

Integrating the Healthcare Enterprise



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**IHE Patient Care Coordination
Technical Framework Supplement**

10

**Routine Interfacility Patient Transport
(RIPT)**

HL7[®] FHIR[®] STU 3

15

Using Resources at FMM Level 0-5

Rev. 1.1 – Trial Implementation

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Please verify you have the most recent version of this document. See [here](#) for Trial Implementation and Final Text versions and [here](#) for Public Comment versions.

Foreword

30 This is a supplement to the IHE Patient Care Coordination Technical Framework V11.0. Each supplement undergoes a process of public comment and trial implementation before being incorporated into the volumes of the Technical Frameworks.

This supplement is published on September 8, 2017 for trial implementation and may be available for testing at subsequent IHE Connectathons. The supplement may be amended based on the results of testing. Following successful testing it will be incorporated into the Patient Care Coordination Technical Framework. Comments are invited and can be submitted at
35 http://www.ihe.net/PCC_Public_Comments.

This supplement describes changes to the existing technical framework documents.

“Boxed” instructions like the sample below indicate to the Volume Editor how to integrate the relevant section(s) into the relevant Technical Framework volume.

<i>Amend Section X.X by the following:</i>
--

40 Where the amendment adds text, make the added text **bold underline**. Where the amendment removes text, make the removed text **~~bold strikethrough~~**. When entire new sections are added, introduce with editor’s instructions to “add new text” or similar, which for readability are not bolded or underlined.

45 General information about IHE can be found at <http://ihe.net>.

Information about the IHE Patient Care Coordination domain can be found at http://ihe.net/IHE_Domains.

Information about the organization of IHE Technical Frameworks and Supplements and the process used to create them can be found at http://ihe.net/IHE_Process and <http://ihe.net/Profiles>.

50 The current version of the IHE Patient Care Coordination Technical Framework can be found at http://ihe.net/Technical_Frameworks.

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Introduction to this Supplement

Whenever possible, IHE profiles are based on established and stable underlying standards. However, if an IHE committee determines that an emerging standard offers significant benefits for the use cases it is attempting to address and has a high likelihood of industry adoption, it may develop IHE profiles and related specifications based on such a standard.

The IHE committee will take care to update and republish the IHE profile in question as the underlying standard evolves. Updates to the profile or its underlying standards may necessitate changes to product implementations and site deployments in order for them to remain interoperable and conformant with the profile in question.

This RIPT Profile uses the emerging HL7^{®1} FHIR^{®2} specification. The FHIR release profiled in this supplement is STU 3. HL7 describes the STU (Standard for Trial Use) standardization state at <https://www.hl7.org/fhir/versions.html>.

In addition, HL7 provides a rating of the maturity of FHIR content based on the FHIR Maturity Model (FMM): level 0 (draft) through 5 (normative ballot ready). The FHIR Maturity Model is described at <http://hl7.org/fhir/versions.html#maturity>.

Key FHIR STU 3 content, such as Resources or ValueSets, used in this profile, and their FMM levels are:

FHIR Resource Name	FMM Level
Patient	5
RelatedPerson	2
Coverage	2
Practitioner	3
Claim	2
AllergyIntolerance	3
Procedure	3
Immunization	3
MedicationStatement	3
ClinicalImpression	0
DiagnosticOrder	5
DiagnosticReport	3
ImagingStudy	3
Observation	5
Condition	3
Location	3

¹ HL7 is the registered trademark of Health Level Seven International.

² FHIR is the registered trademark of Health Level Seven International.

175 When a professional transport takes place, there is information that needs to be recorded into a transport organization’s patient record, needed for patient care that is not electronically available to the transport team. Much of the information is currently available in standard formats in electronic discharge summaries used in US, Canada and European healthcare settings using the HL7 CDA^{®3} Release 2.0 Standard. Other standards, such as HL7 FHIR resources could also be used to communicate this information between the discharging facility and EMS transport company. The way that the transport company is contacted for the transport is out of the scope of this profile

180 The use of electronic transfer summaries benefits both hospitals and transport companies by decreasing staff time used to communicate such information, and hospitals will further benefit in reduced patient wait times for transfers and increase bed availability that could result from this time efficient transfer of this information. IHE is an excellent venue to solve this problem because it already has substantial experience with the standards that will be used and the necessary content and the knowledge of CDA-based discharge summaries (e.g., MS XPHR). IHE will also provide a mechanism for Transport system vendors and Hospital system vendors to establish and test a solution. Much of the content is already in the current, real world, EMR systems in hospitals and patient care facilities. This is regularly used when a patient is being transferred from a hospital into the rehab facility where the patient information is electronically sent to the facility that the patient is going to go into. This system can then be reused to fulfill transport system information needs.

Open Issues and Questions

1. How can we reuse transactions and create transactions based on its use in QEDm?
- 195 2. Patient Medical History and risk factors map to multiple FHIR resources: Procedures, conditions, date of onset.
3. Should we subsume the mappings in the ETS and ITS Profiles into this profile and deprecate them?
4. There is a FHIR resource gap for Transport instructions.
- 200 5. Should the Transport Data Consumer and Transport Data Responder Actors have a more generic name such as Data Consumer and Data Responder?
6. There is no LOINC code for Revised Trauma Score.
7. Cannot find the NEMESIS copyright statement.

Closed Issues

- 205 1. (2/7/2017) Profile needs to be renamed to become more universal.
The committee discussed and agreed on the profile renaming to Routine Interfacility patient Transport (RIPT).

³ CDA is the registered trademark of Health Level Seven International.

- 210
2. (4/27/2017) There is no CDA section for “the Certificate of Medical Necessity” and no FHIR source to match it.
The committee discussed and agreed to create a CDA section in the Profile for the “Certificate of Medical Necessity”. The FHIR source for it will be composition.type.
3. (4/27/2017) There is no CDA section for “Transport Instructions”.
The Committee discussed and agreed to create a CDA section for “Transport Instructions”.
- 215
4. (4/27/2017) Should patient matching be profiled in this due to possibility of MRN not being sent over properly?
The Committee discussed and agreed that this is out of scope for this profile.
5. (4/27/2017) Do we use the term query or retrieve in transaction titles?
The Committee discussed and agreed that the term “query” is the most appropriate as the
- 220
6. (4/27/2017) There are some attributes in this profile hat are not included in NEMESIS.
The committee discussed and agreed to include these attributes in the profile and that it is up to NEMESIS to make the custom elements to absorb it.
- 225
7. (4/27/2017) Is it the responsibility of the content creator or the content consumer to map to the custom the NEMESIS defined codes?
The Committee discussed and agreed that it will be the responsibility of the implantation to create the mapping required for the custom NEMESIS codes.

230 **General Introduction**

Update the following Appendices to the General Introduction as indicated below. Note that these are not appendices to Volume 1.

Appendix A – Actor Summary Definitions

235 *Add the following actors to the IHE Technical Frameworks General Introduction list of actors:*

Actor	Definition
Transport Data Responder	Responds to a query for clinical content, supplying reconciled lists.
Transport Data Consumer	Queries for Transport data

Appendix B – Transaction Summary Definitions

240 *Add the following transactions to the IHE Technical Frameworks General Introduction list of Transactions:*

Transaction	Definition
Query for Transport Data [PCC-62]	Queries for transport data and patient information elements using a query/response.

Glossary

245 *Add the following glossary terms to the IHE Technical Frameworks General Introduction Glossary:*

No new Glossary terms

Volume 1 – Profiles

Copyright Licenses

250 See open issues (NEMESIS)

Add the following to the IHE Technical Frameworks General Introduction Copyright section:

Add new Section X...

255

X Routine Interfacility Patient Transport (RIPT) Profile

260 Transport organizations must record information about patients being transferred under their care so that the organizations can minimize errors in their patient care record and the patient can have accurate and an appropriate level of care for their condition. This information is either gathered verbally through nursing staff or by perusing extensive paperwork to find the information needed for the transport patient care record. Once the transport is completed, the same information is also communicated as part of the transport summary. While this is often done in electronic information systems today, a lack of standards means that duplicate entry is commonplace, 265 leading to a higher chance for data entry errors by transport staff. In fact, there is approximately a 67% error associated with manual entry of patient information transferred into an electronic system, not to mention various other errors when there are misspellings⁴. Creating a patient summary for the transport team is a low-cost approach that builds on existing functionality as it reuses much of the information that is typically documented in hospital systems today. This will 270 make it easy to find an efficient way to transfer information that is already in the EMR system and only needs to be efficiently transferred to another system.

Once the current transfer of information issue is solved, the transport team’s time spent gathering information in the hospital can be greatly reduced and the team can spend more time providing care to the patient, rather than spending prolonged periods of time searching for, and manually 275 re-entering, the needed information for patient transport and informed patient care. Improved throughput for Emergency Department (ED) and inpatient bed availability become a hospital benefit, by creating a faster turnover rate for hospital discharge. This profile specifies the CDA and FHIR transactions that will be used to carry out this transaction. The exchange of the patient identifier is out of scope for this profile. This must be determined by the implementation (e.g., 280 out of band, PIX, PDQ).

X.1 RIPT Actors, Transactions, and Content Modules

This section defines the actors, transactions, and/or content modules in this profile. General definitions of actors are given in the Technical Frameworks General Introduction Appendix A at http://ihe.net/Technical_Frameworks.

285 Figure X.1-1 shows the actors directly involved in the RIPT Profile and the relevant transactions between them. If needed for context, other actors that may be indirectly involved due to their participation in other related profiles are shown in dotted lines. Actors which have a mandatory grouping are shown in conjoined boxes.

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⁴ Retrieved 1/15/2017 from <http://www.medscape.com/viewarticle/834566>



Figure X.1-1: RIPT Actor Diagram



Figure X.1-2: RIPT Actor Diagram

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Table X.1-1 lists the transactions for each actor directly involved in the RIPT Profile. To claim compliance with this profile, an actor shall support all required transactions (labeled “R”) and may support the optional transactions (labeled “O”).

300

Table X.1-1: RIPT Profile - Actors and Transactions

Actors	Transactions	Optionality	Reference
Content Creator	Document Sharing [PCC-1]	R	PCC TF-2: 3.1
Content Consumer	Document Sharing [PCC-1]	R	PCC TF-2: 3.1
Transport Data Consumer	Query for Transport Data [PCC-62]	R	PCC TF-2: 3.62
Transport Data Responder	Query for Transport Data [PCC-62]	R	PCC TF-2: 3.62

A product implementation using this profile must group actors from this profile with actors from a workflow or transport profile to be functional. The grouping of the content module described in this profile to specific actors is described in more detail in the “Required Actor Groupings” section below.

305

Table X.1-2 lists the content module(s) defined in the RIPT Profile. To claim support with this profile, an actor shall support all required content modules (labeled “R”) and may support optional content modules (labeled “O”).

