# HL7 Approaches considered and rejected by IHE PCD Point-of-care Identity Management Work Group

Gary Meyers, Oct 2010

A number of approaches to representing the event of associating a device and a patient using HL7 V2 messaging were considered before selection of the present approach (see PCIM White Paper. These are recorded here for reference.

## Link Patient A24

### Proposal:

Use the Link Patient A24 message to associate a patient care device with the patient. The device identifier is sent in the second PID segment. The patient identifier code associated with the device id in PID 3 will have an RI id type.

Requires two PID segments and PID 3 to be populated.

|  |  |  |  |
| --- | --- | --- | --- |
| MSH | Message Header |  | 2 |
| [{ SFT }] | Software Segment |  | 2 |
| [ UAC ] | User Authentication Credential |  | 2 |
| [EVN](#EVN) | Event Type |  | 3 |
| [PID](#PID) | Patient (1) Identification |  | 3 |
| [ [PD1](#PD1) ] | Patient (1) Additional Demographics |  | 3 |
| [ [PV1](#PV1) ] | Patient (1) Visit |  | 3 |
| [{ [DB1](#DB1) }] | Patient (1) Disability Information |  | 3 |
| [PID](#PID) | Patient (2) Identification |  | 3 |

The Link device id is sent in the patient id field with an identifier type of RI.

|  |  |  |
| --- | --- | --- |
| RI | Resource identifier | A generalized resource identifier.Use Case: An identifier type is needed to accommodate what are commonly known as resources. The resources can include human (e.g. a respiratory therapist), non-human (e.g., a companion animal), inanimate object (e.g., an exam room), organization (e.g., diabetic education class) or any other physical or logical entity. |

ADT Placer

CIS

Device/Gateway

ITI-30,31

PCD-01, ORU\*

ADT^A24

CIS user binds patient to device

### Discussion:

This message requires the use of two PID segments. The intent is to link a person to patient ids used in different facilities.

The device id is sent in the patient id field with an identifier type of RI. The RI type is very broad. Could this lead to a problem?

Issue—

The A24 event is used when the first PID segment needs to be linked to the second PID segment and when both patient identifiers identify the same patient.

## Schedule with resource

### Proposal:

Patient schedule messages control the occurrence of certain services and the use of particular resources. The message describes the nature of the service and/or the use of the resource, the person or persons responsible for the appointment's booking, and other information relevant to the booking and execution of an appointment.

A patient is not required in the message so this message covers all the use cases brought forward by Ruth. The request and notification events provide a mechanism for linking a patient and device.

Request addition of service /Resource on Appointment (S07)

Request cancelation of service /Resource on Appointment (S09)

Notification of addition of service /Rsource on Appointment (S18)

Notification of cancelaiton of service /Rsource on Appointment (S20)

|  |  |  |  |
| --- | --- | --- | --- |
| MSH | Message Header |  | 2 |
| [SCH](#SCH) | Schedule Activity Information |  | 10 |
| [ { | --- PATIENT begin |  |  |
|  PID | Patient Identification |  | 3 |
|  [ PV1 ] | Patient Visit |  | 3 |
|  [ { OBX } ] | Observation/Result |  | 4 |
| } ] | --- PATIENT end |  |  |
| {  | --- RESOURCES begin |  |  |
|  [RGS](#RGS) | Resource Group Segment |  | 10 |
|  [ { | --- GENERAL\_RESOURCE begin |  |  |
|  [AIG](#AIG) | Appointment Information - General Resource |  | 10 |
|  [ { NTE } ] | Notes and Comments for the AIG |  | 2 |
|  } ] | --- GENERAL\_RESOURCE end |  |  |

HL7 Attribute Table - SCH – Scheduling Activity Information

| SEQ | LEN | DT | OPT | RP/# | TBL# | ITEM# | ELEMENT NAME |
| --- | --- | --- | --- | --- | --- | --- | --- |
| 6 | 250 | CE | R |  |  | 00883 | Event Reason |
| 16 | 250 | XCN | R | Y |  | 00885 | Filler Contact Person |
| 25 | 250 | CE | O |  | [0278](#HL70278) | 00889 | Filler Status Code |
| 26 | 22 | EI | C | Y |  | 00216 | Placer Order Number |
| 27 | 22 | EI | C | Y |  | 00217 | Filler Order Number |

