospitals, urgent care clinics, temporary facilities, and other facilities that may provide health services for a community. <<more needed>>

Typical actors:

* Senders – hospital administrators, hospital networks, health providers, NGOs << more>>
* Recipients – first responders, dispatch operators, emergency managers,

## Supporting Elements (non-normative)

### Common Types

<< DARRELL to REVISIT and replace with HAVE specific wording >>

Supporting Element Types borrow re-usable elements from the EDXL Common Types (ct:) that apply to and support multiple areas of the HAVE 2.0 reports, such as Location, <<MORE>> etc.. For instance incidentLocation relies on ct:EDXLLocationType, which consists of either EDXLGeoLocation for geographical information or EDXLGeoPoliticalLocation for geopolitical information. EDXLGeoLocation is of type edxl-gsf:EDXLGeoLocationType and EDXLGeoPoliticalLocation is of type ct:EDXLGeoPoliticalLocationType. This latter type consists of either a GeoCode (of type ct:ValueListType) or an Address (of type edxl-ciq:xAL:AddressType).

The following elements are used in this specification and can be found at the locations cited in the normative references in Section 1.5 above.

| **Supporting Element/Type** | **Defined In** |
| --- | --- |
| edxl-ct:EDXLDateTimeType | EDXL-CT (Simple Types) |
| edxl-ct:EDXLStringType | EDXL-CT (Simple Types) |
| edxl-ct:TimePeriodType | EDXL-CT (Complex Types) |
| edxl-ct:ValueKeyType | EDXL-CT (Complex Types) |
| edxl-ct:ValueListURIType | EDXL-CT (Simple Types) |
| edxl-ct:ValueType | EDXL-CT (Simple Types) |
| edxl-gsf:EDXLLocationType | EDXL-GSF |
| ext:extension | EDXL-EXT |
| ext:ParameterNameType | EDXL-EXT |
| ext:ParameterValueType | EDXL-EXT |
| xpil:OrganisationDetailsType | OASIS CIQ (xPIL) |

Some elements of the common type “ct:EDXLStringType” are denoted as [token] in the accompanying XMLper the following reference:

[token] N. Freed, XML Schema Part 2: Datatypes Second Edition, http://www.w3.org/TR/xmlschema-2/#token, W3C REC-xmlschema-2, October 2004.

The definition for token as found in the OASIS common types is: “The[value space](http://www.w3.org/TR/xmlschema-2/#dt-value-space)of **token** is the set of strings that do not contain the carriage return (#xD), line feed (#xA) nor tab (#x9) characters, that have no leading or trailing spaces (#x20) and that have no internal sequences of two or more spaces.”

The implication is that the XML parser will change string entries to removecarriage returns, line feeds, tab characters, leading or trailing spaces, and internal sequences of two or more spaces.

### Selecting Values from Lists

The ValueKey type is part of the EDXL Common Types collection. It allows standards adopters to use topic specific lists of values for elements externalCode, resourceKind, and alternateCodeValue elements. ValueKey allows for selection of only one [1..1] value in the list.

When using a ValueKey structure the user can specify a user-defined list by URI (either using the “urn:...” format or the more familiar “http://...” format) and then include user-defined values from that list. This structure has several advantages: (a) it provides flexibility for local communities to use community-defined terms and vocabulary; (b) it allows for the external maintenance of local or standardized lists; and (c) it avoids the problems inherent in attempting to constantly update hard-coded enumerations in a specification.

An existing vetted list should be referenced for defaults, but users could also reference their own value list

The schema for ValueKeyType is defined as

<xs:complexType name="ValueKeyType">

<xs:sequence>

<xs:element ref="ct:ValueListURI" minOccurs="1" maxOccurs="1"/>

<xs:element ref="ct:Value" minOccurs="1" maxOccurs="1"/>

</xs:sequence>

</xs:complexType>

and its application to the XML description of an element *elementName* of type ct:ValueKeyType would be:

<*elementName*>

<ct:ValueListURI>*valueListURI*</ct:ValueListURI>

<ct:Value>*value*</ct:Value>

</*elementName*>

This example uses a published list of values and definitions and selects one specific entry to describe the eyeColor of a patient:

* + *valueListURI* = urn:myagency:gov:OMG:eyeColors
  + *value* = Green

which stands for

<< DARRELL TO MAKE A NOTIONAL EXAMPLE HERE>>

<eyeColor>

<ct:ValueListURI>urn:myagency:gov:OMG:eyeColors</ct:ValueListURI>

<ct:Value>Green</ct:Value>

</eyeColor>

Following the approach in ValueList, we'd point ValueListURI to some other list to make a different selection of eye colors available.

### EDXL Extensions

The challenge when developing standardized formats is to balance the need to define specific elements of emergency information that we can all agree upon and yet provide flexibility for local communities to include their particular information using their familiar vocabulary. EDXL addresses this concern by providing the common defined terms in the formal standards for the former, and by providing extension mechanisms for the latter.

Typical needs are:

1. Community augmentation: community adds new information that is associated with the EDXL standard. Example: ???.
2. List augmentation: community adds new values (enumerations) to the default set of values in the standard. . Example: ???.
3. List replacement:: community replaces the default set of values in the standard in its entirety. . Example: ???.
4. List redefinition: community reassigns the meaning of the default set of values in the standard in its entirety. . Example: ???.

EDXL combines the CommunityExtension mechanism with the ValueList and ValueKey types to deal with these needs. CommunityExtension addresses need 1.; ValueList / ValueKey address need 3. ; and combined they address needs 2. and 4.

For more details about EDXL Extensions and usage guidance, refer to the white paper **EDXL-EXT** referenced in section 1.6 above.

A “CommunityExtension”, or simply “Extension”, is a term used to describe supplemental message information that a community wants to add to the otherwise standard message information normally contained within an EDXL standard message. It is defined by the ExtensionType which consists of a [1..\*] set of name/value pairs.

The schema for ExtensionType is defined as

<xs:complexType name="ExtensionType">

<!-- Base type to allow communities to extend/augment an EDXL data standard -->

<xs:sequence>

<xs:element name="community" type="xs:anyURI">

<!-- Unique community identifier -->

</xs:element>

<xs:element name="id" type="xs:anyURI">

<!-- Unique identifier for this extension -->

</xs:element>

<xs:element name="parameter" type="ext:ParameterType" maxOccurs="unbounded"/>

</xs:sequence>

</xs:complexType>

where "ParameterType" is defined as a group of elements used to extend/augment the data standard

<xs:sequence>

<xs:element name="nameURI" type="ext:ParameterNameType">

<!-- Unique identifier of a parameter -->

</xs:element>

<xs:element name="value" type="ext:ParameterValueType" maxOccurs="unbounded"/>

</xs:sequence>

with "ParameterNameType" being defined as a URI with optional xPath attribute

and "ParameterValueType" being defined as a ct:EDXLStringType" with optional "uom" attribute.

Its application to the XML description of an element elementName of type ext:ExtensionType would be:

<ext:ExtensionType xmlns=”urn:oasis:names:tc:emergency:edxl:extension:1.0”>

<community>communityURI</community>

<id>extensionURI</id>

<parameter>

<nameURI>name</nameURI>

<value>value</value>

</parameter>

...

<parameter> … </parameter>

</ext:ExtensionType>

If that extension is to be used for adding a community specific item in an enumeration, we indicate this by adding

<xsd:enumeration value="ExtensionValue"/>

to the enumeration affected.

Note that this mechanism should be used only for required elements – if an element is optional, it could be completely replaced by any community extension, with its own name and structure.

Note also that for each example we assume that the schema contains the following element to allow for adding extensions:

<xsd:element name="extension"

type="ext:ExtensionType" minOccurs="0" maxOccurs="unbounded"/>

#### Community augmentation

The following example illustrates the use of ExtensionType to build a community specific “layer” .

Example: adding an “earthquake layer” to an EDXL standard

– XML invocation:

<extension>

<community>http://www.myCommunity.org/layers/earthquake/</community>

<id>earthquakeLayer</id>

<parameter>

<nameURI>http://example/layers/earthquake/Magnitude</nameURI>

<value uom=”http://example/layers/earthquake/RichterScale”>5.3</value>

</parameter>

<parameter>

<nameURI>http://example/layers/earthquake/EventTime</nameURI>

<value>2010-08-30T23:25:40+00:00</value>

</parameter>

<parameter>

<nameURI>http://example/layers/earthquake/Depth</nameURI>

<value uom=”http://qudt.org/vocab/unit/MileInternational>38.7</value>

</parameter>

</extension>

#### List augmentation

If the list is defined as a ValueList or a ValueKey, then use the corresponding mechanisms described above to point to revised lists. If the list is defined as an enumeration, then the augmentation can be achieved with the Extension mechanism.

#### List replacement

If the list is defined as a ValueList or a ValueKey, then use the corresponding mechanisms described above to point to a replacement list. If the list is defined as an enumeration, then the replacement can be achieved with the Extension mechanism.

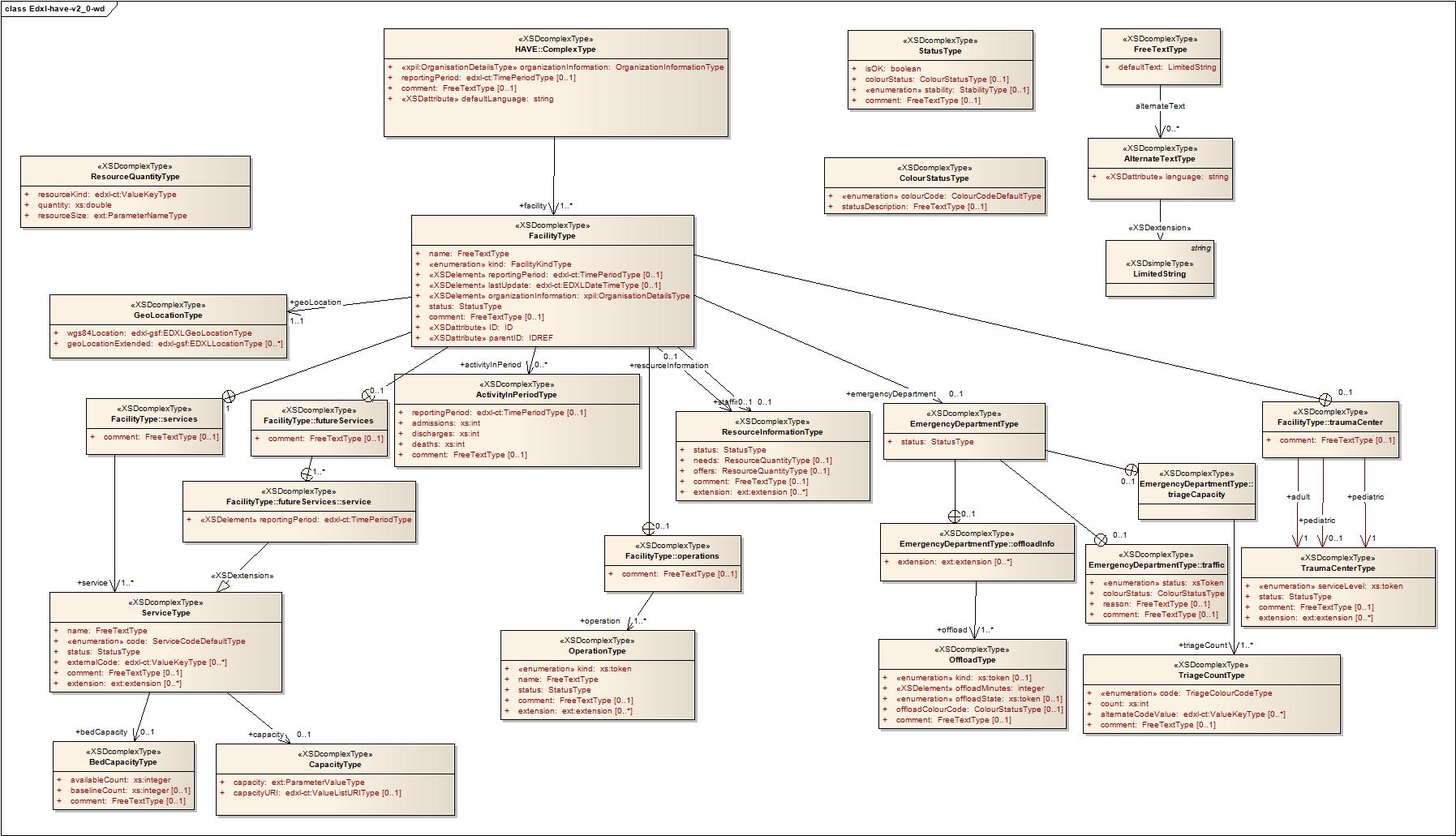
#### List redefinition

If the list is defined as a ValueList or a ValueKey, then use the corresponding mechanisms described above to point to list redefinitions. If the list is defined as an enumeration, then the redefinition can be achieved with the Extension mechanism. Note that list redefinition may pose significant risk to interoperability and therefore, whether the list is completely redefined or only partially, best practices suggest that the extension mechanism must be used, to signal that risk.

#### Special application of Extension

?????

## Element Reference Model (non-normative)



## Distribution of EDXL-HAVE (non-normative)

HAVE messages are intended to be payloads of various messaging and/or delivery systems. Messaging systems such as EDXL-DE can treat a HAVE message as a payload. Similarly, non-message-based systems (e.g. RESTful web service) can deliver a HAVE message just as easily. An individual facility may provide an up-to-date report via a web service. An aggregator could poll the facilities that are of interest for a particular reason, or in a Publish-Subscribe scenario, subscribe to the facilities of interest.

### EDXL Distribution Element (EDXL-DE)

EDXL-HAVE is designed to be routed using the EDXL-DE. If other routing/transport mechanisms are being used, they must support at least the meta-data used by the EDXL-DE, as described henceforth (non-normative).

EDXL Distribution Element (EDXL-DE) V 2.0 was approved as aCommittee Specification by the OASIS Emergency Management Technical Committee ready for implementation in 2012. The EDXLDE provides a flexible message-distribution framework for data sharing among emergency information systems using XML. The EDXL-DE may be used over any data transmission system, including, but not limited to, the SOAP HTTP binding.

The primary purpose of the Distribution Element is to facilitate the routing of emergency messages to recipients. The Distribution Element may be thought of as a container. It provides the information to route "payload" message sets by including key routing information such as distribution type, geography, incident, and sender/recipient IDs. Messages may be distributed to specific recipients, to recipients in a geographic area, or based on codes such as agency type (police, fire, etc.).

#### Identifying MessageType

Identification of the “Message Type” of the EDXL-HAVE is handled by the <Distribution-Kind> element of EDXL-DE v2.0.

The <DistributionKind> element defines the function of the message. It presents a choice between a userdefined value or a default value, but only a single value may be specified:

<DistributionKind>

<ct:ValueListURI>ValueListURI</ct:ValueListURI>

<ct:Value>value</ct:Value>

</DistributionKind>

If the default value list is used (”urn:oasis;names:tc:emergency:EDXL:DE2.0:Defaults:StatusType”) the functional name for the EDXL-TEP “Message Type” takes the form of an XML enumeration where the value must be one of:

* Report - New information regarding an incident or activity.
* Update - Updated information superseding a previous message.
* Cancel - A cancellation or revocation of a previous message.
* Request - A request for resources, information or action.
* Response - A response to a previous request.
* Ack - Acknowledgment of receipt of an earlier message.
* Error - Rejection of an earlier message (for technical reasons).

It is important to note that identifying a text message as a “Request” for a HAVE Message is handled by the EDXL <DistributionKind> element. More generally: where an existing EDXL-DE element meets a stated requirement, that element is not duplicated or referred to in the body of a HAVE Message. The assumption and rule is that the EDXL-DE or equivalent will be used to route HAVE messages, and therefore these requirements are satisfied by the DE.

#### Identifying Message Sender

Identification of the “Message Sender” of the EDXL-HAVE is handled by one or two elements of EDXL-DE v2.0.The EDXL-DE v2.0 <SenderID> or an element with the identical definition and properties MUST be present in the EDXL-DE or other routing mechanism used to distribute an EDXL-HAVE message. The <SenderRole> or an element with the identical definition and properties MAY be present.

<SenderRole> is expressed in an XML ValueList and Value.

* The list and associated value(s) is in the form:

<SenderRole>

<ct:ValueListURI>valueListURI</ValueListURI>

<ct:Value>value</Value>

</SenderRole>

* Where the content of <ValueListURI> is the Uniform Resource Identifier of a published list of values and definitions, and the content of <Value> is a string (which may represent a number) denoting the value itself.