310

Table X.1-2: RIPT Profile - Actors and Content Modules

Actors	Content Modules	Optionality	Reference
Content Creator	Content Module 1 Transport Data Summary and Template ID	R	PCC TF-3: 6.3.1.D

Actors	Content Modules	Optionality	Reference
Content Consumer	Content Module 1 Transport Data Summary and Template ID	O	PCC TF-3: 6.3.1.D

X.1.1 Actor Descriptions and Actor Profile Requirements

Most requirements are documented in Transactions (Volume 2) and Content Modules (Volume 3). This section documents any additional requirements on profile’s actors.

315 X.1.1.1 Content Creator

The Content Creator shall be responsible for the creation of content and transmission of a RIPT document to a Content Consumer. Detailed rules for the RIPT content document are fully defined in PCC TF-3: 6.3.1.D

X.1.1.2 Content Consumer

320 A Content Consumer is responsible for viewing, importing, or other processing options for RIPT content created by a RIPT Content Creator.

X.1.1.3 Transport Data Consumer

325 The Transport Data Consumer is responsible for initiating a query to the provider’s EMR system for documents meeting certain criteria and can retrieve selected documents supplied by the Transport Data Responder.

X.1.1.4 Transport Data Responder

The Transport Data Responder is responsible for receiving a query supplied by the Transport Data Consumer and produces and publishes documents.

X.2 RIPT Actor Options

330 Options that may be selected for each actor in this profile, if any, are listed in the Table X.2-1. Dependencies between options when applicable are specified in notes.

Table X.2-1: Routine Interfacility Patient Transport - Actors and Options

Actor	Option Name	Reference
Transport Data Consumer	No options defined	--
Transport Data Responder	No options defined	--
Content Creator	No options defined	--
Content Consumer	View Option (see Note 1)	PCC TF-2: 3.1.1
	Document Import Option (see Note 1)	PCC TF-2: 3.1.2
	Section Import Option (see Note 1)	PCC TF-2: 3.1.3

Actor	Option Name	Reference
	Discrete Data Import Option (see Note 1)	PCC TF-2: 3.1.4

Note 1: Implementer SHALL implement at least one of these options.

X.2.1 RIPT Option Name

335 There are no options defined by this profile

X.3 RIPT Required Actor Groupings

There are no required actor groupings for this profile

X.4 RIPT Overview

340 Patient discharge is shown using FHIR transactions and CDA documents to make the flow of the patient information from the hospital to the transport team paperless. This reduces the time spent gathering information and errors developed through manual input of the information.

X.4.1 Concepts

345 Transport companies’ main goal is to transport a patient from point A to point B while caring for any of the patient’s medical needs. In the absence of interoperability, when a patient needs a medical transport, the transport providers are required to develop a patient record using the information found in the discharge summary. If done manually inputting this information often takes 30 minutes and creates a lag in the discharge process and increases the amount of time that the transport team spends on each call.

X.4.2 Use Cases

350 X.4.2.1 Use Case #1: Hospital Discharge to Transport with information Query

The use case describes the discharge process in a hospital after treatment has been carried out using an information query for the transfer of patient information.

X.4.2.1.1 Hospital Discharge to Transport Use Case Description with information Query

355 Alison Patel, a 28-year-old female, is going home from the hospital after having an infection due to systemic fibrosis. The doctors prescribed oxygen after treatment, and call a transport company to take her to rehab. Alison is a paraplegic and is wheelchair bound. Due to the prescribed oxygen, there needs to be monitoring for her transport. The transport provider system queries the hospital medical record system for the needed patient information. The information is then
360 available to the transport provider system where it is retrieved to populate the patient information record for the transport. The contacted transport care team arrives on scene for the transport, prepared with portable oxygen. The R.N. transfers care to the transport team who then goes into Alison’s room to meet her. The transport is then carried out.

X.4.2.1.2 Hospital Discharge to Transport Using Information Query Process Flow

365

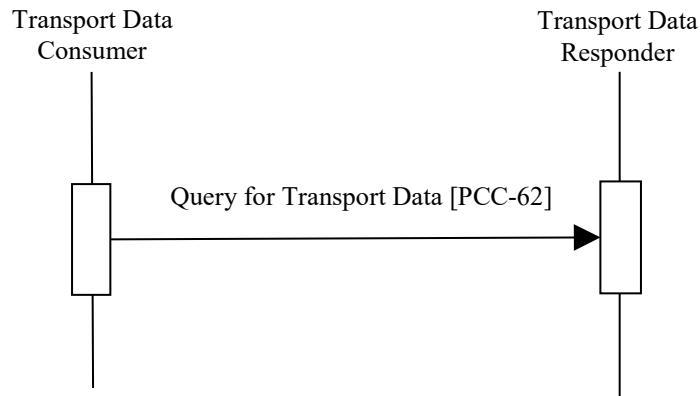


Figure X.4.2.1.2-1: Basic Process Flow in Discharge to Transport Using FHIR Profile

Pre-conditions:

1. Hospital EMR has patient information in the system
- 370 2. Physician Clears Patient for discharge
3. Transport provider is contacted and minimum required patient data is shared with the transport provider (name, gender, date of birth, MRN)
4. The pickup time is arranged
- 375 5. Transport patient care record is ready to retrieve information and both the EMR and patient care record have an established XD* infrastructure.

Main Flow:

1. Transport teams arrives at the pick-up location and queries the patient information from the Hospital EMR to populate the patient care record system.
2. Transport team receives nurse report and transfer of care
- 380 3. Patient contact is made and transport is started

Post-conditions:

1. Patient information is updated in the patient care record system during transport.
2. Patient is transferred to the care of the drop-off facility staff.

X.4.2.2 Use Case #2: Emergency Transport from Long-Term Care Facility

385 The use case describes the Emergency process at a long-term care facility when a transport to a hospital is needed and carried out.

X.4.2.2.1 Emergency Transport from Long-Term Care Facility Use Case Description

390 John Smith, an 87-year-old male living in a long-term care facility. The patient is suffering from a cardiac event and an emergency transport is needed. The long-term care facility contacts a transport provider and generates an electronic patient summary. The contracted transport care team arrives on scene for the transport. The long-term care facility provides the transport team with the transport summary CDA document. The electronic patient information consumed into their patient care system. The nurse transfers care to the transport team and the team takes the
395 necessary care for the patient’s condition and starts the transport.

X.4.2.2.2 Hospital Discharge to Transport Using CDA Process Flow



400 **Figure X.4.2.2.2-1: Basic Process Flow in Discharge to Transport Using CDA Profile**

Pre-conditions:

1. The long-term care facility EMR has patient information in the system
2. Patient is considered to have an emergency event and a hospital trip needs to be made
3. Transport provider is contacted and minimum required patient data is shared with the transport provider (name, gender, date of birth, MRN)
4. Transport patient care record is ready to consume information and both the EMR and patient care record have an established XD* infrastructure.

Main Flow:

1. Transport teams arrives at pick-up location and imports the patient information into the patient care record system.
2. Transport team receives nurse report and transfer of care
3. Patient contact is made and transport is started

Post-conditions:

1. Patient information is updated in the patient care record system during transport.
- 415 2. Patient is transferred to the care of the closest appropriate hospital staff.

X.5 RIPT Security Considerations

Actors in the RIPT Profile create, modify, and consume patient demographics, clinical and administrative information which includes personally identifiable health information. This information must be protected against unauthorized access, modification or tampering. This profile recommends but does not require that connections between actors be grouped with the Secure Node or Secure Application Actors from the IHE ATNA Profile.

420

These actors ensure appropriate user authentication and authorization to access the application and protect personally identifiable health information against unauthorized access, modification or tampering while the information is in transit.

425

The security considerations for a content module are dependent upon the security provisions defined by the grouped actor(s). There may be jurisdictional restrictions on some patient content available to transport systems.

X.6 RIPT Cross Profile Considerations

The use of the IHE XD* family of transactions is encouraged to support standards-based interoperability between systems acting as the RIPT Content Creator and RIPT Content Consumer. However, this profile does not require any groupings with ITI XD* actors to facilitate transport of the content document it defines. Below is a summary of recommended IHE transport transactions that MAY be utilized by systems playing the roles of RIPT Content Creator or RIPT Content Consumer to support the standard use case defined in this profile:

430

435

- A Document Source in XDS.b, a Portable Media Creator in XDM, or a Document Source in XDR might be grouped with the RIPT Content Creator. A Document Consumer in XDS.b, a Portable Media Importer in XDM, or a Document Recipient in XDR might be grouped with the RIPT Content Consumer. A registry/repository-based infrastructure is defined by the IHE Cross Enterprise Document Sharing (XDS.b) that includes profile support that can be leveraged to facilitate retrieval of public health related information from a document sharing infrastructure: Multi-Patient Query (MPQ), and Document Metadata Subscription (DSUB).

440

445

- A reliable messaging-based infrastructure is defined by the IHE Cross Enterprise Document Reliable Interchange (XDR) Profile. Document Source in XDR might be grouped with the RIPT Content Creator. A Document Recipient in XDR might be grouped with the RIPT Content Consumer.

Detailed descriptions of these transactions can be found in the IHE IT Infrastructure Technical Framework.

X.7 RIPT Data Elements

- 450 This profile defines specific data element content. These data elements are used to create the Transport Data. This set of data elements in the form are identified and defined in Appendix A.

Appendices

455 Appendix A – Required Data Elements for Transport Summary

A.1 Data Elements Table

Transport Data		NEMESIS Reference	Definition
Patient	Last Name	Version2 Element - E06_01	The patient's last (family) name
	First Name	Version2 Element - E06_02	The patient's first (given) name
	Middle Initial/Name	Version2 Element - E06_03	The patient's middle name, if any
	Home Address	Version2 Element - E06_04	Patient's address of residence
	Home City	Version2 Element - E06_05	The patient's primary city or township of residence.
	Home Country	Version2 Element - E06_06	The patient's home county or parish of residence.
	Home State	Version2 Element - E06_07	The state, territory, or province where the patient resides.
	Home Zip code	Version2 Element - E06_08	The patient's ZIP code of residence.
	Country of Residence	Version2 Element - E06_09	The country of residence of the patient.
	Social Security Number	Version2 Element - E06_10	The patient's social security number
	Gender	Version2 Element - E06_12	The Patient's Gender
	Race	Version2 Element - E06_13	The patient's race as defined by the OMB (US Office of Management and Budget)
Billing/Payment	Primary Method of Payment	Version2 Element - E07_01	The primary method of payment or type of insurance associated with this EMS encounter
	Physician Certification Statement Signed	Version2 Element - E07_02	Indication of whether a physician certification statement (PCS) is available documenting the medical necessity or the EMS encounter.
	Date Physician Certification Statement Signed	None	The date the Physician Certification Statement was signed
	Reason for Physician Certification Statement	None	The reason for EMS transport noted on the Physician Certification Statement
	Healthcare Provider Type Signing Physician Certification Statement	None	The type of healthcare provider who signed the Physician Certification Statement
	Last Name of Individual Signing Physician Certification Statement	None	The last name of the healthcare provider who signed the Physician Certification Statement.
	First Name of Individual Signing Physician Certification Statement	None	The first name of the healthcare provider who signed the Physician Certification Statement.
	Insurance Company ID	Version2 Element - E07_03	The ID Number of the patient's insurance company.

