Emergency Data Exchange Language (EDXL) Tracking of Emergency Patients (TEP) Version 1.0

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- XML schemas: http://docs.oasis-open.org/emergency/edxl-tep/v1.0/csd02/xsd/

Related work:

This specification is related to:

- *Emergency Data Exchange Language (EDXL) Distribution Element v2.0*. Latest version. http://docs.oasis-open.org/emergency/edxl-de/v2.0/edxl-de-v2.0.html
- *Emergency Data Exchange Language (EDXL) Resource Messaging v1.0*. 22 December 2009. OASIS Standard incorporating Approved Errata. 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.* Latest version. http://docs.oasis-open.org/emergency/edxl-ct/v1.0/edxl-ct-v1.0.html
- *Emergency Data Exchange Language Customer Information Quality v1.0*. Latest version. http://docs.oasis-open.org/emergency/edxl-ciq/v1.0/edxl-ciq-v1.0.html

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- urn:oasis:names:tc:emergency:edxl:tep:1.0

Abstract:

EDXL-TEP is an XML messaging standard primarily for exchange of emergency patient and tracking information from the point of patient encounter through definitive care admission or field release. TEP supports patient tracking across the Emergency Medical Services (EMS) care continuum, as well as hospital evacuations and patient transfers, providing real-time information to responders, Emergency Management, coordinating organizations and care facilities in the chain of care and transport.

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Table of Contents

1 Introduction 6
1.1 Purpose 6
1.2 History 6
1.3 Structure of the EDXL Tracking of Emergency Patients Specification 8
1.4 Terminology 9
1.5 Normative References 9
1.6 Non-Normative References 10
2 Design Principles & Concepts (non-normative) 11
2.1 Design Philosophy 11
2.2 Requirements for Design 11
2.3 Example Usage Scenarios 11
2.3.1 Example 1 12
2.3.2 Example 2 12
2.3.3 Example 3 12
2.3.4 Exercises 13
3 EDXL Tracking of Emergency Patients 15
3.1 TEP Message Definition (non-normative) 15
3.2 Supporting Elements (non-normative) 15
3.2.1 Common Types 15
3.2.2 Selecting values from lists 16
3.2.2.1 ValueListType 16
3.2.2.2 ValueKeyType 17
3.2.3 EDXL Extensions 17
3.2.3.1 Community augmentation 19
3.2.3.2 List augmentation 19
3.2.3.3 List replacement 20
3.2.3.4 List redefinition 21
3.2.3.5 Special application of Extension 21
3.3 Element Reference Model (non-normative) 22
3.4 Distribution of EDXL-TEP (non-normative) 22
3.4.1 EDXL Distribution Element (EDXL-DE) 22
3.4.1.1 Identifying MessageType 23
3.4.1.2 Identifying Message Sender 23
3.4.1.3 DateTime Message Sent 24
3.4.1.4 Multiple TEP messages 24
3.4.1.5 Signature 24
3.5 Attachments 24
3.6 TEP Elements 24
4 Data Dictionary (normative) 27
4.1 “Routing Header” Elements 28
4.2 TEP Message 28

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4.3 Patient 30
4.4 Situation (Incident) 40
4.5 HealthCareProvider 44
4.6 Transport 49
4.7 Patient Encounter 51
4.8 Patient Care 53
4.9 Patient Transfer 64
4.10 Patient ID 66
4.11 Patient Age 68
4.12 Medication 70
4.13 Glossary / List of Acronyms 72
5 Conformance 75
Appendix A Acknowledgments 76
Appendix B XML Schema for EDXL-TEP 77
Appendix C XML Schema for EDXL-Extensions 78
Appendix D Revision History 79

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1 Introduction

1.1 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 EDXL Standards includes:

- The Common Alerting Protocol v1.2 specification (EDXL-CAP), with various dedicated profiles
- The Distribution Element Specification v2.0 (EDXL-DE)
- The Hospital AVailability Exchange specification v1.0 (EDXL-HAVE)
- The Resource Messaging specification v1.0 (EDXL-RM)
- The Situation Reporting specification v1.0 (EDXL-SitRep)

The primary purpose of EDXL-TEP is an XML messaging standard for exchange of emergency patient and tracking information during patient encounter through admission or release. TEP supports patient tracking across the Emergency Medical Services (EMS) care continuum, as well as hospital evacuations and patient transfers, providing real-time information to responders, Emergency Management, coordinating organizations and care facilities in the chain of care and transport.

The TEP purpose is aimed at increased effectiveness of emergency medical management, patient tracking, and continued patient care capabilities during emergency care. TEP is driven by cross-profession practitioner needs (Practitioner Steering Group), and led by the National Association of State EMS Officials (NASEMSO). It also supports select goals of the HHS-Agency for Health and Research Quality (AHRQ), NDMS process and systems, and gaps identified by the Health Information Technology Standards Panel (HITSP).

1.2 History

Through a practitioner-driven approach, the Command, Control and Interoperability Division (CID) within the U.S. Department of Homeland Security's Science and Technology Directorate creates and deploys information resources to enable seamless and secure interactions among state, local, tribal, international, private entities, homeland security stakeholders and other federal entities. CID creates and deploys Information resources such as standards, frameworks, tools, and technologies.

CID is organized into five program areas: Basic/Futures Research; Cyber Security; Knowledge Management Tools; Office for Interoperability and Compatibility (OIC); and Reconnaissance, Surveillance, and Investigative Technologies.

Following voice interoperability programs such as SAFECOM, the OIC's interoperable messaging standards program was initiated as one of the President's e-Gov initiatives in 2001. The OIC mission is to serve as the standards program within the Federal Government to facilitate local, tribal, state, and federal public safety and emergency response agencies to improve emergency / disaster response through effective and efficient interoperable data sharing. OIC sponsors the process to facilitate practitioner requirements for the development of EDXL standards.

EDXL will accomplish this mission through the standardization of specific messages (XML messaging interfaces) which facilitate coordination and emergency communication between disparate software applications and systems - particularly when more than one profession or jurisdiction is involved.

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The EDXL program is an open, public practitioner-driven process driven solely by cross-profession emergency practitioners through an OIC-sponsored Practitioner Steering Group (PSG) and Standards Working Group (SWG). The EDXL program is also a public-private partnership working with the Emergency Interoperability Consortium (EIC), Vendor communities, and OASIS.

The OIC-sponsored PSG governance was formalized following publication of the EDXL Distribution Element. It plays a key role in the direction, prioritization, definition, and execution of the DHS-OIC program. The group is comprised of representatives of major emergency response associations and organizations, setting priorities and providing recommendations regarding messaging standards development as well as the other facets of the OIC-EDXL program.

A number of requests, requirements and detailed studies converged to drive the requirement for a standard data exchange for patient tracking across disparate jurisdictions, professions using the many systems in place today or planned. Figure 1 below provides a graphical depiction of various driving efforts and time-line.

- The Agency for Healthcare Research and Quality's (AHRQ) "Recommendations for a National Mass Patient and Evacuee Movement, Regulating, and Tracking System"
- Gaps and requirements identified by the Office of the National Coordinator (ONC) sponsored IS-04 Emergency Responder Emergency Health Record (ER-EHR) & Use Cases
- The Health Information Technology Standards Panel (HITSP) ER-EHR Interoperability specification
- As gaps were assigned to various agencies to address, the National Association of State EMS Officials (NASEMSO) submitted a formal request to DHS-S&T on behalf of the state and local practitioners, to facilitate the many stakeholders to a consensus-based requirement. This request was supported by HHS-AHRQ, ASPR and NDMS.
- Not depicted in Figure 1 are two major, multi-jurisdiction, multi-system live Patient Tracking exercises. Each of these exercises identified improvements which were integrated into the TEP standard as a result of actual disparate system data exchanges, observations and input from participating organizations. A detailed description of the exercises is contained in Section 3.4 "Exercises".

These efforts documented and demonstrated the current lack of a standardized approach to Patient Tracking, as numerous disparate patients tracking software systems are used to track patients across jurisdiction and professional boundaries, but cannot share information without one-off manual processes.

The NASEMSO and other stakeholder organizations looked to the DHS-S&T OIC EDXL standards process, which has demonstrated success facilitating standards through Federally-sponsored cross-profession efforts in partnership with public Standards Development Organizations (SDO) and private industry. Utilizing the requests, requirements and detailed studies discussed above coupled with standard process and governance, the requirements and specification effort was initiated by these stakeholders and a TEP Steering Committee was formed to drive and draft scope, secure participation, and escalate decision-making.

The EDXL-TEP draft specification was developed based on explicitly defined requirements and messaging specification, which was submitted to the OASIS Emergency Management Technical Committee (EM-TC) to begin work on this international EDXL-TEP standard.

The TEP standard is intended to provide a standardized way for any existing or planned system to seamlessly share patient tracking information, fully realizing the potential of these numerous systems.

The EDXL-TEP standard will facilitate exchange of emergency patient and tracking data, providing "real-time" information to responders and care facilities across the EMS emergency medical care continuum. TEP is used from the point of patient encounter until patient release from care, or admission ("handoff") to definitive care (such as a hospital). TEP is aimed at the increased effectiveness of emergency medical management, patient tracking, and preparation for emergency care, supporting local, day to day needs as well as mass care situations across jurisdictions.

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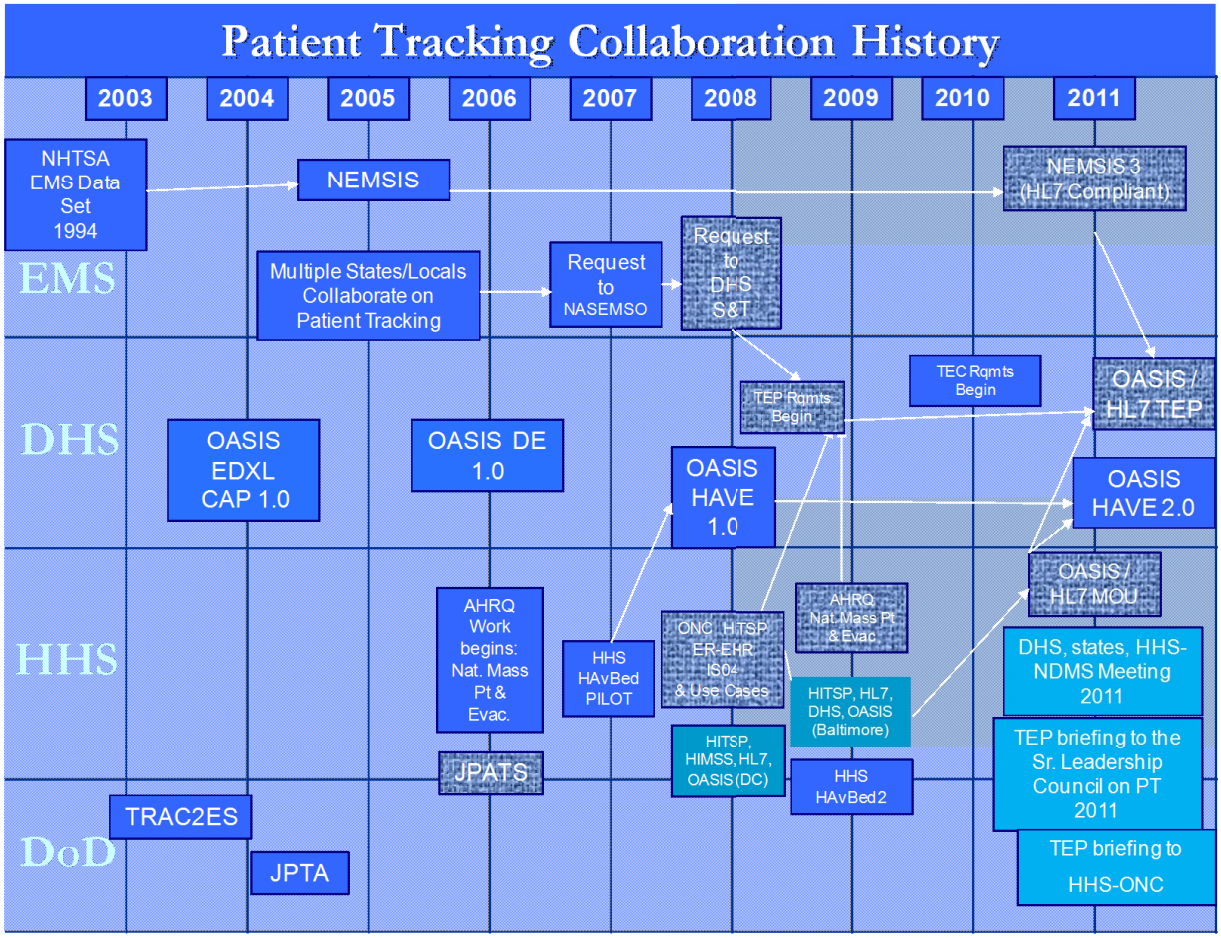

Fig. 1 Patient Tracking Collaboration History

1.3 Structure of the EDXL Tracking of Emergency Patients Specification

The EDXL-TEP standard document structure is defined using successively more detailed or constrained artifacts in the form of textual descriptions, diagrams, figures, tables and Appendices. The EDXL-TEP XML Schema is provided separately. The overall structure of the EDXL-TEP message 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-TEP standard is defined in the following sections:

- Section 2 summarizes the design principles of the standard and shows several usage scenarios;
- Section 3 provides and informal overview of EDXL-TEP. In particular:
  - Section 3.1 presents an extensive definition of a TEP message;
  - Section 3.2 describes essential supporting elements in the EDXL Common Types collection, including the EDXL Extension mechanisms - ValueList and CommunityExtension;
  - Section 3.3 presents the Element Reference Model (ERM) which shows the abstract structural relationships of the main components of EDXL-TEP;
  - Section 3.4 discusses how the distribution requirements for EDXL-TEP messages are met through the EDXL-Distribution Element (DE);
  - Sections 3.5 and 3.6 present a summary of the elements that make up a TEP message.