HL7 Attribute Table - AIG - Appointment Information – General Resource

| SEQ | LEN | DT | OPT | RP/# | TBL# | ITEM# | ELEMENT NAME |
| --- | --- | --- | --- | --- | --- | --- | --- |
| 1 | 4 | SI | R |  |  | 00896 | Set ID - AIG |
| 2 | 3 | ID | C |  | 0206 | 00763 | Segment Action Code |
| 3 | 250 | CE | C |  |  | 00897 | Resource ID |
| 4 | 250 | CE | R |  |  | 00898 | Resource Type |
| 5 | 250 | CE | O | Y |  | 00899 | Resource Group |
| 6 | 5 | NM | O |  |  | 00900 | Resource Quantity |
| 7 | 250 | CE | O |  |  | 00901 | Resource Quantity Units |
| 8 | 26 | TS | C |  |  | 01202 | Start Date/Time |
| 9 | 20 | NM | C |  |  | 00891 | Start Date/Time Offset |
| 10 | 250 | CE | C |  |  | 00892 | Start Date/Time Offset Units |
| 11 | 20 | NM | O |  |  | 00893 | Duration |
| 12 | 250 | CE | O |  |  | 00894 | Duration Units |
| 13 | 10 | IS | C |  | [0279](#HL70279) | 00895 | Allow Substitution Code |
| 14 | 250 | CE | C |  | [0278](#HL70278) | 00889 | Filler Status Code |

### Discussion:

The schedule message is used to schedule a patient or resources into ancillary services. These services are usually related to a procedure. The services included: reserving locations for a period of time, the use of equipment and the scheduling of personnel.

The inclusion of patient data is optional because resources can be reserved before a specific patient identity is available.

The schedule segment event reason is listed as required but the field descriptions indicate that the requirement is a mistake. There are fields to capture the user as the filler contact person. Order numbers can be communicated in fields 26 and 27.

The AIG segment provides the ability to identify the equipment to be associated with the patient.

Device communicates observation to CIS. The user associates the observations to a patient. The CIS returns a patient device association back to the device.

ADT Placer

CIS

Device/Gateway

ITI-30,31

SIU^S18

PCD-01, ORU\*

CIS user binds patient to device

The user associates the device to the patient, using handheld or device GUI. A message

ADT Placer

CIS

Device/Gateway

ITI-30,31

SIU^S18

SIU^S07

CIS user binds patient to device

### Discussion:

The schedule message is used to schedule a patient or resources into ancillary services. These services are usually related to a procedure. The services included: reserving locations for a period of time, the use of equipment and the scheduling of personnel.

The inclusion of patient data is optional because resources can be reserved before a specific patient identity is available.

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The AIG segment provides the ability to identify the equipment to be associated with the patient.

Comment received from Hans Buitendijk when this option was presented to HL7 O&O group “Scheduling primarily deals with the states up to the actual instance. An appointment is made and managed, but the inpatient/outpatient stay/visit is then managed in ADT as the confirmed association between Patient, and certain resources, plus some notion of time. At most then the scheduling of the device would be Scheduling, while the actual association is not”

## Observation Message

### Proposal:

Unsolicited Point-Of-Care Observation Message Without Existing Order – Place An Order (Event R30)

Unsolicited New Point-Of-Care Observation Message – Search For An Order (Event R31

| Segments | Description | Status | Chapter |
| --- | --- | --- | --- |
| MSH | Message Header |  | 2 |
| PID | Patient Identification |  | 3 |
| [ | --- VISIT begin |  |  |
|  PV1 | Patient Visit |  | 3 |
| ] | --- VISIT end |  |  |
| ORC | Common Order information |  | 4 |
| [OBR](#OBR) | Observation Request |  | 7 |
| { | --- OBSERVATION begin |  |  |
|  [OBX](#OBX) | Observation Results, one per reported value |  | 7 |
| }  | --- OBSERVATION end |  |  |

ADT Placer

CIS

Device/Gateway

ITI-30,31

ORU^R30

PCD-01, ORU\*

CIS user binds patient to device

### Discussion:

The ORU message requires the patient identification section.

