

Integrating the Healthcare Enterprise



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**IHE Pharmacy
Technical Framework Supplement**

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**Hospital Medication Workflow
(HMW)**

15

Trial Implementation

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Foreword

25 This is a supplement to the forthcoming IHE Pharmacy Technical Framework. 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 October 11, 2013 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 forthcoming Pharmacy Technical Framework. Comments are invited and may be submitted at http://www.ihe.net/Pharmacy_Public_Comments.

This supplement describes changes to the existing technical framework documents.

35 “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>
--

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.

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

Information about the IHE Pharmacy domain can be found at: http://www.ihe.net/IHE_Domains.

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

The current version of the IHE Pharmacy Technical Framework can be found at: http://www.ihe.net/Technical_Frameworks.

50

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Introduction

This supplement is written for Trial Implementation. It is written as a first version of the IHE Pharmacy – Hospital Medication Workflow. This document is a detailed description of the generic implementation structure defined in the Common Parts document¹.

165 Profile Abstract

This Profile describes the interoperability and the transactions present in a typical hospital workflow concerning the prescription, dispensing, distribution and administration of medication. It describes the transactions between the Prescription Placer, the Pharmaceutical Adviser, the Medication Dispenser, and the Medication Administration Informer to establish an end-to-end operational workflow.

Open Issues

Prescription ID vs. Ordering session ID - ORC-4

- IHE will use the notion of "physician ordering session ID" (or anything similar) as an order group, not only the prescription.
- 175 • IHE recommends that each implementation chooses the meaning of that ID (it's the prescription number, or the order session, or...) and uses that consistently across the flow.
- If "order session" and "prescription" have different meanings, and both must be used in an implementation, IHE currently supports only one of these concepts within the Hospital Medication Workflow

180

Profession and specialty of Health Care Practitioners:

Decided to abandon the Profession as a mandatory field in the messages.

Previous status:

185 The profession of a prescribing physician was to be supported in ORC-12-21 – Professional prefix. Rationale: This information was meant to be for display purposes only, as specified in the XCN data type definition.

The use of ORC-21 – Ordering Facility Name – which is a repeatable field, can convey information about the specialty of the prescription placer.

¹ This document is part of the IHE Pharmacy domain and can be obtained from the IHE web site.

190 **Reason for change:**

In implementations where ORC-12-21 is used for other specific purposes, additional details of the profession cannot be sent in ORC-12-21. The same applies for RXE-14 (for the pharmacist), RXA-10 Profession (nurse).

195 IHE_Pharmacy acknowledged the functional need for this field, but this field may be present in the applications without the need to convey it in a message, in intra-institutional applications:

Example:

200 Certain drugs are only available for prescription by certain specialties – this is personnel metadata, and does not need to be in a prescription message, only needs to be in the system upon the creation of the prescription.

205 When applications are unable to filter this list of available drugs, or the message is to be sent across sites where the rules may change, the pharmacist may indeed need to consult the profession of the prescriber. In this case, the personnel metadata may also be available without being conveyed in the message.

Since there may be no guarantee of personnel data synchronicity between the 2 systems, this item must be addressed when IHE covers additional scenarios

210 Dispense and Preparation of Medication:

215 In the current scope of this profile, the medication dispense had to include all the steps before administration, and therefore the dispense (assigning medication to a patient) and preparation (assigning medication to an expected administration event) were considered as part of the “Medication Dispense” class of actions. The designation of the messages currently refers to the “dispenser” that “prepares” medication. This inconsistency is to be addressed when, in later editions of this profile, the Dispense and Preparation/Give are clearly distinguished. In practical terms, this means that the concept of Dispense, which is expected to be used in many current implementations (RDS message), is left out of the scope, and the “dispense” actions that are indicated in this document are including preparation, so the implementations that do not have a concept of preparation will not have any impact due to this.