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- Section 4 The Data Dictionary formally defines each element contained in the EDXL-TEP standard message.

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

1.4 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 payload refers to some body of information contained in the distribution element. The term “REQUIRED” means that empty elements or NULL values are NOT allowed.

For increased precision, these terms are complemented with the inclusive interval notation [*lb* .. *ub*], where *lb* stands for lower bound (default 0) and *ub* stands for upper bound (default '*' - any > 1). E.g. [1..1] means REQUIRED, exactly once, [..*] means OPTIONAL, any number of times.

1.5 Normative References

[RFC2046] N. Freed, *Multipurpose Internet Mail Extensions (MIME) Part Two: Media Types*, http://www.ietf.org/rfc/rfc2046.txt**,** IETF RFC 2046, November 1996.

[RFC2119] **S.** Bradner, *Key words for use in RFCs to Indicate Requirement Levels*, http://www.ietf.org/rfc/rfc2119.txt, IETF RFC 2119, March 1997.

RFC3066] H. Alvestrand, Tags for the Identification of Languages, http://www.ietf.org/rfc/rfc3066.txt, IETF RFC 3066, January 2001.

[WGS 84] National Geospatial Intelligence Agency, Department of Defense World Geodetic System 1984, http://earth-info.nga.mil/GandG/publications/tr8350.2/tr8350_2.html, NGA Technical Report TR8350.2, January 2000.

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

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

[xlink] S. DeRose et al, *XML Linking Language (Xlink) Version 1.1*, http://www.w3.org/TR/xlink11/, W3C REC-xlink11, May 2010.

[EDXL-CIQ] W. Joerg, *OASIS Committee Specification Draft Emergency Data Exchange Language Customer Information Quality* http://docs.oasis-open.org/emergency/edxl-ciq/v1.0/csd02/ , September, 2011

[EDXL-CT] W. Joerg, *OASIS Committee Specification Draft Emergency Data Exchange Language Common Types* http://docs.oasis-open.org/emergency/edxl-ct/v1.0/csd02/, November, 2011

[EDXL-GSF] W. Joerg, *OASIS Committee Specification Draft Emergency Data Exchange Language GML Simple Features* http://docs.oasis-open.org/emergency/edxl-gsf/v1.0/csd01/, September, 2011

[EDXL-HAVE] *Emergency Data Exchange Language (EDXL) Hospital AVailablity Exchange.*. OASIS Standard 01 http://docs.oasis-open.org/emergency/edxlhave/v1.0/emergency_edxl_have-1.0.html, 1 November 2008

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[**EDXL-RM**] *Emergency Data Exchange Language (EDXL) Resource Messaging*. OASIS Standard. V1.0. http://docs.oasis-open.org/emergency/edxl-rm/v1.0/errata/EDXL-RM-v1.0-OS-errata-os.html, 1 November 2008

[EDXL-SitRep] *Emergency Data Exchange Language Situation Reporting (EDXL-SitRep) Version 1.0*. 4 May 2012. OASIS Committee Specification Draft 01 / Working Draft 18.

1.6 Non-Normative References

[EDXL General Functional Requirements]

EDXL General Functional Requirements, http://www.oasis-open.org/committees/document.php?document_id=10031&wg_abbrev=emergency, November 2004.

[EDXL Distribution Element Implementer's Guide]

EDXL Distribution Element Implementer's Guide, http://www.oasis-open.org/committees/document.php?document_id=14120&wg_abbrev=emergency, August 2005

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2 Design Principles & Concepts (non-normative)

2.1 Design Philosophy

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

- Provide a standard message format for the Tracking of Emergency Patients data exchange standard
- Separation of EDXL-TEP message structure from routing header structure
- Facilitate any mechanisms or techniques for routing and movement of TEP messages, such as point to point, use of an open or proprietary message broker, publish / subscribe, etc.
- Enable dissemination of messages based on geographic delivery area
- Use and reuse of data content and models developed by other initiatives
- Business process-driven specific messaging needs across emergency professions
- Design for the basic needs of two primary systems categories:
    - Those which require and utilize minimal data needed only to track patients' status and physical location and movement (e.g. leaning toward a "Federal Express" package tracking model).
    - Those which require additional optional data needed to understand more about a patient's condition and care.
- Supporting everyday events and incident preparedness, as well as disasters
- 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

2.2 Requirements for Design

The initial requirements submitted to the Technical Committee by the DHS-OIC sponsored EDXL Standards Working Group (SWG) described in Section 1.2 can be reviewed at:

http://www.oasis-open.org/committees/download.php/338215/EDXL-TEP-Rqmts&draftMessagingSpecFinalV2.2_05-05-2010.pdf

Referenced within the specification document, the Project Initiation Document (PID) contains the effort purpose, objectives and scope:

http://www.oasis-open.org/committees/download.php/...

2.3 Example Usage Scenarios

Notes:

– The following examples of usage scenarios were used as a basis for development of the practitioner requirements and messaging specification document which was submitted to OASIS. These scenarios are very basic, high-level and non-normative; not intended to be exhaustive or to

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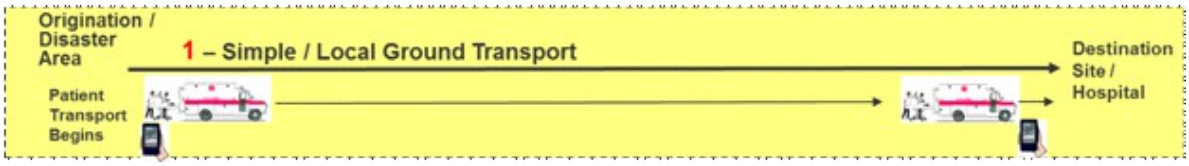
fully reflect actual practices. Then follows a description of live patient movement exercises used as POC and pilots for the EDXL-TEP draft standard.

– These examples show that TEP relies on some sort of “mobile tracking” (i.e. connectivity from the field, incident scene, transportation vehicle etc.). It’s the only way a TEP message can be utilized as designed and as exercised in the field to date. This does not imply that TEP supports continuous GPS tracking where frequent messages, containing e.g. an ambulance location, are “pulsed out” to track its movement. The actual requirement is that a TEP message be sent whenever a change to core TEP data occurs (like patient condition, treatment, transport etc.).

2.3.1 Example 1



EDXL-TEP is intended to be light and simple enough for average day to day usage such as a multi-car traffic accident. As patients are identified and data collected, TEP messages may be sent to any number of state and local agencies which track patient movement, transport and care information, as well as to the destination hospital to help them better prepare for incoming patient care.

2.3.2 Example 2

...

During certain hazard events or larger casualty incidents, EDXL-TEP is intended to track patients between multiple physical locations, as well as between care givers retaining responsibility for that patient at a point in time. For example, a patient is loaded on-board an ambulance at incident scene and departs. TEP updates systems showing the ambulance crew is now responsible, and updates transport, location and destination information.

2.3.3 Example 3

During mass casualty events where local resources are overburdened, Federal resources working through Emergency Support Function (ESF) #8, may assist with patient transport, using their system called JPATS. This scenario is demonstrated below during the “**2010 Tennessee National Disaster Medical System (NDMS) live Patient Movement Exercise & draft EDXL-TEP data exchange POC for Patient Tracking”.** Each patient is triaged and/or cared for at incident scene, transported to an

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APOE (normally at an airport), where they are loaded to aircraft and flown to Patient Reception Area (PRA), perhaps in another state. At PRA, each patient is triaged, cared for, and each loaded on board ambulances/other transportation which departs for local hospitals. Upon arrival, each patient is scanned into the destination hospital or other definitive care for further care and treatment. At each change or update of patient ID, location, care provider, movement, condition change, or care, TEP messages may be sent and received to multiple recipients.

2.3.4 Exercises

The draft TEP specification has been successfully piloted in two major, multi-jurisdiction, multi-system live Patient Tracking exercises, and demonstrated during the 2012 Integrated Medical, Public Health, Preparedness and Response Training Summit. These exercises validated scenarios, use cases and data requirements, and the applicability and value of the EDXL standards approach for patient tracking across locations, organizations, jurisdictions, and disparate implemented systems. Each exercise identified improvements which were incorporated into the practitioner requirements and draft specification submitted to OASIS.

- **2010 Tennessee National Disaster Medical System (NDMS) live Patient Movement Exercise & draft EDXL-TEP data exchange POC for Patient Tracking**

The 2010 live patient movement exercise tracked nearly 100 live volunteer patients between the states of Maryland and Tennessee with TEP interoperability implemented among one Federal (HHS), two states and one local system. The results were used to enhance the TEP specification prior to submission to the SDO. Attributes of the exercise included:

a) Tracking of virtual patient movement from Baltimore, MD to Tennessee Patient Reception Area (PRA), followed by live volunteer patient movement from Tennessee PRA to multiple local hospitals.
b) Participating State Systems: State of Tennessee, and Memphis TN locality (2 systems, multiple independent organization implementations), State of Maryland.
c) Participating Federal Systems: Joint Patient Assessment and Tracking System(JPATS)

The following provides a high-level description how the EDXL-TEP data exchange was utilized during the 2010 Tennessee National Disaster Medical System (NDMS) live Patient Movement Exercise. In each instance, a TEP message for each patient was sent/received instantaneously as patient or location data was updated in the participating system.

The Maryland Institute for EMS Systems (MIEMSS) first utilized their HC Standard system (by GER) to identify, tag, scan, and transport each patient (100 in all) to NDMS DMAT at BWI Thurgood Marshall Airport

- TEP message sent from HC Standard to JPATS system

Patients were loaded to aircraft by NDMS personnel and flight departed from BWI Thurgood Marshall Airport.

- TEP update messages sent from JPATS back to HC standard, as well as to each of the two Tennessee systems.

Aircraft lands at Memphis, TNPRA and off loads patients to triage area.

- Recipient agency using DM Solutions system sends TEP update messages to all other systems mentioned
- Other TEP messages sent as patient care or treatment information is updated

Each patient is loaded on-board an ambulance, each departing for one of three local Memphis NDMS hospitals.

- DM Solutions sends TEP update messages (departure and destination information) to all systems, as well as to each destination hospital system

Each patient arrives at one of several local hospitals

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- As patient info is updated, or as each patient arrives, receiving hospital system scans patient arrival and TEP update message send to all previous systems in the chain

- **2011 National Disaster Medical System (NDMS) Patient Movement Exercise & draft EDXL-TEP data exchange pilot for Patient Tracking**

In 2011 five states within the National Level Exercise (NLE) utilized the improved TEP specification to track patient movement in and between the states of Missouri, Louisiana, Tennessee, Wisconsin, and Mississippi, with TEP interoperability enabled between four current tracking systems. Attributes of the exercise included:

a) Tracking of virtual patient movement from Patient Reception Area (PRA) to multiple local hospitals.

b) Participating State Systems: State of Tennessee, and Memphis TN locality (2 systems, multiple independent organization implementations), State of Maryland, Louisiana Region 6.

- **2012 Integrated Medical, Public Health, Preparedness and Response Training Summit EDXL-TEP demonstration**

a) Tracking of live volunteer patients as they entered the assembly hall, in parallel with panel presentation of each system participant and the EDXL-TEP approach.

b) Participating State Systems: State of Tennessee, Memphis TN locality, State of Maryland, State of Louisiana Region 6.

c) Participating Federal Systems: Joint Patient Assessment and Tracking System (JPATS).

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3 EDXL Tracking of Emergency Patients

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.

3.1 TEP Message Definition (non-normative)

The TEP message is a single EDXL message that is intended to facilitate the pro-active sharing of EMS Provider, Patient Location, Incident, Patient Demographic, and Patient Care information as warranted to provide better patient care and preparation by facilities that will eventually provide ongoing and post-emergency care. This message addresses TEP requirements in a “data-driven” mode. Users may create or update data based on key events in the field. Any change will be captured and then shared via the TEP messaging standard according to local standard operating procedures and or implementation decisions. A TEP message may be sent if one and only one element is changed, or if a group of elements changes and are sent in compliance with the standard.

Typical actors:

- Senders EMS Providers, ED, Intermediate Care Facilities, Federally deployed care providers (NDMS, National Guard, etc.), "forwarders" of this information to others.
- Recipients: EMS Providers, Emergency Department, Intermediate Care Facilities, Hospitals, Emergency Dispatch, Emergency Operations Center, Incident Command Center, Emergency Management (other), Law Enforcement, Federally deployed care providers (NDMS, National Guard, etc.),

3.2 Supporting Elements (non-normative)

3.2.1 Common Types

Supporting Element Types borrow re-usable elements from the EDXL Common Types (ct:) that apply to and support multiple areas of the TEP 1.0 messages, such as Location, PatientContact 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
ct:EDXLDateTimeType	EDXL-CT (Simple Types)
ct:EDXLStringType	EDXL-CT (Simple Types)
ct:PercentageType	EDXL-CT (Simple Types)
ct:ValueListURIType	EDXL-CT (Simple Types)
ct:ValueType	EDXL-CT (Simple Types)
ct:DegreesCType	EDXL-CT (Simple Types)
ct:EstimateType	EDXL-CT (Simple Types)

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Supporting Element/Type	Defined In
ct:ValueListType	EDXL-CT (Complex Types)
ct:ValueKeyType	EDXL-CT (Complex Types)
ct:PersonDetailsType	EDXL-CT (Complex Types)
ct:EDXLGeoPoliticalLocationType	EDXL-CT (Complex Types)
ct:EDXLLocationType	EDXL-CT (Complex Types)
gsf:EDXLGeoLocationType	EDXL-GSF
ct:ValueListURI	EDXL-CT (Top Level Elements)
xal:addressType	EDXL-CIQ
ext:ExtensionType	EDXL-EXT

3.2.2 Selecting values from lists

The ValueList and ValueKey types are part of the EDXL Common Types collection. They allow standards adopters to use topic specific lists of values for elements such as raceEthnicity, fluenSpokenLanguages, specialTransportationNeeds, etc.. Both types have identical structure, but ValueList allows for selection of multiple values [1..*] in the list, whereas ValueKey allows for selection of only one [1..1] value in the list.