Multiple instances of the <Value>, MAY occur with a single <ValueListURI> within the <SenderRole> container.

#### DateTime Message Sent

The EDXL-DE v2.0 <DateTimeSent> element is used to established the date and time the EDXL-DE package contained the EDXL-HAVE message is sent.

* DateTime elements are represented consistent with previous EDXL standards (24-hour clock):
* The date and time is represented in [DateTime] format (e. g., "2008-06-11T16:49:00-07:00" for 11 June 2008 at 16:49 PDT).

Alphabetic time zone designators such as “Z” MUST NOT be used. The time zone for UTC MUST be represented as “-00:00” or “+00:00

#### Multiple HAVE messages

The <ContentObject> construct in EDXL-DE 2.0 allows to carry multiple EDXL messages in the same DE message: each <ContentObject> MUST be well-formed <ContentXML> or <OtherContent>. EDXL-HAVE is designed to be well-formed XML for routing, using EDXL-DE.

#### Signature

A digital version of a signature may optionally be included to provide the authority that authenticates a particular HAVE message. A digital signature must be provided in the form of a graphic image carried by the EDXL-DE message header as separate content object.

### Attachments

Additional documents such as photographs, fingerprints or health records may be attached to a HAVE message, using the <ContentObject> construct of EDXL-DE, or other routing / transport mechanism with similar capability. Security or encryption needs for attachments are to be handled at the DE level.

## HAVE Elements

A HAVE message consists of an organization that uniquely identifies the organization that is responsible for the reporting facilities, a reporting period (**reportingPeriod** – *optional*) that identifies reporting period applicable for this HAVE report, and a group of elements (**facility** – *required*) that uniquely identifies and describes the facility’s status including

* facility name and location,
* overall facility status, ..
* services, ..
* operations, ..
* resources, ..
* staffing, ..
* and emergency department.

These elements are detailed further in the Element Reference Model (Section 3.3) and in the Data Dictionary (Section 4).

# Data Dictionary (normative)

The data dictionary is intended to provide detailed definition of each element contained in the EDXL-HAVE standard. Where discrepancies may exist between this dictionary, the Element Reference Model (ERM), and the normative schema, the normative schema shall take precedence.

**Element** / **ElementType**– Name of the element or element type.

**Type** – Type or format of the element.

**Usage** – Optionality and Cardinality (the latter is for Element only).

If no optionality specified, then the element is “OPTIONAL”.

If no cardinality specified, the element “MUST be used once and only once”

**Definition** – Definition of the element / type.

**Comments** – Additional comments or examples to add clarity.

**Constraints** – Limits imposed on the element. Also notes the container or “parent” to which the element belongs.

**Valid Values / Examples** – A list of values that apply to this particular element, or examples which apply in order to clarify the definition. Where valid values are specified for ValueListURN/Value type pairs, these values are suggested as defaults, allowing implementations to use their own value list, or insert their own value by extending the defaults.

**Sub-elements** – List of references to elements that are part of this element

**Used In** – Source of the requirement or usage of the element.

**Requirements Supported** – A code representing and referring to each requirement contained in the original submission from the practitioner process to OASIS. EACH general, functional or information requirement is accounted for by one or more elements in the data dictionary, and/or by relationships in the message structure, one or more business rules, or through the overall standard (e.g. for general and functional requirements). Key:

gReq# - “General” requirement number.

fReq# - “Functional” requirement number.

iReq# - “Information” requirement number.

***Namespace prefixes***: we use the following prefixes for namespace scoping of elements and types

xsd = "<http://www.w3.org/2001/XMLSchema>"

predefined types in XMLSchema space

edxl-ct = "urn:oasis:names:tc:emergency:edxl:ct:1.0"

common types in EDXL space

ext = "urn:oasis:names:tc:emergency:edxl:extension:1.0"

extension mechanism for EDXL Standards

xal = "urn:oasis:names:tc:emergency:edxl:ciq:1.0:xal"

elements / types in EDXL-CIQ-xAL (extensible Address Language) space

edxl-gsf = “urn:oasis:names:tc:emergency:edxl:gsf:1.0"

have = "urn:oasis:names:tc:emergency:edxl:have:2.0"

xpil = "urn:oasis:names:tc:emergency:edxl:ciq:1.0:xpil"

gml = "http://www.opengis.net/gml/3.2" xmlns="urn:oasis:names:tc:emergency:edxl:have:2.0"

For an explanation of examples for ValueKeyType, see section 3.2.2.

***Naming convention***: in order to mark a clear distinction between elements and types, names of elements shall not contain the string “Type” and shall be formatted in camel-type (lower case leading alpha character); types are to be terminated by the string “Type” and shall be formatted in Pascal-type (upper case leading alpha character). Acronyms that are part of a type/element identifier should preserve their all upper case format.

## HAVE Root Element

|  |  |
| --- | --- |
| **Element** | **HAVE** |
| Type | xs:complexType |
| Usage | REQUIRED; MUST be used once and only once [1..1] |
| Definition | Top Level item for Hospital AVailability Exchange (HAVE) message. |
| Comments |  |
| Constraints |  |
| Valid Values / Examples |  |
| Sub-elements | * [organizationInformation](#elem_organizationInformation) [1..1]: xpil:OrganizationInformationType * [reportingPeriod](#elem_reportingPeriod) [0..1]: edxl-ct:TimePeriodType * [facility](#elem_facility) [1..\*]: FacilityType * [comment](#elem_HAVE_comment) [0..1]: FreeTextType * [defaultLanguage](#elem_defaultLanguage) [1..1]: xs:string |
| Used In | EDXL-HAVE |
| Requirements Supported |  |
|  |  |



|  |  |
| --- | --- |
| **Element** | **organizationInformation** |
| Type | OrganizationInformationType |
| Usage | REQUIRED; MUST be used once and only once [1..1] |
| Definition | Information of the organization that is responsible for the reporting of these facilities. |
| Comments |  |
| Constraints |  |
| Valid Values / Examples |  |
| Sub-elements |  |
| Used In | EDXL-HAVE |
| Requirements Supported |  |
|  |  |

|  |  |
| --- | --- |
| **Element** | **reportingPeriod** |
| Type | edxl-ct:TimePeriodType |
| Usage | OPTIONAL; MAY be used once and only once [0..1] |
| Definition | The reporting period applicable for this HAVE report and called the "current reporting periood" typically a 24-hr period but the duration may change for operational reasons. |
| Comments | If blank the assumption is that the file is for "today" - local to the issuer. |
| Constraints |  |
| Valid Values / Examples |  |
| Sub-elements |  |
| Used In | EDXL-HAVE |
| Requirements Supported |  |
|  |  |

|  |  |
| --- | --- |
| **Element** | **facility** |
| Type | have:FacilityType |
| Usage | REQUIRED; MUST be used at least once [1..\*] |
| Definition | A list of facilities that comprise the detail of this HAVE message. |
| Comments |  |
| Constraints |  |
| Valid Values / Examples |  |
| Sub-elements |  |
| Used In | EDXL-HAVE |
| Requirements Supported |  |
|  |  |



|  |  |
| --- | --- |
| **Element** | **comment** |
| Type | FreeTextType |
| Usage | OPTIONAL; MAY be used once and only once [0..1] |
| Definition | Provides context to the HAVE report. |
| Comments |  |
| Constraints |  |
| Valid Values / Examples |  |
| Sub-elements |  |
| Used In | EDXL-HAVE |
| Requirements Supported |  |
|  |  |

|  |  |
| --- | --- |
| **Attribute** | **defaultLanguage** |
| Type | xs:string |
| Usage | REQUIRED; MUST be used once and only once [1..1] |
| Definition | Language code that is used throughout the document. |
| Comments | Free text within the document will be assumed to be in this default language. |
| Constraints | Code MUST comply with RFC3066. |
| Valid Values / Examples | en-US |
| Sub-elements |  |
| Used In | EDXL-HAVE |
| Requirements Supported |  |
|  |  |

### FacilityType



|  |  |
| --- | --- |
| **Complex Type** | **FacilityType** |
| Type | Complex Type |
| Definition |  |
| Comments |  |
| Constraints |  |
| Valid Values / Examples |  |
| Sub-elements | * [name](#elem_name) [1..1]: FreeTextType * [kind](#elem_kind) [1..1]: FacilityKindType * [reportingPeriod](#elem_reportingPeriod) [0..1]: edxl-ct:TimePeriodType * [lastUpdate](#elem_lastUpdate) [0..1]: edxl-ct:EDXLDateTimeType * [organizationalInformation](#elem_organizationInformation) [1..1]: xpil:OrganisationDetailsType * [geoLocation](#elem_geoLocation) [1..1]: GeolocationType * [status](#elem_FacilityType_status) [1..1]: StatusType * services [1..1]: complex type * futureServices [0..1]: complex type * activityInPeriod [0..1]: ActivityInPeriodType * operations [0..1]: complex type * resourceInformation [0..1] ResourceInformationType * staffing [0..1]: ResourceInformationType * emergencyDepartment [0..1]: EmergencyDepartmentType * traumaCenter [0..1]: complex type * ID [1..1] : xs:ID * parentID [1..1]: xs:IDREF |
| Used In | HAVE |
| Requirements Supported |  |

|  |  |
| --- | --- |
| **Element** | **name** |
| Type | FreeTextType |
| Usage | REQUIRED; MUST be used once and only once [1..1] |
| Definition | Name of the facility. |
| Comments |  |
| Constraints |  |
| Valid Values / Examples |  |
| Sub-elements |  |
| Used In | FacilityType |
| Requirements Supported |  |
|  |  |

|  |  |
| --- | --- |
| **Element** | **kind** |
| Type | FacilityKindType |
| Usage | REQUIRED; MUST be used once and only once [1..1] |
| Definition | The kind of facility. |
| Comments | Restricted EDXL string type. |
| Constraints | FacilityKindType restricts edxl-ct:EDXLStringType to the following values. |
| Valid Values / Examples | * Hospital * LongTermCare * UrgentCareClinic * TemporaryFacility * Other |
| Sub-elements |  |
| Used In | FacilityType |
| Requirements Supported |  |
|  |  |

|  |  |
| --- | --- |
| **Element** | **reportingPeriod** |
| Type | edxl-ct:TimePeriodType |
| Usage | OPTIONAL; MAY be used once and only once [0..1] |
| Definition | The reporting period applicable for this facility and called the "current reporting periood" typically a 24-hr period but the duration may change for operational reasons. |
| Comments | If blank the assumption is that the file is for "today" - local to the issuer. |
| Constraints |  |
| Valid Values / Examples |  |
| Sub-elements |  |
| Used In | FacilityType |
| Requirements Supported |  |
|  |  |

|  |  |
| --- | --- |
| **Element** | **lastUpdate** |
| Type | edxl-ct:EDXLDateTimeType |
| Usage | OPTIONAL; MAY be used once and only once [0..1] |
| Definition | The reporting period applicable for this facility report and called the "current reporting periood" typically a 24-hr period but the duration may change for operational reasons. |
| Comments | If blank the assumption is that the file is for "today" - local to the issuer. |
| Constraints |  |
| Valid Values / Examples |  |
| Sub-elements |  |
| Used In | FacilityType |
| Requirements Supported |  |
|  |  |

|  |  |
| --- | --- |
| **Element** | **organizationInformation** |
| Type | OrganizationInformationType |
| Usage | REQUIRED; MUST be used once and only once [1..1] |
| Definition | Information of the organization that is responsible for the reporting of these facilities. |
| Comments |  |
| Constraints |  |
| Valid Values / Examples |  |
| Sub-elements |  |
| Used In | FacilityType |
| Requirements Supported |  |
|  |  |

|  |  |
| --- | --- |
| **Element** | **geoLocation** |
| Type | GeoLocationType |
| Usage | REQUIRED; MUST be used once and only once [1..1] |
| Definition |  |
| Comments |  |
| Constraints |  |
| Valid Values / Examples |  |
| Sub-elements |  |
| Used In | FacilityType |
| Requirements Supported |  |
|  |  |

|  |  |
| --- | --- |
| **Element** | **status** |
| Type | StatusType |
| Usage | REQUIRED; MUST be used once and only once [1..1] |
| Definition | The overall status of the Facility. |
| Comments | This value is intended to provide a high-level summary status of the Facility. The particulars driving that Facility status should be provided where appropriate (Services, Operations, etc.). Comments (comment element) should be used to provide only the high-level summary. |
| Constraints |  |
| Valid Values / Examples |  |
| Sub-elements |  |
| Used In | FacilityType |
| Requirements Supported |  |
|  |  |

|  |  |
| --- | --- |
| **Element** | **services** |
| Type | xs:complexType |
| Usage | REQUIRED; MUST be used once and only once [1..1] |
| Definition | An XML structure containing one or more of the required element:   * service   And the optional element:   * comment   Container element of all the elements of service coverage. |
| Comments | This includes both the necessary staff and facilities. Indicator of the availability of specialty service coverage. |
| Constraints |  |
| Valid Values / Examples |  |
| Sub-elements |  |
| Used In | FacilityType |
| Requirements Supported |  |
|  |  |

|  |  |
| --- | --- |
| **Element** | **futureServices** |
| Type | xs:complexType |
| Usage | OPTIONAL; MAY be used once and only once [0..1] |
| Definition | An XML structure containing one or more of the required element:   * service   And the optional element:   * comment   Optional list of Service Capabilities in future for planned or potential ramping up (or down) of capabilities to accommodate surge needs or degraded capabilities. 0...n |
| Comments |  |
| Constraints |  |
| Valid Values / Examples |  |
| Sub-elements |  |
| Used In | FacilityType |
| Requirements Supported |  |
|  |  |

|  |  |
| --- | --- |
| **Element** | **activityInPeriod** |
| Type | ActivityInPeriodType |
| Usage | OPTIONAL; MAY be used more than once [0..\*] |
| Definition | Provides a set of summaries of activity that has occurred in the indicated reporting period. |
| Comments | This item is intended to provide a very high-level summary of facility activity. |
| Constraints |  |
| Valid Values / Examples |  |
| Sub-elements |  |
| Used In | FacilityType |
| Requirements Supported |  |
|  |  |

|  |  |
| --- | --- |
| **Element** | **operations** |
| Type | xs:complexType |
| Usage | OPTIONAL; MAY be used once and only once [0..1] |
| Definition | An XML structure containing one or more of the required element:   * operation   And the optional element:   * comment   Provides a taxonomy-based list of operations that describe the operations of a facility |
| Comments |  |
| Constraints |  |
| Valid Values / Examples |  |
| Sub-elements |  |
| Used In | FacilityType |
| Requirements Supported |  |
|  |  |

|  |  |
| --- | --- |
| **Element** | **resourceInformation** |
| Type | ResourceInformationType |
| Usage | OPTIONAL; MAY be used once and only once [0..1] |
| Definition | Information about resources (status, needs, availability for offer) for the facility. |
| Comments |  |
| Constraints |  |
| Valid Values / Examples |  |
| Sub-elements |  |
| Used In | FacilityType |
| Requirements Supported |  |
|  |  |

|  |  |
| --- | --- |
| **Element** | **staffing** |
| Type | StaffingLevelType |
| Usage | OPTIONAL; MAY be used once and only once [0..1] |
| Definition | Staffing Elements: \* staffing type - valueListKeyType (with Default) - intended to be very specific if needed (e.g. pediatric.anasthesiologist) \* staffing status \* staffing shortfall (optional- @# of staff positions down) |
| Comments |  |
| Constraints |  |
| Valid Values / Examples |  |
| Sub-elements |  |
| Used In | FacilityType |
| Requirements Supported |  |
|  |  |

|  |  |
| --- | --- |
| **Element** | **emergencyDepartment** |
| Type | EmergencyDepartmentType |
| Usage | OPTIONAL; MAY be used once and only once [0..1] |
| Definition | Report on the emergency department status for the organization |
| Comments |  |
| Constraints |  |
| Valid Values / Examples |  |
| Sub-elements |  |
| Used In | FacilityType |
| Requirements Supported |  |
|  |  |