220

Closed Issues

- 225 1. HL7 version - The preferred version for adoption of this profile is 2.6, for current scope (without supply chain) only 2.5 is needed.
2. “Medication Availability” → “Dispense Report ”
- 230 3. Definition: For the purpose of IHE – Hospital Medication Workflow, Dispense is reserved for the assignment of a medication unit to a patient. This means that [Medication Dispenser] = Pharmacy or Ward, whoever is responsible for delivering/assigning medication to a specific patient – i.e., the first time in the circuit that the medication receives a patient name. This means that there are stock movements before and after the dispense, but the dispense is a unique defining moment. After this, there is a step of
235 assigning a medication to a specific planned administration, an in the current scope this is the information that is sent from the dispenser to the administration informer as the Medication Preparation Report
- 240 4. When transmitting a code (e.g., - and especially- in the case of the Product Code), the identification of the coding system must be transmitted, including the version, if available: e.g., for a particular medication, the product code (e.g., 90000212) must be transmitted, but also the name of the coding systems to ensure that the data consistency across systems can be ensured. For example, in data type CWE, the component Name of Coding System. These codes must be agreed upon for each specific implementation. This
245 may be related to the need for referentials or metadata.
5. Each prescription item (prescription line) is associated with an ORC segment. ORC-2 should be different for each prescription line. In case a prescription line is replaced by another, ORC-2 of the new order line is also different from the replaced order line.
250
6. When an order is to be replaced by another, the mechanism to be used is as stated in HL7 v2.5, 4.5.1.1.1 d). For each order line to be replaced, use an ORC-1-order control value of RP (from placer) or RU (by Pharmaceutical Advisor, Dispenser, or Administration Informer). The ORC segment may be followed by its original order detail segment. These
255 ORC segments (with RP or RU) must be followed by an ORC segment with an ORC-1-order control value of RO (indicating the replacement order). The ORC with the RO value shall be followed by an order detail segment if needed. This is not the same as for example the pharmacy replacing the quantities or products, as in this case the RXO remains the same, but the RXE will add the products recommended by the pharmacy.

- 260 *(abandoned alternative – always use DC + NW) – reason for abandoning – the use of DC / NW remains supported, meaning that an application that sends DC + NW will not stop working – Use of DC = NW will not be interpreted by an IHE-compliant as a strict replacement, but a discontinuation and a new order.)*
- 265 7. When an order is to be replaced by another, only the changed order line needs to be sent.
Abandoned alternative – send the complete prescription again. It will be up to the applications to keep track of the complete prescription, even if messages send only partial data.
- 270 8. In a perfusion administration, an RAS message is to be sent at any time there is a change in the administration status – at the beginning, at the change of the components, and at the end of the administration.
- 275 9. Since the nurse can also accumulate functions to dispense medication, in case where a nurse is the dispenser, and the actions dispense+administration are tightly associated, the system must
1. Set the order status to Dispensed
 2. Optionally, be able to additionally trigger transaction PHARM-H3 (Dispense, Message RGV) to the Pharmaceutical Advisor and to the Prescription Placer.
- 280 *The RGV message is Optional because the dispenser being the administering nurse, and the dispense being associated with the act of administration, the RAS message contains the same information expected by the other actors.*
10. Substances and product codes:
- 285 It is assumed that association between prescribed substance or product, and the corresponding dispensed/administered product can be done by the actors as needed by the implementation. The prescription placer can use RXO segment indicating a product or substance ID in RXO-1, or simply provide a text indication in RXO-6. If RXO-1 is provided, it is assumed that the receiving applications will be able to understand the code provided and
- 290 associate it with the products as needed. Examples:
- The doctor prescribes a substance in RXO-1, and the pharmacist associates a product with that order in RXE-2.
 - The doctor prescribes a substance X (Paracetamol) in RXO-1, and for example, due to tends of offers for drugs, the Pharmacists have had to change across the hospital the reference of substance “Paracetamol” by product “Dafalgan”. But in all the transactions
- 295 the code X for dafalgan is used.

- It is also acceptable for the Prescription to be non-encoded (free text), which requires that the receiving application can determine the products for this.

- 300 11. Prescription status management: ORC-5 is stating the prescription status. Details of dispense, administration and validation are orthogonal to the prescription state and between themselves. ORC-25 will be used to convey detailed status of these activities.
- 305 12. Encoding [3 per day] → [1 at 7h, one at 15h, one at 23h] is to be done by possibly any of the actors, or a set of them.
13. The Pharmaceutical advice can be added to a prescription. Only the final validation sets the validated status to complete in ORC-25.
- 310 14. Validation information for all the prescription (concerning the complete set of prescription lines) is sent in the NTE segment after RXE, and the ORC-25 is updated to “Prescription Validation complete”.
- 315 15. Message type for Medication Dispensed (Medication Availability) is RGV. This message is sent at the point that the medication is associated with a patient.
16. Administrations “to no one” for resupply purposes are not in scope, as they will be supply-chain related messages.

