IHE Workitem Proposal (Detailed)

# Proposed Workitem: Interfacility Transport Profile

**Proposal Editor:**

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**Domain:** Patient Care Coordination**,** Transport Medicine, Emergency Medicine, Enterprise Architecture, Healthcare Information and Management Systems Society, American Medical Informatics Association

**Summary**

It is difficult to transport a patient without relevant information about the patient’s history. This information and information gathered during transport could be used for real-time physician consultation on the care for a patient during transport, but currently is not available.

LOINC and NEMSIS provides data definitions to support most of the elements required for documentation. HL7 provides for care record information.

We could utilize HL7 coupled with the current PCD profiles and NEMSIS and LOINC to provide this information to support both real-time consultation support with physicians and PCR update during and at completion of transport.

According to our cold calls and existing relationships with PCR vendors, there is an exceptional interest in this type of integration. A few have attempted to provide integration using HL7, but have been apprehensive giving a lack of standardized support for doing such.

The IHE has the expertise and experience with developing solutions for integration issues using existing resources, but organizing them in a way for the IT community to integrate appropriately and in a methodical manner. This is the need the vendor community has expressed.

# The Problem

There is an expectation that when a patient is transferred between two different medical institutions, their medical records will follow them. While this is becoming true for the majority of the patient population, there is a gap for those who must be medically transported by either ambulance, helicopter or fixed wing. Developing this type of IT architecture, our profile will focus on properly aligning the concept of continuing health care records across the transport medicine environment in a seamless fashion as well as address the contribution, expectations and promises associated with a universal electronic health record as defined by Health Information Technology Standards Panel.

HITSP IS04 currently defines IHE profiles for emergency department referral (EDR) and emergency department encounter summary (EDES) [1]. Both of these profiles are geared toward the pre-hospital provider typically referred to as the 911 system. However no profile has been defined for the inter-facility providers that hold the same licensure, but handle a different type of care, usually with an expanded scope of practice as well as additional personnel resources such as a physician or nurse. This type of medicine is referred to as transport medicine. A profile needs to define the sending and receiving of this information during the patient encounter [2].

**Value Statement:** The need to access accurate and up to date information about each patient during all aspects of healthcare is an expectation. This falls short when it comes to moving patients between facilities and can lead to a variety of errors [3]. Adverse Drug Events are prevalent when current prescribing information and pharmacy orders are not accessible or verifiable [4]. Other similar items include allergy information, past medical history, current medical history and vital sign trending and radiology records to name a few. Patients often undergo repeat tests, CT scans and additional medication reconciliation which increases costs to the patient as well as radiation exposure and potential for medical errors.  
  
During transport real time information will be transmitted to the receiving facility so the patient’s condition can be monitored. Physician consultation with the transport unit can then include aspects of changing current care or providing support. This would create a “virtual” ICU room at the receiving hospital.

Providing a standard for interoperability during transport medicine can begin to eliminate these cases and lower institutional costs as well as insurance costs. Patients will received lower doses of radiation and receive more complete care as the transport record is merged into the continuous electronic health record.

# Use Cases

**Current Practice:**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Use Case ID: | IFT | | | |
| Use Case Name: | Interfacility Transport | | | |
| Created By: | Philip DePalo | | Last Updated By: | Philip DePalo |
| Date Created: | 5/14/10 | | Date Last Updated: | 10/28/10 |
| Actors: | | Transport Clinicians, Sending Facility, Receiving Facility | | |
| Description: | | Inter-facility Patient Transfer | | |
| Trigger: | | Sending Facility Requests Patient Transfer | | |
| Preconditions: | | 1. Patient requires higer level or specialty care 2. Patient has agreed to transport risk 3. Receiving facility has accepted patient | | |
| Postconditions: | | 1. Patient has arrive at receiving facility 2. Patient report has been given to receiving facility | | |
| Normal Flow: | | 1. Sending facility requests patient transfer 2. Receiving facility accepts patient 3. Transport clinicians receive patient at sending facility 4. Transport clinicians receive verbal report from sending facility 5. Transport clinicians receive “relevant” paper documentation 6. Transport clinicans engage patient care and necessary treatment during transport 7. Transport clinicians create proprietary electronic or paper documentation 8. Transport clinicians transfer patient care to receiving facility 9. Transport clinicians give verbal report to receiving facility 10. Transport clinians give accompanying “relevant” documentation and proprietary transport medical record if paper based or **no record** if electronic. | | |
| Exceptions: | | 1. Patient that exceeds the capabilities of the transport clinicians may reroute to closest medical facility 2. Emergent transfers may lack essential “relevant” documentation | | |
| Business Rules: | | 1. Physician transfer of patient care and admission | | |