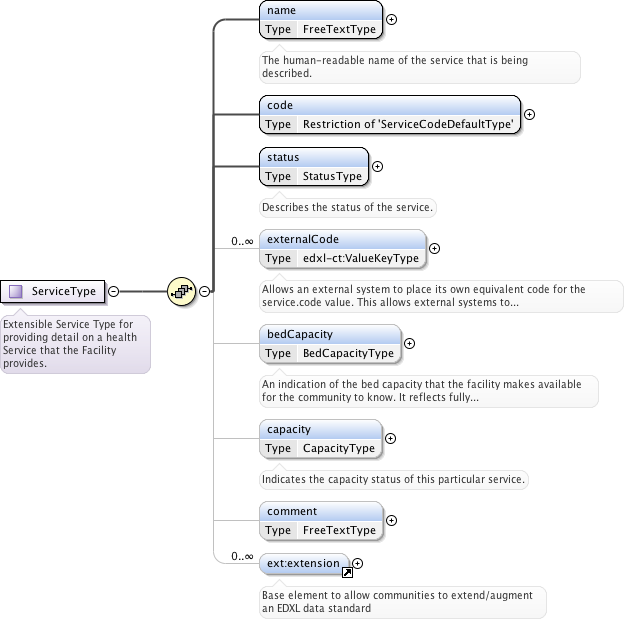
|  |  |
| --- | --- |
| **Element** | **traumaCenter** |
| Type | xs:ComplexType |
| Usage | OPTIONAL; MAY be used once and only once [0..1] |
| Definition | An XML structure containing one (or both) of the following elements:   * choice   + adult[1..1]: TraumaCenterType   + pediatric[0..1]: TraumaCenterType * or   + pediatric[1..1]: TraumaCenterType   And the optional element:   * comment [0..1]: FreeTextType   Trauma Center Level of this facility. |
| Comments | The Choice/Sequence approach used here allows for at least one of Adult or Pediatric Trauma Center Levels to be provided. |
| Constraints |  |
| Valid Values / Examples |  |
| Sub-elements |  |
| Used In | FacilityType |
| Requirements Supported |  |
|  |  |

|  |  |
| --- | --- |
| **Attribute** | **ID** |
| Type | xs:IDREF |
| Usage | REQUIRED; MUST be used once and only once [1..1] |
| Definition | A unique identifier for this Facility. |
| Comments | This value should be unique globally, but MUST be unique from the sender perspective. |
| Constraints | MUST be unique from the sender perspective. |
| Valid Values / Examples |  |
| Sub-elements |  |
| Used In | FacilityType |
| Requirements Supported |  |
|  |  |

|  |  |
| --- | --- |
| **Attribute** | **parentID** |
| Type | xs:IDREF |
| Usage | OPTIONAL; MAY be used once and only once [0..1] |
| Definition | Reference to the ID of the Facility that is the parent (owner, manager, responsible, etc.) of this Facility. |
| Comments | This field is optional and used to provide a hierarchy for formal facility organizations. |
| Constraints |  |
| Valid Values / Examples |  |
| Sub-elements |  |
| Used In | FacilityType |
| Requirements Supported |  |



#### Services Complex Type



|  |  |
| --- | --- |
| **Element** | **services** |
| Type | xs:complexType |
| Definition | An XML structure containing one or more of the required element:   * service   And the optional element:   * comment   Container element of all the elements of service coverage. |
| Comments | This includes both the necessary staff and facilities. Indicator of the availability of specialty service coverage. |
| Constraints |  |
| Valid Values / Examples |  |
| Sub-elements | * service [1..1]: ServiceType * comment [0..1]: FreeTextType |
| Used In | FacilityType |
| Requirements Supported |  |
|  |  |

|  |  |
| --- | --- |
| **Element** | **service** |
| Type | ServiceType |
| Usage | REQUIRED; MUST be used at least once [1..\*] |
| Definition | Service list item provides a description of a particular service - availability, capacity, and status. |
| Comments |  |
| Constraints |  |
| Valid Values / Examples |  |
| Sub-elements |  |
| Used In | services |
| Requirements Supported |  |
|  |  |

|  |  |
| --- | --- |
| **Element** | **comment** |
| Type | FreeTextType |
| Usage | OPTIONAL; MAY be used once and only once [0..1] |
| Definition | Provides context to the Services of a facility. |
| Comments |  |
| Constraints |  |
| Valid Values / Examples |  |
| Sub-elements |  |
| Used In | services |
| Requirements Supported |  |
|  |  |
|  |  |

#### Future Services Complex Type

|  |  |
| --- | --- |
| **Element** | **futureServices** |
| Type | xs:complexType |
| Definition | An XML structure containing one or more of the required element:   * service   And the optional element:   * comment   Optional list of Service Capabilities in future for planned or potential ramping up (or down) of capabilities to accommodate surge needs or degraded capabilities. 0...n |
| Comments |  |
| Constraints |  |
| Valid Values / Examples |  |
| Sub-elements | * service [1..\*]: xs: complexType * comment [0..1]: FreeTextType |
| Used In | FacilityType |
| Requirements Supported |  |
|  |  |

|  |  |
| --- | --- |
| **Element** | **service** |
| Type | ServiceType extension |
| Definition | An XML structure containing one or more of the required element:   * base [1..1]: ServiceType   And the optional element:   * reportingPeriod [1..1]: edxl-ct:TimePeriodType   Optional list of Service Capabilities in future for planned or potential ramping up (or down) of capabilities to accommodate surge needs or degraded capabilities. 0...n |
| Comments |  |
| Constraints |  |
| Valid Values / Examples |  |
| Sub-elements | * service [1..\*]: xs: complexType * comment [0..1] |
| Used In | FacilityType |
| Requirements Supported |  |
|  |  |

|  |  |
| --- | --- |
| **Element** | **comment** |
| Type | FreeTextType |
| Usage | OPTIONAL; MAY be used once and only once [0..1] |
| Definition | Provides context to a future service of a facility. |
| Comments |  |
| Constraints |  |
| Valid Values / Examples |  |
| Sub-elements |  |
| Used In | FacilityType |
| Requirements Supported |  |
|  |  |
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##### Future Service Complex Type

|  |  |
| --- | --- |
| **Element** | **service** |
| Type | ServiceType extension |
| Definition | An XML structure containing one or more of the required element:   * *extension base* [1..1]: ServiceType   And the optional element:   * reportingPeriod [1..1]: edxl-ct:TimePeriodType   Optional list of Service Capabilities in future for planned or potential ramping up (or down) of capabilities to accommodate surge needs or degraded capabilities. 0...n |
| Comments |  |
| Constraints |  |
| Valid Values / Examples |  |
| Sub-elements | * *extension base* [1..1]: ServiceType * reportingPeriod [1..1]: edxl-ct:TimePeriodType |
| Used In | FacilityType |
| Requirements Supported |  |
|  |  |

|  |  |
| --- | --- |
| **Element** | ***extension base*** |
| Type | ServiceType |
| Usage | REQUIRED; MUST be used once and only once [1..1] |
| Definition | Service list item provides a description of a particular service - availability, capacity, and status. |
| Comments | This service element in futureServices extends the base have:ServiceType to include an additional comment element. |
| Constraints | Extends ServiceType |
| Valid Values / Examples |  |
| Sub-elements |  |
| Used In | futureServices:service |
| Requirements Supported |  |
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|  |  |
| --- | --- |
| **Element** | **reportingPeriod** |
| Type | edxl-ct:TimePeriodType |
| Usage | REQUIRED; MUST be used once and only once [1..1] |
| Definition |  |
| Comments |  |
| Constraints |  |
| Valid Values / Examples |  |
| Sub-elements |  |
| Used In | futureServices:service |
| Requirements Supported |  |
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#### Operations Complex Type

|  |  |
| --- | --- |
| **Element** | **operations** |
| Type | xs:complexType |
| Usage | OPTIONAL; MAY be used once and only once [0..1] |
| Definition | An XML structure containing one or more of the required element:   * operation[1..\*]: OperationType   And the optional element:   * comment[0..1]: FreeTextType   Provides a taxonomy-based list of operations that describe the operations of a facility |
| Comments |  |
| Constraints |  |
| Valid Values / Examples |  |
| Sub-elements | * operation[1..\*]: OperationType * comment[0..1]: FreeTextType |
| Used In | FacilityType |
| Requirements Supported |  |
|  |  |

|  |  |
| --- | --- |
| **Element** | **operation** |
| Type | OperationType |
| Usage | REQUIRED; MUST be used at least once [1..\*] |
| Definition | Operation that facility provides in the context of key areas such as Clinical Operations, Security Operations, Facility Operations. |
| Comments |  |
| Constraints |  |
| Valid Values / Examples |  |
| Sub-elements |  |
| Used In | operations |
| Requirements Supported |  |
|  |  |

|  |  |
| --- | --- |
| **Element** | **comment** |
| Type | FreeTextType |
| Usage | OPTIONAL; MAY be used once and only once [0..1] |
| Definition | Provides context to the operation of a facility. |
| Comments |  |
| Constraints |  |
| Valid Values / Examples |  |
| Sub-elements |  |
| Used In | operations |
| Requirements Supported |  |
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#### Trauma Center Complex Type

|  |  |
| --- | --- |
| **Element** | **traumaCenter** |
| Type | xs:ComplexType |
| Usage | OPTIONAL; MAY be used once and only once [0..1] |
| Definition | Trauma Center Level of this facility. |
| Comments | The Choice/Sequence approach used here allows for at least one of Adult or Pediatric Trauma Center Levels to be provided. |
| Constraints |  |
| Valid Values / Examples |  |
| Sub-elements | * choice   + adult[1..1]: TraumaCenterType   + pediatric[0..1]: TraumaCenterType * or   + pediatric[1..1]: TraumaCenterType * comment [0..1]: FreeTextType |
| Used In | facility |
| Requirements Supported |  |
|  |  |

|  |  |
| --- | --- |
| **Element** | **adult** |
| Type | TraumaCenterType |
| Usage | SPECIAL;  REQUIRED; MUST be used once and only once [1..1]; if NO pediatric element is present in the parent traumaCenter element.  OPTIONAL; MAY be used once and only once [0..1] if one pediatric element is present in the parent traumaCenter element. |
| Definition | Adult Trauma Services details. |
| Comments |  |
| Constraints | If no pediatric element is present in the traumaCenter element, the adult element must be present. |
| Valid Values / Examples |  |
| Sub-elements |  |
| Used In | traumaCenter |
| Requirements Supported |  |
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| --- | --- |
| **Element** | **pediatric** |
| Type | TraumaCenterType |
| Usage | SPECIAL;  REQUIRED; MUST be used once and only once [1..1]; if NO adult element is present in the parent traumaCenter element.  OPTIONAL; MAY be used once and only once [0..1] if one adult element is present in the parent traumaCenter element. |
| Definition | Pediatric Trauma Center details. |
| Comments |  |
| Constraints | If no adult element is present in the traumaCenter element, the pediatric element must be present. |
| Valid Values / Examples |  |
| Sub-elements |  |
| Used In | traumaCenter |
| Requirements Supported |  |
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|  |  |
| --- | --- |
| **Element** | **comment** |
| Type | FreeTextType |
| Usage | OPTIONAL; MAY be used once and only once [0..1] |
| Definition | Provides context to the operation of a facility. |
| Comments |  |
| Constraints |  |
| Valid Values / Examples |  |
| Sub-elements |  |
| Used In | traumaCenter |
| Requirements Supported |  |
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### GeoLocationType

|  |  |
| --- | --- |
| **Complex Type** | **GeoLocationType** |
| Type | xs:ComplexType |
| Definition | An XML structure containing one (or both) of the following elements:   * wgs84Location [1..1]: edxl-gsf:EDXLGeoLocationType * geoLocationExtended [0..\*]: edxl-gsf:EDXLGeoLocationType |
| Comments | The Choice/Sequence approach used here allows for at least one of Adult or Pediatric Trauma Center Levels to be provided. |
| Constraints |  |
| Valid Values / Examples |  |
| Sub-elements | * wgs84Location [1..1]: edxl-gsf:EDXLGeoLocationType * geoLocationExtended [0..\*]: edxl-gsf:EDXLGeoLocationType |
| Used In | facility |
| Requirements Supported |  |
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|  |  |
| --- | --- |
| **Element** | **wgs84Location** |
| Type | edxl-gsf:EDXLGeoLocationType |
| Usage | REQUIRED; MUST be used once and only once [1..1] |
| Definition | The location of the facility in WGS84 coordinates. The values in this element must use the WGS84 (EPSG:4326) values. This element is mandatory to ensure compatibility globally. If alternate SRS are needed, use the geoLocationExtended elements to support 1 or more SRS that are needed in your community. FUTURE versions of HAVE may support additional or alternate globally supported SRS. |
| Comments |  |
| Constraints | srsName attribute is required and constrained to the following value:   * http://www.opengis.net/def/crs/EPSG/0/4326 |
| Valid Values / Examples |  |
| Sub-elements |  |
| Used In | GeoLocationType |
| Requirements Supported |  |
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| --- | --- |
| **Element** | **geoLocationExtended** |
| Type | edxl-gsf:EDXLGeoLocationType |
| Usage | OPTIONAL; MAY be used at least once [0..\*] |
| Definition | The location of the facility in non-WGS84 (EPSG:4326) coordinates. These alternate (and optional) coordinates are intended for the purposes of systems that require the sending system to provide specialize SRS coordinates. |
| Comments |  |
| Constraints | srsName attribute is required |
| Valid Values / Examples |  |
| Sub-elements |  |
| Used In | GeoLocationType |
| Requirements Supported |  |
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### ServiceType

|  |  |
| --- | --- |
| **Complex Type** | **ServiceType** |
| Type | xs:ComplexType |
| Definition | An XML structure containing one (or both) of the following elements:   * name[1..1]: FreeTextType * code [1..1]: ServiceCodeDefaultType * status[1..1]: StatusType * externalCode [0..\*]: edxl-ct:ValueKeyType * bedCapacity [0..1]: BedCapacityType * capacity [0..1]: CapacityType * comment [0..1]: FreeTextType * extension [0..\*]: ext:extension |
| Comments | The Choice/Sequence approach used here allows for at least one of Adult or Pediatric Trauma Center Levels to be provided. |
| Constraints |  |
| Valid Values / Examples |  |
| Sub-elements | * name[1..1]: FreeTextType * code [1..1]: ServiceCodeDefaultType * status[1..1]: StatusType * externalCode [0..\*]: edxl-ct:ValueKeyType * bedCapacity [0..1]: BedCapacityType * capacity [0..1]: CapacityType * comment [0..1]: FreeTextType * extension [0..\*]: ext:extension |
| Used In | * FacilityType: services * FacilityType: futureServices: service |
| Requirements Supported |  |
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| --- | --- |
| **Element** | **name** |
| Type | FreeTextType |
| Usage | REQUIRED; MUST be used once and only once [1..1] |
| Definition | Name of the service. |
| Comments |  |
| Constraints |  |
| Valid Values / Examples |  |
| Sub-elements |  |
| Used In | ServiceType |
| Requirements Supported |  |
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|  |  |
| --- | --- |
| **Element** | **code** |
| Type | ServiceCodeDefaultType |
| Usage | REQUIRED; MUST be used once and only once [1..1] |
| Definition | The kind of facility. |
| Comments | Restricted EDXL value type. |
| Constraints | ServiceCodeDefaultType restricts edxl-ct:ValueType to the following values. |
| Valid Values / Examples | * burnUnit * cardiology * cardiology.invasive * cardiology.noninvasive * cardiologymi.STEMI * cardiologymi.nonSTEMI * dialysis * hyperBaricChamber * infectiousDisease * neonatology * neurology * neurology.invasive * neurology.noninvasive * obgyn * obgyn.withLaborDelivery * obgyn.withoutLaborDelivery * ophthalmology * orthopedic * pediatrics * psychiatric * surgery * surgery.adultGeneral * surgery.pediatrics * surgery.orthopedics * surgery.neurosurgery * surgery.facial * surgery.cardiothoracic * surgery.hand * surgery.reimplantation * surgery.spinal * surgery.vascular * surgery.anesthesia * traumaCenter |
| Sub-elements |  |
| Used In | ServiceType |
| Requirements Supported |  |
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| --- | --- |
| **Element** | **status** |
| Type | StatusType |
| Usage | REQUIRED; MUST be used once and only once [1..1] |
| Definition | Describes the status of the service |
| Comments |  |
| Constraints |  |
| Valid Values / Examples |  |
| Sub-elements |  |
| Used In | ServiceType |
| Requirements Supported |  |
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|  |  |
| --- | --- |
| **Element** | **externalCode** |
| Type | edxl-ct:ValueKeyType |
| Usage | OPTIONAL; MAY be used more than once [0..\*] |
| Definition | Allows an external system to place its own equivalent code for the service.code value. This allows external systems to correlate their data directly in the HAVE report. |
| Comments |  |
| Constraints |  |
| Valid Values / Examples |  |
| Sub-elements |  |
| Used In | ServiceType |
| Requirements Supported |  |
|  |  |

|  |  |
| --- | --- |
| **Element** | **bedCapacity** |
| Type | BedCapacityType |
| Usage | OPTIONAL; MAY be used once and only once [0..1] |
| Definition | An indication of the bed capacity that the facility makes available for the community to know. It reflects fully staffed and equipped beds. The intention here is to provide an external view of where beds may be available in a health network. The intent is not for HAVE to become a hospital administration tool. |
| Comments |  |
| Constraints |  |
| Valid Values / Examples |  |
| Sub-elements |  |
| Used In | ServiceType |
| Requirements Supported |  |
|  |  |

|  |  |
| --- | --- |
| **Element** | **capacity** |
| Type | CapacityType |
| Usage | OPTIONAL; MAY be used more than once [0..1] |
| Definition | Indicates the capacity status of this particular service. |
| Comments |  |
| Constraints |  |
| Valid Values / Examples |  |
| Sub-elements |  |
| Used In | ServiceType |
| Requirements Supported |  |
|  |  |

|  |  |
| --- | --- |
| **Element** | **comment** |
| Type | FreeTextType |
| Usage | OPTIONAL; MAY be used once and only once [0..1] |
| Definition | Provides context to the service. |
| Comments |  |
| Constraints |  |
| Valid Values / Examples |  |
| Sub-elements |  |
| Used In | ServiceType |
| Requirements Supported |  |
|  |  |

|  |  |
| --- | --- |
| **Element** | **extension** |
| Type | ext:extension |
| Usage | OPTIONAL; MAY be used more than once [0..\*] |
| Definition |  |
| Comments |  |
| Constraints |  |
| Valid Values / Examples |  |
| Sub-elements |  |
| Used In | ServiceType |
| Requirements Supported |  |
|  |  |