- 320 17. Deletion of data

Chosen Option:

In the IHE Hospital Medication Workflow, handling of a null value – indicated by two double-quotes between the delimiters (i.e., |"") is done by agreement on the implementations – at this point, IHE Pharmacy – Hospital Medication Workflow – does not impose constraints or recommendations at this time.

325

Please refer to HL7 section 2.10.4.1 for deleting of data.

Abandoned alternative:

In the IHE Hospital Medication Workflow, a null value for a field means that all components of the field are to be nullified. To nullify only one of the components, the separators before the other components must be specified, so that it is clear that they are deliberately left empty.

330

A null component followed by empty components, – e.g., when removing the Order Parent Placer Assigned Identifier, ORC-8.1 is null and ORC-8-2, is to be coded by leaving 8.2.1 blank and placing double quotes in ORC-8., i.e.,

335 *ORC/.../.../.../.../ .../“”^/...*

Diagnosis can be in RXE-27 and RXG-22. If RXO-20 is present, these fields will have the same value.

340 IN1 segment is only available in v2.6 – IHE Pharmacy uses IN1 for insurance data Implementations are free to pre-adopt IN1 in v2.5, but IHE does not use other specific fields to convey Insurance information – if Insurance data is to be sent, it must be in the IN1 segments, requiring forward v2.6 compatibility.

345 Description of Order Status is detailed in ORC-25 – Order Status Modifier. A simple coding conveys separately the status of prescription, validation, dispensing and administration. These statuses are not expected to always be sequential, so a strict numbering scheme was not selected – i.e., normally the prescription precedes administration, but this will not always be the case. A numbered scheme that respects this separation is presented in 4.6.1 - Prescription, Validation,
350 Dispense and Administration Status (page 31).

18. For scope clarification, in this present edition, IHE –Pharmacy covers the administration of medication until a successful or unsuccessful administration of the medication, and related aspects. After that – e.g., Adverse drug events, other reactions that happen later than the event of administration – are not yet covered in detail in the scenarios explored
355 in this first release of the profile, so IHE-Pharmacy makes no constraints or recommendations at this moment.

19. “Dispense Report” → “Medication Preparation Report”
The dispense itself is the supply of drugs for a patient and must be addressed in future
360 editions.

Volume 1 – Integration Profiles

1.n Copyright Permission

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370 *Add the following to section 2.1:*

2.1 Dependencies among Integration Profiles

2.7 History of Annual Changes

Add the following bullet to the end of the bullet list in section 2.7

- 375
- Added the Hospital Medication Workflow which supports the Medication workflows in a hospital setting.

Add section 3

4 Intra-Hospital Workflow Integration Profile

395 This integration profile instantiates the interoperability model to the Hospital - basic inpatient scenario.

4.1 Actors/ Transactions

400 Figure 4.1-1 shows the actors directly involved in the Hospital Medication Workflow Integration Profile and the relevant transactions between them. Other actors that may be indirectly involved due to their participation in other related profiles are not necessarily shown.