When using a ValueList / 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 .

3.2.2.1 ValueListType

The schema for ct:ValueListType is defined as

```
<xs:complexType name="ValueListType">
    <xs:sequence>
        <xs:element ref="ct:ValueListURI" minOccurs="1" maxOccurs="1"/>
        <xs:element ref="ct:Value" minOccurs="1" maxOccurs="unbounded"/>
    </xs:sequence>
</xs:complexType>
```

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

```
<elementName>
    <ct:ValueListURI>valueListURI</ct:ValueListURI>
    <ct:Value>value_1</ct:Value>
    …
    <ct:Value>value_n</ct:Value>
</elementName>
```

In the Data Dictionary we describe examples of elements of type ct:ValueListType by listing value assignments to *valueListURI* and *value*_1, …, *value*_n.

So for instance an example for “specialMedicalNeeds” is described by

– *valueListURI* = urn:myagency:gov:ahrq:specialMedicalNeeds and

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- *value*_1 = Ventilator
- *value*_2 = Oxygen

which stands for

```
<specialMedicalNeeds>
    <ct:ValueListURI>urn:myagency:gov:ahrq:specialMedicalNeeds</ct:ValueListURI>
    <ct:Value>Ventilator</ct:Value>
    <ct:Value>Oxygen</ct:Value>
</specialMedicalNeeds>
```

This example contains two special needs, one whose value is “Ventilator” and one whose value is “Oxygen”. These are notional needs created for this example. The needs are identified as values from a list whose unique Uniform Reference Identifier (URI) is “urn:myagency:gov:ahrq:specialMedicalNeeds”.

A note about ValueList: the multiplicity of ValueList can be a source for confusion. Typically, 1 is the maximum number of occurrences of ValueList. This means that at most one such list may occur for a given element; this does not preclude the user from selecting multiple entries from that list (maxOccurs = “unbounded”).

3.2.2.2 ValueKeyType

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

```
<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.

3.2.3 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

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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. Examples: adding HL7 translation information to the TEP.
2. *List augmentation*: community adds new values (enumerations) to the default set of values in the standard. Example: adding FlightRisk value to the TEP contingencyMedicalSpecialityCode list.
3. *List replacement*:: community replaces the default set of values in the standard in its entirety. Example: defining TriageStatus with number codes instead of colors.
4. *List redefinition*: community reassigns the meaning of the default set of values in the standard in its entirety. Example: redefining the Black TriageCode to mean actively dying but not yet deceased.

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 Extensions]** 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>
```

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```
            <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"/>
```

3.2.3.1 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>
```

3.2.3.2 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.

The following example illustrates the use of ExtensionType to add community specific enumeration(s).

Example: adding “ReleasedForRehab” and “PostRehabRecidivismt” o PatientCurrentDispositionDefaultValues enumeration in TEP

– schema particulars:

```
<xsd:simpleType name="PatientCurrentDispositionDefaultValues">
    <xsd:restriction base="ct:EDXLStringType">
        <xsd:enumeration value="Discharged "/>
        <xsd:enumeration value="Transferred"/>
        <xsd:enumeration value="Deceased"/>
        <xsd:enumeration value="NoTreatmentRequired"/>
```

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```
            <xsd:enumeration value="RefusedCare"/>
            <xsd:enumeration value="TreatedAndReleased"/>
            <xsd:enumeration value="TreatedAndTransferredCare"/>
            <xsd:enumeration value="TreatedAndTransported"/>
            <xsd:enumeration value="Admitted"/>
            <xsd:enumeration value="TreatedAndTransportedToHospital"/>
            <xsd:enumeration value="Pending-Ongoing"/>
            <xsd:enumeration value="ExtensionValue"/>
        </xsd:restriction>
    </xsd:simpleType>
```

and some URI (e.g. www.patientDispositionExtension.org), enumerates the additional values:

```
<xsd:restriction base=”ct:EDXLStringType”>
    <xsd:enumeration value=”ReleasedForRehab”/>
    <xsd:enumeration value=”PostRehabRecidivism”/>
</xsd:restriction>
```

– XML invocations:

```
<patientCurrentDisposition>ExtensionValue</patientCurrentDisposition>
...
<extension>
    <community>http://www.patientDispositionExtension.org</community>
    <id>specialDispositionRehab</id>
    <parameter>
        <nameURI xPath=”/.../patientCurrentDisposition”>
            http://example/US/EMS/dispositionCodes
        </nameURI>
        <value>ReleasedForRehab</value>
    </parameter>
</extension>
```

3.2.3.3 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.

Example: the default triage codes are {“Red", "Yellow", "Green, "Blue", "Black" and "ExtensionValue"}. To allow for the use of “Purple” from a different list of values, the TEP message would look like:

```
<TEPMessage>
    <extension>
        <community>http://example/US/EMS</community>
        <id>layer2</id>
        <parameter>
            <nameURI xPath="./patient/patientEncounter/patientCare/triageStatus">
                http://example/US/EMS/triageCodes
            </nameURI>
            <value>Purple</value>
        </parameter>
    </extension>
        ...
    <patient>
        <patientEncounter>
            <patientCare>
                <triageStatus>ExtensionValue</triageStatus>
```


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```
            </patientCare>
        </patientEncounter>
    </patient>
</TEPMessage>
```

3.2.3.4 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.

Example: if one or more triage values are the same but have different meaning, then we use a redefined list with Extension:

```
<TEPMessage>
    <extension>
        <community>http://example/US/EMS</community>
        <id>layer2</id>
        <parameter>
            <nameURI xPath=”./patient/patientEncounter/patientCare/triageStatus”>
                http://example/US/EMS/triageCodes
            </nameURI>
            <value>Black</value>
        </parameter>
    </extension>
        …
    <patient>
        <patientEncounter>
            <patientCare>
                <triageStatus>ExtensionValue</triageStatus>
            </patientCare>
        </patientEncounter>
    </patient>
</TEPMessage>
```

3.2.3.5 Special application of Extension

Extensions can be used for other tasks such as translating TEP message structures to/from HL 7 structures. Here are two examples that address the TEP/HL7 translation problem for HL7 v2 and HL7 v3.

- HL7 v2:

```
<TEPMessage>
    <extension>
        <community>TEP:v10:HL7:V271</community>
        <id>layer2</id>
        <parameter>
            <nameURI xPath="./patient/patientID/ID">patientIDNumber</nameURI>
            <value>Patient Identifier List | ID Number</value>
        </parameter>
    </extension>
        ...
```


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```
        <patient>
            <patientID>
                <ID>some id</ID>
            </patientID>
        </patient>
    </TEPMessage>
```

- HL7 v3:

```
    <TEPMessage>
        <extension>
            <community>TEP:v10:HL7:V3</community>
            <id>layer2</id>
            <parameter>
                <nameURI xPath="./patient/patientID/ID">patientIDNumber</nameURI>
                <value>person.id</value>
            </parameter>
        </extension>
            ...
        <patient>
            <patientID>
                <ID>some id</ID>
            </patientID>
        </patient>
    </TEPMessage>
```

3.3 Element Reference Model (non-normative)

Figure 2 (below) shows the EDXL–TEP Element Reference Model (ERM). The purpose of the ERM is to define the TEP structure and the relationships between the main entities and their elements. Using the Unified Modeling Language as a means to illustrate the relationships, the ERM is not strictly normative. It is important that the ERM is not used as an implementation model. The exact semantics and structure are captured in the subsequent sections including the Data Dictionary, and the xsd schemas.

3.4 Distribution of EDXL-TEP (non-normative)

The primary purpose of the Emergency Data Exchange Language Tracking of Emergency Patients (EDXL-TEP) Specification is to provide an XML messaging standard for exchange of emergency patient and tracking information during patient encounter through admission or release, tracking across the EMS emergency medical care continuum, as well as hospital evacuations and patient transfers. These EDXL-TEP messages are specifically designed as payloads of the EDXL-DE. Together EDXL-DE and EDXL-TEP are intended to providing real-time information to responders, Emergency Management, coordinating organizations and care facilities in the chain of care and transport.. As set forth in Design Principles, routing and distribution information is found only in the EDXL-DE and not in the EDXL-TEP.

While the EDXL-TEP is designed to be an EDXL-DE payload, other routing mechanisms may be used to distribute EDXL-TEP content if the message meta-data is provided in the same form or if the sender specifies specific recipients of the payload.

3.4.1 EDXL Distribution Element (EDXL-DE)

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

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EDXL Distribution Element (EDXL-DE) V 2.0 was approved as an OASIS standard in … 2012. The EDXL-DE 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.).

The following subsections describe practitioner requirements which are met through the EDXL-Distribution Element (DE). The listed requirement type and numbers refer to the Practitioners' requirements document “EDXL-TEP-Rqmts&draftMessagingSpecFinalV2.2_05-05-2010.pdf”.

3.4.1.1 Identifying MessageType

The Requirement for identifying the “Message Type” of the EDXL-TEP 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 user-defined 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 TEP 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 TEP Message. The assumption and rule is that the EDXL-DE or equivalent will be used to route TEP messages, and therefore these requirements are satisfied by the DE.

This capability supports functional requirements #6, 11 and information requirement #2.

3.4.1.2 Identifying Message Sender

The Requirement for identifying the “Message Sender” of the EDXL-TEP 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-TEP 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>

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```
        <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.

SenderID supports functional requirement #6 and information requirements #3, 21;

SenderRole supports functional requirement #6 and information requirements #3;.

3.4.1.3 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-TEP 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

This capability supports functional requirement #6 and information requirement #4.

3.4.1.4 Multiple TEP 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-TEP is designed to be well-formed XML for routing, using EDXL-DE.

3.4.1.5 Signature

A digital version of a signature may optionally be included to provide the authority that authenticates a particular TEP 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.

3.5 Attachments

Additional documents such as photographs, fingerprints or health records may be attached to a TEP 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.

This capability supports information requirement #5

3.6 TEP Elements

A TEP message consists of a message identifier (**messageID** - *required*) that uniquely identifies the message, a system identifier (**systemID** – *optional*) that identifies the source of the information, and a group of elements (**patient** – *required*) that uniquely identifies and describes the patient in terms of

- personal identifying information such as gender, race, date of birth, hair color, etc.
- communication / contact information such as spoken languages, family unification code, ..
- special needs regarding transportation, medical attention, barriers to care, allergies, ..
- situation information such as incident, location, time, ..

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- healthcare provider information such as kind, name, jurisdiction, ..
- patient encounter information such as location, time, triage, care, ..

These elements are detailed further in Figure 2 and in the Data Dictionary (Section 4).

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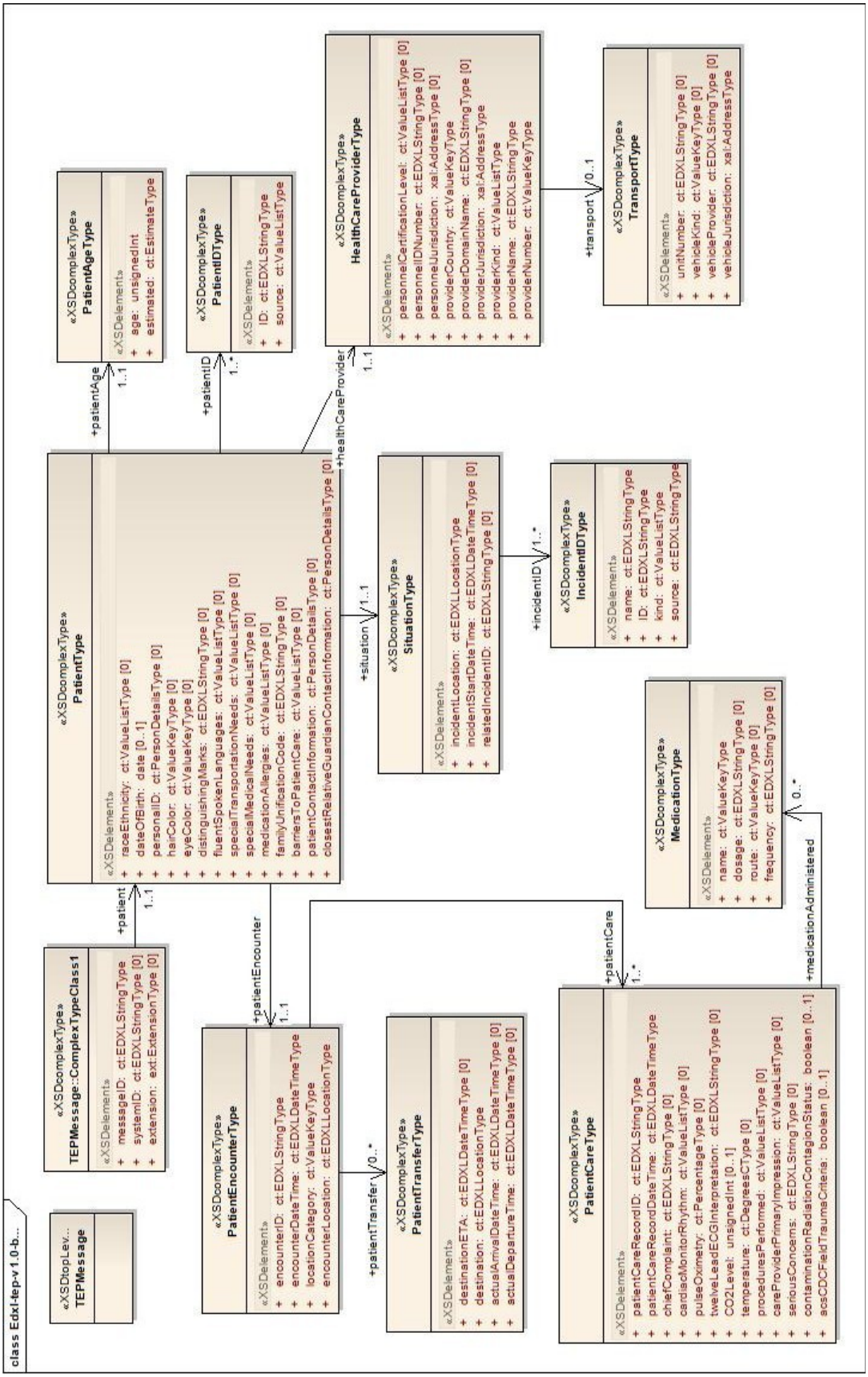
Figure 2 EDXL–TEP Element Reference Model (ERM)



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4 Data Dictionary (normative)

The data dictionary is intended to provide detailed definition of each element contained in the EDXL-TEP 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

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

tep = "urn:oasis:names:tc:emergency:EDXL:TEP:1.0"
elements / types in EDXL-TEP space

tep-ct = "urn:oasis:names:tc:emergency:EDXL:TEP:Defaults:1.0"
common types in EDXL-TEP space

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For an explanation of examples for ValueListType and ValueKeyType, see sections 3.2.2 and 3.2.3.

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.

4.1 "Routing Header" Elements

The following list of elements / information requirements are addressed through the OASIS EDXL-Distribution Element (DE) routing header (See Section 3.4 of this document for an explanation of each), which is used for routing and distribution of Emergency Patient information as well as other EDXL and non-EDXL payloads. The EDXL-TEP standard is designed as a payload requiring use of a routing header, and specifically designed for use with the EDXL-Distribution Element (DE). The EDXL-DE is the required routing/distribution header for EDXL-TEP unless an alternative routing header is available which meets all requirements of the EDXL-TEP standard as specified in this section, and includes each element required of the EDXL-DE standard.

EDXL-TEP Requirement	EDXL-DE Element(s)
MessageType	**DistributionKind**
MessageSender	**SenderID** *and* **SenderRole**
SentDateTime	**DateTimeSent**
Signature	**OtherContent** *containers*
Attachments	**ContentXML** *and* **OtherContent** *containers*

4.2 TEP Message

Element	**TEPMessage**
Type	xsd:complexType
Usage	REQUIRED; MUST be used once and only once
Definition	Group of elements used to uniquely identify a TEP message and its source.
Comments	
Constraints	
Valid Values / Examples	
Sub-elements	– messageID [1..1]: ct:EDXLStringType – systemID [0..1]: ct:EDXLStringType – patient [1..1]: tep:PatientType – extension [0..*]: ext:ExtensionType
Used In	EDXL-TEP
Requirements Supported	

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Element	**messageID**
Type	ct:EDXLStringType
Usage	REQUIRED; MUST be used once and only once [1..1]
Definition	Each TEP message contains an identifier that uniquely identifies the message
Comments	1. The EDXL Distribution Element contains the "Distribution ID", which identifies the "container" for the distribution message information. 2. EDXL-RM and EDXL-SitRep also contain a messageID element for the same purpose.
Constraints	
Valid Values / Examples	
Sub-elements	
Used In	TEPMessage
Requirements Supported	

Element	**systemID**
Type	ct:EDXLStringType
Usage	OPTIONAL; MAY be used once and only once [0..1]
Definition	A unique system id, or login credentials of person entering TEP data, used to identify source of the information
Comments	
Constraints	
Valid Values / Examples	
Sub-elements	
Used In	TEPMessage
Requirements Supported	

Element	**patient**
Type	tep:PatientType
Usage	REQUIRED; MUST be used once and only once [1..1]
Definition	Group of elements used to uniquely describe the patient.
Comments	
Constraints	

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Valid Values / Examples	
Sub-elements	
Used In	TEPMessage
Requirements Supported	

4.3 Patient

ElementType	**PatientType**
Type	xsd:complexType
Definition	Group of elements associated with the person that has been encountered and determined or suspected to be a patient. Used to uniquely identify and describe the person.
Comments	
Constraints	
Valid Values / Examples	
Sub-elements	– patientID [1..*]: tep:PatientIDType – gender: tep:GenderDefaultValues – patientAge [1..1]: tep:PatientAgeType – raceEthnicity [0..1]: ct:ValueListType – dateOfBirth [0..1]: xsd:date – personalID [0..1]: ct:PersonDetailsType – hairColor [0..1]: ct:ValueKeyType – eyeColor [0..1]: ct:ValueKeyType – distinguishingMarks [0..1]: ct:EDXLStringType – fluentSpokenLanguages [0..1]: ct:ValueListType – specialTransportationNeeds [0..1]: ct:ValueListType – specialMedicalNeeds [0..1]: ct:ValueListType – medicationAllergies [0..1]: ct:ValueListType – currentMedication [0..*]: tep:MedicationType – familyUnificationCode [0..1]: ct:EDXLStringType – barriersToPatientCare [0..1]: ct:ValueListType – evacuationDestinationRequired [0..1]: tep:PatientEvacuationDestinationRequiredDefaultValues – patientContactInformation [0..1]: ct:PersonDetailsType – closestRelativeGuardianContactInformation [0..*]: ct:PersonDetailsType – specialClassification [0..*]: tep:specialClassificationDefaultValues – situation [1..1]: tep:SituationType – healthCareProvider [1..1]: tep:HealthCareProviderType – patientEncounter [1..1]: tep:PatientEncounterType
Used In	TEPMessage.patient
Requirements Supported	

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Element	patientID
Type	tep:PatientIDType
Usage	REQUIRED; MUST be used at least once [1..*]
Definition	Used to uniquely identify the patient.
Comments	
Constraints	
Valid Values / Examples	
Sub-elements	
Used In	TEPMessage.patient
Requirements Supported	

Element	gender
Type	tep:genderDefaultValues
Usage	REQUIRED; MUST be used once and only once [1..1]
Definition	The patient gender
Comments	Source: NEMSIS v2.2.1
Constraints	
Valid Values / Examples	Male, Female, …
Sub-elements	
Used In	TEPMessage.patient
Requirements Supported	iReq# 11

ElementType	GenderDefaultValues
Type	xsd:enumeration
Definition	Defaults for patient gender
Comments	
Constraints	ct:EDXLStringType
Valid Values / Examples	Male, Female, Unknown, *ExtensionValue*
Sub-elements	
Used In	TEPMessage.patient.gender

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Requirements Supported	iReq# 11

Element	**patientAge**
Type	tep:PatientAgeType
Usage	REQUIRED; MUST be used once, and only once [1..1]
Definition	Pairs age, whether or not the age has been estimated, and the age units used.
Comments	Complex Type top level "PatientAgeType" contains age, estimated, and age units.
Constraints	
Valid Values / Examples	
Sub-elements	
Used In	TEPMessage.patient
Requirements Supported	iReq# 11

Element	**raceEthnicity**
Type	ct:ValueListType
Usage	OPTIONAL; MAY be used once but only once [0..1]
Definition	The patient race/ethnicity as defined by the OMB (US Office of Management and Budget)
Comments	
Constraints	[Allow multiple selections]
Valid Values / Examples	*valueListURI* = urn:myagency:gov:ahrq:ethnicity_en Valid for *value*: White, African American, Asian, Hispanic/Latino.
Sub-elements	– valueListURI [1..1]: ct:ValueListURI – value [1..*]: ct:ValueType
Used In	TEPMessage.patient
Requirements Supported	

Element	**dateOfBirth**
Type	xsd:date
Usage	OPTIONAL; MAY be used once, but only once [0..1]
Definition	The patient's date of birth
Comments	Source: NEMSIS v2.2.1
Constraints	

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Valid Values / Examples	“2001-10-26”
Sub-elements	
Used In	TEPMessage.patient
Requirements Supported	iReq# 11

Element	**personalID**
Type	ct:PersonDetailsType
Usage	OPTIONAL; MAY be used only once [0..*]
Definition	Includes identifying information like name, addresses, contact numbers, email addresses, and personal identifiers.
Comments	ID Number and type of personal ID (e.g. StateIssuing Drivers License) is captured in personal identifiers (PersonDetailsType.Identifiers) TEP may carry multiple forms of identification. This element may also be used in a ContentObject in the DE to uniquely identify attachments and other information such as a photograph. Where possible, an existing vetted list should be offered as defaults, but allow users to extend values on that list, or to use their own value list
Constraints	
Valid Values / Examples	
Sub-elements	
Used In	TEPMessage.patient
Requirements Supported	iReq# 11

Element	**hairColor**
Type	ct:ValueKeyType
Usage	OPTIONAL; MAY be used once, but only once [0..1]
Definition	The patient hair color
Comments	Source: NIEM
Constraints	
Valid Values / Examples	Examples for *value*: Blonde, Black.
Sub-elements	– valueListURI [1..1]: ct:ValueListURI – value [1..1]: ct:ValueType
Used In	TEPMessage.patient
Requirements Supported	iReq# 11

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Element	eyeColor
Type	ct:ValueKeyType
Usage	OPTIONAL; MAY be used once, but only once [0..1]
Definition	The patient eye color
Comments	Source: NIEM
Constraints	
Valid Values / Examples	Examples for *value*: Blue, Brown, Green.
Sub-elements	– valueListURI [1..1]: ct:ValueListURI – value [1..1]: ct:ValueType
Used In	TEPMessage.patient
Requirements Supported	iReq# 11

Element	distinguishingMarks
Type	ct:EDXLStringType
Usage	OPTIONAL; MAY be used once, but only once [0..1]
Definition	Distinguishing marks on the patient
Comments	
Constraints	
Valid Values / Examples	Examples: Birthmark, tattoo, scars.
Sub-elements	
Used In	TEPMessage.patient
Requirements Supported	iReq# 11

Element	fluentSpokenLanguages
Type	ct:ValueListType
Usage	OPTIONAL; MAY be used once, but only once [0..1]
Definition	One or more languages fluently spoken by the patient
Comments	NOTE: Recommend use of the UN list (used in CAP, SitRep or the DE). Format XX-XX
Constraints	[Allow multiple selections]

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Valid Values / Examples	*valueListURI* = urn:myagency:gov:ahrq:languages_en *value*: English, Spanish, ...
Sub-elements	– valueListURI [1..1]: ct:ValueListURI – value [1..*]: ct:ValueType
Used In	TEPMessage.patient
Requirements Supported	iReq# 11

Element	**specialTransportationNeeds**
Type	ct:ValueListType
Usage	OPTIONAL; MAY be used once, but only once [0..1]
Definition	A notation of patient transportation needs based on patient condition or other special needs, to assure safe transport.
Comments	Source: AHRQ Natl Patient / Evacuee Track Sys.
Constraints	[Allow multiple selections]
Valid Values / Examples	*ValueListURI* = urn:myagency:gov:ahrq:specialTransportationNeeds *value*: Advanced Life Support, Basic Life Support, Bariatric, Stretcher Need, Stokes Basket.
Sub-elements	– valueListURI [1..1]: ct:ValueListURI – value [1..*]: ct:ValueType
Used In	TEPMessage.patient
Requirements Supported	iReq# 11

Element	**specialMedicalNeeds**
Type	ct:ValueListType
Usage	OPTIONAL; MAY be used once, but only once [0..1]
Definition	A notation of special medical needs or advanced directives patients may have, such as a DNR to assure that patients with these needs reach a location equipped to meet them.
Comments	Source: AHRQ Natl Patient / Evacuee Track Sys
Constraints	[Allow multiple selections]
Valid Values / Examples	*ValueListURI* = urn:myagency:gov:ahrq:specialMedicalNeeds *value*: ventilator, oxygen, dialysis, Do Not Resuscitate Order.
Sub-elements	– valueListURI [1..1]: ct:ValueListURI – value [1..*]: ct:ValueType
Used In	TEPMessage.patient
Requirements Supported	iReq# 11

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Element	**medicationAllergies**
Type	ct:ValueListType
Usage	OPTIONAL; MAY be used once, but only once [0..1]
Definition	The patient's medication allergies.
Comments	Source: NEMSIS v2.2.1
Constraints	[Allow multiple selections]
Valid Values / Examples	
Sub-elements	– valueListURI [1..1]: ct:ValueListURI – value [1..*]: ct:ValueType
Used In	TEPMessage.patient
Requirements Supported	iReq# 11

Element	**currentMedication**
Type	tep:MedicationType
Usage	OPTIONAL; MAY be used more than once [0..*]
Definition	The medications the patient currently takes.
Comments	Source: NEMSIS v2.2.1
Constraints	
Valid Values / Examples	
Sub-elements	
Used In	TEPMessage.patient
Requirements Supported	iReq# 11

Element	**familyUnificationCode**
Type	ct:EDXLStringType
Usage	OPTIONAL; MAY be used once, but only once [0..1]
Definition	A unique code that is assigned and tracked to individuals believed to be part of the same family unit, designed to link family members to each other. Purpose is to assist family reunification.
Comments	Source: AHRQ Natl Patient / Evacuee Track Sys
Constraints	
Valid Values / Examples	
Sub-elements	

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Used In	TEPMessage.patient
Requirements Supported	iReq# 11

Element	**barriersToPatientCare**
Type	ct:ValueListType
Usage	OPTIONAL; MAY be used once, but only once [0..1]
Definition	A notation of special communication needs to help arrange for translator services or services for hearing or vision impaired persons.
Comments	Source: NEMSIS / HL7, AHRQ Natl Patient / Evacuee Track Sys.