The R01 event is the same as the PCD-01 status message. When deciphering the message the receiving system will need to look at the OBR 4 service id, OBX 3 observation identifier or other field to determine that the message is communicating a device to be associated with a patient. The device being associated in defined in OBX 18.

The use of the R30 and R31 appear to be limited to the lab messaging environment. These events require that a lab order (OML^O21) be used to return the placer order number.

## Patient Registration A04--

*NEEDS HL7 Patient Admin WG clarification, the PRT is not listed in the January 2009 ballot in the ADT section but is in Chapter 7. I recall a proposal that the PRT segment would replace the ROL segment.*

### Proposal:

Use the Patient Registration A40 message to associate a patient care device with the patient. This proposal is based on the HL7 2.7 message including the new PRT participation segment.

|  |  |  |  |
| --- | --- | --- | --- |
| MSH | Message Header |  | 2 |
| [{ SFT }] | Software Segment |  | 2 |
| [ UAC ] | User Authentication Credential |  | 2 |
| [EVN](#EVN) | Event Type |  | 3 |
| [PID](#PID) | Patient (1) Identification |  | 3 |
| [ [PD1](#PD1) ] | Patient (1) Additional Demographics |  | 3 |
| [ [PRT](#PV1) ] | Participation (for Patient) |  | 3 |
|  [ | --- VISIT begin |  |  |
|  PV1 | Patient Visit |  | 3 |
|  [PV2] | Patient Visit – Additional Information |  | 3 |
|  [{PRT}] | Participation (for Patient Visit) |  |  7 |
|  ] | --- VISIT end |  |  |

### HL7 Attribute Table - PRT – Participation Information

| SEQ | LEN | C.LEN | DT | OPT | RP/# | TBL# | ITEM # | ELEMENT NAME |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 1 | 1..4 |  | EI | C | N |  | 02379 | Participation Instance ID |
| 2 | 2..2 |  | ID | R |  | 0287 | 00816 | Action Code |
| 3 |  |  | CWE | O |  |  | 02380 | Action Reason |
| 4 |  |  | CWE | R |  | 0912 | 02381 | Participation  |
| 5 |  |  | XCN | C | Y |  | 02382 | Participation Person |
| 6 |  |  | CWE | C |  |  | 02383 | Participation Person Provider Type |
| 7 |  |  | CWE | C |  | [0406](#HL70406) | 02384 | Participant Organization Unit Type |
| 8 |  |  | XON | C | Y |  | 02385 | Participation Organization |
| 9 |  |  | PL | C | Y |  | 02386 | Participant Location |
| 10 |  |  | EI | C | Y |  | 02348 | Participation Device |
| 11 |  |  | DTM | O |  |  | 02387 | Participation Begin Date/Time (arrival time) |
| 12 |  |  | DTM | O |  |  | 02388 | Participation End Date/Time (departure time) |
| 13 |  |  | CWE | O |  |  | 02389 | Participation Qualitative Duration |
| 14 |  |  | XAD | C | Y |  | 02390 | Participation Address |
| 15 |  |  | XTN | O | Y |  | 02391 | Participant Telecommunication Address |

PRT-10 Participation Device (EI) 02348

Components: <Entity Identifier (ST)> ^ <Namespace ID (IS)> ^ <Universal ID (ST)> ^ <Universal ID Type (ID)>

Definition: Identifier for the device participating.

Example: The device used to register the shipment at the waypoint.

If this attribute repeats, all instances must represent the same device.

Condition: At least one of the Participation Person, Participation Organization, Participation Location, or Participation Device fields must be valued.

PRT-11 Participation Begin Date/time (DTM) 02387

Definition: This field contains the date/time when the participation began.

In the case of waypoints, this reflects the time a shipment arrives at the waypoint.

PRT-12 Participation End Date/time (DTM) 02388

Definition: This field contains the date/time when the participation ended.

In the case of waypoints, this reflects the time a shipment departs from the waypoint.

ADT Placer

CIS

Device/Gateway

ITI-30,31

ADT^A04

PCD-01, ORU\*

CIS user binds patient to device

### Discussion:

If the PRT has not been added should PCD consider proposing a new ADT event that included the PRT to support patient association activation and deactivation?