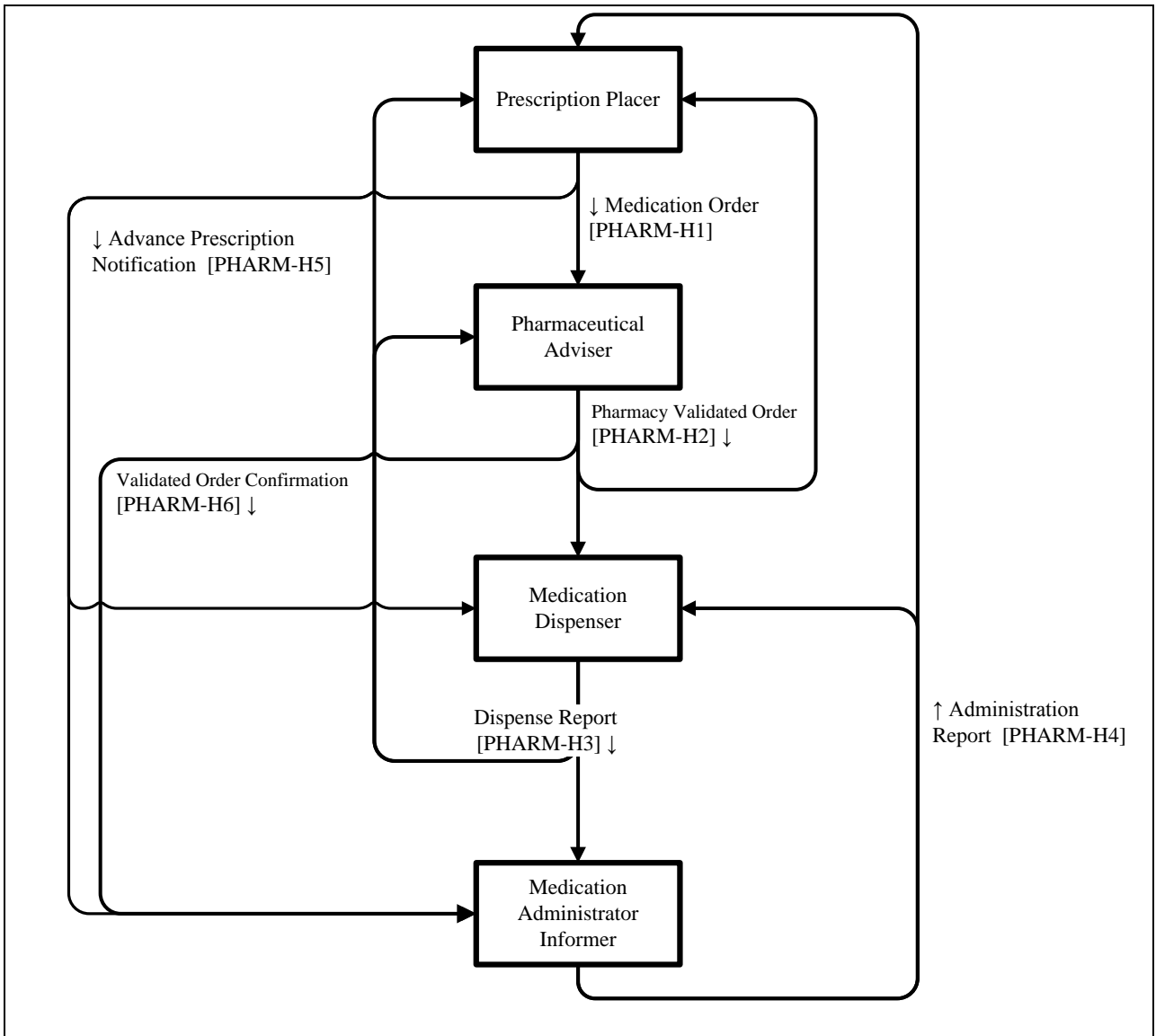


Figure 4.1-1: Hospital Pharmacy Actor Diagram

405 Table 4.1-1 lists the transactions for each actor directly involved in the Pharmacy Profile. In order to claim support of this Integration Profile, an implementation must perform the required transactions (labeled “R”). Transactions labeled “O” are optional. A complete list of options defined by this Integration Profile and that implementations may choose to support is listed in Volume 1, Section 4.2.

410 **Table 4.1-1: Intra-Hospital Workflow Integration Profile - Actors and Transactions**

Actors	Transactions	Optionality	Section in Vol. 2
Prescription Placer	Medication Order [PHARM-H1]	R	5.6
	Advance prescription notification [PHARM-H5]	O	5.10
	Validated Order [PHARM-H2]	R	5.7
	Medication Preparation Report [PHARM-H3]	R	5.8
	Administration Report [PHARM-H4]	R	5.9
Pharmaceutical Adviser	Medication Order [PHARM-1]	R	5.6
	Validated Order [PHARM-H2]	R	5.7
	Medication Preparation Report [PHARM-H3]	R	5.8
	Validated Order Confirmation [PHARM-H6]	O	5.11
	Administration Report [PHARM-H4]	R	5.9
Medication Dispenser	Advance prescription notification [PHARM-H5]	O	5.10
	Validated Order [PHARM-H2]	R	5.7
	Medication Preparation Report [PHARM-H3]	R	5.8
	Administration Report [PHARM-H4]	R	5.9
Medication Administration Informer	Medication Preparation Report [PHARM-H3]	R	5.8
	Administration Report [PHARM-H4]	R	5.9
	Advance prescription notification [PHARM-H5]	O	5.10
	Validated Order Confirmation [PHARM-H6]	O	5.11

Note: Conditions and optionality are described in the section corresponding to each message.