### BedCapacityType

|  |  |
| --- | --- |
| **Complex Type** | **BedCapacityType** |
| Type | xs:ComplexType |
| Definition | An XML structure containing one (or both) of the following elements:   * availableCount [1..1]: xs:integer * baselineCount [0..1]: xs:integer * comment [0..1]: FreeTextType |
| Comments | The Choice/Sequence approach used here allows for at least one of Adult or Pediatric Trauma Center Levels to be provided. |
| Constraints |  |
| Valid Values / Examples |  |
| Sub-elements | * availableCount [1..1]: xs:integer * baselineCount [0..1]: xs:integer * comment [0..1]: FreeTextType |
| Used In | ServiceType |
| Requirements Supported |  |
|  |  |

|  |  |
| --- | --- |
| **Element** | **availableCount** |
| Type | xs:integer |
| Usage | REQUIRED; MUST be used once and only once [1..1] |
| Definition |  |
| Comments |  |
| Constraints |  |
| Valid Values / Examples |  |
| Sub-elements |  |
| Used In | BedCapacityType |
| Requirements Supported |  |
|  |  |

|  |  |
| --- | --- |
| **Element** | **baselineCount** |
| Type | xs:integer |
| Usage | OPTIONAL; MAY be used once and only once [0..1] |
| Definition |  |
| Comments |  |
| Constraints |  |
| Valid Values / Examples |  |
| Sub-elements |  |
| Used In | BedCapacityType |
| Requirements Supported |  |
|  |  |

|  |  |
| --- | --- |
| **Element** | **comment** |
| Type | FreeTextType |
| Usage | OPTIONAL; MAY be used once and only once [0..1] |
| Definition |  |
| Comments |  |
| Constraints |  |
| Valid Values / Examples |  |
| Sub-elements |  |
| Used In | BedCapacityType |
| Requirements Supported |  |
|  |  |

### CapacityType

|  |  |
| --- | --- |
| **Complex Type** | **CapacityType** |
| Type | xs:ComplexType |
| Definition | An XML structure containing one (or both) of the following elements:   * capacity [1..1]: ext:ParameterValueType * capacityURI [0..1]: edxl-ct:ValueListURIType |
| Comments | The Choice/Sequence approach used here allows for at least one of Adult or Pediatric Trauma Center Levels to be provided. |
| Constraints |  |
| Valid Values / Examples |  |
| Sub-elements | * capacity [1..1]: ext:ParameterValueType * capacityURI [0..1]: edxl-ct:ValueListURIType |
| Used In | ServiceType |
| Requirements Supported |  |
|  |  |

|  |  |
| --- | --- |
| **Element** | **capacity** |
| Type | ext:ParameterValueType |
| Usage | REQUIRED; MUST be used once and only once [1..1] |
| Definition |  |
| Comments |  |
| Constraints |  |
| Valid Values / Examples |  |
| Sub-elements |  |
| Used In | CapacityType |
| Requirements Supported |  |
|  |  |

|  |  |
| --- | --- |
| **Element** | **capacityURI** |
| Type | edxl-ct:ValueListURIType |
| Usage | OPTIONAL; MAY be used once and only once [0..1] |
| Definition |  |
| Comments |  |
| Constraints |  |
| Valid Values / Examples |  |
| Sub-elements |  |
| Used In | CapacityType |
| Requirements Supported |  |
|  |  |

### ActivityInPeriodType

|  |  |
| --- | --- |
| **Complex Type** | **ActivityInPeriodType** |
| Type | xs:ComplexType |
| Definition | An XML structure containing one (or both) of the following elements:   * reportingPeriod [0..1]: edxl-ct:TimePeriodType * admissions [1..1]: xs:int * discharges [1..1]: xs:int * discharges [1..1]: xs:int * comment [ 0..1]: FreeTextType   ActivityInPeriodType gathers information about the admissions, discharges, and deaths in a time period. |
| Comments |  |
| Constraints |  |
| Valid Values / Examples |  |
| Sub-elements | * reportingPeriod [0..1]: edxl-ct:TimePeriodType * admissions [1..1]: xs:int * discharges [1..1]: xs:int * discharges [1..1]: xs:int * comment [ 0..1]: FreeTextType |
| Used In | FacilityType |
| Requirements Supported |  |
|  |  |

|  |  |
| --- | --- |
| **Element** | **reportingPeriod** |
| Type | edxl-ct:TimePeriodType |
| Usage | OPTIONAL; MAY be used once and only once [0..1] |
| Definition | The time period (From < To) that the activity occurred in. If this element is not included the reportingPeriod at the Facility level should be assumed to define the time range. |
| Comments |  |
| Constraints |  |
| Valid Values / Examples |  |
| Sub-elements |  |
| Used In | ActivityInPeriodType |
| Requirements Supported |  |
|  |  |

|  |  |
| --- | --- |
| **Element** | **admissions** |
| Type | xs:int |
| Usage | REQUIRED; MUST be used once and only once [1..1] |
| Definition | Number of admissions in the period. |
| Comments | Defaults to zero |
| Constraints |  |
| Valid Values / Examples |  |
| Sub-elements |  |
| Used In | ActivityInPeriodType |
| Requirements Supported |  |
|  |  |

|  |  |
| --- | --- |
| **Element** | **discharges** |
| Type | xs:int |
| Usage | REQUIRED; MUST be used once and only once [1..1] |
| Definition | Number of Discharges in the period. |
| Comments | Defaults to zero |
| Constraints |  |
| Valid Values / Examples |  |
| Sub-elements |  |
| Used In | ActivityInPeriodType |
| Requirements Supported |  |
|  |  |

|  |  |
| --- | --- |
| **Element** | **deaths** |
| Type | xs:int |
| Usage | REQUIRED; MUST be used once and only once [1..1] |
| Definition | Number of deaths in the period. |
| Comments | Defaults to zero |
| Constraints |  |
| Valid Values / Examples |  |
| Sub-elements |  |
| Used In | ActivityInPeriodType |
| Requirements Supported |  |
|  |  |

|  |  |
| --- | --- |
| **Element** | **comment** |
| Type | FreeTextType |
| Usage | OPTIONAL; MAY be used once and only once [0..1] |
| Definition | General comment/summary of the activity in period. |
| Comments |  |
| Constraints |  |
| Valid Values / Examples |  |
| Sub-elements |  |
| Used In | ActivityInPeriodType |
| Requirements Supported |  |
|  |  |







### OperationType

|  |  |
| --- | --- |
| **Complex Type** | **OperationType** |
| Type | xs:ComplexType |
| Definition | An XML structure containing one (or both) of the following elements:   * kind [1..1]: xs:token enumeration * name [1..1]: FreeTextType * status [1..1]: StatusType * comment [0..1]: FreeTextType * extension [0..\*]: ext:extension |
| Comments |  |
| Constraints |  |
| Valid Values / Examples |  |
| Sub-elements | * kind [1..1]: xs:token enumeration * name [1..1]: FreeTextType * status [1..1]: StatusType * comment [0..1]: FreeTextType * extension [0..\*]: ext:extension |
| Used In | FacilityType:operations |
| Requirements Supported |  |
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|  |  |
| --- | --- |
| **Element** | **kind** |
| Type | xs:token enumeration |
| Usage | REQUIRED; MUST be used once and only once [1..1] |
| Definition | The high-level kind of operation that is being reported on (plant, security, staffing, or emergency). |
| Comments | Restricted token |
| Constraints | ServiceCodeDefaultType restricts xs token to the following values. |
| Valid Values / Examples | * plant * security * staffing * emergency |
| Sub-elements |  |
| Used In | OperationType |
| Requirements Supported |  |
|  |  |

|  |  |
| --- | --- |
| **Element** | **name** |
| Type | FreeTextType |
| Usage | REQUIRED; MUST be used once and only once [1..1] |
| Definition | The name of the operation that is being reported on (e.g. "Food Services"). |
| Comments |  |
| Constraints |  |
| Valid Values / Examples |  |
| Sub-elements |  |
| Used In | OperationType |
| Requirements Supported |  |
|  |  |

|  |  |
| --- | --- |
| **Element** | **status** |
| Type | StatusType |
| Usage | REQUIRED; MUST be used once and only once [1..1] |
| Definition | Describes the status of the operation |
| Comments |  |
| Constraints |  |
| Valid Values / Examples |  |
| Sub-elements |  |
| Used In | OperationType |
| Requirements Supported |  |
|  |  |

|  |  |
| --- | --- |
| **Element** | **comment** |
| Type | FreeTextType |
| Usage | OPTIONAL; MAY be used once and only once [0..1] |
| Definition | Provides context to the service. |
| Comments |  |
| Constraints |  |
| Valid Values / Examples |  |
| Sub-elements |  |
| Used In | OperationType |
| Requirements Supported |  |
|  |  |

|  |  |
| --- | --- |
| **Element** | **extension** |
| Type | ext:extension |
| Usage | OPTIONAL; MAY be used more than once [0..\*] |
| Definition |  |
| Comments |  |
| Constraints |  |
| Valid Values / Examples |  |
| Sub-elements |  |
| Used In | OperationType |
| Requirements Supported |  |
|  |  |

### ResourceInformationType

|  |  |
| --- | --- |
| **Complex Type** | **4.1.8 ResourceInformationType** |
| Type | xs:ComplexType |
| Definition | Complex Type to be used for tracking Resource state (status, needs, offers). Allows extension to handle specific information that is non-HAVE (e.g. NIEM payloads, lookups for interoperability with other systems). |
| Comments |  |
| Constraints |  |
| Valid Values / Examples |  |
| Sub-elements | * status [1..1]: StatusType * needs [0..1]: complexType * offers [0..1]: complexType * comment [0..1]: FreeTextType * extension [0..\*]: ext:extension |
| Used In | FacilityType:operations |
| Requirements Supported |  |
|  |  |

|  |  |
| --- | --- |
| **Element** | **status** |
| Type | StatusType |
| Usage | REQUIRED; MUST be used once and only once [1..1] |
| Definition | Overall resource status of the facility |
| Comments |  |
| Constraints |  |
| Valid Values / Examples |  |
| Sub-elements |  |
| Used In | ResourceInformationType |
| Requirements Supported |  |
|  |  |

|  |  |
| --- | --- |
| **Element** | **needs** |
| Type | xs:complexType |
| Usage | OPTIONAL; MAY be used once and only once [0..1] |
| Definition | An XML structure containing one or more of the required element:   * resourceNeeds   Resource Needs. |
| Comments |  |
| Constraints |  |
| Valid Values / Examples |  |
| Sub-elements |  |
| Used In | ResourceInformationType |
| Requirements Supported |  |
|  |  |

|  |  |
| --- | --- |
| **Element** | **offers** |
| Type | xs:complexType |
| Usage | OPTIONAL; MAY be used once and only once [0..1] |
| Definition | An XML structure containing one or more of the required element:   * resourceOffers   Resource Offers (resources that can be made available to other Facilities). |
| Comments |  |
| Constraints |  |
| Valid Values / Examples |  |
| Sub-elements |  |
| Used In | ResourceInformationType |
| Requirements Supported |  |
|  |  |

|  |  |
| --- | --- |
| **Element** | **comment** |
| Type | FreeTextType |
| Usage | OPTIONAL; MAY be used once and only once [0..1] |
| Definition | Textual description of Resource situation. |
| Comments |  |
| Constraints |  |
| Valid Values / Examples |  |
| Sub-elements |  |
| Used In | ResourceInformationType |
| Requirements Supported |  |
|  |  |

|  |  |
| --- | --- |
| **Element** | **extension** |
| Type | ext:extension |
| Usage | OPTIONAL; MAY be used more than once [0..\*] |
| Definition |  |
| Comments |  |
| Constraints |  |
| Valid Values / Examples |  |
| Sub-elements |  |
| Used In | ResourceInformationType |
| Requirements Supported |  |
|  |  |

#### Needs Complex Type

|  |  |
| --- | --- |
| **Complex Type** | **needs** |
| Type | xs:ComplexType |
| Definition | Complex Type to be used for tracking Resource state (status, needs, offers). Allows extension to handle specific information that is non-HAVE (e.g. NIEM payloads, lookups for interoperability with other systems). |
| Comments |  |
| Constraints |  |
| Valid Values / Examples |  |
| Sub-elements | * resourceNeed [1..\*]: ResourceQuantityType |
| Used In | ResourceInformationType |
| Requirements Supported |  |
|  |  |

|  |  |
| --- | --- |
| **Element** | **resourceNeed** |
| Type | ResourceQuantityType |
| Usage | REQUIRED; MUST be used at least once [1..\*] |
| Definition | A list of resource(s) that are needed. |
| Comments |  |
| Constraints |  |
| Valid Values / Examples |  |
| Sub-elements |  |
| Used In | needs |
| Requirements Supported |  |
|  |  |



#### Offers Complex Type

|  |  |
| --- | --- |
| **Element** | **offers** |
| Type | xs:complexType |
| Definition | List of resource(s) that could be made available. |
| Comments |  |
| Constraints |  |
| Valid Values / Examples |  |
| Sub-elements | * resourceOffer [1..\*]: ResourceQuantityType |
| Used In | ResourceInformationType |
| Requirements Supported |  |
|  |  |

|  |  |
| --- | --- |
| **Element** | **resourceOffer** |
| Type | ResourceQuantityType |
| Usage | REQUIRED; MUST be used at least once [1..\*] |
| Definition |  |
| Comments |  |
| Constraints |  |
| Valid Values / Examples |  |
| Sub-elements |  |
| Used In | offers |
| Requirements Supported |  |
|  |  |

### ResourceQuantityType

|  |  |
| --- | --- |
| **Element** | **ResourceQuantityType** |
| Type | xs:complexType |
| Definition | List of resource(s) that could be made available. |
| Comments |  |
| Constraints |  |
| Valid Values / Examples |  |
| Sub-elements | * resourceKind [1..1]: edxl-ct:ValueKeyType * quantity [1..1]: xs:double * resourceSize [1..1]: ext:ParameterNameType |
| Used In | ResourceInformationType |
| Requirements Supported |  |
|  |  |

|  |  |
| --- | --- |
| **Element** | **resourceKind** |
| Type | edxl-ct:ValueKeyType |
| Usage | REQUIRED; MUST be used once and only once [1..1] |
| Definition | The kind (type) of resource that the quantity refers to. |
| Comments |  |
| Constraints |  |
| Valid Values / Examples |  |
| Sub-elements |  |
| Used In | ResourceQuantityType |
| Requirements Supported |  |
|  |  |

|  |  |
| --- | --- |
| **Element** | **quantity** |
| Type | xs:double |
| Usage | REQUIRED; MUST be used once and only once [1..1] |
| Definition | The quantity of the particular Resource. |
| Comments |  |
| Constraints | Restricts the double to a minimum inclusive value of zero |
| Valid Values / Examples |  |
| Sub-elements |  |
| Used In | ResourceQuantityType |
| Requirements Supported |  |
|  |  |

|  |  |
| --- | --- |
| **Element** | **resourceSize** |
| Type | ext:ParameterNameType |
| Usage | REQUIRED; MUST be used once and only once [1..1] |
| Definition | Unit of measure and size (e.g. 1500 mL). |
| Comments |  |
| Constraints |  |
| Valid Values / Examples |  |
| Sub-elements |  |
| Used In | ResourceQuantityType |
| Requirements Supported |  |
|  |  |

|  |  |
| --- | --- |
| **Element** | **comments** |
| Type | have:FreeTextType |
| Usage | OPTIONAL; MAY be used once and only once [0..1] |
| Definition | Provides context to the service. |
| Comments |  |
| Constraints |  |
| Valid Values / Examples |  |
| Sub-elements |  |
| Used In | HAVE |
| Requirements Supported |  |
|  |  |