Constraints	[Allow multiple selections]
Valid Values / Examples	*valueListURI* = urn:myagency:gov:ahrq:specialMedicalNeeds *value*: Translator, Hearing Impaired, Vision Impaired.
Sub-elements	– valueListURI [1..1]: ct:ValueListURI – value [1..*]: ct:ValueType
Used In	TEPMessage.patient
Requirements Supported	iReq# 11

Element	**evacuationDestinationRequired**
Type	tep:PatientEvacuationDestinationRequiredDefaultValues
Usage	OPTIONAL; MAY be used once, but only once [0..1]
Definition	A patient status used in hospital, nursing home or other evacuations, to indicate current care requirement, to ensure transfer to an appropriate receiving facility with the same or similar care environment or capability
Comments	Source: AHRQ Natl Patient / Evacuee Track Sys
Constraints	
Valid Values / Examples	
Sub-elements	
Used In	TEPMessage.patient
Requirements Supported	iReq# 11

ElementType	**patientEvacuationDestinationRequiredDefaultValues**
Type	xsd:enumeration
Definition	Defaults for patient evacuation status
Comments	The default values offer a vetted list

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Constraints	ct:EDXLStringType
Valid Values / Examples	ICU, Floor, DischargeReady,
Sub-elements	
Used In	TEPMessage.patient.evacuationDestinationRequired
Requirements Supported	iReq# 11

Element	**patientContactInformation**
Type	ct:PersonDetailsType
Usage	OPTIONAL; MAY be used once, but only once [0..1]
Definition	A patient's contact information.
Comments	
Constraints	
Valid Values / Examples	
Sub-elements	
Used In	TEPMessage.patient
Requirements Supported	iReq# 11

Element	**closestRelativeGuardianContactInformation**
Type	ct:PersonDetailsType
Usage	OPTIONAL; MAY be used more than once [0..*]
Definition	A patient's closest relative, guardian, emergency contact, or attendant’s contact information.
Comments	
Constraints	
Valid Values / Examples	
Sub-elements	
Used In	TEPMessage.patient
Requirements Supported	iReq# 11

Element	**specialClassification**
Type	tep:SpecialClassificationDefaultValues

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Usage	OPTIONAL; MAY be used more than once [0..*]
Definition	Could contain NDMS, specialSecurityNeeds, others..
Comments	Source: AHRQ Natl Patient / Evacuee Track Sys
Constraints	[Allow multiple selections]
Valid Values / Examples	Example for *value*: securitySupervisionNeeds: Indication that a patient may require special security for their own protection or that of others, such as prisoners, psychiatric patients, domestic abuse victims.
Sub-elements	
Used In	TEPMessage.patient
Requirements Supported	iReq# 11

ElementType	**SpecialClassificationDefaultValues**
Type	xsd:enumeration
Definition	Defaults for patient special classification
Comments	The default values offer a vetted list
Constraints	ct:EDXLStringType
Valid Values / Examples	SecuritySupervisionNeeds, NDMSPatient
Sub-elements	
Used In	TEPMessage.patient.specialClassification
Requirements Supported	iReq# 11

Element	**situation**
Type	tep:SituationType
Usage	REQUIRED; Must be used once and only once [1..1]
Definition	Group of elements used to describe the incident associated with the patient
Comments	
Constraints	
Valid Values / Examples	
Sub-elements	
Used In	TEPMessage.patient
Requirements Supported	iReq# 1, 8

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Element	healthCareProvider
Type	tep:HealthCareProviderType
Usage	REQUIRED; Must be used once and only once [1..1]
Definition	Group of elements used for identifying and describing a certified care provider (typically Emergency Medical Services personnel).
Comments	Source: NEMSIS v2.2.1
Constraints	
Valid Values / Examples	
Sub-elements	
Used In	TEPMessage.patient
Requirements Supported	iReq# 9

Element	patientEncounter
Type	tep:PatientEncounterType
Usage	REQUIRED; Must be used once and only once [1..1]
Definition	Group of elements used to describe an instance of an encounter between a patient and an EMS Care Provider.
Comments	
Constraints	
Valid Values / Examples	
Sub-elements	
Used In	TEPMessage.patient
Requirements Supported	iReq# 12

4.4 Situation (Incident)

ElementType	SituationType
Type	xsd:complexType
Definition	Group of elements used to describe the incident associated with the patient
Comments	This element is always paired with incidentID and incidentType whether one or multiple instances of the pairing are used.
Constraints	

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Valid Values / Examples	
Sub-elements	– incidentID [1..*]: tep:IncidentIDType – incidentLocation [1..1]: ct:EDXLLocationType – incidentStartDateTime [0..1]: ct:EDXLDateTimeType – relatedIncidentID [0..*]: ct:EDXLStringType
Used In	TEPMessage.patient.situation
Requirements Supported	iReq# 1, 8

Element	**incidentID**
Type	tep:IncidentIDType
Usage	REQUIRED; MUST be used at least once [1..*]
Definition	Identifies (by name, number or other identifier and type) the incident associated with the patient, to which the current TEP message refers.
Comments	Different agencies or jurisdictions may use different IDs for the incident. TEP may carry more than one.
Constraints	
Valid Values / Examples	
Sub-elements	
Used In	TEPMessage.patient.situation
Requirements Supported	iReq# 1, 8

ElementType	**IncidentIDType**
Type	xsd:complexType
Definition	Groups the name, ID and incident type (kind).
Comments	
Constraints	
Valid Values / Examples	
Sub-elements	– name [1..1]: ct:EDXLStringType – ID [1..1]: ct:EDXLStringType – kind [1..1]: ct:ValueListType – source [1..1] ct:EDXLStringType
Used In	TEPMessage.patient.situation
Requirements Supported	iReq# 1, 8

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Element	name
Type	ct:EDXLStringType
Usage	REQUIRED; MUST be used once and only once [1..1]
Definition	The name assigned to the incident (often by the Incident Commander or Agency).
Comments	Different agencies or jurisdictions may use different names for the incident. TEP may carry one or more.
Constraints	This element is always paired with incidentID.ID, incidentID.kind, and incidentID.source whether one or multiple instances of the pairing are used.
Valid Values / Examples	
Sub-elements	
Used In	TEPMessage.patient.situation.incidentID
Requirements Supported	iReq# 1, 8

Element	ID
Type	ct:EDXLStringType
Usage	REQUIRED; MUST be used once and only once [1..1]
Definition	A number or other identifier of the incident that has been assigned by an authorized agency based on current guidance.
Comments	The ID may vary by jurisdiction and profession (e.g. law enforcement vs. Fire). It may be a computer aided dispatch number, an accounting number, a disaster declaration number, or a combination of the state, unit/agency, and dispatch system number.
Constraints	This element is always paired with incidentID.name, incidentID.kind, and incidentID.source whether one or multiple instances of the pairing are used.
Valid Values / Examples	
Sub-elements	
Used In	TEPMessage.patient.situation.incidentID
Requirements Supported	iReq# 1, 8

Element	kind
Type	ct:ValueListType
Usage	REQUIRED; MUST be used once and only once [1..1]
Definition	General definition, category or kind of the incident.
Comments	
Constraints	This element is always paired with incidentID.name, incidentID.ID, and incidentID.kind

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	whether one or multiple instances of the pairing are used. [Allow multiple selections]
Valid Values / Examples	Example for *value*: CBRNE (Chemical, Biological, Nuclear, Explosives),Natural Disaster, Day to Day, etc.
Sub-elements	– valueListURI [1..1]: ct:ValueListURI – value [1..*]: ct:ValueType
Used In	TEPMessage.patient.situation.incidentID
Requirements Supported	iReq# 1, 8; fReq# 6

Element	**source**
Type	ct:EDXLStringType
Usage	REQUIRED; MUST be used once and only once [1..1]
Definition	The agency or organization that assigned the incident ID
Comments	Different agencies or jurisdictions may use different names for the incident.
Constraints	This element is always paired with incidentID.name, incidentID.ID, and incidentID.kind whether one or multiple instances of the pairing are used.
Valid Values / Examples	
Sub-elements	
Used In	TEPMessage.patient.situation.incidentID
Requirements Supported	

Element	**incidentLocation**
Type	ct:EDXLLocationType
Usage	REQUIRED; MUST be used once and only once [1..1]
Definition	The physical location of the incident.
Comments	Captures location information in a variety of forms including geopolitical (e.g. addresses) and geospatial (e.g. lat/long). Source: NEMSIS v2.2.1
Constraints	
Valid Values / Examples	
Sub-elements	
Used In	TEPMessage.patient.situation
Requirements Supported	

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Element	incidentStartDateTime
Type	ct:EDXLDateTimeType
Usage	OPTIONAL; MAY be used once but only once [0..1]
Definition	The Date and Time the Incident started or was first observed.
Comments	(1) The date and time is represented in [dateTime] format (e. g., "2002-05-24T16:49:00-07:00" for 24 May 2002 at 16: 49 PDT). (2) Alphabetic timezone designators such as “Z” MUST NOT be used. The timezone for UTC MUST be represented as “-00:00” or “+00:00. May come from formal declaration, day to day CAD system etc.
Constraints	
Valid Values / Examples	
Sub-elements	
Used In	TEPMessage.patient.situation
Requirements Supported	iReq# 1, 8

Element	relatedIncidentID
Type	ct:EDXLStringType
Usage	OPTIONAL; MAY be used more than once [0..*]
Definition	Identifier for a large scale incident (e.g. a Hurricane) which the current patient / Care Provider / Incident is associated with in some way.
Comments	
Constraints	
Valid Values / Examples	
Sub-elements	
Used In	TEPMessage.patient.situation
Requirements Supported	iReq# 1, 8

4.5 HealthCareProvider

ElementType	HealthCareProviderType
Type	xsd:complexType
Definition	Group of elements used for identifying and describing a certified care provider (typically Emergency Medical Services personnel)
Comments	

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Constraints	
Valid Values / Examples	
Sub-elements	– providerNumber [1..1]: ct:ValueKeyType – providerName [1..1]: ct:EDXLStringType – providerJurisdiction [1..1]: xal:AddressType – providerCountry [1..1]: ct:ValueKeyType – providerKind [1..1]: ct:ValueListType – providerDomainName [0..1]: ct:EDXLStringType – personnelIDNumber [0..1]: ct:EDXLStringType – personnelJurisdiction [0..1]: xal:AddressType – personnelCertificationLevel [0..1]: ct:ValueListType – transport [0..1]: tep:TransportType
Used In	TEPMessage.patient.healthCareProvider
Requirements Supported	iReq# 9

Element	**providerNumber**
Type	ct:ValueKeyType
Usage	REQUIRED; MUST be used once and only once [1..1]
Definition	The state assigned provider number of the responding agency or hospital
Comments	Source: NEMSIS v2.2.1
Constraints	
Valid Values / Examples	
Sub-elements	– valueListURI [1..1]: ct:ValueListURI – value [1..1]: ct:ValueType
Used In	TEPMessage.patient.healthCareProvider
Requirements Supported	iReq# 9

Element	**providerName**
Type	ct:EDXLStringType
Usage	REQUIRED; MUST be used once and only once [1..1]
Definition	The formal name of the agency or hospital associated with the care provider.
Comments	Source: NEMSIS v2.2.1
Constraints	
Valid Values / Examples	
Sub-elements	

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Used In	TEPMessage.patient.healthCareProvider
Requirements Supported	iReq# 9

Element	**providerJurisdiction**
Type	xal:AddressType
Usage	REQUIRED; MUST be used once and only once [1..1]
Definition	The geographic jurisdiction (state, province, etc.) in which the Agency or Hospital associated with the care provider provides services
Comments	Country and AdministrativeArea are the only two Required elements of AddressType (inherited from CIQ) for use in TEP. Defaults to U.S. States.
Constraints	
Valid Values / Examples	Valid Values: e.g. States such as AL, AK, AZ, etc., Province Name, or other applicable jurisdictions
Sub-elements	
Used In	TEPMessage.patient.healthCareProvider
Requirements Supported	iReq# 9

Element	**providerCountry**
Type	ct:ValueKeyType
Usage	REQUIRED; MUST be used once and only once [1..1]
Definition	
Comments	
Constraints	
Valid Values / Examples	
Sub-elements	– valueListURI [1..1]: ct:ValueListURI – value [1..1]: ct:ValueType
Used In	TEPMessage.patient.healthCareProvider
Requirements Supported	

Element	**providerKind**
Type	ct:ValueListType
Usage	REQUIRED; MUST be used once and only once [1..1]
Definition	The type of service provided by the care provider agency

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Comments	Source: NEMSIS v2.2.1
Constraints	[Allow multiple selections]
Valid Values / Examples	Valid for *value:* ED, EMS, Hospital, Intermediate Care Facility
Sub-elements	– valueListURI [1..1]: ct:ValueListURI – value [1..*]: ct:ValueType
Used In	TEPMessage.patient.healthCareProvider
Requirements Supported	iReq# 9

Element	**providerDomainName**
Type	ct:EDXLStringType
Usage	OPTIONAL; MAY be used once but only once [0..1]
Definition	An agency or hospital identifier based on domain naming convention.
Comments	Next Generation 911 practitioners have indicated that a networking domain-type naming convention is in the process of being implemented for the purpose of identifying emergency responders. Source: NENA-Next Generation 911
Constraints	
Valid Values / Examples	fd.pittsburgh.pa.us
Sub-elements	
Used In	TEPMessage.patient.healthCareProvider
Requirements Supported	iReq# 9

Element	**personnelIDNumber**
Type	ct:EDXLStringType
Usage	OPTIONAL; MAY be used once but only once [0..1]
Definition	State or local Agency / Hospital ID number for the EMS-Care Provider
Comments	Source: NEMSIS v2.2.1
Constraints	
Valid Values / Examples	
Sub-elements	
Used In	TEPMessage.patient.healthCareProvider
Requirements Supported	iReq# 9

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Element	personnelJurisdiction
Type	xal:AddressType
Usage	OPTIONAL; MAY be used once but only once [0..1]
Definition	EMS-Care Provider's jurisdiction of certification or credentialing (state, province, etc.)
Comments	Country and AdministrativeArea are the only two Required elements of AddressType (inherited from CIQ) for use in this element.
Constraints	
Valid Values / Examples	AL, AK, AZ, etc.
Sub-elements	
Used In	TEPMessage.patient.healthCareProvider
Requirements Supported	iReq# 9

Element	personnelCertificationLevel
Type	ct:ValueListType
Usage	OPTIONAL; MAY be used once but only once [0..1]
Definition	The medical certification level of the responding care provider
Comments	
Constraints	[Allow multiple selections]
Valid Values / Examples	Valid for *value*: EMT, Nurse, Doctor
Sub-elements	– valueListURI [1..1]: ct:ValueListURI – value [1..*]: ct:ValueType
Used In	TEPMessage.patient.healthCareProvider
Requirements Supported	iReq# 9

Element	transport
Type	tep:TransportType
Usage	OPTIONAL; MAY be used once but only once [0..1]
Definition	Group of elements used for identifying and describing a conveyance (vehicle) used to transport a patient
Comments	
Constraints	
Valid Values / Examples	

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Sub-elements	
Used In	TEPMessage.patient.healthCareProvider
Requirements Supported	iReq# 10

4.6 Transport

ElementType	**TransportType**
Type	xsd:complexType
Definition	Group of elements used for identifying and describing a conveyance (vehicle) used to transport a patient
Comments	
Constraints	
Valid Values / Examples	
Sub-elements	– unitNumber [0..1]: ct:EDXLStringType – vehicleKind [0..1]: ct:ValueKeyType – vehicleProvider [0..1]: ct:EDXLStringType – vehicleJurisdiction {1..1]: xal:AddressType
Used In	TEPMessage.patient.healthCareProvider.transport
Requirements Supported	iReq# 10

Element	**unitNumber**
Type	ct:EDXLStringType
Usage	CONDITIONAL; MAY be used once but only once [0..1]
Definition	The EMS/Responder vehicle unit number of the vehicle used for patient conveyance.
Comments	Source: NEMSIS v2.2.1
Constraints	CONDITIONAL (If "providerKind" is EMS, then "unitNumber" is REQUIRED)
Valid Values / Examples	
Sub-elements	
Used In	TEPMessage.patient.healthCareProvider.transport
Requirements Supported	iReq# 10

Element	**vehicleKind**

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Type	ct:ValueKeyType
Usage	OPTIONAL; MAY be used once but only once [0..1]
Definition	Vehicle type of responding unit or vehicle of patient conveyance
Comments	Source: NEMSIS v2.2.1
Constraints	
Valid Values / Examples	Examples for *value*: Ambulance, fire truck, bus, helicopter etc.
Sub-elements	– valueListURI [1..1]: ct:ValueListURI – value [1..1: ct:ValueType
Used In	TEPMessage.patient.healthCareProvider.transport
Requirements Supported	iReq# 10

Element	**vehicleProvider**
Type	ct:EDXLStringType
Usage	OPTIONAL; MAY be used once but only once [0..1]
Definition	
Comments	
Constraints	
Valid Values / Examples	
Sub-elements	
Used In	TEPMessage.patient.healthCareProvider.transport
Requirements Supported	iReq# 10

Element	**vehicleJurisdiction**
Type	xal:AddressType
Usage	REQUIRED; MUST be used once and only once [1..1]
Definition	The Jurisdiction (e.g. state, province) in which the vehicle unitNumber is registered
Comments	
Constraints	
Valid Values / Examples	AL, AK, AZ, etc.
Sub-elements	
Used In	TEPMessage.patient.healthCareProvider.transport
Requirements	iReq# 10

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Supported	

4.7 Patient Encounter

ElementType	**PatientEncounterType**
Type	xsd:complexType
Definition	Group of elements used to describe an instance of an encounter between a patient and an EMS Care Provider
Comments	
Constraints	
Valid Values / Examples	
Sub-elements	– encounterID [1..1]: ct:EDXLStringType – encounterDateTime [1..1]: ct:EDXLDateTimeType – locationCategory [1..1]: ct:ValueKeyType – encounterLocation [1..1]: ct:EDXLLocationType – patientCare [1..*]: tep:PatientCareType – patientTransfer [0..*]: tep:PatientTransferType
Used In	TEPMessage.patient.patientEncounter
Requirements Supported	iReq# 12

Element	**encounterID**
Type	ct:EDXLStringType
Usage	REQUIRED; MUST be used once and only once [1..1]