As can be seen above there is a lack of information transfer between the two facilities. There is even potential for no information transfer in emergent cases, which ironically, would require the most information possible, since emergent cases are typically associated with higher acuity patients.

Radiology studies that are sent with the patient are often repeated because of lack of receiving facility confidence in the quality of the study or inability to integrate it into the current imaging database of the receiving facility.

As seen in step 10 there is a loose paper based record or no record in case of proprietary electronic documentation. If the transport is only 10 minutes, lack of data about those 10 minute, might not be essential, but during longer transports such as fixed wing aviation the gap of information could span over several hours and the data associated would not be accessible to the receiving facility as part of their tools in diagnosing and treating the patient as we as seeing treatment trends.

**Proposed Practice:**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Use Case ID: | IFTP | | | |
| Use Case Name: | Interfacility Transport Profile | | | |
| Created By: | Philip DePalo | | Last Updated By: |  |
| Date Created: | 5/14/10 | | Date Last Updated: | 11/4/10 |
| Actors: | | Transport Clinicians, Sending Facility, Receiving Facility | | |
| Description: | | Inter-facility Patient Transfer | | |
| Trigger: | | Sending Facility Requests Patient Transfer | | |
| Preconditions: | | 1. Patient requires higer level or specialty care 2. Patient has agreed to transport risk 3. Receiving facility has accepted patient | | |
| Postconditions: | | 1. Patient has arrive at receiving facility 2. Patient report has been given to receiving facility | | |
| Normal Flow: | | 1. Sending facility requests patient transfer 2. Receiving facility accepts patient 3. Receiving facility receives electronic health record 4. Transport clinicians receive verbal report from sending facility 5. Transport clinicians receive electronic health record 6. Transport clinicans engage patient care and necessary treatment during transport 7. Transport clinians provide real time information to receiving facility during transport, creating a virtual ICU room at the receiving facility 8. Transport clinicians update the current electronic health record during transport 9. Transport clinicians transfer patient care to receiving facility 10. Transport clinicians give verbal report to receiving facility 11. Receiving facility has access to the most up-to-date electronic health record with all treatment and care provided by transport clinicians | | |
| Exceptions: | | 1. Patient that exceeds the capabilities of the transport clinicians may reroute to closest medical facility | | |
| Business Rules: | | 1. Physician transfer of patient care and admission | | |

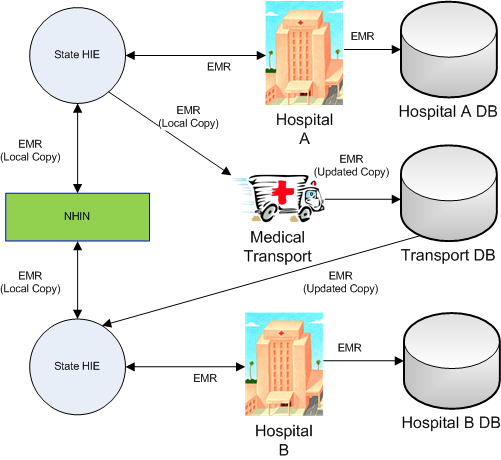


Figure Inter-facility Transport Electronic Medical Record Update

# Standards & Systems

Our solutions will make use of the National Health Information Network and State-wide Health Information Exchanges [5]. The profile will allow for HL7 messaging [6] specifically ADT, admission, discharge and transfer messages using version 3. IHE XDS-I profile that relates to cross-enterprise imaging, may apply for the imaging aspects of the transport record. The NEMSIS data dictionary standard for the national repository of EMS information may be incorporated. [7] Patient Care Devices may have some correlation to this profile as part of the attempt is to transmit real time information during transport to the receiving facility.