IHE Patient Care Coordination Technical Framework Supplement – Routine Interfacility Patient Transport (RIPT)

Transport Data		NEMESIS Reference	Definition
	Insurance Company Name	None	The name of the patient's insurance company.
	Insurance Company Billing Priority	Version2 Element - E07_04	The billing priority or order for the insurance company.
	Insurance Company Address	Version2 Element - E07_05	The mailing address of the Insurance Company
	Insurance Company City	Version2 Element - E07_06	The insurance company's city or township used for mailing purposes.
	Insurance Company State	Version2 Element - E07_07	The insurance company's state, territory, or province, or District of Columbia.
	Insurance Company Zip code	Version2 Element - E07_08	The insurance company's ZIP Code
	Insurance Company Country	None	The insurance company's country
	Insurance Group ID	Version2 Element - E07_09	The ID number of the patient's insurance group
	Insurance Policy ID Number	Version2 Element - E07_10	The ID number of the patient's insurance policy
	Last Name of the Insured	Version2 Element - E07_11	The last (family) name of the person insured by the insurance company.
	First Name of the Insured	Version2 Element - E07_12	The first (given) name of the person insured by the insurance company
	Middle initial/name of the Insured	Version2 Element - E07_13	The middle name, if any, of the person insured by the insurance company.
	Relationship to the Insured	Version2 Element - E07_14	The relationship of the patient to the primary insured person
	Closest Relative/Guardian Last Name	Version2 Element - E07_18	The last (family) name of the patient's closest relative or guardian
	Closest Relative/Guardian First Name	Version2 Element - E07_19	The first (given) name of the patient's closest relative or guardian
	Closest Relative/Guardian Middle Initial/Name	Version2 Element - E07_20	The middle name/initial, if any, of the closest patient's relative or guardian.
	Closest Relative/Guardian Street Address	Version2 Element - E07_21	The street address of the residence of the patient's closest relative or guardian
	Closest Relative/Guardian City	Version2 Element - E07_22	The primary city or township of residence of the patient's closest relative or guardian.
	Closest Relative/Guardian State	Version2 Element - E07_23	The state of residence of the patient's closest relative or guardian.
	Closest Relative/Guardian Zip code	Version2 Element - E07_24	The ZIP Code of the residence of the patient's closest relative or guardian.
	Closest Relative/Guardian Country	None	The country of residence of the patient's closest relative or guardian.
	Closest Relative/Guardian Phone Number	Version2 Element - E07_25	The phone number of the patient's closest relative or guardian
	Closest Relative/Guardian Relationship	Version2 Element - E07_26	The relationship of the patient's closest relative or guardian

IHE Patient Care Coordination Technical Framework Supplement – Routine Interfacility Patient Transport (RIPT)

Transport Data		NEMESIS Reference	Definition
	Patient's Employer	Version2 Element - E07_27	The patient's employers Name
	Patient's Employer's Address	Version2 Element - E07_28	The street address of the patient's employer
	Patient's Employer's City	Version2 Element - E07_29	The city or township of the patient's employer used for mailing purposes
	Patient's Employer's State	Version2 Element - E07_30	The state of the patient's employer
	Patient's Employer's Zip code	Version2 Element - E07_31	The ZIP Code of the patient's employer
	Patient's Employer's Country	None	The country of the patient's employer
	Patient's Employer's Primary Phone Number	Version2 Element - E07_32	The employer's primary phone number.
	Incident Facility or Location Name	None	The name of the facility, business, building, etc. associated with the scene of the EMS event.
History	Last Name of Patient's Practitioner	Version2 Element - E12_01	Indication of whether or not there were any patient specific barriers to serving the patient at the scene
	First Name of Patient's Practitioner	Version2 Element - E12_06	The last name of the patient's practitioner
	Middle Initial/Name of Patient's Practitioner	Version2 Element - E12_04	The first name of the patient's practitioner
	Advanced Directives	Version2 Element - E12_07	The presence of a valid DNR form, living will, or document directing end of life or healthcare treatment decisions.
	Medication Allergies	Version2 Element - E12_08	The patient's medication allergies
	Environmental/Food Allergies	Version2 Element - E12_09	The patient's known allergies to food or environmental agents/
	Medical/Surgical History	Version2 Element - E12_10	The patient's pre-existing medical and surgery history of the patient
	The Patient's Type of Immunization	Version2 Element - E12_12	The immunization type of the patient.
	Immunization Year	Version2 Element - E12_13	The year associated with each immunization type
	Current Medications	Version2 Element - E12_14	The medications the patient currently takes
	Current Medication Dose	Version2 Element - E12_15	The numeric dose or amount of the patient's current medication
	Current Medication Dosage Unit	Version2 Element - E12_16	The dosage unit of the patient's current medication
	Current Medication Administration Route	Version2 Element - E12_17	The administration route (po, SQ, etc.) of the patient's current medication
	Pregnancy	Version2 Element - E12_20	Indication of the possibility by the patient's history of current pregnancy.

IHE Patient Care Coordination Technical Framework Supplement – Routine Interfacility Patient Transport (RIPT)

Transport Data		NEMESIS Reference	Definition
Vitals	Date/Time Vital Signs Taken	Version2 Element - E14_01	The date/time vital signs were taken on the patient.
	Cardiac Rhythm / Electrocardiography (ECG)	Version2 Element - E14_02	Indicates that the information which is documented was obtained prior to the documenting EMS units care.
	ECG Type	Version2 Element - E14_03	The cardiac rhythm / ECG and other electrocardiography findings of the patient as interpreted by EMS personnel.
	Method of ECG Interpretation	None	The method of ECG interpretation.
	SBP (Systolic Blood Pressure)	Version2 Element - E14_04	The patient's systolic blood pressure.
	DBP (Diastolic Blood Pressure)	Version2 Element - E14_05	The patient's diastolic blood pressure.
	Method of Blood Pressure Measurement	Version2 Element - E14_06	Indication of method of blood pressure measurement.
	Heart Rate	Version2 Element - E14_07	The patient's heart rate expressed as a number per minute.
	Pulse Oximetry	Version2 Element - E14_09	The patient's oxygen saturation.
	Pulse Rhythm	Version2 Element - E14_10	The clinical rhythm of the patient's pulse.
	Respiratory Rate	Version2 Element - E14_11	The patient's respiratory rate expressed as a number per minute.
	Respiratory Effort	Version2 Element - E14_12	The patient's respiratory effort.
	Blood Glucose Level	Version2 Element - E14_14	The patient's blood glucose level.
	Glasgow Coma Score-Eye	Version2 Element - E14_15	The patient's Glasgow Coma Score Eye opening.
	Glasgow Coma Score-Verbal	Version2 Element - E14_16	The patient's Glasgow Coma Score Verbal.
	Glasgow Coma Score-Motor	Version2 Element - E14_17	The patient's Glasgow Coma Score Motor
	Glasgow Coma Score-Qualifier	Version2 Element - E14_18	Documentation of factors which make the GCS score more meaningful.
	Total Glasgow Coma Score	Version2 Element - E14_19	The patient's total Glasgow Coma Score
	Temperature	Version2 Element - E14_20	The patient's body temperature in degrees Celsius/centigrade.
	Temperature Method	Version2 Element - E14_21	The method used to obtain the patient's body temperature.
Level of Responsiveness (AVPU)	Version2 Element - E14_22	The patient's highest level of responsiveness.	
Pain Scale Score	Version2 Element - E14_23	The patient's indication of pain from a scale of 0-10.	

IHE Patient Care Coordination Technical Framework Supplement – Routine Interfacility Patient Transport (RIPT)

Transport Data		NEMESIS Reference	Definition
	Pain Scale Type	None	The type of pain scale used.
	Stroke Scale Score	Version2 Element - E14_24	The findings or results of the Stroke Scale Type (eVitals.30) used to assess the patient exhibiting stroke-like symptoms.
	Reperfusion Checklist	Version2 Element - E14_25	The results of the patient's Reperfusion Checklist for potential Thrombolysis use.
	APGAR	Version2 Element - E14_26	The patient's total APGAR score (0-10).
	Revised Trauma Score	Version2 Element - E14_27	The patient's Revised Trauma Score.
Labs	Laboratory Result Type	None	The type of the laboratory value.
	Laboratory Result	None	The value or result of the laboratory test (Units may vary).
	Imaging Study File or Waveform Graphic Type	None	The description of the image study file or waveform graphic stored in Imaging Study File or Waveform Graphic (eLabs.08)
	Imaging Study File or Waveform Graphic	None	The imaging study file
Destination	Destination Street Address	Version2 Element - E20_03	The street address of the destination the patient was delivered or transferred to
	Destination City	Version2 Element - E20_04	The city of the destination the patient was delivered or transferred to (physical address).
	Destination State	Version2 Element - E20_05	The state of the destination the patient was delivered or transferred to.
	Destination County	Version2 Element - E20_06	The destination county in which the patient was delivered or transferred to.
	Destination ZIP Code	Version2 Element - E20_07	The destination ZIP code in which the patient was delivered or transferred to.
	Destination Country	None	The country of the destination.

Volume 2 – Transactions

460 *Add Section 3.62*

3.62 Query for Transport Data [PCC-62]

The Transport Data Consumer retrieves specific patient information from the Transport Data Responder.

3.62.1 Scope

465 This transaction is used to connect transport systems to patient care facility systems.

3.62.2 Actor Roles

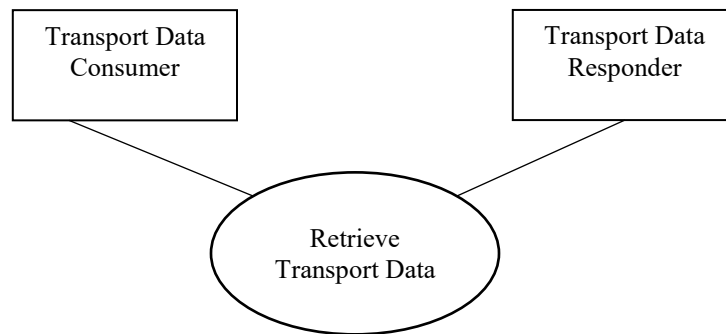


Figure 3.62.2-1: Use Case Diagram

470 The roles in this transaction are defined in the following table and may be played by the actors shown here:

Table 3.62.2-1: Actor Roles

Actor:	Transport Data Consumer
Role:	Transport provider sends a Query request for required transport information.
Actor:	Transport Data Responder
Role	Transport Responder provides the information requested in the Query.