### EmergencyDepartmentType

|  |  |
| --- | --- |
| **Element** | **EmergencyDepartmentType** |
| Type | xs:complexType |
| Definition |  |
| Comments |  |
| Constraints |  |
| Valid Values / Examples |  |
| Sub-elements | * status [1..1]: StatusType * offloadInfo [0..1]: xs:complexType * traffic [0..1]: xs:complexType * triageCapacity [0..1]: xs:complexType |
| Used In | FacilityType |
| Requirements Supported |  |
|  |  |

|  |  |
| --- | --- |
| **Element** | **status** |
| Type | StatusType |
| Usage | REQUIRED; MUST be used once and only once [1..1] |
| Definition | Status of the Emergency Department. |
| Comments |  |
| Constraints |  |
| Valid Values / Examples |  |
| Sub-elements |  |
| Used In | EmergencyDepartmentType |
| Requirements Supported |  |
|  |  |

|  |  |
| --- | --- |
| **Element** | **offloadInfo** |
| Type | xs:complexType |
| Usage | OPTIONAL; MAY be used once and only once [0..1] |
| Definition | An XML structure containing one or more of the required element:   * offload   and one or more of the optional element:   * extension   Information about the Offload state for various modes of transport (Ambulance, Air Ambulance). |
| Comments |  |
| Constraints |  |
| Valid Values / Examples |  |
| Sub-elements | * offload [0..1]: OffloadType * extension [0..\*]: ext:extension |
| Used In | EmergencyDepartmentType |
| Requirements Supported |  |
|  |  |

|  |  |
| --- | --- |
| **Element** | **traffic** |
| Type | xs:complexType |
| Usage | OPTIONAL; MAY be used once and only once [0..1] |
| Definition | An XML structure containing one of each of the required elements:   * status * colourStatus   and one of each of the optional elements:   * reason * comment   Ability of this emergency department to receive patients via emergency medical services. |
| Comments |  |
| Constraints |  |
| Valid Values / Examples |  |
| Sub-elements | * status [1..1]: xs:token as enumeration * colourStatus [1..1]: ColourStatusType * reason [0..1]: FreeTextType * comment [0..1]: FreeTextType |
| Used In | EmergencyDepartmentType |
| Requirements Supported |  |
|  |  |

|  |  |
| --- | --- |
| **Element** | **triageCapacity** |
| Type | xs:complexType |
| Usage | OPTIONAL; MAY be used once and only once [0..1] |
| Definition | An XML structure containing one or more of the required element:   * triageCount   The number of each triage patient type the hospital can accept. |
| Comments |  |
| Constraints |  |
| Valid Values / Examples |  |
| Sub-elements |  |
| Used In | EmergencyDepartmentType |
| Requirements Supported |  |
|  |  |

#### OffloadInfo Complex Type

|  |  |
| --- | --- |
| **Element** | **offloadInfo** |
| Type | xs:complexType |
| Usage | OPTIONAL; MAY be used once and only once [0..1] |
| Definition | An XML structure containing one or more of the required element:   * offload   and one or more of the optional element:   * extension   Information about the Offload state for various modes of transport (Ambulance, Air Ambulance). |
| Comments |  |
| Constraints |  |
| Valid Values / Examples |  |
| Sub-elements | * offload [0..1]: OffloadType * extension [0..\*]: ext:extension |
| Used In | EmergencyDepartmentType |
| Requirements Supported |  |
|  |  |

|  |  |
| --- | --- |
| **Element** | **offload** |
| Type | OffloadType |
| Usage | REQUIRED; MUST be used at least once [1..\*] |
| Definition |  |
| Comments |  |
| Constraints |  |
| Valid Values / Examples |  |
| Sub-elements |  |
| Used In | offloadInfo |
| Requirements Supported |  |
|  |  |

|  |  |
| --- | --- |
| **Element** | **extension** |
| Type | ext:extension |
| Usage | OPTIONAL; MAY be used more than once [0..\*] |
| Definition |  |
| Comments |  |
| Constraints |  |
| Valid Values / Examples |  |
| Sub-elements |  |
| Used In | offloadInfo |
| Requirements Supported |  |
|  |  |

#### Traffic Complex Type

|  |  |
| --- | --- |
| **Element** | **traffic** |
| Type | xs:complexType |
| Definition | An XML structure containing one of each of the required elements:   * status * colourStatus   and one of each of the optional elements:   * reason * comment   Ability of this emergency department to receive patients via emergency medical services. |
| Comments |  |
| Constraints |  |
| Valid Values / Examples |  |
| Sub-elements | * status [1..1]: xs:token as enumeration * colourStatus [1..1]: ColourStatusType * reason [0..1]: FreeTextType * comment [0..1]: FreeTextType |
| Used In | EmergencyDepartmentType |
| Requirements Supported |  |
|  |  |

|  |  |
| --- | --- |
| **Element** | **status** |
| Type | xs:token |
| Usage | REQUIRED; MUST be used at least once [1..\*] |
| Definition | The operating status of the Emergency Department (normal -&gt; advisory -&gt; closed). |
| Comments |  |
| Constraints | Token is restricted to the following values:   * normal * advisory * closed |
| Valid Values / Examples |  |
| Sub-elements |  |
| Used In | traffic |
| Requirements Supported |  |
|  |  |

|  |  |
| --- | --- |
| **Element** | **colourStatus** |
| Type | have:ColourStatusType |
| Usage | REQUIRED; MUST be used at least once [1..\*] |
| Definition | Colour-code status for the Emergency Department. |
| Comments |  |
| Constraints |  |
| Valid Values / Examples |  |
| Sub-elements |  |
| Used In | traffic |
| Requirements Supported |  |
|  |  |

|  |  |
| --- | --- |
| **Element** | **reason** |
| Type | FreeTextType |
| Usage | OPTIONAL; MAY be used once and only once [0..1] |
| Definition | It is used to report the contributing factor to an EMSTraffic Status. |
| Comments |  |
| Constraints |  |
| Valid Values / Examples |  |
| Sub-elements |  |
| Used In | traffic |
| Requirements Supported |  |
|  |  |

|  |  |
| --- | --- |
| **Element** | **comment** |
| Type | FreeTextType |
| Usage | OPTIONAL; MAY be used once and only once [0..1] |
| Definition | Provides context to the service. |
| Comments |  |
| Constraints |  |
| Valid Values / Examples |  |
| Sub-elements |  |
| Used In | traffic |
| Requirements Supported |  |
|  |  |

#### triageCapacity Complex Type

|  |  |
| --- | --- |
| **Element** | **triageCapacity** |
| Type | xs:complexType |
| Definition |  |
| Comments |  |
| Constraints |  |
| Valid Values / Examples |  |
| Sub-elements | * triageCount [1..\*]: TriageCountType |
| Used In | EmergencyDepartmentType |
| Requirements Supported |  |
|  |  |

|  |  |
| --- | --- |
| **Element** | **triageCount** |
| Type | TriageCountType |
| Usage | REQUIRED; MUST be used at least once [1..\*] |
| Definition | The Count for a particular triage level. |
| Comments |  |
| Constraints |  |
| Valid Values / Examples |  |
| Sub-elements |  |
| Used In | triageCapacity |
| Requirements Supported |  |
|  |  |

### OffloadType

|  |  |
| --- | --- |
| **Element** | **OffloadType** |
| Type | xs:complexType |
| Definition |  |
| Comments |  |
| Constraints |  |
| Valid Values / Examples |  |
| Sub-elements | * kind [1..1]: xs:token as enumeration * offloadMinutes [1..1]: xs:integer * offloadState [0..1]: xs:token as enumeration * offloadColourCode [0..1]: ColourStatusType * comment [0..1]: FreeTextType |
| Used In | EmergencyDepartmentType:offloadInfo |
| Requirements Supported |  |
|  |  |

|  |  |
| --- | --- |
| **Element** | **kind** |
| Type | xs:token as enumeration |
| Usage | REQUIRED; MUST be used once and only once [1..1] |
| Definition |  |
| Comments | Default value is “land” |
| Constraints | Token is restricted to the following values:   * land * air * other |
| Valid Values / Examples |  |
| Sub-elements |  |
| Used In | OffloadType |
| Requirements Supported |  |
|  |  |

|  |  |
| --- | --- |
| **Element** | **offloadMinutes** |
| Type | xs:integer |
| Usage | REQUIRED; MUST be used once and only once [1..1] |
| Definition | Average offload time in minutes. |
| Comments |  |
| Constraints |  |
| Valid Values / Examples |  |
| Sub-elements |  |
| Used In | OffloadType |
| Requirements Supported |  |
|  |  |

|  |  |
| --- | --- |
| **Element** | **offloadState** |
| Type | xs:token as enumeration |
| Usage | OPTIONAL; MAY be used once and only once [0..1] |
| Definition |  |
| Comments | Default value is “normal” |
| Constraints | Token is restricted to the following values:   * normal * delayed |
| Valid Values / Examples |  |
| Sub-elements |  |
| Used In | OffloadType |
| Requirements Supported |  |
|  |  |

|  |  |
| --- | --- |
| **Element** | **offloadColourCode** |
| Type | ColourStatusType |
| Usage | OPTIONAL; MAY be used once and only once [0..1] |
| Definition |  |
| Comments |  |
| Constraints |  |
| Valid Values / Examples |  |
| Sub-elements |  |
| Used In | OffloadType |
| Requirements Supported |  |
|  |  |

|  |  |
| --- | --- |
| **Element** | **comment** |
| Type | FreeTextType |
| Usage | OPTIONAL; MAY be used once and only once [0..1] |
| Definition | Provides context to the service. |
| Comments |  |
| Constraints |  |
| Valid Values / Examples |  |
| Sub-elements |  |
| Used In | OffloadType |
| Requirements Supported |  |
|  |  |



















### TriageCountType

|  |  |
| --- | --- |
| **Element** | **TriageCountType** |
| Type | xs:complexType |
| Definition | The number of each triage patient type the overall hospital currently has by colour code. |
| Comments |  |
| Constraints |  |
| Valid Values / Examples |  |
| Sub-elements | * code [1..1]: TriageColourCodeType * count [1..1]: xs:int * alternateCodeValue [0..\*]: edxl-ct:ValueKeyType * comment [0..1]: FreeTextType |
| Used In | EmergencyDepartmentType:triageCapacity |
| Requirements Supported |  |
|  |  |

|  |  |
| --- | --- |
| **Element** | **code** |
| Type | TriageColourCodeType |
| Usage | REQUIRED; MUST be used at least once [1..\*] |
| Definition | Triage Colour Codes (RED, YELLOW, GREEN, BLACK, none) for capacity purposes.  The list of values must be from the list identified in TriageCodeListURN. Default 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. |
| Comments | If a TriageCountType/code value is specified, a TriageCountType/count element must be specified. |
| Constraints | Constrains an EDXLStringType to the following values:   * red - IMMEDIATE attention for Triage. * yellow - Yellow Triage - needs medical attention after RED/Immediate. * green - Green Triage (walking wounded or self-treatable) * black - Triage Lost/Dead category |
| Valid Values / Examples |  |
| Sub-elements |  |
| Used In | TriageCountType |
| Requirements Supported |  |
|  |  |

|  |  |
| --- | --- |
| **Element** | **count** |
| Type | xs:int |
| Usage | REQUIRED; MUST be used at least once [1..\*] |
| Definition | The number of patients of this code type. |
| Comments | If a TriageCountType/code value is specified, a TriageCountType/count element must be specified. |
| Constraints | Constrains the minimum inclusive value to zero |
| Valid Values / Examples |  |
| Sub-elements |  |
| Used In | TriageCountType |
| Requirements Supported |  |
|  |  |

|  |  |
| --- | --- |
| **Element** | **alternateCodeValue** |
| Type | edxl-ct:ValueKeyType |
| Usage | OPTIONAL; MAY be used at least once [0..\*] |
| Definition | There are a large number of Triage systems in use. Many usenumbering systems (http://en.wikipedia.org/wiki/Triage#Tags) and colours. The premise of HAVE is that we will share the general state with the broad emergency management community who may not know the intimate details of a triage system, but understand the general concepts that RED=urgent, Green=walking wounded, Black=Dead/Lost (already dead or untreatable). The alternateCodeValues element is intended to be used by these systems. |
| Comments |  |
| Constraints |  |
| Valid Values / Examples |  |
| Sub-elements |  |
| Used In | TriageCountType |
| Requirements Supported |  |
|  |  |

|  |  |
| --- | --- |
| **Element** | **comment** |
| Type | FreeTextType |
| Usage | OPTIONAL; MAY be used once and only once [0..1] |
| Definition | Provides context to the service. |
| Comments |  |
| Constraints |  |
| Valid Values / Examples |  |
| Sub-elements |  |
| Used In | TriageCountType |
| Requirements Supported |  |
|  |  |

### TraumaCenterType

|  |  |
| --- | --- |
| **Element** | **traumaCenterType** |
| Type | xs:ComplexType |
| Definition |  |
| Comments |  |
| Constraints |  |
| Valid Values / Examples |  |
| Sub-elements | * serviceLevel [1..1]: xs:token as enumeration * status [1..1]: StatusType * comment [0..1]: FreeTextType * extension [0..\*]: ext:extension |
| Used In | FacilityType:TraumaCenter |
| Requirements Supported |  |
|  |  |



|  |  |
| --- | --- |
| Element | serviceLevel |
| Type | xs:token as enumeration |
| Usage | REQUIRED; MUST be used once and only once [1..1] |
| Definition |  |
| Comments |  |
| Constraints |  |
| Valid Values / Examples |  |
| Sub-elements |  |
| Used In | traumaCenterType |
| Requirements Supported |  |
|  |  |

|  |  |
| --- | --- |
| Element | status |
| Type | StatusType |
| Usage | REQUIRED; MUST be used once and only once [1..1] |
| Definition |  |
| Comments |  |
| Constraints |  |
| Valid Values / Examples |  |
| Sub-elements |  |
| Used In | traumaCenterType |
| Requirements Supported |  |
|  |  |

|  |  |
| --- | --- |
| Element | comment |
| Type | FreeTextType |
| Usage | OPTIONAL; MAY be used once and only once [0..1] |
| Definition |  |
| Comments |  |
| Constraints |  |
| Valid Values / Examples |  |
| Sub-elements |  |
| Used In | traumaCenterType |
| Requirements Supported |  |
|  |  |

|  |  |
| --- | --- |
| Element | extension |
| Type | ext:extension |
| Usage | OPTIONAL; MAY be used at least once [0..\*] |
| Definition |  |
| Comments |  |
| Constraints |  |
| Valid Values / Examples |  |
| Sub-elements |  |
| Used In | traumaCenterType |
| Requirements Supported |  |
|  |  |



























## StatusType

|  |  |
| --- | --- |
| **Element** | **StatusType** |
| Type | xs:ComplexType |
| Definition | Complex Type to provide status information: OK (yes/no), colour code, Stability, and commentary. |
| Comments |  |
| Constraints |  |
| Valid Values / Examples |  |
| Sub-elements | * isOK [1..1]: xs:Boolean * colourStatus [0..1]: ColourStatusType * stability [0..1]: StabilityType * comment [0..1]: FreeTextType |
| Used In |  |
| Requirements Supported |  |
|  |  |

|  |  |
| --- | --- |
| **Element** | **isOK** |
| Type | xs:boolean |
| Usage | REQUIRED; Must be used once and only once [1..1] |
| Definition | Is the service/capability available/functioning/adequate? |
| Comments | True = yes, false =no |
| Constraints |  |
| Valid Values / Examples |  |
| Sub-elements |  |
| Used In | StatusType |
| Requirements Supported |  |
|  |  |

|  |  |
| --- | --- |
| **Element** | **colourStatus** |
| Type | ColourStatusType |
| Usage | OPTIONAL; MAY be used once and only once [0..1] |
| Definition |  |
| Comments |  |
| Constraints |  |
| Valid Values / Examples |  |
| Sub-elements |  |
| Used In | StatusType |
| Requirements Supported |  |
|  |  |

|  |  |
| --- | --- |
| **Element** | **stability** |
| Type | StabilityType (xs:string as enumeration) |
| Usage | OPTIONAL; MAY be used once and only once [0..1] |
| Definition | Indication that the Status is stable, improving, or deteriorating |
| Comments | Stable/unchanging - conditions remain within norms and are not varying out of normal patterns. |
| Constraints | StabilityType restricts xs:string to the following values: |
| Valid Values / Examples | * STABLE * IMPROVING * DETERIORATING |
| Sub-elements |  |
| Used In | StatusType |
| Requirements Supported |  |
|  |  |

|  |  |
| --- | --- |
| **Element** | **comment** |
| Type | FreeTextType |
| Usage | OPTIONAL; MAY be used once and only once [0..1] |
| Definition | Provides context to the service. |
| Comments |  |
| Constraints |  |
| Valid Values / Examples |  |
| Sub-elements |  |
| Used In | StatusType |
| Requirements Supported |  |
|  |  |