4.2 Intra-Hospital Workflow Integration Profile Options

415 Options that may be selected for this Integration Profile are listed in the table 4.2-1 along with the Actors to which they apply. Dependencies between options when applicable are specified in notes.

Table 4.2-1: Intra-Hospital Workflow - Actors and Options

Actor	Options	Vol. & Section
Prescription Placer	Advance Prescription Notification	2 – 5.10
Pharmaceutical Adviser	Validated Order Confirmation	2 – 5.11
Medication Dispenser	Advance Prescription Notification	2 – 5.10

Actor	Options	Vol. & Section
Medication Administration Informer	Advance Prescription Notification Validated Order Confirmation	2 – 5.10, 2 – 5.11

4.2.1 Option: Advance Prescription Notification

420 This option is used to inform in advance the actors of a prescription, so that preparation of the medication and of the patient can be triggered before the Pharmaceutical Advice is completed.

Since any actor that receives the prescription notification will also need to receive the indication when it's validated, this option includes transactions Advance Prescription Notification [PHARM-H5] and Validated Order Confirmation [PHARM-H6]. Using this option requires that
425 both these transactions are used.

With this option, it may be that there are cases where there are differences between the original Prescription Order and the actual Validated Prescription. In these cases, the content of the Validated Prescription should prevail over the original prescription. It is also expectable that upon detecting such inconsistency, the Medication Administration Informer or the Medication
430 Dispenser will notify the Pharmaceutical Adviser.

The information in transactions PHARM-H1 to PHARM-H4 is prevailing over PHARM-H5:

If there are unsolvable discrepancies between the information in PHARM-H2 and PHARM-H5, the Medication Dispenser must inform the Pharmaceutical Adviser and the Prescription Placer (with a status "UA – Unable to Accept").

435 If there are unsolvable discrepancies between the information in PHARM-H3 and PHARM-H5, the Medication Administration Informer must inform the Pharmaceutical Adviser and the Prescription Placer (with a status "UA – Unable to Accept")

4.3 Intra-Hospital Workflow Process Flow

4.3.1 Scope

440 4.3.1.1 Supply Chain management

In the first year, IHE Pharmacy does not cover the supply chain of medication, only the clinical flow of information is covered. In many implementations both clinical and supply flows will be present, which will require supply and inventory messages, which are not covered in the current release of the profile.

445 To provide guidance for the use of this profile, not constraining the supply chain aspects, a brief description of the foreseen supply chain messaging follows:

- The dispense starts with the RDE message, which is the message that circulates in the pharmacy until the dispenser. This message may contain more or less detailed information, according to the implementation: for example, the pharmacy technician may
450 receive an RDE from the pharmaceutical advisor stating "3 times per day" and he/she

will change this to “one at 8h00, one at 16h00, one at 24h00”, depending on the local pharmacy rules. After this, he will send it to the dispenser (which may be in the pharmacy or in the ward).

- 455 • The dispenser of medication (pharmacy, a ward) receives an order for dispense (triggered by a validated prescription) and proceeds with dispensing it (generating the RGV message when the medication is assigned to a specific administration).
- 460 • For supply management, the dispenser may also report that a certain amount of medication has been dispensed for a patient, and the corresponding report transports quantity and inventory information (e.g., “21 units of Dafalgan® have been dispensed for patient X”), eventually also “with the lot number XXX and expiry date dddddd”. This information is transmitted through an RDS message.
- 465 • If the dispenser also has some basic stock management functionality, it may determine that the resupply is needed. In these cases, an OMS message is sent from the Dispenser to a medication supplier. This message may be also nominative (expliciting the patient name) or not.
- This chain, involving the use of “Resupply” functional blocks, and the use of OMS and RDS messages, with or without Patient information, and inventory information, allows for supply networks to be created for each implementation.
- 470 • The “clinical” actors may be interested in updates of the supply process, for example a doctor may want to know that the 21 units of Dafalgan® have finally been dispensed for his/her patient.
- 475 • Each supplier of medication may also inform others about the current inventory. This is achieved by means of an MFN^M16 message (only available as of HL7 v2.6) and may be used for example in situations where the local or remote availability can be used to advise on the best medication to dispense.
- The supply messages described above can be communicated to each of the actors directly or through repositories (see next section for use of repositories)

4.3.1.2 Use of messages and repositories

480 In the current scope, this profile foresees the direct message exchange between the actors. IHE Pharmacy expects that information such as administration reports, dispense and preparation reports, etc. are available on hospital-wide repositories, and not associated specifically with each actor. For example, the Medication Administration Informer may send the Administration reports to a repository, to which the Prescription Placer and the Pharmaceutical Advisor are consumers. This also allows the communication with external repositories.