Definition	A unique ID identifying an instance of the first or initial encounter between a patient and an EMS Care Provider
Comments	
Constraints	
Valid Values / Examples	
Sub-elements	
Used In	TEPMessage.patient.patientEncounter
Requirements Supported	iReq# 12

Element	**encounterDateTime**
Type	ct:EDXLDateTimeType

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Usage	REQUIRED; MUST be used once and only once [1..1]
Definition	Date and Time of patient-EMS-Care Provider initial encounter
Comments	(1) The date and time is represented in [dateTime] format (e. g., "2002-05-24T16:49:00-07:00" for 24 May 2002 at 16: 49 PDT). (2) Alphabetic timezone designators such as “Z” MUST NOT be used. The timezone for UTC MUST be represented as “-00:00” or “+00:00.
Constraints	
Valid Values / Examples	
Sub-elements	
Used In	TEPMessage.patient.patientEncounter
Requirements Supported	iReq# 12

Element	**locationCategory**
Type	ct:ValueKeyType
Usage	REQUIRED; MUST be used once and only once [1..1]
Definition	The type of location where EMS-Care Providers encounter the patient
Comments	
Constraints	
Valid Values / Examples	Examples for *value*: Emergency Department, Scene, Intermediate Care, etc.
Sub-elements	– valueListURI [1..1]: ct:ValueListURI – value [1..1]: ct:ValueType
Used In	TEPMessage.patient.patientEncounter
Requirements Supported	iReq# 12

Element	**encounterLocation**
Type	ct:EDXLLocationType
Usage	REQUIRED; MUST be used once and only once [1..1]
Definition	The physical location of the instance of an encounter between a patient and an EMS Care Provider. Capability is required to express and capture location information in a variety of forms including geopolitical (e.g. addresses) and geospatial (e.g. lat/long).
Comments	
Constraints	
Valid Values / Examples	
Sub-elements	

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Used In	TEPMessage.patient.patientEncounter
Requirements Supported	iReq# 12

Element	**patientCare**
Type	tep:PatientCareType
Usage	REQUIRED; MUST be used at least once [1..*]
Definition	Group of elements used to describe Care Provider observations, evaluations, electronic measures and actual treatments and procedures taken for or performed on the patient at a particular point in time.
Comments	
Constraints	
Valid Values / Examples	
Sub-elements	
Used In	TEPMessage.patient.patientEncounter
Requirements Supported	iReq# 14

Element	**patientTransfer**
Type	tep:PatientTransferType
Usage	OPTIONAL; MAY be used more than once [0..*]
Definition	Group of elements used to describe and track physical movement or transport of a patient.
Comments	
Constraints	
Valid Values / Examples	
Sub-elements	
Used In	TEPMessage.patient.patientEncounter
Requirements Supported	iReq# 13

4.8 Patient Care

ElementType	**PatientCareType**
Type	xsd:complexType

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Definition	Group of elements used to describe Care Provider observations, evaluations, electronic measures and actual treatments and procedures taken for or performed on the patient at a particular point in time.
Comments	
Constraints	
Valid Values / Examples	
Sub-elements	– patientCareRecordID [1..1]: ct:EDXLStringType – patientCareRecordDateTime [1..1]: ct:EDXLDateTimeType – triageStatus [1..1]: tep:TriageStatusDefaultValues – patientCurrentDisposition [1..1]: tep: PatientCurrentDispositionDefaultValues – chiefComplaint [0..1]: ct:EDXLStringType – systolicBloodPressure [0..1]: xsd:integer constrained – diastolicBloodPressure [0..1]: xsd:integer constrained – pulseRate [0..1]: xsd:integer constrained – respiratoryRate [0..1]: xsd:integer constrained – cardiacMonitorRhythm [0..1]: ct:ValueListType – twelveLeadECGInterpretation [0..1]: ct:EDXLStringType – pulseOximetry [0..1]: ct:PercentageType – CO2Level [0..1]: xsd:unsignedInteger – bloodGlucoseLevel[0..1]: xsd:integer constrained – temperature [0..1]: ct:DegreesCType – totalGCS [0..1]: xsd:integer constrained – medicationAdministered [0..*]: tep:MedicationType – proceduresPerformed [0..1]: ct:ValueListType – careProviderPrimaryImpression [0..1]: ct:ValueListType – seriousConcerns [0..1]: ct:EDXLStringType – contaminationRadiationContagionStatus [0..1]: xsd:boolean – acsCDCFieldTraumaCriteria [0..1]: xsd:boolean – contigencyMedicalSpecialtyCode [0..1]: tep: ContigencyMedicalSpecialtyCodeDefaultValues
Used In	TEPMessage.patient.patientCare
Requirements Supported	iReq# 14

Element	**patientCareRecordID**
Type	ct:EDXLStringType
Usage	REQUIRED; MUST be used once and only once [1..1]
Definition	A unique ID identifying a patient's care record.
Comments	
Constraints	
Valid Values / Examples	
Sub-elements	
Used In	TEPMessage.patient.patientCare

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Requirements Supported	iReq# 14

Element	**patientCareRecordDateTime**
Type	ct:EDXLDateTimeType
Usage	REQUIRED; MUST be used once and only once [1..1]
Definition	The date and time that any observations, evaluations, electronic measures and actual treatments and procedures were recorded. Also used to uniquely identify the care record, providing the date/time for that set of care attributes.
Comments	(1) For example, this is the dateTime associated with the chief complaint given, and each vital sign taken (heart rate, temperature, blood temperature etc.). (2) The date and time is represented in [dateTime] format (e. g., "2002-05-24T 16:49:00-07:00" for 24 May 2002 at 16: 49 PDT). (3) Alphabetic timezone designators such as “Z” MUST NOT be used. The timezone for UTC MUST be represented as “-00:00” or “+00:00.
Constraints	
Valid Values / Examples	
Sub-elements	
Used In	TEPMessage.patient.patientCare
Requirements Supported	iReq# 14

Element	**triageStatus**
Type	tep:TriageStatusDefaultValues
Usage	REQUIRED; MUST be used once and only once [1..1]
Definition	Triage color for individuals assessed by medical personnel prior to being transported. Triage Status sets priorities for treatment
Comments	Source: AHRQ Natl Patient / Evacuee Track Sys
Constraints	
Valid Values / Examples	
Sub-elements	
Used In	TEPMessage.patient.patientCare
Requirements Supported	iReq# 14

ElementType	**TriageStatusDefaultValues**
Type	xsd:enumeration

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Definition	Defaults for triage status
Comments	The default values offer a vetted list, but allow communities to add extensions
Constraints	ct:EDXLStringType
Valid Values / Examples	Red, Yellow, Green, Blue, Black, Unknown, *ExtensionValue*
Sub-elements	
Used In	TEPMessage.patient.triageStatus
Requirements Supported	iReq# 14

Element	**patientCurrentDisposition**
Type	tep:PatientCurrentDispositionDefaultValues
Usage	REQUIRED; MUST be used once and only once [1..1]
Definition	The state, status or outcome of a patient at the end of emergency care (i.e. at the point of patient admission, transfer, release, death…)
Comments	1. Note that disposition applies at EACH transfer point / encounter, NOT just at the end of the emergency care continuum.
Constraints	
Valid Values / Examples	
Sub-elements	
Used In	TEPMessage.patient.patientCare
Requirements Supported	iReq# 14

ElementType	**PatientCurrentDispositionDefaultValues**
Type	xsd:enumeration
Definition	Defaults for patient disposition
Comments	The default values offer a vetted list, but allow communities to add extensions
Constraints	ct:EDXLStringType
Valid Values / Examples	Discharged, Transferred, Deceased, NoTreatmentRequired, RefusedCare, TreatedAndReleased, TreatedAndTransferredCare, TreatedAndTransported, Admitted, TreatedAndTransportedToHospital, Pending-Ongoing, Unknown, *ExtensionValue*
Sub-elements	
Used In	TEPMessage.patient.patientCare.patientCurrentDisposition
Requirements Supported	iReq# 11

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Element	chiefComplaint
Type	ct:EDXLStringType
Usage	OPTIONAL; MAY be used once but only once [0..1]
Definition	The statement of the problem verbalized by the patient or the care provider in one or two words
Comments	Source: NEMSIS v2.2.1
Constraints	
Valid Values / Examples	
Sub-elements	
Used In	TEPMessage.patient.patientCare
Requirements Supported	iReq# 14

Element	systolicBloodPressure
Type	xsd:integer
Usage	OPTIONAL; MAY be used once but only once [0..1]
Definition	The patient systolic blood pressure
Comments	Source: NEMSIS v2.2.1
Constraints	Restricted to values 0-300
Valid Values / Examples	
Sub-elements	
Used In	TEPMessage.patient.patientCare
Requirements Supported	iReq# 14

Element	diastolicBloodPressure
Type	xsd:integer
Usage	OPTIONAL; MAY be used once but only once [0..1]
Definition	The patient diastolic blood pressure
Comments	
Constraints	Restricted to values 0-300
Valid Values / Examples	
Sub-elements	
Used In	TEPMessage.patient.patientCare

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Requirements Supported	iReq# 14

Element	**pulseRate**
Type	xsd:integer
Usage	OPTIONAL; MAY be used once but[only once 0..1]
Definition	The patient pulse rate, palpated or auscultated, expressed as a number per minute.
Comments	Source: NEMSIS v2.2.1
Constraints	Restricted to values 0-320
Valid Values / Examples	
Sub-elements	
Used In	TEPMessage.patient.patientCare
Requirements Supported	iReq# 14

Element	**respiratoryRate**
Type	xsd:integer
Usage	OPTIONAL; MAY be used once but only once [0..1]
Definition	The patient respiratory rate expressed as a number per minute.
Comments	Source: NEMSIS v2.2.1
Constraints	Restricted to values 0-100
Valid Values / Examples	
Sub-elements	
Used In	TEPMessage.patient.patientCare
Requirements Supported	iReq# 14

Element	**cardiacMonitorRhythm**
Type	ct:ValueListType
Usage	OPTIONAL; MAY be used once but only once [0..1]
Definition	Documentation of a patient's cardiac rhythm.
Comments	Source: NEMSIS v2.2.1
Constraints	[Allow multiple selections]
Valid Values / Examples	Examples for *value*: Ventricular Fibrillation, Normal Sinus Rhythm, etc.

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Sub-elements	– valueListURI [1..1]: ct:ValueListURI – value [1..*]: ct:ValueType
Used In	TEPMessage.patient.patientCare
Requirements Supported	iReq# 14

Element	**twelveLeadECGInterpretation**
Type	ct:EDXLStringType
Usage	OPTIONAL; MAY be used once but only once [0..1]
Definition	The interpretation of the patient's heart rhythm by the ECG device.
Comments	Source: NEMSIS v2.2.1
Constraints	
Valid Values / Examples	
Sub-elements	
Used In	TEPMessage.patient.patientCare
Requirements Supported	iReq# 14

Element	**pulseOximetry**
Type	ct:PercentageType
Usage	OPTIONAL; MAY be used once but only once [0..1]
Definition	The patient oxygen saturation.
Comments	Source: NEMSIS v2.2.1
Constraints	
Valid Values / Examples	
Sub-elements	
Used In	TEPMessage.patient.patientCare
Requirements Supported	iReq# 14

Element	**CO2Level**
Type	xsd:unsignedInt
Usage	OPTIONAL; MAY be used once but only once [0..1]
Definition	The patient's end-tidal or other CO2 level.
Comments	Source: NEMSIS v2.2.1

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Constraints	
Valid Values / Examples	
Sub-elements	
Used In	TEPMessage.patient.patientCare
Requirements Supported	iReq# 14

Element	**bloodGlucoseLevel**
Type	xsd:integer
Usage	OPTIONAL; MAY be used once but only once [0..1]
Definition	The patient blood glucose level.
Comments	Source: NEMSIS v2.2.1
Constraints	Restricted to values 0-500
Valid Values / Examples	
Sub-elements	
Used In	TEPMessage.patient.patientCare
Requirements Supported	iReq# 14

Element	**temperature**
Type	ct:DegreesCType
Usage	OPTIONAL; MAY be used once but only once [0..1]
Definition	The patient body temperature in degrees Celsius/centigrade.
Comments	Source: NEMSIS v2.2.1
Constraints	
Valid Values / Examples	
Sub-elements	
Used In	TEPMessage.patient.patientCare
Requirements Supported	iReq# 14

Element	**totalGCS**
Type	xsd:integer

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Usage	OPTIONAL; MAY be used once but only once [0..1]
Definition	The patient total Glasgow Coma Score (GCS). The GCS is a neurological scale that provides a consistent and objective method of assessing the conscious state of a person. The total score is the sum of the scores in three categories: eye opening response, verbal response, and motor response.
Comments	Source: NEMSIS v2.2.1
Constraints	Restricted to values 3-15
Valid Values / Examples	
Sub-elements	
Used In	TEPMessage.patient.patientCare
Requirements Supported	iReq# 14

Element	**medicationAdministered**
Type	tep:MedicationType
Usage	OPTIONAL; MAY be used more than once [0..*]
Definition	The medication given to the patient.
Comments	Source: NEMSIS v2.2.1
Constraints	
Valid Values / Examples	
Sub-elements	
Used In	TEPMessage.patient.patientCare
Requirements Supported	iReq# 14

Element	**proceduresPerformed**
Type	ct:ValueListType
Usage	OPTIONAL; MAY be used once, but only once [0..1]
Definition	The procedure(s) performed on the patient.
Comments	Source: NEMSIS v2.2.1
Constraints	[Allow multiple selections]
Valid Values / Examples	Examples for *value*: IV, CPR, Endotracheal Tube
Sub-elements	– valueListURI [1..1]: ct:ValueListURI – value [1..*]: ct:ValueType
Used In	TEPMessage.patient.patientCare

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Requirements Supported	iReq# 14

Element	**careProviderPrimaryImpression**
Type	ct:ValueListType
Usage	OPTIONAL; MAY be used once, but only once [0..1]
Definition	The care provider personnel's impression of the patient primary problem or most significant condition which led to the management given to the patient (treatments, medications, or procedures).
Comments	Source: NEMSIS v2.2.1
Constraints	[Allow multiple selections]
Valid Values / Examples	Examples for *value*: Cardiac Arrest, Stroke, etc.
Sub-elements	– valueListURI [1..1]: ct:ValueListURI – value [1..*]: ct:ValueType
Used In	TEPMessage.patient.patientCare
Requirements Supported	iReq# 14

Element	**seriousConcerns**
Type	ct:EDXLStringType
Usage	OPTIONAL; MAY be used once but only once [0..1]
Definition	Free form text field to communicate basic warning factors to Care Providers such as respiratory issues, tourniquet, fracture etc.
Comments	
Constraints	
Valid Values / Examples	
Sub-elements	
Used In	TEPMessage.patient.patientCare
Requirements Supported	iReq# 14

Element	**contaminationRadiationContagionStatus**
Type	xsd:boolean
Usage	OPTIONAL; MAY be used once but only once [0..1]
Definition	A notation that an exposed patient needs to be segregated, quarantined, or decontaminated, to avoid putting others at risk.

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Comments	“true” - Patient may be contaminated/exposed. “false” - Patient has not been contaminated/exposed.
Constraints	
Valid Values / Examples	Valid values: True, False, Unknown
Sub-elements	
Used In	TEPMessage.patient.patientCare
Requirements Supported	iReq# 14

Element	**acsCDCFieldTraumaCriteria**
Type	xsd:boolean
Usage	OPTIONAL; MAY be used once but only once [0..1]
Definition	A set of criteria pertaining to the decision by pre-hospital personnel to transport trauma victims, to a specialized acute care facility (trauma center), versus an undesignated, non-specialized acute care facility. The goal of the decision scheme is to match the clinical needs of an injured patient to the resources and expertise of a given facility to care for them.
Comments	“true” - Transport to trauma center “false” - Transport according to protocol
Constraints	
Valid Values / Examples	Valid values: True, False
Sub-elements	
Used In	TEPMessage.patient.patientCare
Requirements Supported	iReq# 14

Element	**contingencyMedicalSpecialtyCode**
Type	tep:ContingencyMedicalSpecialtyCodeDefaultValues
Usage	OPTIONAL; MAY be used multiple times [0..*]
Definition	A code utilized across jurisdictions which assists patient recipient with determination of the bed or bed type needed to support that patient at destination.
Comments	As Hospital evacuation is part of TEP scope (movement and transport of medical evacuees/patients), in addition to states requesting federal assistance when local and state resources become overwhelmed, often DoD transport is requested, for example for air transport to other states. In this case the element "triageStatus" is not relevant as neither the hospitals use the "red", "yellow", etc. designations for patients in hospitals; nor DoD use or understand those designations. The “Contingency Medical Specialty Code” is an existing element that is utilized and understood across jurisdictions today.
Constraints	

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Valid Values / Examples	
Sub-elements	
Used In	TEPMessage.patient.patientCare
Requirements Supported	

ElementType	**ContingencyMedicalSpecialtyCodeDefaultValues**
Type	xsd:enumeration
Definition	Defaults for contingency medical specialty codes
Comments	The default values offer a vetted list
Constraints	ct:EDXLStringType
Valid Values / Examples	Pediatric, Burn, Psychiatric, MedicalSurge, CriticalCare
Sub-elements	
Used In	TEPMessage.patient.patientCare.contingencyMedicalSpecialtyCode
Requirements Supported	

4.9 Patient Transfer

ElementType	**PatientTransferType**
Type	xsd:complexType
Definition	Group of elements used to describe and track physical movement or transport of a patient.
Comments	
Constraints	
Valid Values / Examples	
Sub-elements	– destinationETA [0..1]: ct:EDXLDateTimeType – destination [1..1]: ct:EDXLLocationType – actualArrivalDateTime [0..1]: ct:EDXLDateTimeType – actualDepartureDateTime [0..1]: ct:EDXLDateTimeType
Used In	TEPMessage.patient.patientEncounter.patientTransfer
Requirements Supported	iReq# 13

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Element	destinationETA
Type	ct:EDXLDateTimeType
Usage	OPTIONAL MAY be used once but only once [0..1]
Definition	Estimated time of arrival at intended destination
Comments	(1) The date and time is represented in [dateTime] format (e. g., "2002-05-24 T 16:49:00-07:00" for 24 May 2002 at 16: 49 PDT). (2) Alphabetic timezone designators such as “Z” MUST NOT be used. The timezone for UTC MUST be represented as “-00:00” or “+00:00.
Constraints	
Valid Values / Examples	
Sub-elements	
Used In	TEPMessage.patient.patientEncounter.patientTransfer
Requirements Supported	iReq# 13