## ColourStatusType

|  |  |
| --- | --- |
| **Element** | **ColourStatusType** |
| Type | xs:ComplexType |
| Definition |  |
| Comments |  |
| Constraints |  |
| Valid Values / Examples |  |
| Sub-elements | * colourCode [1..1]: ColourCodeDefaultType * statusDescription [0..1]: FreeTextType |
| Used In |  |
| Requirements Supported |  |
|  |  |

|  |  |
| --- | --- |
| **Element** | **colourCode** |
| Type | ColourCodeDefaultType (edxl-ct:EDXLStringType as enumeration) |
| Usage | REQUIRED; MUST be used once and only once [1..1] |
| Definition | Colour (text-based) of the status. By default triage colours of green, yellow, orange, red, black are supported. TODO: CREATE a new ColourCodeType to capture the full ISO 22324 data (colour, meaning, ...) |
| Comments | The use of colour codes allows for emergency personnel to understand if conditions are normal (green), deteriorating (yellow), or in an exceptional mode (red). Colour codes can be rendered graphically or through text to support visual impairments. |
| Constraints | ColourCodeDefaultType restricts edxl-ct:EDXLStringType to the following values: |
| Valid Values / Examples | * RED - SEVERE/EXTREME for STATUS. Marks a noted exception from normal conditions. * YELLOW - MODERATE colour code - deviation from normal condition but not at SEVERE/EXTREME level. * GREEN - normal conditions. |
| Sub-elements |  |
| Used In | ColourStatusType |
| Requirements Supported |  |
|  |  |

|  |  |
| --- | --- |
| **Element** | **statusDescription** |
| Type | FreeTextType |
| Usage | OPTIONAL; MAY be used once and only once [0..1] |
| Definition | Human-readable text describing the reason for selection of the particular colour-code. |
| Comments |  |
| Constraints |  |
| Valid Values / Examples |  |
| Sub-elements |  |
| Used In | ColourStatusType |
| Requirements Supported |  |
|  |  |















## FreeText Complex Type

|  |  |
| --- | --- |
| **ElementType** | **FreeTextType** |
| Type | xs:complexType |
| Definition |  |
| Comments |  |
| Constraints |  |
| Valid Values / Examples |  |
| Sub-elements | * defaultText [1..1]: LimitedString * alternativeText[0..\*]: AlternativeTextType |
| Used In |  |
| Requirements Supported |  |
|  |  |

|  |  |
| --- | --- |
| **Element** | **defaultText** |
| Type | LimitedString (restricted xs:string) |
| Usage | REQUIRED; MUST be used once and only once [1..1] |
| Definition | The text value that uses the message default language (defined at in the HAVE message defaultLanguage attribute). |
| Comments | Text block for preserving whitespace but limiting length to 1024 characters |
| Constraints |  |
| Valid Values / Examples |  |
| Sub-elements |  |
| Used In | FreeTextType |
| Requirements Supported |  |
|  |  |

|  |  |
| --- | --- |
| **Element** | **alternativeText** |
| Type | AlternativeTextType |
| Usage | OPTIONAL; MAY be used more than once [0..\*] |
| Definition | Alternate language representation. |
| Comments |  |
| Constraints |  |
| Valid Values / Examples |  |
| Sub-elements |  |
| Used In | FreeTextType |
| Requirements Supported |  |
|  |  |

### AlternativeTextType

|  |  |
| --- | --- |
| **ElementType** | **AlternativeTextType** |
| Type | xs:complexType |
| Definition |  |
| Comments |  |
| Constraints |  |
| Valid Values / Examples |  |
| Sub-elements | * *base extension* [1..1]: LimitedString * language [0..\*]: xs:string |
| Used In |  |
| Requirements Supported |  |
|  |  |

|  |  |
| --- | --- |
| **ElementType** | ***base extension*** |
| Type | LimitedString |
| Definition |  |
| Comments | Extends LimitedString |
| Constraints |  |
| Valid Values / Examples |  |
| Sub-elements |  |
| Used In |  |
| Requirements Supported |  |
|  |  |

|  |  |
| --- | --- |
| **Attribute** | **language** |
| Type | xs:string |
| Usage | REQUIRED; MUST be used once and only once [1..1] |
| Definition | Language code for the text in this element. |
| Comments |  |
| Constraints | Code MUST comply with RFC3066. |
| Valid Values / Examples | en-US |
| Sub-elements |  |
| Used In | AlternativeTextType |
| Requirements Supported |  |
|  |  |

# Conformance

The last numbered section in the specification must be the Conformance section. Conformance Statements/Clauses go here.

<< NEED the Conformance guidance for HAVE – TEP example shown below. >>

<< FROM TEP:::

An XML 1.0 element is a conforming EDXL-TEP-v1.0 Message if and only if:

a) it meets the general requirements specified in Section 4;

b) if its namespace name is "urn:oasis:names:tc:emergency:edxl:tep:1.0", and the element is valid according to the schema located at http://docs.oasis-open.org/emergency/edxl-tep-v1.0/edxl-tep-v1.0.xsd

c) if its namespace name is "urn:oasis:names:tc:emergency:edxl:tep:1.0", then its content (which includes the content of each of its descendants) meets all the additional mandatory requirements provided in the specific subsection of Section 4 corresponding to the element’s name.

**Note**: only messages that fully comply with the EDXL-TEP specification and that are complete and schematically valid, may be referred to as a “TEP Message.”.

1. EDXL-HAVE EXAMPLE (NON-NORMATIVE)
2. Schema (NORMATIVE)

<?xml version="1.0" encoding="UTF-8"?>

<xs:schema xmlns:xs="http://www.w3.org/2001/XMLSchema"

xmlns:edxl-ct="urn:oasis:names:tc:emergency:edxl:ct:1.0"

xmlns:edxl-gsf="urn:oasis:names:tc:emergency:edxl:gsf:1.0"

xmlns:have="urn:oasis:names:tc:emergency:edxl:have:2.0"

xmlns:xpil="urn:oasis:names:tc:emergency:edxl:ciq:1.0:xpil"

xmlns:xal="urn:oasis:names:tc:emergency:edxl:ciq:1.0:xal"

xmlns:ext="urn:oasis:names:tc:emergency:edxl:extension:1.0"

xmlns:gml="http://www.opengis.net/gml/3.2" xmlns="urn:oasis:names:tc:emergency:edxl:have:2.0"

targetNamespace="urn:oasis:names:tc:emergency:edxl:have:2.0" elementFormDefault="qualified"

attributeFormDefault="qualified">

<xs:import namespace="urn:oasis:names:tc:emergency:edxl:gsf:1.0"

schemaLocation="./rim/edxl-gsf.v1.0.xsd"/>

<xs:import namespace="urn:oasis:names:tc:emergency:edxl:extension:1.0"

schemaLocation="./rim/edxl-ext-v1.0.xsd"/>

<xs:import namespace="urn:oasis:names:tc:emergency:edxl:ciq:1.0:xpil"

schemaLocation="./rim/edxl\_xPIL.xsd"/>

<xs:import namespace="urn:oasis:names:tc:emergency:edxl:ciq:1.0:xal"

schemaLocation="./rim/edxl\_xAL.xsd"/>

<xs:import namespace="urn:oasis:names:tc:emergency:edxl:ct:1.0"

schemaLocation="./rim/edxl-ct-v1.0-wd05.xsd"/>

<xs:annotation>

<xs:documentation>Specification Name: EDXL Hospital AVailability Exchange (HAVE) 2.0

Description: Defines the XML schema for the EDXL HAVE message exchange Produced by:

Emergency Management HAVE Subcommittee URL: http://docs.oasis-open.org Version: 2.0 WD

Status: SC DRAFT Copyright: 2012-2014, OASIS, http://www.oasis-open.org Last Modified:

18JUN2014 Last Modified by: Darrell O'Donnell, P.Eng.</xs:documentation>

<xs:documentation> Added 01MAY2012 Guiding Concepts/Principles: Schema Validation: should

provide deep validation capabilities as opposed to being a basic schema where different

groups make up extensions to the point where nothing is valid in between systems.

Extensible: Key areas of the schema should support extensibility in a controlled manner.

The use of managed taxonomies can allow a group to define a new set of services that are

used in a network for example. Simple: Though the standard could support aggregation the

provision of individual facility elements REVIEW: new elements ID and IDREF: References

(IDREF) to unique elements (ID) should be used, especially where establishing of a

hierarchy. </xs:documentation>

</xs:annotation>

<!-- -->

<!-- \*\*\*\*\*\*\*\*\*\*\*\* Element Defintions \*\*\*\*\*\*\*\*\*\*\*\*\* -->

<!-- -->

<xs:element name="HAVE">

<xs:annotation>

<xs:documentation>Top Level item for Hospital AVailability Exchange (HAVE) message. THIS IS NOT A FINAL VERSION - THIS IS A BETA DOCUMENT AND THIS BETA NATURE NEEDS TO BE CONSIDERED. </xs:documentation>

</xs:annotation>

<xs:complexType>

<xs:sequence>

<xs:element name="organizationInformation" type="OrganizationInformationType">

<xs:annotation>

<xs:documentation>Information of the Organization that is responsible for

the reporting of these facilities. </xs:documentation>

</xs:annotation>

</xs:element>

<xs:element name="reportingPeriod" type="edxl-ct:TimePeriodType" minOccurs="0">

<xs:annotation>

<xs:documentation>The reporting period applicable for the HAVE root element and called the "current reporting periood" typically a 24-hr period but the duration may change for operational reasons. If blank the assumption is that the file is for "today" - local to the issuer.

</xs:documentation>

</xs:annotation>

</xs:element>

<xs:element maxOccurs="unbounded" name="facility" type="FacilityType">

<xs:annotation>

<xs:documentation>A list of facilities that comprise the detail of this HAVE

mesasage.</xs:documentation>

</xs:annotation>

</xs:element>

<xs:element name="comment" type="FreeTextType" minOccurs="0">

<xs:annotation>

<xs:documentation>Provides context to the HAVE report.</xs:documentation>

</xs:annotation>

</xs:element>

</xs:sequence>

<xs:attribute name="defaultLanguage" type="xs:string" use="required">

<xs:annotation>

<xs:documentation>Language code that is used throughout the document. Code MUST

comply with RFC3066. Free text within the document will be assumed to be in

this defaultLanguage.</xs:documentation>

</xs:annotation>

</xs:attribute>

</xs:complexType>

</xs:element>

<xs:complexType name="FacilityType">

<xs:sequence>

<xs:element name="name" type="FreeTextType">

<xs:annotation>

<xs:documentation>Name of facility.</xs:documentation>

</xs:annotation>

</xs:element>

<xs:element name="kind" type="FacilityKindType">

<xs:annotation>

<xs:documentation>The kind of facility (e.g. Hospital, Long Term Care, Seniors

Residence, Temporary Clinic). </xs:documentation>

</xs:annotation>

</xs:element>

<xs:element name="reportingPeriod" type="edxl-ct:TimePeriodType" minOccurs="0">

<xs:annotation>

<xs:documentation>The reporting period applicable for this Facility element and called the "current reporting period" typically a 24-hr period but the duration may change for operational reasons. If this value is not provided the HAVE message reporting period will be assumed. </xs:documentation>

</xs:annotation>

</xs:element>

<xs:element minOccurs="0" name="lastUpdate" type="edxl-ct:EDXLDateTimeType">

<xs:annotation>

<xs:documentation>The reporting period applicable for this HAVE report and called the "current reporting period" typically a 24-hr period but the duration may change for operational reasons. If blank the assumption is that the file is for "today" - local to the issuer.</xs:documentation>

</xs:annotation>

</xs:element>

<xs:element name="organizationInformation" type="xpil:OrganisationDetailsType">

<xs:annotation>

<xs:documentation>Administrative and Organizational information about the

Facility.</xs:documentation>

</xs:annotation>

</xs:element>

<xs:element name="geoLocation" type="GeoLocationType"> </xs:element>

<xs:element name="status" type="StatusType">

<xs:annotation>

<xs:documentation>The overall status of the Facility. This value is intended to provide a high-level summary status of the Facility. The particulars driving that Facility status should be provided where appropriate (Services, Operations, etc.). Comments (comment element) should be used to provide only the high-level summary.</xs:documentation>

</xs:annotation>

</xs:element>

<xs:element name="services">

<xs:annotation>

<xs:documentation>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. </xs:documentation>

</xs:annotation>

<xs:complexType>

<xs:sequence>

<xs:element maxOccurs="unbounded" minOccurs="1" name="service"

type="ServiceType">

<xs:annotation>

<xs:documentation>ServiceListItem provides a description of a particular service - availability, capacity, and status.</xs:documentation>

</xs:annotation>

</xs:element>

<xs:element minOccurs="0" maxOccurs="1" name="comment" type="FreeTextType"/>

</xs:sequence>

</xs:complexType>

</xs:element>

<xs:element name="futureServices" minOccurs="0">

<xs:annotation>

<xs:documentation>Optional list of Service Capabilities in future for planned or

potential ramping up (or down) of capabilities to accomodate surge needs or

degraded capabilities. 0...n</xs:documentation>

</xs:annotation>

<xs:complexType>

<xs:sequence>

<xs:element maxOccurs="unbounded" minOccurs="1" name="service">

<xs:annotation>

<xs:documentation>ServiceListItem provides a description of a particular service - availability, capacity, and status.</xs:documentation>

</xs:annotation>

<xs:complexType>

<xs:complexContent>

<xs:extension base="ServiceType">

<xs:sequence>

<xs:element name="reportingPeriod"

type="edxl-ct:TimePeriodType"/>

</xs:sequence>

</xs:extension>

</xs:complexContent>

</xs:complexType>

</xs:element>

<xs:element minOccurs="0" maxOccurs="1" name="comment" type="FreeTextType"/>

</xs:sequence>

</xs:complexType>

</xs:element>

<xs:element minOccurs="0" name="activityInPeriod" type="ActivityInPeriodType"

maxOccurs="unbounded">

<xs:annotation>

<xs:documentation>Provides a set of summaries of activity that has occured in the indicated reporting period. This item is intended to provide a very high-level summary of facility activity.</xs:documentation>

</xs:annotation>

</xs:element>

<xs:element minOccurs="0" name="operations">

<xs:annotation>

<xs:documentation>Provides a taxonomy-based list of operations that describe the

operations of the Facility.</xs:documentation>

</xs:annotation>

<xs:complexType>

<xs:sequence maxOccurs="1">

<xs:element name="operation" type="OperationType" maxOccurs="unbounded"

minOccurs="1">

<xs:annotation>

<xs:documentation>Operation that facility provides in the context of

key areas such as Clinical Operations, Security Operations,

Facility Operations. </xs:documentation>

</xs:annotation>

</xs:element>

<xs:element minOccurs="0" maxOccurs="1" name="comment" type="FreeTextType"/>

</xs:sequence>

</xs:complexType>

</xs:element>

<xs:element name="resourceInformation" minOccurs="0" type="ResourceInformationType">

<xs:annotation>

<xs:documentation>Information about non-staff resources (status, needs, availability for offer) for the facility.</xs:documentation>

</xs:annotation>

</xs:element>

<xs:element name="staffing" minOccurs="0" type="ResourceInformationType">

<xs:annotation>

<xs:documentation>Staffing provides an indication of the staffing status and any needs or offers of this facility.</xs:documentation>

<xs:documentation/>

</xs:annotation>

</xs:element>

<xs:element name="emergencyDepartment" type="EmergencyDepartmentType" minOccurs="0">

<xs:annotation>

<xs:documentation>Report on the emergency department status for the

organization.</xs:documentation>

</xs:annotation>

</xs:element>

<xs:element name="traumaCenter" minOccurs="0">

<xs:annotation>

<xs:documentation>Trauma Center Level of this facility. The Choice/Sequence approach used here allows for at least one of Adult or Pediatric Trauma Center Levels to be provided.</xs:documentation>