485 This is, however, outside of the current scope of this document, and may be described in later editions of the Hospital Medication Workflow Integration Profile.

4.3.2 Workflow

490 IHE supports the range of workflows present in hospital pharmacies. The current scope is based on the basic patient scenario, depicted in Figure 4.3.2-1: Basic Process Flow in Intra-hospital Profile below.

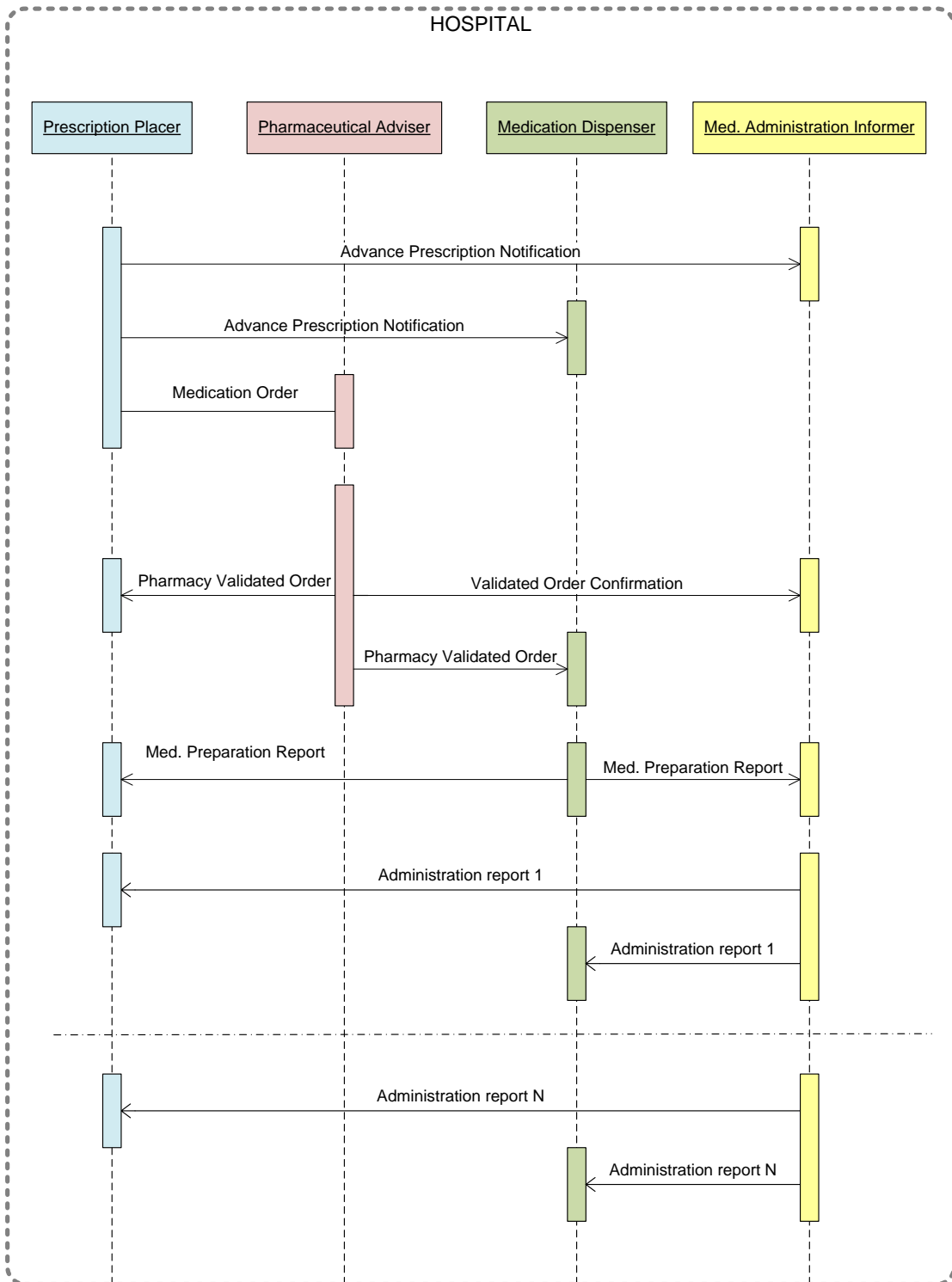


Figure 4.3.2-1: Basic Process Flow in Intra-hospital Profile

The workflow is summarized as follows:

495 The prescription placer enters and submits a prescription. A message is sent to the pharmaceutical adviser, who is to take care of the validation of the prescription according to site rules. This validation can be for legal, clinical, or stock reasons.