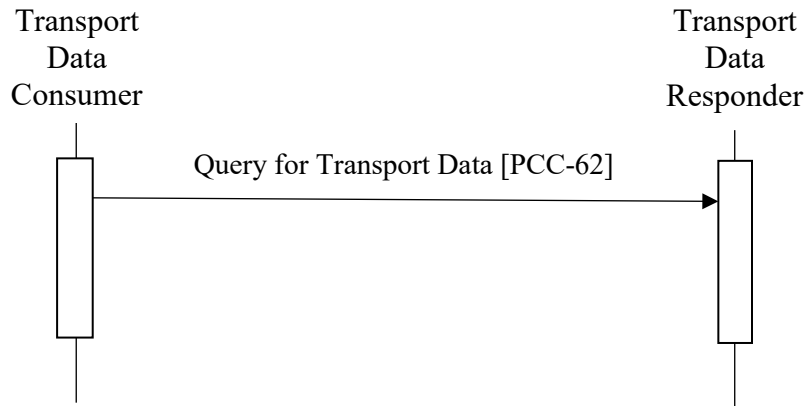
Transaction text specifies behavior for each role. The behavior of specific actors may also be specified when it goes beyond that of the general role.

475 **3.62.3 Referenced Standards**

HL7 FHIR standard STU3

<http://hl7.org/fhir/STU3/index.html>

3.62.4 Interaction Diagram



480 **3.62.4.1 Query for Transport Data**

Transport Data Consumer retrieves the required information needed for a patient’s transport from the Transport Data Responder.

3.62.4.1.1 Trigger Events

485 Any time there is a transport request from a facility and the transport provider needs to retrieve the patient information to populate the Patient Care Record.

3.62.4.1.2 Message Semantics

The message is a FHIR HTTP or HTTPS GET of Transport Data where the parameter provided is the Patient.id with an option to ask for a specific version of the current information needed for patient transport. Since this is retrieving from multiple resources the URLs for this operation are:

- 490
- [base]/Patient/[id]
 - [base]/RelatedPerson/[id]
 - [base]/Coverage/[id]
 - [base]/Practitioner/[id]
 - [base]/Claim/[id]

- 495
 - [base]/AllergyIntolerance/[id]
 - [base]/Procedure/[id]
 - [base]/Immunization/[id]
 - [base]/MedicationStatement/[id]
 - [base]/ClinicalImpression/[id]
- 500
 - [base]/DiagnosticOrder/[id]
 - [base]/DiagnosticReport / [id]
 - [base]/ImagingStudy / [id]
 - [base]/Observation/[id]
 - [base]/Condition/[id]
- 505
 - [base]/Location/[id]

3.62.4.1.3 Expected Actions

The Transport Data Consumer initiates the query request for the resources specified in PCC TF-3 6.6.3 Transport Content using HTTP or HTTPS GET, and the Transport Data Responder responds using the resources specified in PCC TF-3 6.6.3 RIPT Transport Content according to the FHIR GET specification with the requested transport information or an error message. See: <http://hl7.org/fhir/STU3/index.html>

3.62.5 Security Considerations

See ITI TF-2.x Appendix Z.8 “Mobile Security Considerations”

Note: This assumes the approval of the current ITI-CP-1036 regarding Appendix Z.8 “Mobile Security Considerations”.

3.62.5.1 Security Audit Considerations

There has to be a trusted connection between the Transport Data Consumer and Transport Data Responder. This will be carried out in implementation and can either be a business relationship or a secured connection done through ATNA. The Transport Data Responder has control of what information can be accessed. See PCC TF 1:X.5. This transaction includes identifiable health information, and depending upon the implementation and application, may constitute a disclosure of health information that requires audit, encryption, and authentication of the Data Consumer and Data responder. For further guidance, see ITI TF Supplement: Appendix Z.

3.62.5.1.1 Transport Data Consumer Specific Security Considerations

525 None

3.62.5.1.2 Transport Data Responder Specific Security Considerations

None

Appendices

None

530 **Volume 2 Namespace Additions**

<i>Add the following terms to the IHE General Introduction Appendix G:</i>
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None

Volume 3 – Content Modules

5 Namespaces and Vocabularies

Add to Section 5 Namespaces and Vocabularies

codeSystem	codeSystemName	Description
2.16.840.1.113883.6.90o	ICD10	International Classification of Diseases, Clinical Modifiers, Version 10
2.16.840.1.113883.6.88	RxNorm	RxNorm
2.16.840.1.113883.6.96	SNOMED-CT	SNOMED Controlled Terminology
NA	NEMESIS	National EMS Information System
2.16.840.1.113883.6.1	LOINC	Logical Observation Identifier Names and Codes

540

Add to Section 5.1.1 IHE Format Codes

Profile	Format Code	Media Type	Template ID
Routine Interfacility Patient Transport (RIPT)	urn:ihe:pcc:ript:2017	text/xml	1.3.6.1.4.1.19376.1.5.3.1.1.28.1

6 Content Modules

545 Add consideration for consuming systems to be responsible for translating Standard specific codes to NEMESIS codes

6.3.1 CDA Document Content Modules

6.3.1.D Routine Interfacility Patient Transport (RIPT) Document Content Module

6.3.1.D.1 Format Code

The XSDDocumentEntry format code for this content is **urn:ihe:pcc:ript:2017**

550 6.3.1.D.2 Parent Template

Medical Summary Specification (1.3.6.1.4.1.19376.1.5.3.1.1.2)

6.3.1.D.3 Referenced Standards

All standards which are referenced in this document are listed below with their common abbreviation, full title, and link to the standard.

555 **Table 6.3.1.D.3-1: Routine Interfacility Patient Transport Document - Referenced Standards**

Abbreviation	Title	URL
NEMESIS	National EMS Information Services	http://www.nemesis.org/index.html
HL7 FHIR	HL7 FHIR standard STU3	http://hl7.org/fhir/STU3/
CDAR2	HL7 CDA Release 2.0	http://www.hl7.org/documentcenter/public/standards/dstu/CDAR2_IG_PROCNOTE_DSTU_R1_2010JUL.zip
HL7 EMS PCR R2	HL7 Implementation Guide for CDA Release 2 – Level 3: Emergency Medical Services; Patient Care Report, Release 2 – US Realm	http://www.hl7.org/implement/standards/product_brief.cfm?product_id=438
HL7 EMS DAM	HL7 Version 3 Domain Analysis Model, Emergency Medical Services, Release 1	http://www.hl7.org/implement/standards/product_brief.cfm?product_id=421
HL7 EMS DIM	HL7 version 3 Domain Information Model; Emergency Model Services, release 1	http://www.hl7.org/implement/standards/product_brief.cfm?product_id=302

6.3.1.D.4 Data Element Requirement Mappings to CDA

This section identifies the mapping of data between referenced standards into the CDA implementation guide.

560

Table 6.3.1.D.4-1: Routine Interfacility Patient Transport (RIPT) - Data Element Requirement Mappings to CDA

Clinical Data Element NEMESIS	RIPT CDA
Last name	Header
First name	Header
middle initial	Header
home address	Header
home city	Header
home country	Header
home state	Header
home zip code	Header
country of residence	Header
home census tract	Header
social security number	Header
gender	Header
race	Header
Age	Header
Age Units	Header
Date of Birth	Header
Patient's Phone Number	Header
Primary Method of Payment	Payer
Document type: Certificate of medical necessity (CMN)	Certification of Medical Necessity Section (LOINC code = 52016-3)
Physician Certification Statement Signed	Certification of Medical Necessity Section (LOINC code = 52016-3)
Date Physician Certification Statement Signed	Certification of Medical Necessity Section (LOINC code = 52016-3)
Reason for Physician Certification Statement	Certification of Medical Necessity Section (LOINC code = 52016-3)
Healthcare Provider Type Signing Physician Certification Statement	Certification of Medical Necessity Section (LOINC code = 52016-3)
Insurance Company ID	Payer
Insurance Company Name	Payer
Insurance Company Billing Priority	Payer
Insurance Company Address	Payer
Insurance Company City	Payer
Insurance Company State	Payer
Insurance Company Zip code	Payer
Insurance Company Country	Payer
Insurance Group ID	Payer
Insurance Policy ID Number	Payer

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Clinical Data Element NEMESIS	RIPT CDA
Last Name of the Insured	Payer
First Name of the Insured	Payer
Middle initial/name of the Insured	Payer
Relationship to the Insured	Payer
Insurance Group Name	Payer
Closest Relative/Guardian Last Name	Patient contacts
Closest Relative/Guardian First Name	Patient contacts
Closest Relative/Guardian Middle Initial/Name	Patient contacts
Closest Relative/Guardian Street Address	Patient contacts
Closest Relative/Guardian City	Patient contacts
Closest Relative/Guardian State	Patient contacts
Closest Relative/Guardian Zip code	Patient contacts
Closest Relative/Guardian Country	Patient contacts
Closest Relative/Guardian Phone Number	Patient contacts
Closest Relative/Guardian Relationship	Patient contacts
Patient's Employer	Employer and School Information
Patient's Employer's Address	Employer and School Information
Patient's Employer's City	Employer and School Information
Patient's Employer's State	Employer and School Information
Patient's Employer's Zip code	Employer and School Information
Patient's Employer's Country	Employer and School Information
Patient's Employer's Primary Phone Number	Employer and School Information
Barriers to Care	Active Problems
Last Name of Patient's Practitioner	Header
First Name of Patient's Practitioner	Header
Middle Initial/Name of Patient's Practitioner	Header
Advanced Directives	Coded Advanced Directives
Medication Allergies	Allergies and other Adverse Reactions
Environmental/Food Allergies	Allergies and other Adverse Reactions
Medical/Surgical History	Active Problems
Medical/Surgical History	Procedures and Interventions
The Patient's Type of Immunization	Immunizations Section
Immunization Year	Immunizations Section
Current Medications	Medications Section
Current Medication Dose	Medications Section
Current Medication Dosage Unit	Medications Section
Current Medication Administration Route	Medications Section

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Clinical Data Element NEMESIS	RIPT CDA
Presence of Emergency Information Form	Active Problems
Pregnancy	Active Problems
Last Oral Intake	Intake and Output
Date/Time Vital Signs Taken	Vital Signs
Method of ECG Interpretation	Coded Vital Signs
SBP (Systolic Blood Pressure)	Coded Vital Signs
DBP (Diastolic Blood Pressure)	Coded Vital Signs
Method of Blood Pressure Measurement	Coded Vital Signs
Mean Arterial Pressure	Coded Vital Signs
Heart Rate	Coded Vital Signs
Method of Heart Rate Measurement	Coded Vital Signs
Pulse Oximetry	Coded Vital Signs
Pulse Rhythm	Coded Vital Signs
Respiratory Rate	Coded Vital Signs
Respiratory Effort	Coded Vital Signs
End Title Carbon Dioxide (ETCO2)	Coded Vital Signs
Carbon Monoxide (CO)	Coded Vital Signs
Blood Glucose Level	Coded Vital Signs
Glasgow Coma Score-Eye	Coded Vital Signs
Glasgow Coma Score-Verbal	Coded Vital Signs
Glasgow Coma Score-Motor	Coded Vital Signs
Glasgow Coma Score-Qualifier	Coded Vital Signs
Total Glasgow Coma Score	Coded Vital Signs
Temperature	Coded Vital Signs
Temperature Method	Coded Vital Signs
Level of Responsiveness (AVPU)	Coded Vital Signs
Pain Scale Score	Coded Vital Signs
Pain Scale Type	Coded Vital Signs
Stroke Scale Score	Coded Vital Signs
Stroke Scale Type	Coded Vital Signs
Reperfusion Checklist	Coded Vital Signs
APGAR	Coded Vital Signs
Revised Trauma Score	Coded Vital Signs
Date/Time of Laboratory or Imaging Result	Coded Results Section
Study/Result Prior to this Unit's EMS Care	Coded Results Section
Laboratory Result Type	Coded Results Section
Laboratory Result	Coded Results Section
Imaging Study Type	Coded Results Section