</xs:annotation>

<xs:complexType>

<xs:choice>

<xs:sequence>

<xs:element name="adult" type="TraumaCenterType">

<xs:annotation>

<xs:documentation>Adult Trauma Services detail. </xs:documentation>

</xs:annotation>

</xs:element>

<xs:element minOccurs="0" name="pediatric" type="TraumaCenterType">

<xs:annotation>

<xs:documentation>Pediatric Trauma Center details. </xs:documentation>

</xs:annotation>

</xs:element>

</xs:sequence>

<xs:element name="pediatric" type="TraumaCenterType">

<xs:annotation>

<xs:documentation>Pediatric Trauma Center details. </xs:documentation>

</xs:annotation>

</xs:element>

</xs:choice>

</xs:complexType>

</xs:element>

<xs:element minOccurs="0" name="comment" type="FreeTextType"/>

</xs:sequence>

<xs:attribute name="ID" type="xs:ID" use="required">

<xs:annotation>

<xs:documentation>A unique identifier for this Facility. This value should be unique

globally, but MUST be unique from the sender perspective.</xs:documentation>

</xs:annotation>

</xs:attribute>

<xs:attribute name="parentID" type="xs:IDREF">

<xs:annotation>

<xs:documentation>Reference to the ID of the Facility that is the parent (owner,

manager, responsible, etc.) of this Facility. This field is optional and used to

provide a hierarchy for formal facility organizations. </xs:documentation>

</xs:annotation>

</xs:attribute>

</xs:complexType>

<xs:complexType name="BedCapacityType">

<xs:annotation>

<xs:documentation>Top level complex schema type defining bed capacity counts

(available/baseline) given a specific type of bed.</xs:documentation>

</xs:annotation>

<xs:sequence>

<xs:element name="availableCount" minOccurs="1">

<xs:annotation>

<xs:documentation>The number of vacant/available beds to which patients can be

immediately supported. 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. NEGATIVE values

means the service is operating beyond normal capacity.</xs:documentation>

</xs:annotation>

<xs:simpleType>

<xs:restriction base="xs:integer"> </xs:restriction>

</xs:simpleType>

</xs:element>

<xs:element name="baselineCount" minOccurs="0">

<xs:annotation>

<xs:documentation>The maximum (baseline) number of beds in this

category.</xs:documentation>

</xs:annotation>

<xs:simpleType>

<xs:restriction base="xs:integer">

<xs:minInclusive value="0"/>

</xs:restriction>

</xs:simpleType>

</xs:element>

<xs:element minOccurs="0" name="comment" type="FreeTextType">

<xs:annotation>

<xs:documentation>Human-readable description of the service capacity for this

service. This value can be used to explain any specific information for the

reader about the Bed Capacity.</xs:documentation>

</xs:annotation>

</xs:element>

</xs:sequence>

</xs:complexType>

<!-- -->

<!-- Added types from HAVE 1.0 schema -->

<!-- -->

<xs:simpleType name="StabilityType">

<xs:annotation>

<xs:documentation>Indication of stability - positive/improving, negative/deteriorating,

or neutral/stable</xs:documentation>

</xs:annotation>

<xs:restriction base="xs:string">

<xs:enumeration value="STABLE">

<xs:annotation>

<xs:documentation>Stable/unchanging - conditions remain within norms and are not

varying out of normal patterns.</xs:documentation>

</xs:annotation>

</xs:enumeration>

<xs:enumeration value="IMPROVING">

<xs:annotation>

<xs:documentation>Conditions are improving towards normal.</xs:documentation>

</xs:annotation>

</xs:enumeration>

<xs:enumeration value="DETERIORATING">

<xs:annotation>

<xs:documentation>Conditions are deviating negatively from

normal.</xs:documentation>

</xs:annotation>

</xs:enumeration>

</xs:restriction>

</xs:simpleType>

<xs:complexType name="OffloadType">

<xs:annotation>

<xs:documentation>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. </xs:documentation>

</xs:annotation>

<xs:sequence>

<xs:element default="land" name="kind">

<xs:simpleType>

<xs:restriction base="xs:token">

<xs:enumeration value="land"/>

<xs:enumeration value="air"/>

<xs:enumeration value="other"/>

</xs:restriction>

</xs:simpleType>

</xs:element>

<xs:element minOccurs="1" name="offloadMinutes" type="xs:integer" maxOccurs="1">

<xs:annotation>

<xs:documentation>Average offload time in minutes. TODO: CONSIDER if this should

be configurable/extensible. Is it always needed (beyond just optional) and

valuable? I think so as we don't have to look for an

offloadStatus/NameURI="???" to get it.</xs:documentation>

</xs:annotation>

</xs:element>

<xs:element default="normal" minOccurs="0" name="offloadState">

<xs:simpleType>

<xs:restriction base="xs:token">

<xs:enumeration value="normal"/>

<xs:enumeration value="delayed"/>

</xs:restriction>

</xs:simpleType>

</xs:element>

<xs:element minOccurs="0" name="offloadColourCode" type="ColourStatusType"/>

<xs:element minOccurs="0" name="comment" type="FreeTextType"/>

</xs:sequence>

</xs:complexType>

<xs:complexType name="OrganizationInformationType">

<xs:annotation>

<xs:documentation>The container element for organization information elements.

</xs:documentation>

</xs:annotation>

<xs:complexContent>

<xs:extension base="xpil:OrganisationDetailsType"/>

</xs:complexContent>

</xs:complexType>

<!-- -->

<!-- Added elements from HAVE 1.0 schema -->

<!-- -->

<xs:complexType name="StatusType">

<xs:annotation>

<xs:documentation>Complex Type to provide status information: OK (yes/no), colour code,

Stability, and commentary.</xs:documentation>

</xs:annotation>

<xs:sequence>

<xs:element name="isOK" type="xs:boolean">

<xs:annotation>

<xs:documentation>Is the service/capability available/functioning/adequate? True = yes, false =no.</xs:documentation>

</xs:annotation>

</xs:element>

<xs:element name="colourStatus" minOccurs="0" type="ColourStatusType"/>

<xs:element minOccurs="0" name="stability" type="StabilityType">

<xs:annotation>

<xs:documentation>Indication that the Status is stable, improving, or

deteriorating</xs:documentation>

</xs:annotation>

</xs:element>

<xs:element minOccurs="0" name="comment" type="FreeTextType"/>

</xs:sequence>

</xs:complexType>

<xs:complexType name="ServiceType">

<xs:annotation>

<xs:documentation>Extensible Service Type for providing detail on a health Service that

the Facility provides.</xs:documentation>

</xs:annotation>

<xs:sequence>

<xs:element name="name" type="FreeTextType">

<xs:annotation>

<xs:documentation>The human-readable name of the service that is being

described.</xs:documentation>

</xs:annotation>

</xs:element>

<xs:element name="code">

<xs:simpleType>

<xs:restriction base="ServiceCodeDefaultType"> </xs:restriction>

</xs:simpleType>

</xs:element>

<xs:element name="status" type="StatusType" minOccurs="1">

<xs:annotation>

<xs:documentation>Describes the status of the service.</xs:documentation>

</xs:annotation>

</xs:element>

<xs:element maxOccurs="unbounded" minOccurs="0" name="externalCode"

type="edxl-ct:ValueKeyType">

<xs:annotation>

<xs:documentation>Allows an external system to place its own equivalent code for the service.code value. This allows external systems to correlate their data directly in the HAVE report.</xs:documentation>

</xs:annotation>

</xs:element>

<xs:element name="bedCapacity" type="BedCapacityType" minOccurs="0">

<xs:annotation>

<xs:documentation>An indication of the bed capacity that the facility makes

available for the community to know. It reflects fully staffed and equipped

beds. The intention here is to provide an external view of where beds may be

available in a health network. The intent is not for HAVE to become a

hospital administration tool.</xs:documentation>

</xs:annotation>

</xs:element>

<xs:element minOccurs="0" name="capacity" type="CapacityType">

<xs:annotation>

<xs:documentation>Indicates the capacity status of this particular

service.</xs:documentation>

</xs:annotation>

</xs:element>

<xs:element minOccurs="0" name="comment" type="FreeTextType"/>

<xs:element ref="ext:extension" maxOccurs="unbounded" minOccurs="0"/>

</xs:sequence>

</xs:complexType>

<xs:complexType name="ResourceInformationType">

<xs:annotation>

<xs:documentation>Complex Type to be used for tracking Resource state (status, needs, offers). Allows extension to handle specific information that is non-HAVE (e.g. NIEM payloads, lookups for interoperability with other systems).</xs:documentation>

</xs:annotation>

<xs:sequence>

<xs:element minOccurs="1" name="status" type="StatusType">

<xs:annotation>

<xs:documentation>Overall resource status of the facility.</xs:documentation>

</xs:annotation>

</xs:element>

<xs:element minOccurs="0" name="needs">

<xs:annotation>

<xs:documentation>Resource Needs.</xs:documentation>

</xs:annotation>

<xs:complexType>

<xs:sequence>

<xs:element name="resourceNeed" type="ResourceQuantityType"

maxOccurs="unbounded"/>

</xs:sequence>

</xs:complexType>

</xs:element>

<xs:element minOccurs="0" name="offers">

<xs:annotation>

<xs:documentation>Resource Offers (resources that can be made available to other Facilities).</xs:documentation>

</xs:annotation>

<xs:complexType>

<xs:sequence>

<xs:element name="resourceOffer" type="ResourceQuantityType"

maxOccurs="unbounded"/>

</xs:sequence>

</xs:complexType>

</xs:element>

<xs:element maxOccurs="1" minOccurs="0" name="comment" type="FreeTextType">

<xs:annotation>

<xs:documentation>Textual description of Resource situation.</xs:documentation>

</xs:annotation>

</xs:element>

<xs:element maxOccurs="unbounded" minOccurs="0" ref="ext:extension"/>

</xs:sequence>

</xs:complexType>

<xs:complexType name="ResourceQuantityType">

<xs:annotation>

<xs:documentation>Type for stating a quantity of a particular kind of

resource.</xs:documentation>

</xs:annotation>

<xs:sequence>

<xs:element name="resourceKind" type="edxl-ct:ValueKeyType">

<xs:annotation>

<xs:documentation>The kind (type) of resource that the quantity refers to. TODO:

Provide the URI and key-value.</xs:documentation>

</xs:annotation>

</xs:element>

<xs:element name="quantity">

<xs:annotation>

<xs:documentation>The quantity of the particular Resource.</xs:documentation>

</xs:annotation>

<xs:simpleType>

<xs:restriction base="xs:double">

<xs:minInclusive value="0"/>

</xs:restriction>

</xs:simpleType>

</xs:element>

<xs:element name="resourceSize" type="ext:ParameterNameType">

<xs:annotation>

<xs:documentation>Unit of measure and size (e.g. 1500 mL).</xs:documentation>

</xs:annotation>

</xs:element>

<xs:element minOccurs="0" name="comments" type="FreeTextType"/>

</xs:sequence>

</xs:complexType>

<xs:complexType name="ColourStatusType">

<xs:annotation>

<xs:documentation>Type that allows the structured use of colour-codes to portray

state.</xs:documentation>

</xs:annotation>

<xs:sequence>

<xs:element name="colourCode" type="ColourCodeDefaultType" minOccurs="1">

<xs:annotation>

<xs:documentation>Colour (text-based) of the status. By default triage colours

of green, yellow, orange, red, black are supported. TODO: CREATE a new

ColourCodeType to capture the full ISO 22324 data (colour, meaning,

...)</xs:documentation>

</xs:annotation>

</xs:element>

<xs:element minOccurs="0" name="statusDescription" type="FreeTextType">

<xs:annotation>

<xs:documentation>Human-readable text describing the reason for selection of the

particular colour-code.</xs:documentation>

</xs:annotation>

</xs:element>

</xs:sequence>

</xs:complexType>

<!-- using Extension Concept - ParameterNameType -->

<!-- Staffing Code Default -->

<xs:simpleType name=" ServiceCodeDefaultType ">

<xs:restriction base="edxl-ct:ValueType">

<xs:enumeration value="burnUnit">

<xs:annotation>

<xs:documentation>Burn Center services.</xs:documentation>

</xs:annotation>

</xs:enumeration>

<xs:enumeration value="cardiology">

<xs:annotation>

<xs:documentation>Cardiology services.</xs:documentation>

</xs:annotation>

</xs:enumeration>

<xs:enumeration value="cardiology.invasive">

<xs:annotation>

<xs:documentation>Cardiology with invasive capabilities.</xs:documentation>

</xs:annotation>

</xs:enumeration>

<xs:enumeration value="cardiology.noninvasive">

<xs:annotation>

<xs:documentation>Cardiology with NO invasive capabilities.</xs:documentation>

</xs:annotation>

</xs:enumeration>

<xs:enumeration value="cardiologymi.STEMI">

<xs:annotation>

<xs:documentation>STEMI support</xs:documentation>

</xs:annotation>

</xs:enumeration>

<xs:enumeration value="cardiologymi.nonSTEMI">

<xs:annotation>

<xs:documentation>NO STEMI support</xs:documentation>

</xs:annotation>

</xs:enumeration>

<xs:enumeration value="dialysis">

<xs:annotation>

<xs:documentation>Dialysis services</xs:documentation>

</xs:annotation>

</xs:enumeration>

<xs:enumeration value="hyperBaricChamber">

<xs:annotation>

<xs:documentation>Hyperbaric Chamber</xs:documentation>

</xs:annotation>

</xs:enumeration>

<xs:enumeration value="infectiousDisease">

<xs:annotation>

<xs:documentation>Infectious Disease Services</xs:documentation>

</xs:annotation>

</xs:enumeration>

<xs:enumeration value="neonatology">

<xs:annotation>

<xs:documentation>Neonatology</xs:documentation>

</xs:annotation>

</xs:enumeration>

<xs:enumeration value="neurology">

<xs:annotation>

<xs:documentation>Neurology Services</xs:documentation>

</xs:annotation>

</xs:enumeration>

<xs:enumeration value="neurology.invasive">

<xs:annotation>

<xs:documentation>Neurology-Invasive services, including invasive catheterization. </xs:documentation>

</xs:annotation>

</xs:enumeration>

<xs:enumeration value="neurology.noninvasive">

<xs:annotation>

<xs:documentation>Neurology-Non-Invasive services with no invasive catheterization capability. </xs:documentation>

</xs:annotation>

</xs:enumeration>

<xs:enumeration value="obgyn">

<xs:annotation>

<xs:documentation>OBGYN services</xs:documentation>

</xs:annotation>

</xs:enumeration>

<xs:enumeration value="obgyn.withLaborDelivery">

<xs:annotation>

<xs:documentation>OBGYN with labor delivery. </xs:documentation>

</xs:annotation>

</xs:enumeration>

<xs:enumeration value="obgyn.withoutLaborDelivery">

<xs:annotation>

<xs:documentation>OBGYN without labor delivery capabilities.</xs:documentation>

</xs:annotation>

</xs:enumeration>

<xs:enumeration value="opthalmology">

<xs:annotation>

<xs:documentation>Opthalmology services</xs:documentation>

</xs:annotation>

</xs:enumeration>

<xs:enumeration value="orthopedic">

<xs:annotation>

<xs:documentation>Orthopedic services</xs:documentation>

</xs:annotation>

</xs:enumeration>

<xs:enumeration value="pediatrics">

<xs:annotation>

<xs:documentation>Pediatric services</xs:documentation>

</xs:annotation>

</xs:enumeration>

<xs:enumeration value="psychiatric">

<xs:annotation>

<xs:documentation>Psychiatric services</xs:documentation>

</xs:annotation>

</xs:enumeration>

<xs:enumeration value="surgery">

<xs:annotation>

<xs:documentation>Surgery capabilities</xs:documentation>

</xs:annotation>

</xs:enumeration>

<xs:enumeration value="surgery.adultGeneral">

<xs:annotation>

<xs:documentation>General Adult surgery capabilities</xs:documentation>

</xs:annotation>

</xs:enumeration>

<xs:enumeration value="surgery.pediatrics">

<xs:annotation>

<xs:documentation>General Pediatric surgery capabilities</xs:documentation>

</xs:annotation>

</xs:enumeration>

<xs:enumeration value="surgery.orthopedics">

<xs:annotation>

<xs:documentation>Orthopedic surgery capabilities</xs:documentation>

</xs:annotation>

</xs:enumeration>

<xs:enumeration value="surgery.neurosurgery">

<xs:annotation>

<xs:documentation>Neurosurgery capabilities</xs:documentation>

</xs:annotation>

</xs:enumeration>

<xs:enumeration value="surgery.facial">

<xs:annotation>

<xs:documentation>Facial surgery capabilities</xs:documentation>

</xs:annotation>

</xs:enumeration>

<xs:enumeration value="surgery.cardiothoracic">

<xs:annotation>

<xs:documentation>Cardiothoracic surgey capabilities</xs:documentation>

</xs:annotation>

</xs:enumeration>

<xs:enumeration value="surgery.hand">

<xs:annotation>

<xs:documentation>Hand surgery capabilities</xs:documentation>

</xs:annotation>

</xs:enumeration>

<xs:enumeration value="surgery.reimplantation">

<xs:annotation>

<xs:documentation>Reimplantation surgery capabilities.</xs:documentation>

</xs:annotation>

</xs:enumeration>

<xs:enumeration value="surgery.spinal">

<xs:annotation>

<xs:documentation>Spinal surgery capabilities</xs:documentation>

</xs:annotation>

</xs:enumeration>

<xs:enumeration value="surgery.vascular">

<xs:annotation>

<xs:documentation>Vascular surgery capabilities</xs:documentation>

</xs:annotation>

</xs:enumeration>

<xs:enumeration value="surgery.anesthesia">

<xs:annotation>

<xs:documentation>Anesthesia services</xs:documentation>

</xs:annotation>

</xs:enumeration>

<xs:enumeration value="traumaCenter">

<xs:annotation>

<xs:documentation>Trauma Center</xs:documentation>

</xs:annotation>

</xs:enumeration>

</xs:restriction>

</xs:simpleType>

<xs:complexType name="CapacityType">

<xs:annotation>

<xs:documentation>Extensible list (name/value pair) for Service capacity.