500 When the prescription is validated by the pharmaceutical advisor, a message is sent to the Medication Dispenser, containing the original prescription and also the medication that is expected to be dispensed (in the case where the pharmacy must specify this, for example, determining what is the package that is to be dispensed or if there is a change generated by the validation).

The dispenser receives the message and ensures all the necessary actions to assign the medication to the patient, making it available for administration. This can consist of a chain of actions, but it is currently out of scope to detail these actions.

505 After each preparation event, the Medication Dispenser sends a report to the Administration Informer mentioning that the medication or its alternative is available, and also forwarding the original prescription and the pharmacy validation.

510 When a medication is administered, or when there is a change in the administration of a medication (e.g., start of an IV perfusion, change of rate of a perfusion, break of vial, patient rejecting the medication immediately upon administration, etc.), the Medication Administration Informer sends a message (per administration event). This message contains the original prescription, the pharmacy validation, and the preparation report.

4.4 Pharmacy Messaging Content

The general structure of the message content in the IHE Pharmacy is as follows:

- 515 1. There is a common part for the patient and order data – this is to be used by all actors. In the use cases currently covered by HMW, it is created by the prescription placer application.

Prescription or Medication Order is created and maintained at the prescription placer.

520 Pharmaceutical Advice is created and maintained at the pharmaceutical adviser.

Dispense Information is created and maintained at the medication dispenser.

525 Administration Information is created and maintained at the medication administration informer.

To preserve the integrity and ownership of prescription data and allow for interoperability and flexibility, these boundaries are maintained throughout the system:

- The Prescription Placer creates prescription data.
- 530 • The Pharmaceutical Adviser takes the prescription data and appends to this prescription data his/her advice, not changing the prescription data.
- The Medication Dispenser takes the Validated Order data (Prescription + Pharmaceutical Advice) and appends to this the Dispense and Preparation Information, not changing the prescription nor validation data.
- 535 • The Medication Administration Informers take the data available in the Preparation Report (Prescription + Pharmaceutical Advice+ Medication Preparation Report) and appends to this the Medication Administration information, not changing the prescription, validation nor dispense/preparation data.

540 **Table 4.4-1: Hospital Messages content and data ownership – basic inpatient scenario**

	Prescription Placer	Pharmaceutical Adviser	Medication Dispenser	Medication Administration Informer	HL7 segments
Common data		Inherit	Inherit	Inherit	ORC, RXO
Prescription Order		Inherit	Inherit	Inherit	RXO...
Validated order		Master	Inherit	Inherit	RXE...
Medication Dispense Report			Master	Inherit	RXG...
Administration Report				Master	RXA...
HL7 Message type sent		RDE	RGV	RAS	

4.4.1 Hospital Pharmacy Data model

In the Pharmacy white paper, the Pharmacy data model is presented in a normalized form. This section presents it in a de-normalized manner, for clarity of the data and their ownership. It reveals the data elements available in the different Pharmacy messages and their structure.

Names in *italics* refer to groups and not data elements.

Indentation represents hierarchy, for example the group Patient contains Personal identification.