IHE Patient Care Coordination Technical Framework Supplement – Routine Interfacility Patient Transport (RIPT)

Clinical Data Element NEMESIS	RIPT CDA
Imaging Study Results	Coded Results Section
Imaging Study File or Waveform Graphic Type	Coded Results Section
Imaging Study File or Waveform Graphic	Coded Results Section
Estimated Body Weight in Kilograms	Coded Vital Signs
Length Based Tape Measure	Coded Vital Signs
Date/Time of Assessment	Coded Detailed Physical Examination Section
Skin Assessment	Detailed Physical Examination Section/Integumentary System Section
Head Assessment	Detailed Physical Examination Section/Head
Face Assessment	Detailed Physical Examination Section/Ears, Nose, Mouth, and Throat Section
Neck Assessment	Detailed Physical Examination Section/Neck
Chest/Lungs Assessment	Detailed Physical Examination Section/Thorax and Lungs
Heart Assessment	Detailed Physical Examination Section/Heart
Abdominal Assessment Finding Location	Detailed Physical Examination Section/Abdomen
Abdominal Assessment Finding Location	Detailed Physical Examination Section/Abdomen
Abdomen Assessment	Detailed Physical Examination Section/Abdomen
Pelvis/Genitourinary Assessment	Detailed Physical Examination Section/Genitalia
Back and Spine Assessment Finding Location	Detailed Physical Examination Section/Musculoskeletal
Back and Spine Assessment	Detailed Physical Examination Section/Musculoskeletal
Extremity Assessment Finding Location	Detailed Physical Examination Section/Musculoskeletal
Extremities Assessment	Detailed Physical Examination Section/Musculoskeletal
Eye Assessment Finding Location	Detailed Physical Examination Section/Eye section
Eye Assessment	Detailed Physical Examination Section/Eye section
Mental Status Assessment	Detailed Physical Examination Section/Neurologic System
Neurological Assessment	Detailed Physical Examination Section/Neurologic System
Stroke/CVA Symptoms Resolved	Active Problems Section
Destination Street Address	Coded Event Outcomes/patient transfer
Destination City	Coded Event Outcomes/patient transfer
Destination State	Coded Event Outcomes/patient transfer
Destination County	Coded Event Outcomes/patient transfer
Destination ZIP Code	Coded Event Outcomes/patient transfer
Destination Country	Coded Event Outcomes/patient transfer

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6.3.1.D.5 Routine Interfacility Patient Transport (RIPT) Document Content Module Specification

This section specifies the header, section, and entry content modules which comprise the Routine Interfacility Patient Transport (RIPT) Document Content Module, using the Template ID as the key identifier.

570

Sections that are used according to the definitions in other specifications are identified with the relevant specification document. Additional constraints on vocabulary value sets, not specifically constrained within the section template, are also identified.

Table 6.3.1.D.5-1: Routine Interfacility Patient Transport (RIPT) Document Content Module Specification

Template Name		Routine Interfacility Patient Transport (RIPT)			
Template ID		1.3.6.1.4.1.19376.1.5.3.1.1.28.1			
Parent Template		Medical Summary (1.3.6.1.4.1.19376.1.5.3.1.1.2)			
General Description		Routine Interfacility Patient Transport summary will contain the patient’s medical information needed by the transport provider to properly care for the patient during transport.			
Document Code		SHALL BE 77596-5 Code System LOINC (CodeSystem: 2.16.840.1.113883.6.1 LOINC), “Transportation Summary Document”			
Opt and Card	Condition	Header Element or Section Name	Template ID	Specification Document	Vocabulary Constraint
Header Elements					
RE [0..1]		Personal Information: Last Name	1.3.6.1.4.1.19376.1.5.3.1.1.1	PCC TF-2	
RE [0..1]		Personal Information: First name	1.3.6.1.4.1.19376.1.5.3.1.1.1	PCC TF-2	
RE [0..1]		Personal Information: Middle initial	1.3.6.1.4.1.19376.1.5.3.1.1.1	PCC TF-2	
RE [0..1]		Personal Information: Home address	1.3.6.1.4.1.19376.1.5.3.1.1.1	PCC TF-2	
RE [0..1]		Personal Information: home city	1.3.6.1.4.1.19376.1.5.3.1.1.1	PCC TF-2	
RE [0..1]		Personal Information: home country	1.3.6.1.4.1.19376.1.5.3.1.1.1	PCC TF-2	
RE [0..1]		Personal Information: home state	1.3.6.1.4.1.19376.1.5.3.1.1.1	PCC TF-2	
RE [0..1]		Personal Information: home Zip code	1.3.6.1.4.1.19376.1.5.3.1.1.1	PCC TF-2	
RE [0..1]		Personal Information: country of residence	1.3.6.1.4.1.19376.1.5.3.1.1.1	PCC TF-2	
Sections					
RE [0..1]		Active Problems	1.3.6.1.4.1.19376.1.5.3.1.3.6	PCC TF-2: 6.3.3.2.3	PCC RIPT-3:6.3.1.D.5.1

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RE [0..1]		Payor	1.3.6.1.4.1.19376.1.5.3.1.1.5.3.7	PCC TF-2: 6.3.3.7.1	PCC RIPT-3: 6.3.1.D.5.2
O [0..1]		Employer and School Information	1.3.6.1.4.1.19376.1.5.3.1.2.2	PCC-TF-2: 6.3.2.2	PCC RIPT-3: 6.3.1.D.5.3
RE [0..1]		Allergies and other Adverse Reactions	1.3.6.1.4.1.19376.1.5.3.1.3.13	PCC TF-2: 6.3.3.2.11	PCC RIPT-3: 6.3.1.D.5.4
RE [0..1]		Procedures and Interventions	1.3.6.1.4.1.19376.1.5.3.1.1.13.2.11	PCC TF-2: 6.3.3.8.3	PCC RIPT-3: 6.3.1.D.5.5
O [0..1]		Immunizations Section	1.3.6.1.4.1.19376.1.5.3.1.3.23	PCC TF-2: 6.3.3.3.5	
RE [0..1]		Medications Section	1.3.6.1.4.1.19376.1.5.3.1.3.19	PCC TF-2: 6.3.3.3.1	PCC RIPT-3: 6.3.1.D.5.6
O [0..1]		Intake and Output	1.3.6.1.4.1.19376.1.5.3.1.1.20.2.3	PCC TF-2: 6.3.3.6.17	PCC RIPT-3: 6.3.1.D.5.7
RE [0..1]		Diagnostic Findings/Results section	1.3.6.1.4.1.19376.1.5.3.1.3.27	PCC TF-2: 6.3.3.5.1	PCC RIPT-3: 6.3.1.D.5.8
RE [0..1]		Coded Results	1.3.6.1.4.1.19376.1.5.3.1.3.28	PCC TF-2: 6.3.3.5.2	PCC RIPT-3: 6.3.1.D.5.9
RE [0..1]		Coded Vital Signs	1.3.6.1.4.1.19376.1.5.3.1.1.5.3.2	PCC TF-2: 6.3.3.4.5	PCC RIPT-3: 6.3.1.D.5.10
RE [0..1]		Coded Detailed Physical Examination Section	1.3.6.1.4.1.19376.1.5.3.1.1.9.15	PCC TF-2: 6.3.3.4.2	PCC RIPT-3: 6.3.1.D.5.11
RE [0..1]		Coded Event Outcomes/patient transfer: Destination street address	1.3.6.1.4.1.19376.1.7.3.1.1.13.7	PCC TF-2: 6.3.3.2.49	PCC RIPT-3: 6.3.1.D.5.12
RE[0..1]		Certification of Medical Necessity	XXXX	XXXXXX	PCC RIPT-6.3.3.10.S1
RE[0..1]		Transport Instructions	XXXXXXX	XXXXXX	PCC RIPT-6.3.3.10.S2

575 6.3.1.D.5.1 Active Problems Constraint

Within the Active Problems section the Content Creator SHALL be able to create a Problem concern entry (TemplateID 1.3.6.1.4.1.19376.1.5.3.1.4.5.2 [PCC TF-2]) to identify Medical/surgical History conditions and findings for the patient being transported. Including behaviors that may affect transport personnel (e.g., combativeness).

580 the .../code SHALL be “finding” and .../ value SHALL contain the coded value for the condition using the ICD-10-CM vocabulary.

6.3.1.D.5.2 Payor Constraint

585 Within the Payor section the Content Creator SHOULD be able to create a Coverage Entry (Template ID 1.3.6.1.4.1.19376.1.5.3.1.4.17 [PCC TF-2]) to identify the payment information for the patient being transported.

The coverage information SHOULD include:

Optionality	Cardinality	Name	Vocabulary
RE	0..*	Insurance Company Name	
RE	0..1	Insurance Company Billing Priority	
RE	0..1	Insurance Company Address	
RE	0..1	Insurance Company City	
RE	0..1	Insurance Company State	
RE	0..1	Insurance Company Zip code	
RE	0..1	Insurance Company Country	
RE	0..1	Insurance Group ID	
RE	0..1	Insurance Policy ID Number	
RE	0..1	Last Name of the Insured	
RE	0..1	First Name of the Insured	
RE	0..1	Middle initial/name of the Insured	
RE	0..1	Relationship to the Insured	NEMESIS
RE	0..1	Insurance Group Name	

590 **6.3.1.D.5.3 Employer and School Information Constraint**

Within the Employer and School information section the Content Creator SHALL be able to include the following data elements:

Optionality	Cardinality	Name	Vocabulary
RE	0..1	Patient's Employer	
RE	0..1	Patient's Employer's Address	
RE	0..1	Patient's Employer's City	
RE	0..1	Patient's Employer's State	
RE	0..1	Patient's Employer's Zip code	
RE	0..1	Patient's Employer's Country	
RE	0..*	Patient's Employer's Primary Phone Number	NEMESIS

595

6.3.1.D.5.4 Allergies and Other Adverse Reactions Constraint

Within the Allergies and Other Adverse Reactions section the Content Creator SHALL be able to create an Allergies and Intolerances Concern entry (Template ID 1.3.6.1.4.1.19376.1.5.3.1.4.5.3 [PCC TF-2]) to identify the patient’s medication and environmental/food allergies.