Element	destination
Type	ct:EDXLLocationType
Usage	REQUIRED; MUST be used once and only once [1..1]
Definition	The physical location that the patient is being transferred to. Capability is required to express and capture location information in a variety of forms including geopolitical (e.g. addresses) and geospatial (e.g. lat/long).
Comments	
Constraints	
Valid Values / Examples	
Sub-elements	
Used In	TEPMessage.patient.patientEncounter.patientTransfer
Requirements Supported	iReq# 13

Element	actualArrivalDateTime
Type	ct:EDXLDateTimeType
Usage	OPTIONAL; MAY be used once but only once [0..1]
Definition	The date/time the patient actually arrived at the destination. Business Rule: At this step, would no longer have a destination (it would be wiped out at this point because the patient transfer is completed until the next transfer / destination is defined)
Comments	1. The date and time is represented in [dateTime] format (e. g., "2002-05-24 T 16:49:00-07:00" for 24 May 2002 at 16: 49 PDT). 2. Alphabetic timezone designators such as “Z” MUST NOT be used. The

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	timezone for UTC MUST be represented as “-00:00” or “+00:00.
Constraints	
Valid Values / Examples	
Sub-elements	
Used In	TEPMessage.patient.patientEncounter.patientTransfer
Requirements Supported	iReq# 13

Element	**actualDepartureDateTime**
Type	ct:EDXLdateTimeType
Usage	OPTIONAL; MAY be used once but only once [0..1]
Definition	The date/time the patient departed from the current location
Comments	1. The date and time is represented in [dateTime] format (e. g., "2002-05-24 T 16:49:00-07:00" for 24 May 2002 at 16: 49 PDT). 2. Alphabetic timezone designators such as “Z” MUST NOT be used. The timezone for UTC MUST be represented as “-00:00” or “+00:00.
Constraints	
Valid Values / Examples	
Sub-elements	
Used In	TEPMessage.patient.patientEncounter.patientTransfer
Requirements Supported	iReq# 13

4.10 Patient ID

ElementType	**PatientIDType**
Type	xsd:complexType
Definition	Describes Type and form of personal Identification
Comments	Pairs ID and ID source to uniquely identified patient. ID Number and State Issuing Drivers License is captured in PersonDetailsType – TEP may carry multiple forms of identification. This element may also be used in a <contentObject> in the DE to uniquely identify attachments and other information such as a photograph.
Constraints	
Valid Values / Examples	
Sub-elements	– ID [1..1]: ct:EDXLStringType

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	– source [1..1]: ct:ValueListType
Used In	TEPMessage.patient
Requirements Supported	iReq# 5, 11

Element	**ID**
Type	ct:EDXLStringType
Usage	REQUIRED; MUST be used once and only once [1..1]
Definition	A number or code issued to each patient encountered; used as a unique identifier of the patient. Always paired with source.
Comments	This element is always paired with patientID.source whether one or multiple instances of the pair are used. The patientID.ID element may also be used in a ContentObject in the DE to uniquely identify attachments and other information such as a photograph.
Constraints	
Valid Values / Examples	
Sub-elements	
Used In	TEPMessage.patient.patientID
Requirements Supported	iReq# 5, 11

Element	**source**
Type	ct:ValueListType
Usage	REQUIRED; MUST be used once and only once [1..1]
Definition	A notation identifying the source of the patient's ID, to describe the source (who, what or where) that created the ID.
Comments	This element is always paired with patientID.ID whether one or multiple instances of the pair are used.
Constraints	
Valid Values / Examples	Examples for *value*: State of Maryland, JPTAS System, Hampshire County, WV, State of TN, NDMS etc.
Sub-elements	– valueListURI [1..1]: ct:ValueListURI – value [1..*]: ct:ValueType
Used In	TEPMessage.patient.patientID
Requirements Supported	iReq# 5, 11

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4.11 Patient Age

ElementType	PatientAgeType
Type	xsd:complexType
Definition	Pairs age, whether or not the age has been estimated, and the age units used. • The patient age, either calculated from date of birth or best approximation is appropriate in situations where it is not possible to ascertain exact age. • estimated: valid values Y, N • List of unitsDefaultValues: Default age units
Comments	Complex Type top level "clientAge" contains age, estimated, and ageUnits. Regarding *units/unitsDefault*: *unitsDefault* is a default units list that should be used if possible. If a different list needs to be used or the default list needs to be extended, *units* should be used. Source: NEMSIS v2.2.1
Constraints	
Valid Values / Examples	
Sub-elements	• age [1..1]: xsd:unsignedint • estimated [1..1]: ct:EstimateType • units [1..1]: tep:AgeUnitsDefaultValues
Used In	TEPMessage.patient
Requirements Supported	iReq# 11

Element	age
Type	xsd:unsignedInt
Usage	REQUIRED; MUST be used once and only once [1..1]
Definition	The patient age.
Comments	The patient age, either calculated from date of birth or best approximation is appropriate in situations where it is not possible to ascertain exact age. Source: NEMSIS v2.2.1
Constraints	
Valid Values / Examples	
Sub-elements	
Used In	TEPMessage.patient.patientAge
Requirements Supported	iReq# 11

Element	estimated

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Type	ct:EstimateType
Usage	REQUIRED; MUST be used once and only once [1..1]
Definition	Determines whether age is an estimate or not.
Comments	
Constraints	
Valid Values / Examples	
Sub-elements	
Used In	TEPMessage.patient.patientAge
Requirements Supported	iReq# 11

Element	**units**
Type	tep:AgeUnitsDefaultValues
Usage	REQUIRED; MUST be used once and only once [1..1]
Definition	Determines the units in which the age is documented
Comments	This is a custom list of age units that should be used only when necessary. Source: NEMSIS v2.2.1
Constraints	Alternative to unitsDefault
Valid Values / Examples	
Sub-elements	
Used In	TEPMessage.patient.patientAge
Requirements Supported	iReq# 11

ElementType	**AgeUnitsDefaultValues**
Type	xsd:enumeration
Definition	Defaults for patient age units
Comments	The default values offer a vetted list, but allow communities to add extensions
Constraints	ct:EDXLStringType
Valid Values / Examples	Hours, Days, Months, Years, *ExtensionValue*
Sub-elements	
Used In	TEPMessage.patient.patientAge.units
Requirements Supported	iReq# 11

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4.12 Medication

ElemenType	MedicationType
Type	xsd:complexType
Usage	
Definition	Group of elements used to describe medication and medication usage.
Comments	
Constraints	
Valid Values / Examples	
Sub-elements	– name [1..1]: ct:ValueKeyType – dosage [0..1]: ct:EDXLStringType – route [0..1]: ct:ValueKeyType – frequency [0..1]: ct:EDXLStringType
Used In	TEPMessage.patient.currentMedication; TEPMessage.patient.patientCare.medicationAdministered
Requirements Supported	iReq# 14

Element	name
Type	ct:ValueKeyType
Usage	REQUIRED; MUST be used once and only once [1..1]
Definition	The name of the medication being described.
Comments	
Constraints	
Valid Values / Examples	Examples for *value*: Metformin, Simvastatin
Sub-elements	– valueListURI [1..1]: ct:ValueListURI – value [1..1]: ct:ValueType
Used In	TEPMessage.patient.currentMedication; TEPMessage.patient.patientCare.medicationAdministered
Requirements Supported	iReq# 14

Element	dosage
Type	ct:EDXLStringType
Usage	OPTIONAL; MAY be used once but only once [0..1]

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Definition	The dosage of the medication.
Comments	
Constraints	
Valid Values / Examples	2 tablets
Sub-elements	
Used In	TEPMessage.patient.currentMedication; TEPMessage.patient.patientCare.medicationAdministered
Requirements Supported	iReq# 14

Element	**route**
Type	ct:ValueKeyType
Usage	OPTIONAL; MAY be used once but only once [0..1]
Definition	How the medication should be administered.
Comments	
Constraints	
Valid Values / Examples	Oral, IV
Sub-elements	– valueListURI [1..1]: ct:ValueListURI – value [1..1]: ct:ValueType
Used In	TEPMessage.patient.currentMedication; TEPMessage.patient.patientCare.medicationAdministered
Requirements Supported	iReq# 14

Element	**frequency**
Type	ct:EDXLStringType
Usage	OPTIONAL; MAY be used once but only once [0..1]
Definition	The frequency with which the medication should be administered.
Comments	
Constraints	
Valid Values / Examples	every 24 hours.
Sub-elements	
Used In	TEPMessage.patient.currentMedication; TEPMessage.patient.patientCare.medicationAdministered
Requirements	iReq# 14

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Supported	

4.13 Glossary / List of Acronyms

NOTE: Glossary definitions contained herein are not intended to supersede existing definitions by any other organization or agency. Rather, these glossary items are provided in context of defining the EDXL-TEP draft messaging standard - solely in order to clarify requirements statements.

TERM OR ACRONYM DEFINITION

Ack Acknowledgment

AHRQ Agency for Healthcare Research and Quality

APOE Arial Point of Embarkation

ASPR HHS Assistant Secretary for Preparedness and Response

CAD Computer Aided Dispatch

CAP Common Alerting Protocol

CDC Center For Disease Control

CID Control and Interoperability Division

CIQ Customer Information Quality (a "contact information" standard)

Constraint Schema A constraint schema is simply a subset of the standard reference schema which conforms to all the requirements and business rules of the reference schema. For example, an implementation of the TEP standard may eliminate selected optional elements, or enhance the definition of a required element.

DE Distribution Element

DHS Department of Homeland Security

EDXL Emergency Data eXchange Language

EDXL-DE Emergency Data eXchange Language - Distribution Element

EDXL-HAVE Emergency Data eXchange Language - Hospital aVailability Exchange

EDXL-RM Emergency Data eXchange Language - Resource Messaging

EIC Emergency Interoperability Consortium

Element "Elements" are logical groupings of message elements or "tags" for purposes of defining message structure

ElementType Type description of "element"

EMT Emergency Medical Technician

ER-EHR Emergency Responder Emergency Health Record

ERM Element Reference Model

EMS Emergency Medical Services

ESF Emergency Support Functions

ETA Estimated Time of Arrival

Event For purposes of this messaging standard, "Situations", "Incidents" and "Events" will be referred to generally as "incidents". Situations in this context refer to occurrences of various scales - a collection of happenings, observations and actions that have been correlated on some basis that may

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require resources to perform Public Safety/Emergency/Disaster mitigation, planning and preparation, response or recovery.

It is a generic term referring to occurrences of any scale that may require some form of Emergency Response and Management, and that requires tracking and information exchange. An Event is a planned situation (e.g. a parade in Washington DC). "Event" is also used to refer to a situation that has not been formally identified as an incident. Like an incident, may be assigned an official ID, name or other descriptive attributes. EDXL-TEP may refer to any situation whether an incident, event or other occurrence.

HITSP Health Information Technology Standards Panel

HL7 Health Level Seven ("a reference to the seventh layer of the ISO OSI Reference model also known as the application layer." – http://en.wikipedia.org/wiki/Health_Level_7)

HTTP Hypertext Transfer Protocol

ID Identification

Incident For purposes of this messaging standard, "Situations", "Incidents" and "Events" will be referred to generally as "incidents". Situations in this context refer to occurrences of various scales - a collection of happenings, observations and actions that have been correlated on some basis that may require resources to perform Public Safety/Emergency/Disaster mitigation, planning and preparation, response or recovery.

A Situation can be an incident, an event, or any observable or predictable occurrence. It is a generic term referring to occurrences of any scale that may require some form of Emergency Response and Management, and that requires tracking and information exchange.

"Incident" is viewed from the NIMS Emergency Management perspective as a formal or informal declaration of emergency or disaster by an organization at the state, local, federal level or by a jurisdiction. An incident may be assigned an official ID, name or other descriptive attributes. EDXL-TEP may refer to any situation whether an incident, event or other situation or occurrence.

JPATS Joint Patient Assessment and Tracking System

Jurisdiction In context of emergency response to incidents, "jurisdiction" has two similar definitions:

1. Reference to a geo-political area or location. A jurisdiction is pre-defined physical location or area over which legal authority extends. Though a jurisdiction itself is not a person, role, or title, a jurisdiction has assigned to it one or more government personnel with legal authority for certain types of decision-making such as allocation of emergency resources and invocation of mutual aid agreements.
2. Reference to an organization or agency that has "Authority" over something (such as an incident, or a set of identified resources). Jurisdiction in this sense may be general, such as "federal", "city", or "state", or may be specific agency names such as "Warren County", "US Coast Guard", "Panama City", and "NYPD".

NASEMSO National Association of State EMS Officials

NDMS National Disaster Medical System

NEMSIS National EMS Information System

NIMS National Information Management System

NLE National Level Exercise

OASIS Organization for the Advancement of Structured Information Standards

OIC Office for Interoperability and Compatibility

POC Point of Contact

PRA Patient Reception Area

Profile (Taken from the OGC)

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(Note: Considerable confusion exists in discussion and definition of the concept of a “profile”. The following definition was submitted by the OGC; however reference within this document more closely conforms to the term “constraint schema”.)

A profile of GML can be defined to enhance interoperability and to curtail ambiguity by allowing only a specific subset of GML. Application schemas can then conform to such a profile in order to take advantage of any interoperability or performance advantages that it offers in comparison with a complete GML. Such profiles can be defined for application schemas that are included in other OGC specifications. There are cases where reduced functionality is acceptable, or where processing requirements compel use of a logical subset of GML. For example, applications that do not need to handle XLink attributes in any form can adhere to a specific profile that excludes them; the constraint in this case would be to not use links. Other cases might include defining constraints on the level of nesting allowed inside tags (i.e. tree depth), or only allowing features with homogeneous properties as members of a feature collection. In many cases, such constraints can be enforced via new schemas; others may be enforced through procedural agreements within an information community.

PSG Practitioner Steering Group

RM Resource Messaging (EDXL-RM)

S&T Science and Technology Directorate of DHS

SAFECOM SAFECOM is a communications program within the Office for Interoperability and Compatibility (OIC) that provides research, development, testing and evaluation, guidance, tools and templates on communications-related issues to local, tribal, state, and Federal emergency response agencies working to improve emergency response through more effective and efficient interoperable wireless communications.

SitRep Situation Report

Situation For purposes of this messaging standard, “Situations”, “Incidents” and “Events” will be referred to generally as “incidents”. Situations in this context refer to occurrences of various scales - a collection of happenings, observations and actions that have been correlated on some basis that may require resources to perform Public Safety/Emergency/Disaster mitigation, planning and preparation, response or recovery.

A Situation can be an incident, an event, or any observable or predictable occurrence. It is a generic term referring to occurrences of any scale that may require some form of Emergency Response and Management, and that requires tracking and information exchange.

SOAP Simple Object Access Protocol

TEP Tracking Emergency Patients

SWG Standards Working Group

URN Uniform Resource Name

URI Uniform Resource Identifier

UTC Coordinated Universal Time

XML eXtensible Markup Language

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5 Conformance

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 ac-cording 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.".

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Appendix A Acknowledgments

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Participants:

Patti Aymond, IEM
Rex Brooks, NCOIC
Lizzie DeYoung, The MITRE Corporation
Tim Grapes, Individual
Werner Joerg, IEM
Elysa Jones, Individual
Donald McGarry, The MITRE Corporation
Camille Osterloh, Individual
Robert Torchon, Individual
Jeff Waters, DoD
Brian Wilkins, The MITRE Corporation

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Appendix B XML Schema for EDXL-TEP

The EDXL-TEP-v1.0 XML Schema is provided here for convenience. The schema can be downloaded at the OASIS website:

http://docs.oasis-open.org/emergency/edxl-tep/edxl-tep-v1.0.xsd

(*Note: this address is not yet active*)

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Appendix C XML Schema for EDXL-Extensions

The EDXL-TEP-v1.0 XML Schema imports a separate schema for Extensions

http://docs.oasis-open.org/emergency/edxl-ext/v1.0.xsd

(*Note: this address is not yet active*)