See the HAVE 2.0 standard document for a suggested list of capacities.

</xs:documentation>

</xs:annotation>

<xs:sequence>

<xs:element name="capacity" type="ext:ParameterValueType"/>

<xs:element maxOccurs="1" minOccurs="0" name="capacityURI"

type="edxl-ct:ValueListURIType"/>

</xs:sequence>

</xs:complexType>

<xs:complexType name="TriageCountType">

<xs:annotation>

<xs:documentation>The number of each triage patient type the overall hospital currently has by colour code.</xs:documentation>

</xs:annotation>

<xs:sequence maxOccurs="1" minOccurs="0">

<xs:element name="code" type="TriageColourCodeType">

<xs:annotation>

<xs:documentation>Triage Colour Codes (RED, YELLOW, GREEN, BLACK, none) for capacity purposes.

The list of values must be from the list identified in TriageCodeListURN. Default 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.

If a TriageCountType/code value is specified, a TriageCountType/count element must be specified.

</xs:documentation>

</xs:annotation>

</xs:element>

<xs:element name="count">

<xs:annotation>

<xs:documentation>The number of patients of this code type.</xs:documentation>

</xs:annotation>

<xs:simpleType>

<xs:restriction base="xs:int">

<xs:minInclusive value="0"/>

</xs:restriction>

</xs:simpleType>

</xs:element>

<xs:element name="alternateCodeValue" type="edxl-ct:ValueKeyType" minOccurs="0"

maxOccurs="unbounded">

<xs:annotation>

<xs:documentation>There are a large number of Triage systems in use. Many usenumbering systems (http://en.wikipedia.org/wiki/Triage#Tags) and colours. The premise of HAVE is that we will share the general state with the broad emergency management community who may not know the intimate details of a triage system, but understand the general concepts that RED=urgent, Green=walking wounded, Black=Dead/Lost (already dead or untreatable). The alternateCodeValues element is intended to be used by these systems.

Providing the ValueListURI and Value will allow mapping of external systems to the base HAVE Triage colour codes.</xs:documentation>

</xs:annotation>

</xs:element>

<xs:element maxOccurs="1" minOccurs="0" name="comment" type="FreeTextType"/>

</xs:sequence>

</xs:complexType>

<xs:complexType name="ActivityInPeriodType">

<xs:annotation>

<xs:documentation>ActivityInPeriodType gathers information about the admissions, discharges, and deaths in a time period.</xs:documentation>

</xs:annotation>

<xs:sequence>

<xs:element minOccurs="0" name="reportingPeriod" type="edxl-ct:TimePeriodType">

<xs:annotation>

<xs:documentation>The time period (From -&gt; To) that the activity occured in.

If this element is not included the reportingPeriod at the Facility level should be assumed to define the time range.</xs:documentation>

</xs:annotation>

</xs:element>

<xs:element minOccurs="1" name="admissions" type="xs:int" default="0">

<xs:annotation>

<xs:documentation>Number of admissions in the period.</xs:documentation>

</xs:annotation>

</xs:element>

<xs:element minOccurs="1" name="discharges" type="xs:int" default="0">

<xs:annotation>

<xs:documentation>Number of Discharges in the period.</xs:documentation>

</xs:annotation>

</xs:element>

<xs:element minOccurs="1" name="deaths" type="xs:int" default="0">

<xs:annotation>

<xs:documentation>Number of Deaths in the period.</xs:documentation>

</xs:annotation>

</xs:element>

<xs:element minOccurs="0" name="comment" type="FreeTextType">

<xs:annotation>

<xs:documentation>General comment/summary of the activity in period.

</xs:documentation>

</xs:annotation>

</xs:element>

</xs:sequence>

</xs:complexType>

<xs:complexType name="FreeTextType">

<xs:sequence>

<xs:element name="defaultText" type="LimitedString">

<xs:annotation>

<xs:documentation>The text value that uses the message default language (defined

at in the HAVE message defaultLanguage attribute).</xs:documentation>

</xs:annotation>

</xs:element>

<xs:element name="alternateText" type="AlternateTextType" minOccurs="0"

maxOccurs="unbounded">

<xs:annotation>

<xs:documentation>Alternate language representation.</xs:documentation>

</xs:annotation>

</xs:element>

</xs:sequence>

</xs:complexType>

<xs:complexType name="AlternateTextType">

<xs:simpleContent>

<xs:extension base="LimitedString">

<xs:attribute name="language" type="xs:string" use="required">

<xs:annotation>

<xs:documentation>Language code for the text in this element. Code MUST

comply with RFC3066. </xs:documentation>

</xs:annotation>

</xs:attribute>

</xs:extension>

</xs:simpleContent>

</xs:complexType>

<xs:complexType name="OperationType">

<xs:annotation>

<xs:documentation>Gathers information about a particular operation type including the

kind (taxonomy driven), name (human readable representations), status, and

commentary.</xs:documentation>

</xs:annotation>

<xs:sequence>

<xs:element name="kind">

<xs:annotation>

<xs:documentation>The high-level kind of operation that is being reported on (plant, security, staffing, or emergency).</xs:documentation>

</xs:annotation>

<xs:simpleType>

<xs:restriction base="xs:token">

<xs:enumeration value="plant">

<xs:annotation>

<xs:documentation>Plant - the key equipment and capabilities needed to operate the facility (e.g. HVAC, cafeteria).</xs:documentation>

</xs:annotation>

</xs:enumeration>

<xs:enumeration value="security"/>

<xs:enumeration value="staffing"/>

<xs:enumeration value="emergency"/>

</xs:restriction>

</xs:simpleType>

</xs:element>

<xs:element name="name" type="FreeTextType">

<xs:annotation>

<xs:documentation>The name of the operation that is being reported on (e.g. "Food Services").</xs:documentation>

</xs:annotation>

</xs:element>

<xs:element name="status" type="StatusType">

<xs:annotation>

<xs:documentation>The status of the Operation.</xs:documentation>

</xs:annotation>

</xs:element>

<xs:element minOccurs="0" name="comment" type="FreeTextType"/>

<xs:element maxOccurs="unbounded" minOccurs="0" ref="ext:extension"/>

</xs:sequence>

</xs:complexType>

<xs:simpleType name="TriageColourCodeType">

<xs:restriction base="edxl-ct:EDXLStringType">

<xs:enumeration value="red">

<xs:annotation>

<xs:documentation>IMMEDIATE attention for Triage.</xs:documentation>

</xs:annotation>

</xs:enumeration>

<xs:enumeration value="yellow">

<xs:annotation>

<xs:documentation>Yellow Triage - needs medical attention after

RED/Immediate.</xs:documentation>

</xs:annotation>

</xs:enumeration>

<xs:enumeration value="green">

<xs:annotation>

<xs:documentation>GREEN Triage (walking wounded or

self-treatable)</xs:documentation>

</xs:annotation>

</xs:enumeration>

<xs:enumeration value="black">

<xs:annotation>

<xs:documentation>Triage Lost/Dead category.</xs:documentation>

</xs:annotation>

</xs:enumeration>

</xs:restriction>

</xs:simpleType>

<xs:simpleType name="ColourCodeDefaultType">

<xs:annotation>

<xs:documentation>The use of colour codes allows for emergency personnel to understand

if conditions are normal (green), deteriorating (yellow), or in an exceptional mode

(red). Colour codes can be rendered graphically or through text to support visual

impairments.</xs:documentation>

</xs:annotation>

<xs:restriction base="edxl-ct:EDXLStringType">

<xs:enumeration value="red">

<xs:annotation>

<xs:documentation>RED - SEVERE/EXTREME for STATUS. Marks a noted exception from

normal conditions.</xs:documentation>

</xs:annotation>

</xs:enumeration>

<xs:enumeration value="yellow">

<xs:annotation>

<xs:documentation>MODERATE colour code - deviation from normal condition but not

at SEVERE/EXTREME level.</xs:documentation>

</xs:annotation>

</xs:enumeration>

<xs:enumeration value="green">

<xs:annotation>

<xs:documentation>Green - normal conditions.</xs:documentation>

</xs:annotation>

</xs:enumeration>

</xs:restriction>

</xs:simpleType>

<xs:simpleType name="FacilityKindType">

<xs:restriction base="edxl-ct:EDXLStringType">

<xs:enumeration value="Hospital"/>

<xs:enumeration value="LongTermCare"/>

<xs:enumeration value="UrgentCareClinic"/>

<xs:enumeration value="TemporaryFacility"/>

<xs:enumeration value="Other"/>

</xs:restriction>

</xs:simpleType>

<xs:simpleType name="LimitedString">

<xs:annotation>

<xs:documentation>Text block for preserving whitespace but limiting length to 1024

characters.</xs:documentation>

</xs:annotation>

<xs:restriction base="xs:string">

<xs:whiteSpace value="preserve"/>

<xs:maxLength value="1024"/>

</xs:restriction>

</xs:simpleType>

<xs:complexType name="GeoLocationType">

<xs:sequence>

<xs:element name="wgs84Location">

<xs:annotation>

<xs:documentation>The location of the facility in WGS84 coordinates. The values

in this element must use the WGS84 (EPSG:4326) values. This element is

mandatory to ensure compatibility globally. If alternate SRS are needed, use

the geoLocationExtended elements to support 1 or more SRS that are needed in

your community. FUTURE versions of HAVE may support additional or alternate

globally supported SRS.</xs:documentation>

</xs:annotation>

<xs:complexType>

<xs:complexContent>

<xs:extension base="edxl-gsf:EDXLGeoLocationType">

<xs:attribute fixed="http://www.opengis.net/def/crs/EPSG/0/4326"

name="srsName" use="required"/>

</xs:extension>

</xs:complexContent>

</xs:complexType>

</xs:element>

<xs:element maxOccurs="unbounded" minOccurs="0" name="geoLocationExtended">

<xs:annotation>

<xs:documentation>The location of the facility in non-WGS84 (EPSG:4326)

coordinates. These alternate (and optional) coordinates are intended for the

purposes of systems that require the sending system to provide specialize

SRS coordinates. </xs:documentation>

</xs:annotation>

<xs:complexType>

<xs:complexContent>

<xs:extension base="edxl-gsf:EDXLGeoLocationType">

<xs:attribute name="srsName" use="required"/>

</xs:extension>

</xs:complexContent>

</xs:complexType>

</xs:element>

</xs:sequence>

</xs:complexType>

<xs:complexType name="EmergencyDepartmentType">

<xs:annotation>

<xs:documentation> The container of all of the elements related to the emergency

department status. It describes the ability of this emergency department to treat

patients.</xs:documentation>

</xs:annotation>

<xs:sequence>

<xs:element minOccurs="1" name="status" type="StatusType">

<xs:annotation>

<xs:documentation>Status of the Emergency Department.</xs:documentation>

</xs:annotation>

</xs:element>

<xs:element name="offloadInfo" minOccurs="0">

<xs:annotation>

<xs:documentation>Information about the Offload state for various modes of

transport (Ambulance, Air Ambulance).</xs:documentation>

</xs:annotation>

<xs:complexType>

<xs:sequence>

<xs:element maxOccurs="unbounded" minOccurs="1" name="offload"

type="OffloadType"/>

<xs:element maxOccurs="unbounded" minOccurs="0" ref="ext:extension"/>

</xs:sequence>

</xs:complexType>

</xs:element>

<xs:element name="traffic" minOccurs="0">

<xs:annotation>

<xs:documentation>Ability of this emergency department to receive patients via

emergency medical services.</xs:documentation>

</xs:annotation>

<xs:complexType>

<xs:sequence>

<xs:element name="status">

<xs:annotation>

<xs:documentation>The operating status of the Emergency Department (normal -&gt; advisory -&gt; closed).</xs:documentation>

</xs:annotation>

<xs:simpleType>

<xs:restriction base="xs:token">

<xs:enumeration value="normal"/>

<xs:enumeration value="advisory"/>

<xs:enumeration value="closed"/>

</xs:restriction>

</xs:simpleType>

</xs:element>

<xs:element name="colourStatus" type="ColourStatusType">

<xs:annotation>

<xs:documentation>Colour-code status for the Emergency Department. </xs:documentation>

</xs:annotation>

</xs:element>

<xs:element name="reason" type="FreeTextType" minOccurs="0">

<xs:annotation>

<xs:documentation>Needed (handled by Colour

Code?) It is used to report the contributing factor to an

EMSTraffic Status.</xs:documentation>

</xs:annotation>

</xs:element>

<xs:element minOccurs="0" name="comment" type="FreeTextType"/>

</xs:sequence>

</xs:complexType>

</xs:element>

<!-- -->

<!-- Added elements from HAVE 1.0 schema -->

<!-- -->

<xs:element maxOccurs="unbounded" minOccurs="0" name="triageCapacity"

type=" TriageCountType ">

<xs:annotation>

<xs:documentation>The number of each triage patient type the hospital can accept.

</xs:documentation>

</xs:annotation>

</xs:element>

<!-- -->

<!-- Added elements from HAVE 1.0 schema -->

<!-- -->

</xs:sequence>

</xs:complexType>

<xs:complexType name="TraumaCenterType">

<xs:sequence>

<xs:element name="serviceLevel">

<xs:annotation>

<xs:documentation>Trauma Center Level - 1 through 3 (I trough III) per American College of Surgeons. Beyond Level 3 there is no global standard but this is a good first approximation.</xs:documentation>

</xs:annotation>

<xs:simpleType>

<xs:restriction base="xs:token">

<xs:enumeration value="level1">

<xs:annotation>

<xs:documentation>Level 1 Trauma Services</xs:documentation>

</xs:annotation>

</xs:enumeration>

<xs:enumeration value="level2">

<xs:annotation>

<xs:documentation>Level 2 Trauma Services</xs:documentation>

</xs:annotation>

</xs:enumeration>

<xs:enumeration value="level3">

<xs:annotation>

<xs:documentation>Level 3 Trauma Services</xs:documentation>

</xs:annotation>

</xs:enumeration>

<xs:enumeration value="no-trauma">

<xs:annotation>

<xs:documentation>Level 4 Trauma Services</xs:documentation>

</xs:annotation>

</xs:enumeration>

</xs:restriction>

</xs:simpleType>

</xs:element>

<xs:element name="status" type="StatusType"/>

<xs:element minOccurs="0" maxOccurs="1" name="comment" type="FreeTextType"/>

<xs:element maxOccurs="unbounded" minOccurs="0" ref="ext:extension"/>

</xs:sequence>

</xs:complexType>

</xs:schema>

1. Acknowledgments

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

Participants:

[Participant Name, Affiliation | Individual Member]

[Participant Name, Affiliation | Individual Member]

1. Revision History

|  |  |  |  |
| --- | --- | --- | --- |
| **Revision** | **Date** | **Editor** | **Changes Made** |
| Version 2.1 WD 1 | ??? October 2014 | Patti Iles Aymond | * Added schema to appendix * Corrected formatting issues |