600 Environmental/food allergies using SNOMED-CT SHOULD be used to identify the allergen.

Medication allergies using RxNorm SHOULD be used to identify an allergy as a specific drug. To indicate an allergy to a class of drug ICD-10 SHOULD be used to indicate an allergy to a class of drug.

6.3.1.D.5.5 Procedures and Other Interventions Constraint

605 Within the Procedures and Other Interventions section the Content Creator SHALL be able to create a procedure entry (TemplateID 1.3.6.1.4.1.19376.1.5.3.1.4.19 [PCC TF-2]) to identify any procedures the patient has undergone using ICD-10-PCS

6.3.1.D.5.6 Medications Section Constraint

610 Within the Medications section the Content Creator SHALL be able to create a medications entry (TemplateID 1.3.6.1.4.1.19376.1.5.3.1.4.7 [PCC TF-2]) to identify the current medications that have been given to the patient using RxNorm. In a narrative form there SHALL be an indication of the date, and time of the last medication administered to the patient.

The entry SHALL include the following elements:

Optionality	Cardinality	Name
RE	0..*	Current Medications
RE	0..1	Current Medication Dose
RE	0..1	Current Medication Dosage Unit
RE	0..1	Current Medication Administration Route

615

6.3.1.D.5.7 Intake and Output Constraint

620 Within this optional section, the Intake and Output section the Content Creator SHALL include a narrative of the substance and the effectiveTime to indicate the time and date of the last oral intake.

6.3.1.D.5.8 Diagnostic findings Constraint

Within the Diagnostic Findings section SHALL include the narrative results of the Cardiac Rhythm / Electrocardiography (ECG) test, if known.

6.3.1.D.5.9 Coded Results Constraint

625 Within the Coded Results section the Content Creator SHALL be able to create a Coded Result entry (TemplateID 1.3.6.1.4.1.19376.1.5.3.1.3.28 [PCC TF-2]) that will include the type and method of the Cardiac Rhythm / Electrocardiography (ECG) test interpretation, if known.

6.3.1.D.5.10 Coded Vital Signs Constraint

630 Within the Coded Vital Signs section the Content Creator SHALL be able to create a Vital signs observation entries (TemplateID 1.3.6.1.4.1.19376.1.5.3.1.4.13.2 [PCC TF-2]) for the following vital signs:

Optionality	Cardinality	Name	LOINC	Constraint
RE	0..1	SBP (Systolic Blood Pressure)	8480-6	Indicating Method using valuesett from BloodPressureMeasurementMethod 2.16.840.1.113883.17.3.11.107
RE	0..1	DBP (Diastolic Blood Pressure)	8462-4	Indicating Method using valueset from BloodPressureMeasurementMethod 2.16.840.1.113883.17.3.11.107
RE	0..1	Mean Arterial Pressure	8478-0	Indicating Method using valuesett from BloodPressureMeasurementMethod 2.16.840.1.113883.17.3.11.107
RE	0..1	Heart Rate	8867-4	Indicating the method or heat rate measurement using 8886-4
RE	0..1	Pulse Oximetry	2710-2	
RE	0..1	Pulse Rhythm	44974-4	
RE	0..1	Respiratory Rate	9279-1	
RE	0..1	Respiratory Effort	80341-1	
RE	0..1	End Title Carbon Dioxide (ETCO2)	19889-5	
RE	0..1	Carbon Monoxide (CO)	20563-3	
RE	0..1	Blood Glucose Level	2339-0	
RE	0..1	Glasgow Coma Score-Eye	9267-6	
RE	0..1	Glasgow Coma Score-Verbal	9270-0	
RE	0..1	Glasgow Coma Score-Motor	9268-4	
RE	0..1	Glasgow Coma Score-Qualifier	55285-1	
RE	0..1	Total Glasgow Coma Score	9269-2	
RE	0..1	Temperature	8310-5	
RE	0..1	Temperature Method	8327-9	
RE	0..1	Level of Responsiveness (AVPU)	11454-6	

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Optionality	Cardinality	Name	LOINC	Constraint
RE	0..1	Pain Scale Score	38208-5	
RE	0..1	Pain Scale Type	80316-3	
RE	0..1	Stroke Scale Score	72089-6	
RE	0..1	Stroke Scale Type	67521-5	
RE	0..1	Reperfusion Checklist	67523-1	
RE	0..1	APGAR 1 minute 5 minute 10 Minute	48334-7 48333-9 48332-1	
RE	0..1	Revised Trauma Score	Pending	
RE	0..1	Estimated Body Weight in Kilograms	3141-9	
RE	0..1	Length Based Tape Measure	8302-2	

635 **6.3.1.D.5.11 Coded Detailed Physical Exam Constraint**

Within the Coded Detailed Physical Exam section the Content Creator SHALL be able to create the following subsections:

Optionality	Cardinality	Name
RE	0..1	Coded Detailed Physical Examination Section
RE	0..1	Integumentary System Section
RE	0..1	Head
RE	0..1	Ears, Nose, Mouth, and Throat Section
RE	0..1	Neck
RE	0..1	Thorax and Lungs
RE	0..1	Heart
RE	0..1	Abdomen
RE	0..1	Abdominal Assessment Finding Location
RE	0..1	Abdomen Assessment
RE	0..1	Genitalia
RE	0..1	Back and Spine Assessment Finding Location
RE	0..1	Back and Spine Assessment
RE	0..1	Extremity Assessment Finding Location
RE	0..1	Extremities Assessment
RE	0..1	Eye Assessment Finding Location
RE	0..1	Eye Assessment

Optionality	Cardinality	Name
RE	0..1	Neurologic System

640 **6.3.1.D.5.12 Coded Event Outcome Constraint**

Within the Coded Event Outcome section the Content Creator SHALL be able to create a Patient Transfer entry (Template ID 1.3.6.1.4.1.19376.1.5.3.1.1.25.1.4.1 [PCC TF-2]) to identify the destination facility for the patient, expressing the address in: .../participant/participantRole/addr

The address SHALL support the following elements:

645

Optionality	Cardinality	Name
RE	0..1	Destination Street Address
RE	1..1	Destination City
R	1..1	Destination State
R	1..1	Destination County
R	1..1	Destination ZIP Code
RE	1..1	Destination Country

6.3.1.D.6 Routine Interfacility Patient Transport (RIPT) Conformance

650 CDA Release 2.0 documents that conform to the requirements of this document content module shall indicate their conformance by the inclusion of the <templateId> XML elements in the header of the document.

A CDA Document may conform to more than one template. This content module inherits from the Medical summary (1.3.6.1.4.1.19376.1.5.3.1.1.2) and so must conform to the requirements of those templates as well this document specification, Routine Interfacility Patient Transport Document (TemplateID).

655

Add to Section 6.3.2 Header Content Modules

6.3.2 CDA Header Content Modules

No new Header Elements.

660 **6.3.3 CDA Section Content Modules**

Add to Section 6.3.3.10 Section Content Modules

6.3.3.10.S1 Certification of Medical Necessity - Section Content Module

Table 6.3.3.10.S1-1: Certification of Medical Necessity Section

Template Name		Certification of Medical Necessity			
Template ID		1.3.6.1.4.1.19376.1.5.3.1.1.13.2.12			
Parent Template		None			
General Description		Indication of whether a physician certification statement (PCS) is available documenting the medical necessity for the EMS encounter. The Certification of Medical Necessity section includes the information necessary to document the justification for the medical transport, including the name and role of the person authorizing the medical transport. This information can be used to generate a Certificate of Medical Necessity (CMN) document for signature.			
Section Code		52016-3, LOINC, “Ambulance transport, Physician certification for transport information Set”			
Author		Patient’s doctor or physician			
Informant		Patient's nurse or discharge planner			
Subject		current recordTarget			
Opt and Card	Condition	Data Element or Section Name	Template ID	Specification Document	Vocabulary Constraint
Entries					
R [1..1]		Medical Necessity Entry	1.3.6.1.4.1.19376.1.5.3.1.4.23	PCC TF-3: 6.3.4.E	

665 **6.3.3.10.S2 Transport Instructions - Section Content Module**

Table 6.3.3.10.S2-1: Transport Instructions Section

Template Name		Transport Instructions			
Template ID		1.3.6.1.4.1.19376.1.5.3.1.1.26.1.7			
Parent Template		None			
General Description		This section contains narrative information provided by the patient’s care provider(s) to indicate any care that should be rendered during the transport.			
Section Code		74213-0, LOINC, “Discharge instructions”			
Author		Patient’s care provider(s)			
Informant		Patient's nurse or discharge planner			
Subject		current recordTarget			
Opt and Card	Condition	Data Element or Section Name	Template ID	Specification Document	Vocabulary Constraint
Entries					
None					

6.3.4 CDA Entry Content Modules

Add to Section 6.3.4.E Entry Content Modules

6.3.4.E Medical Necessity Entry 1.3.6.1.4.1.19376.

670 The Medical Necessity observation is a Simple Observation that records the Reason for Physician Certification Statement.

6.3.4.E.1 Specification

```
675 < observation classCode='OBS' moodCode='EVN'>
    <templateId root=' 1.3.6.1.4.1.19376.1.5.3.1.4.13'
    <templateId root='1.3.6.1.4.1.19376.' />
    <id root='' extension='' />
    <code code='15515-0' displayName='Ambulance transport, Medical reason for transport '
680 codeSystem='2.16.840.1.113883.6.1' codeSystemName=' LOINC' />
    <text><reference value='#xxx' /></text>
    <value xsi:type='CE' ></value>
    <effectiveTime value='' />
    <performer typeCode='PRF'>
        <assignedEntity>
685         <code></code>
            <assignedPerson><name></name></assignedPerson>
        </assignedEntity>
    </performer>
</observation>
```

6.3.4.E.1.1 moodCode='EVN'>

690 The Medical Necessity is recorded in an observation element, to describe the patient’s medical necessity taken during the encounter. In event mood (moodCode='EVN'), this records the Medical Necessity.

6.3.4.E.1.2 <templateId root='1.3.6.1.4.1.19376.1.5.3' />

695 The templateId indicates that this Medical Necessity entry conforms to the constraints of this content module.

6.3.4.E.1.3 <id root="" extension="" />

This required element shall contain an identifier.

6.3.4.E.1.4 <code code="" displayName="" codeSystem="" codeSystemName="" />

700 This required element indicates the medical reason for ambulance transport. The code be 15515-0, LOINC, “Ambulance transport, Medical reason for transport”.

6.3.4.E.1.5 <value xsi:type='CE' ... />

The <value> element shall be present, and shall the coded reason for transport.

6.3.4.E.1.6 <text><reference value='#xxx' /></text>

The <text> element shall contain a narrative of the physician medical necessity statement.

705 6.3.4.E.1.7 <effectiveTime><low value="" /></effectiveTime />

This <low> element records the time and date that the Physician Certification Statement was signed.