```
<xs:schema xmlns:xs="http://www.w3.org/2001/XMLSchema"  xmlns:ext="urn:oasis:names:tc:emergency:edxl:extension:1.0"  xmlns:ct="urn:oasis:names:tc:emergency:edxl:ct:1.0"
    targetNamespace="urn:oasis:names:tc:emergency:edxl:extension:1.0" elementFormDefault="qualified"  attributeFormDefault="unqualified">
    <xs:import namespace="urn:oasis:names:tc:emergency:edxl:ct:1.0" schemaLocation="./edxl-ct-v1.0-wd05.xsd"/>
    <xs:complexType name="ExtensionType">
        <xs:annotation>
            <xs:documentation>
                Base type to allow communities to extend/augment an EDXL data standard
            </xs:documentation>
        </xs:annotation>
        <xs:sequence>
            <xs:element name="community" type="xs:anyURI">
                <xs:annotation>
                <xs:documentation>Unique identifier of the community</xs:documentation>
                </xs:annotation>
            </xs:element>
            <xs:element name="id" type="xs:anyURI">
                <xs:annotation>
                    <xs:documentation>Unique identifier for this extension</xs:documentation>
                </xs:annotation>
            </xs:element>
            <xs:element name="parameter" type="ext:ParameterType" maxOccurs="unbounded"/>
        </xs:sequence>
    </xs:complexType>
    <xs:complexType name="ParameterType">
        <xs:annotation>
            <xs:documentation>Group of elements used to extend/augment an EDXL data standard
            </xs:documentation>
        </xs:annotation>
        <xs:sequence>
            <xs:element name="nameURI" type="ext:ParameterNameType">
                <xs:annotation>
                    <xs:documentation>Unique identifier of a parameter</xs:documentation>
                </xs:annotation>
            </xs:element>
            <xs:element name="value" type="ext:ParameterValueType" maxOccurs="unbounded"/>
        </xs:sequence>
    </xs:complexType>
    <xs:complexType name="ParameterNameType">
        <xs:simpleContent>
            <xs:extension base="xs:anyURI">
                <xs:attribute name="xPath" type="xs:string" use="optional"/>
            </xs:extension>
        </xs:simpleContent>
    </xs:complexType>
    <xs:complexType name="ParameterValueType">
        <xs:simpleContent>
            <xs:extension base="ct:EDXLStringType">
                <xs:attribute name="uom" type="xs:string" use="optional"/>
            </xs:extension>
        </xs:simpleContent>
    </xs:complexType>
</xs:schema>
```


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Appendix D Revision History

Revision	Date	Editor	Changes Made
edxl-tep-v1.0-wd03	01/11/13	Werner Joerg	Working towards a first full Working Draft
edxl-tep-v1.0-wd04	04/01/13	Werner Joerg	Included EDXL-extension and adapted setup for defaults
edxl-tep-v1.0-wd04	04/22/13	Werner Joerg	Changed layout of Extension section with examples
edxl-tep-v1.0-wd04	05/02/13	Werner Joerg	More examples for Extension

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