<List relevant standards, where possible giving current version numbers, level of support by system vendors, and references for obtaining detailed information.>

# Technical Approach

During transport two main transactions must occur. In Part I, gathered information must be transmitted to the receiving facility physician team. This information is comprised of previous historical clinical data gathered from the Clinical Data Source and used by the Clinical Data Consumer (transport clinicians). It also comprises new information created by Content Creator (transport clinicians) and PCDs. This information is sent via the Physician Update Service to provide real time information to the patient care team at the receiving facility.

Part II reconciles all information gathered during the transport to provide as part of the Patient Care Record for the transport service and the receiving facility and transmits information to the Clinical Data Source using the PCR Reconciliation Service.



**New actors**

Physician Update Service  
PCR Reconciliation Service  
Clinical Data Consumer

**Existing actors**

Clinical Data Source  
Content Consumer  
Content Creator  
Device Observation Reporter  
Device Observation Consumer

**New transactions (standards used)**

* Report Real-Time Patient Data

This transaction is sent from the Physician Update Service to the Content Consumer. It communicates real time patient information to the receiving facility care team. This transaction could useHL7 Version 3 Standard: Care Record Topic; R1 (DSTU).

* Reconcile PCR Information

This transaction occurs upon completion or at intervals during transport and internally reconciles all gathered information into a complete Patient Care Record for both the transport service and the receiving facility.

This profile will require accessibility which can potentially be difficult in a transport environment. The ability to provide real-time information may be hindered by meteorological conditions affecting communications. Therefore the ability to implement near real-time updates would be an acceptable practice.

**Impact on existing integration profiles**

No known impact on existing profiles. Lack of expertise with profiles may cloud our viewpoint.

**New integration profiles needed**

This profile would include a content component which expands NEMSIS and the current ETC profile content which currently exists and is limited given their pre-hospital scope and the expanded scope of practice found during inter-facility transport and the staffing requirements.

**Breakdown of tasks that need to be accomplished**

1. Define content
2. Identify appropriate areas to transmit and receiving information to and from for PCDs and Facilities
3. Identify appropriate intervals to transmit information
4. Identify priority of transmitted information

# Risks

Lack of familiarity with IHE profile history proposes a risk to the current authors and editors. However this risk is easily mitigated with guidance and support from the PCC technical committee.

Lack of vendor support for a potentially niche environment may delay implementation of the profile. Current PCR vendors have been contacted and have expressed interest.

# Open Issues

What content needs to be defined?

What PCDs will be available and consumed?

How will transmission priority be determined?

# Effort Estimates

The following is a list of tasks to be performed, along with an estimate of the committee effort involved in developing them.

1. Prioritize the high level information items to define, and the order in which they will be prioritized to guide current and future work. (Three one hour calls)
2. Identify the input information definitions that can be used to create data. (Two one hour calls)
3. Identify the additional information definitions to include in PCR and Update outputs. (One one hour call)
4. Identify interactions between outputs and inputs in subsequent update activities. (Committee discussion at face to face meeting)
5. Identify how to integrate PCDs and PCR into the Physician Update Service (One one hour call and face to face meeting)
6. Create PCC entries for output.
7. Create PCC transactions. Reuse/revise existing transactions, with requirements for new entries. Review on calls and during June meeting.
8. Identify what specific information needs to be consumed (2 one hour calls)