**6.3.4.E.1.8 <performer typeCode='PRF'> <assignedEntity>
<assignedPerson><name></assignedPerson></assignedEntity></performer>**

710 The <performer> element shall be present, representing the Name of Individual Signing Physician Certification Statement in the <assignedEntity><assignedPerson><name> element.

6.3.4.E.1.9 <performer> <assignedEntity><code> </assignedEntity></performer>

The <performer> element shall be present representing the healthcare provider type of the individual signing the Physician Certification Statement in the <assignedEntity><code> element.

715 **6.3.4.E.1.10 <entryRelationship typeCode='DRIV'>**

Observations of Medical Necessity should provide an indication of whether a physician certification statement (PCS) is available documenting the medical necessity for the EMS encounter.

6.3.4.E.1.11 <observation> <templateId root=' '/></observation>

720 An observation of whether a physician certification statement (PCS) is available SHALL be included if known.

**6.3.4.E.1.12 <code code='52018-9' displayName='Ambulance transport, Physician certification for transport indicator' codeSystem='2.16.840.1.113883.6.1' />
codeSystemName='LOINC'**

725 This observation is an indication of whether a physician certification statement (PCS) is available documenting the medical necessity or the EMS encounter as indicated by the <code> element.

6.3.4.E.1.13 <value xsi:type='BL' value='true|false' />

730 The observation of whether a physician certification statement (PCS) is available may include a <value> element using the Boolean (xsi:type=' BL') data type to indicate simply whether or not the statement exists.

**6.3.4.E.1.14 <reference typeCode='REFR'><externalDocument classCode='DOC'
moodCode='EVN'><id root=' ' extension=' '/><text><reference value=' '/></text>**

735 The observation of whether a physician certification statement (PCS) is available may contain a single reference to an external document. That reference shall be recorded as shown above. The <id> element shall contain the appropriate root and extension attributes to identify the document. The <text> element may be present to provide a URL link to the document in the value attribute of the <reference> element. If the <reference> element is present, the PCS in the narrative shall contain a <linkHTML> element to the same URL found in the value attribute.

740

Add to Section 6.5 Value Sets

6.4 Section not applicable

This heading is not currently used in a CDA document.

6.5 Transport Reason Value Sets

745 6.5.1 Transport Reason 1.3.6.1.4.1.19376.1.5.3.1.1.13.2.13

Coding Scheme	SNOMED-CT
160685001	Bed-ridden
23852006	Cardiac monitoring (regime/therapy)
716777001	Hemodynamic monitoring (regime/therapy)
419284004	Altered mental status (finding)
67722007	At risk for joint contractures (finding)
65108000	At risk for joint contractures (finding)
225999004	At risk for violence (finding)
86340006	At risk of deep vein thrombosis (finding)
425423002	Intravenous therapy (regime/therapy)
238136002	Pain provoked by movement (finding)
134291007	Morbid obesity (disorder)
373062004	Multiple fractures (disorder)
225602000	Device used (finding)
35497000	Restraint maintenance (procedure)
26544005	Unable to sit unsupported (finding)
40174006	Muscle weakness (finding)
707808001	Isolation procedure (procedure)
410204009	Oxygen therapy support (regime/therapy)
62330004	Oxygen therapy management (procedure)
722179007	Decreased muscle function (finding)
225563000	Dependent for sitting (finding)
160685001	Pressure ulcer of buttock (disorder)

6.6 HL7 FHIR Content Module

6.6.1 Care Plan

750 Reserved for CarePlan

6.6.2 Subscription

Reserved for Subscription

6.6.3 Transport Content

755

The following table shows the mapping of the FHIR Resources supporting the content for each of the NEMESIS Data Elements/Attributes. Transport Data Responder SHALL support the Resources identified by this table. Transport Data Consumers SHALL retrieve clinician sourced Transport content from the specified resource for each attribute.

NEMESIS Data Element	FHIR Resource location	Cardinality	Transport Data Description	Constraint
Last name	Patient.name	RE [0..1]	The patient's last (family) name	
First name	Patient.name	RE [0..1]	The patient's first (given) name	
middle initial	Patient.name	RE [0..1]	The patient's middle name, if any	
home address	Patient.address	RE [0..1]	Patient's address of residence	
home city	Patient.address	RE [0..1]	The patient's primary city or township of residence.	
home country	Patient.address	RE [0..1]	The patient's home county or parish of residence.	
home state	Patient.address	RE [0..1]	The state, territory, or province where the patient resides.	
home zip code	Patient.address	RE [0..1]	The patient's ZIP code of residence.	
country of residence	Patient.address	RE [0..1]	The country of residence of the patient.	
home census tract		O [0..1]	The census tract in which the patient lives	
social security number	Patient.identifier	O [0..1]	The patient's social security number	
gender	Patient.gender	RE [0..1]	The Patient's Gender	
race	Patient.extension(us-core-race)	RE [0..1]	The patient's race as defined by the OMB (US Office of Management and Budget)	
Age	Patient.identifier	RE [0..1]	The patient's age (either calculated from date of birth or best approximation)	
Age Units	Patient.identifier	RE [0..1]	The unit used to define the patient's age	
Date of Birth	Patient.birthDate	RE [0..1]	The patient's date of birth	
Patient's Phone Number	Patient.telecom	RE [0..1]	The patient's phone number	
Primary Method of Payment	Coverage.type	RE [0..1]	The primary method of payment or type of insurance associated with this EMS encounter	

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NEMESIS Data Element	FHIR Resource location	Cardinality	Transport Data Description	Constraint
Document type: Certificate of medical necessity (CMN)	Claim	RE [0..1]		Where code is LOINC = 52016-3 Ambulance transport, Physician certification for transport Information set)
Physician Certification Statement Signed	Claim.entry.value Claim.entry.code	RE [0..1]	Indication of whether a physician certification statement (PCS) is available documenting the medical necessity or the EMS encounter.	Where code is LOINC = 52017-1 Ambulance transport, Physician certification for transport statement (narrative)Ambulance transport
Date Physician Certification Statement Signed	Claim.time	RE [0..1]	The date the Physician Certification Statement was signed	
Reason for Physician Certification Statement	Claim.event.code	RE [0..*]	The reason for EMS transport noted on the Physician Certification Statement	
Healthcare Provider Type Signing Physician Certification Statement	Claim.author.practitionerRole.role	RE [0..1]	The type of health care provider who signed the Physician Certification Statement	
Last Name of Individual Signing Physician Certification Statement	Claim.author.practitioner.name	RE [0..1]	The last name of the healthcare provider who signed the Physician Certification Statement.	
First Name of Individual Signing Physician Certification Statement	Claim.author.practitioner.name	RE [0..1]	The first name of the healthcare provider who signed the Physician Certification Statement.	
Insurance Company ID	Coverage.type	RE [0..1]	The ID Number of the patient's insurance company.	
Insurance Company Name	Coverage.issuer	RE [0..1]	The name of the patient's insurance company.	
Insurance Company Billing Priority	Claim.priority	RE [0..1]	The billing priority or order for the insurance company.	

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NEMESIS Data Element	FHIR Resource location	Cardinality	Transport Data Description	Constraint
Insurance Company Address	Coverage.issuer	RE [0..1]	The mailing address of the Insurance Company	
Insurance Company City	Coverage.issuer	RE [0..1]	The insurance company's city or township used for mailing purposes.	
Insurance Company State	Coverage.issuer	RE [0..1]	The insurance company's state, territory, or province, or District of Columbia.	
Insurance Company Zipcode	Coverage.issuer	RE [0..1]	The insurance company's ZIP Code	
Insurance Company Country	Coverage.issuer	RE [0..1]	The insurance company's country	
Insurance Group ID	Coverage.identifier	RE [0..1]	The ID number of the patient's insurance group	
Insurance Policy ID Number	Coverage.identifier	RE [0..1]	The ID number of the patient's insurance policy	
Last Name of the Insured	Coverage.identifier	RE [0..1]	The last (family) name of the person insured by the insurance company.	
First Name of the Insured	Coverage.identifier	RE [0..1]	The first (given) name of the person insured by the insurance company	
Middle initial/name of the Insured	Coverage.identifier	RE [0..1]	The middle name, if any, of the person insured by the insurance company.	
Relationship to the Insured	Coverage.identifier	RE [0..1]	The relationship of the patient to the primary insured person	
Insurance Group Name	Coverage.identifier	RE [0..1]	The name of the patient's insurance group.	
Closest Relative/Guardian Last Name	RelatedPerson.name	RE [0..1]	The last (family) name of the patient's closest relative or guardian	
Closest Relative/Guardian First Name	RelatedPerson.name	RE [0..1]	The first (given) name of the patient's closest relative or guardian	
Closest Relative/Guardian Middle Initial/Name	RelatedPerson.name	RE [0..1]	The middle name/initial, if any, of the closest patient's relative or guardian.	
Closest Relative/Guardian Street Address	RelatedPerson.address	RE [0..1]	The street address of the residence of the patient's closest relative or guardian	
Closest Relative/Guardian City	RelatedPerson.address	RE [0..1]	The primary city or township of residence of the patient's closest relative or guardian.	
Closest Relative/Guardian State	RelatedPerson.address	RE [0..1]	The state of residence of the patient's closest relative or guardian.	
Closest Relative/Guardian Zip Code	RelatedPerson.address	RE [0..1]	The ZIP Code of the residence of the patient's closest relative or guardian.	

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NEMESIS Data Element	FHIR Resource location	Cardinality	Transport Data Description	Constraint
Closest Relative/Guardian Country	RelatedPerson.address	RE [0..1]	The country of residence of the patient's closest relative or guardian.	
Closest Relative/Guardian Phone Number	RelatedPerson.telecom	RE [0..1]	The phone number of the patient's closest relative or guardian	
Closest Relative/Guardian Relationship	RelatedPerson.relationship	RE [0..1]	The relationship of the patient's closest relative or guardian	
Patient's Employer	Coverage.issuer	O [0..1]	The patient's employer's Name	
Patient's Employer's Address	Coverage.identifier	O [0..1]	The street address of the patient's employer	
Patient's Employer's City	Coverage.identifier	O [0..1]	The city or township of the patient's employer used for mailing purposes	
Patient's Employer's State	Coverage.identifier	O [0..1]	The state of the patient's employer	
Patient's Employer's Zip Code	Coverage.identifier	O [0..1]	The ZIP Code of the patient's employer	
Patient's Employer's Country	Coverage.identifier	O [0..1]	The country of the patient's employer	
Patient's Employer's Primary Phone Number	Coverage.identifier	O [0..1]	The employer's primary phone number.	
Last Name of Patient's Practitioner	Practitioner.name	RE [0..1]	Indication of whether or not there were any patient specific barriers to serving the patient at the scene	
First Name of Patient's Practitioner	Practitioner.name	RE [0..1]	The last name of the patient's practitioner	
Middle Initial/Name of Patient's Practitioner	Practitioner.name	RE [0..1]	The first name of the patient's practitioner	
Advanced Directives	Claim.subType	RE [0..1]	The presence of a valid DNR form, living will, or document directing end of life or healthcare treatment decisions.	
Medication Allergies	AllergyIntolerance.substance	RE [0..*]	The patient's medication allergies	
Environmental/Food Allergies	AllergyIntolerance.substance	RE [0..*]	The patient's known allergies to food or environmental agents.	
Medical/Surgical History	ClinicalImpression.finding	RE [0..*]	The patient's pre-existing medical and surgery history of the patient	
Medical/Surgical History	ClinicalImpression.date	RE [0..*]	The patient's pre-existing medical and surgery history of the patient	
Medical/Surgical History	Condition.code	RE [0..*]	The patient's pre-existing medical and surgery history of the patient	
Medical/Surgical History	Condition.onset[x]	RE [0..*]	The patient's pre-existing medical and surgery history of the patient	

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NEMESIS Data Element	FHIR Resource location	Cardinality	Transport Data Description	Constraint
Medical/Surgical History	Procedure.performed[x]	RE [0..*]	The patient's pre-existing medical and surgery history of the patient	
Medical/Surgical History	Procedure.code	RE [0..*]	The patient's pre-existing medical and surgery history of the patient	
The Patient's Type of Immunization	Immunization.identifier	O [0..1]	The immunization type of the patient.	
Immunization Year	Immunization.date	O [0..1]	The year associated with each immunization type	
Current Medications	MedicationStatement.medications[x]	RE [0..1]	The medications the patient currently takes	
Current Medication Dose	MedicationStatement.dosage	RE [0..1]	The numeric dose or amount of the patient's current medication	
Current Medication Dosage Unit	MedicationStatement.dosage	RE [0..1]	The dosage unit of the patient's current medication	
Current Medication Administration Route	MedicationStatement.dosage.route	RE [0..1]	The administration route (po, SQ, etc.) of the patient's current medication	
Presence of Emergency Information Form	N/A	N/A	Indication of the presence of the Emergency Information Form associated with patient's with special healthcare needs.	
Pregnancy	Condition.code	RE [0..1]	Indication of the possibility by the patient's history of current pregnancy.	Where code is "pregnant"
Last Oral Intake	ClinicalImpression.finding	O [0..*]	Date and Time of last oral intake.	
Date/Time Vital Signs Taken	Observation.issued	RE [0..1]	The date/time vital signs were taken on the patient.	
Cardiac Rhythm / Electrocardiography (ECG)	Observation.value[x]	RE [0..1]	The cardiac rhythm / ECG and other electrocardiography findings of the patient as interpreted by EMS personnel.	
ECG Type	Observation.related.type	RE [0..1]	The type of ECG associated with the cardiac rhythm.	
Method of ECG Interpretation	Observation.method	RE [0..1]	The method of ECG interpretation.	
SBP (Systolic Blood Pressure)	Observation.value[x]	RE [0..1]	The patient's systolic blood pressure.	
DBP (Diastolic Blood Pressure)	Observation.value[x]	RE [0..1]	The patient's diastolic blood pressure.	
Method of Blood Pressure Measurement	Observation.method	RE [0..1]	Indication of method of blood pressure measurement.	
Mean Arterial Pressure	Observation.value[x]	RE [0..1]	The patient's mean arterial pressure.	
Heart Rate	Observation.value[x]	RE [0..1]	The patient's heart rate expressed as a number per minute.	

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NEMESIS Data Element	FHIR Resource location	Cardinality	Transport Data Description	Constraint
Method of Heart Rate Measurement	Observation.method	RE [0..1]	The method in which the Heart Rate was measured. Values include auscultated, palpated, electronic monitor.	
Pulse Oximetry	Observation.value[x]	RE [0..1]	The patient's oxygen saturation.	
Pulse Rhythm	Observation.value[x]	RE [0..1]	The clinical rhythm of the patient's pulse.	
Respiratory Rate	Observation.value[x]	RE [0..1]	The patient's respiratory rate expressed as a number per minute.	
Respiratory Effort	Observation.value[x]	RE [0..1]	The patient's respiratory effort.	
End Tidal Carbon Dioxide (ETCO2)	Observation.value[x]	RE [0..1]	The numeric value of the patient's exhaled end tidal carbon dioxide (ETCO2) level measured as a unit of pressure in millimeters of mercury (mmHg).	
Carbon Monoxide (CO)	Observation.value[x]	RE [0..1]	The numeric value of the patient's carbon monoxide level measured as a percentage (%) of carboxyhemoglobin (COHb).	
Blood Glucose Level	Observation.value[x]	RE [0..1]	The patient's blood glucose level.	
Glasgow Coma Score-Eye	Observation.value[x]	RE [0..1]	The patient's Glasgow Coma Score Eye opening.	
Glasgow Coma Score-Verbal	Observation.value[x]	RE [0..1]	The patient's Glasgow Coma Score Verbal.	
Glasgow Coma Score-Motor	Observation.value[x]	RE [0..1]	The patient's Glasgow Coma Score Motor	
Glasgow Coma Score-Qualifier	Observation.value[x]	RE [0..1]	Documentation of factors which make the GCS score more meaningful.	
Total Glasgow Coma Score	Observation.value[x]	RE [0..1]	The patient's total Glasgow Coma Score.	
Temperature	Observation.value[x]	RE [0..1]	The patient's body temperature in degrees Celsius/centigrade.	
Temperature Method	Observation.value[x]	RE [0..1]	The method used to obtain the patient's body temperature.	
Level of Responsiveness (AVPU)	Observation.value[x]	RE [0..1]	The patient's highest level of responsiveness.	
Pain Scale Score	Observation.value[x]	RE [0..1]	The patient's indication of pain from a scale of 0-10.	
Pain Scale Type	Observation.value[x]	RE [0..1]	The type of pain scale used.	
Stroke Scale Score	Observation.value[x]	RE [0..1]	The findings or results of the Stroke Scale Type (eVitals.30) used to assess the patient exhibiting stroke-like symptoms.	
Stroke Scale Type	Observation.value[x]	RE [0..1]	The type of stroke scale used.	
Reperfusion Checklist	Observation.value[x]	RE [0..1]	The results of the patient's Reperfusion Checklist for potential Thrombolysis use.	
APGAR	Observation.value[x]	RE [0..1]	The patient's total APGAR score (0-10).	

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NEMESIS Data Element	FHIR Resource location	Cardinality	Transport Data Description	Constraint
Revised Trauma Score	Observation.value[x]	RE [0..1]	The patient's Revised Trauma Score.	
Date/Time of Laboratory or Imaging Result	DiagnosticOrder.event.dateTime	RE [0..1]	The data and time for the specific laboratory result	
Study/Result Prior to this Unit's EMS Care	DiagnosticReport.result	RE [0..1]	Indicates that the laboratory result occurred prior to this EMS units care.	
Laboratory Result Type	DiagnosticReport.result	RE [0..1]	The type of the laboratory value.	
Laboratory Result	DiagnosticReport.result	RE [0..1]	The value or result of the laboratory test (Units may vary).	
Imaging Study Type	ImagingStudy.procedure	RE [0..1]	The type of x-ray or imaging study.	
Imaging Study Results	DiagnosticReport.result	RE [0..1]	The description or interpretation of the results of the imaging study.	
Imaging Study File or Waveform Graphic Type	ImagingStudy.procedure	RE [0..1]	The description of the image study file or waveform graphic stored in Imaging Study File or Waveform Graphic (eLabs.08).	
Imaging Study File or Waveform Graphic	ImagingStudy.series.instance.content	RE [0..1]	The imaging study file.	
Estimated Body Weight in Kilograms	Observation.interpretation	RE [0..1]	The patient's body weight in kilograms either measured or estimated	
Length Based Tape Measure	Observation.interpretation	RE [0..1]	The length-based color as taken from the tape.	
Date/Time of Assessment	Observation.issued	RE [0..1]	The date/time of the assessment	
Skin Assessment	Observation.interpretation	RE [0..1]	The assessment findings associated with the patient's skin.	
Head Assessment	Observation.interpretation	RE [0..1]	The assessment findings associated with the patient's head.	
Face Assessment	Observation.interpretation	RE [0..1]	The assessment findings associated with the patient's face.	
Neck Assessment	Observation.interpretation	RE [0..1]	The assessment findings associated with the patient's neck.	
Chest/Lungs Assessment	Observation.interpretation	RE [0..1]	The assessment findings associated with the patient's chest/lungs.	
Heart Assessment	Observation.interpretation	RE [0..1]	The assessment findings associated with the patient's heart.	
Abdominal Assessment Finding Location	Observation.bodySite	RE [0..1]	The location of the patient's abdomen assessment findings.	
Abdominal Assessment Finding Location	Observation.bodySite	RE [0..1]	The location of the patient's abdomen assessment findings.	

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NEMIS Data Element	FHIR Resource location	Cardinality	Transport Data Description	Constraint
Abdomen Assessment	Observation.interpretation	RE [0..1]	The assessment findings associated with the patient's abdomen.	
Pelvis/Genitourinary Assessment	Observation.interpretation	RE [0..1]	The assessment findings associated with the patient's pelvis/genitourinary.	
Back and Spine Assessment Finding Location	Observation.bodySite	RE [0..1]	The location of the patient's back and spine assessment findings.	
Back and Spine Assessment	Observation.interpretation	RE [0..1]	The assessment findings associated with the patient's spine (Cervical, Thoracic, Lumbar, and Sacral) and back exam.	
Extremity Assessment Finding Location	Observation.bodySite	RE [0..1]	The location of the patient's extremity assessment findings.	
Extremities Assessment	Observation.interpretation	RE [0..1]	The assessment findings associated with the patient's extremities.	
Eye Assessment Finding Location	Observation.bodySite	RE [0..1]	The location of the patient's eye assessment findings.	
Eye Assessment	Observation.interpretation	RE [0..1]	The assessment findings of the patient's eye examination.	
Mental Status Assessment	Observation.interpretation	RE [0..1]	The assessment findings of the patient's mental status examination.	
Neurological Assessment	Observation.interpretation	RE [0..1]	The assessment findings of the patient's neurological examination.	
Stroke/CVA Symptoms Resolved	Condition.clinicalStatus	RE [0..1]	Indication if the Stroke/CVA Symptoms resolved and when.	Where condition is stroke/CVA symptoms where clinicalStatus is resolved
Destination Street Address	Location.address	RE [0..1]	The street address of the destination the patient was delivered or transferred to	Patient destination street address
Destination City	Location.address	RE [0..1]	The city of the destination the patient was delivered or transferred to (physical address).	
Destination State	Location.address	RE [0..1]	The state of the destination the patient was delivered or transferred to.	
Destination County	Location.address	RE [0..1]	The destination county in which the patient was delivered or transferred to.	
Destination ZIP Code	Location.address	RE [0..1]	The destination ZIP code in which the patient was delivered or transferred to.	
Destination Country	Location.address	RE [0..1]	The country of the destination.	

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Appendices

NA

Volume 3 Namespace Additions

Add the following terms to the IHE Namespace:

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NA