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Common data	Medication Order	Pharmaceutical Advice	Dispense	Administration
<i>Patient</i>	<i>Prescriber</i>	PrescriptionID	Dispenser	Ward_Staff
Name	Name	Obs	Name	Name
Personal Identification	Address	Date/Time of advice	HCP Identification	Address
Administrative Sex	HCP Identification	Problems	Dispense_Item	HCP Identification
Date of Birth	Profession	Summary of	Quantity/Timing	Department
Address	Contact Information	physician/pharmacist discussion	Code	<i>Administered_Item</i>
Contact Information	Speciality	Status: (Open | Closed)	Coding system	Effective
Guardian contact	<i>Prescription_Item</i>	Decision	Name	start of administration date/time
information	Date/Time of prescription	<i>Pharmacy</i>	Give Amount –	Effective end of administration
Guardian Name	Diagnosis	Address	Minimum	date/time
Guardian Relationship	Item ID	<i>Pharmacist</i>	Give Amount –	Administration Location
Marital Status	Frequency/Posology	Name	Maximum	Expiration date
Race	Route	HCP Identification	Give Units code	Batch number
Ethnicity	Site	Profession	Give Units coding	Quantity administered
Religious Affiliation	Dose	Department	system	Code
Patient Contact	Dose Units	Contact Information	Form code	Name
Information	Rate	<i>Validated_Item</i>	Form coding system	Units
Payers	Instructions	Item ID	OBS	Form
Coded Vital Signs	Fulfilment instructions	Frequency	Barcode	Administration comments
Allergies and Drug	<i>Medication</i>	Route	Batch number	Reason for non-administration
Sensitivities	Code	Site	Administration_instructi	Reaction
Active Problems	Coding system	Dose	ons	Route of administration
Resolved Problems	Name	Rate		Administration Status
Immunizations	Form code	Administration Instructions		Barcode
Pregnancy History	Form coding system	Advice		
<i>Encounter</i>	Active Ingredients	Dispense instructions		
EncounterID	Substitution allowed	<i>Medication</i>		
Patient Location	Observations	Code		
Organization Name		Coding system		
Address		Name		
Organization Identifier		Form code		
Contact Information		Form coding system		
<i>Prescription</i>		Active Ingredients		
PrescriptionID		Substitution status		

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Status				
--------	--	--	--	--

4.5 HL7 Message structure

550 The general structure of the message content in the IHE Pharmacy is as follows:

1. There is a common part for the patient and order data – this is to be used by all actors. In the use cases currently covered by IHE, it is created by the prescription placer application. In the HL7 messages, this consists of segments PID [PD1] [{ NTE }] [PV1 [PV2]] [{ IN1 [IN2] [IN3] }] [GT1] [{ AL1 }] [{ ORC [{ TQ1 [{ TQ2 }] }] }

555

```

[
    PID
    [ PD1 ]
    [ { NTE } ]
    [
        PV1
        [ PV2 ]
    ]
    [ {
        IN1
        [ IN2 ]
        [ IN3 ]
    } ]
    [ GT1 ]
    [ { AL1 } ]
]
{
    ORC
    [ {
        TQ1
        [ { TQ2 } ]
    } ]
}

```

--- PATIENT begin
Patient Identification
Additional Demographics
Notes and Comments (for Patient ID)
--- PATIENT_VISIT begin
Patient Visit
Patient Visit - Additional Info
--- PATIENT_VISIT end
--- INSURANCE begin
Insurance
Insurance Additional Information
Insurance Additional Information,
Certification
--- INSURANCE end
Guarantor
Allergy Information
--- PATIENT end
--- ORDER begin
Common Order
--- TIMING begin
Timing/Quantity
Timing/Quantity Order Sequence
--- TIMING end

Prescription Order – created and maintained at the prescription placer. In an HL7 message, it consists of segments RXO [{ NTE }] { RXR } [{ RXC [{ NTE }] }]

560

```

RXO
[ { NTE } ]
{ RXR }
[ {
    RXC
    [ { NTE } ]
} ]

```

Pharmacy/Treatment Order
Notes and Comments (for RXO)
Pharmacy/Treatment Route
--- COMPONENT begin
Pharmacy/Treatment Component
Notes and Comments (for each RXC)
--- COMPONENT end

Pharmaceutical Advice – created and maintained at the pharmaceutical adviser. In an HL7 message, it consists of segments RXE [{ NTE }] { TQ1 [{ TQ2 }] } {RXR} [{RXC}]

```

RXE Pharmacy/Treatment Encoded Order
[ { NTE } ] Notes and Comments (for RXE)
{
  --- TIMING_ENCODED begin
  TQ1 Timing/Quantity
  [ { TQ2 } ] Timing/Quantity Order Sequence
} --- TIMING_ENCODED end
{ RXR } Pharmacy/Treatment Route
[ { RXC } ] Pharmacy/Treatment Component (for RXE)

```

565 Medication Preparation Information– created and maintained at the medication dispenser class of actors. In an HL7 message, it consists of segments RXG{TQ1 [{ TQ2 }]}{ RXR } [{ RXC }]{ [OBX] [{ NTE]}}

```

{
  --- GIVE begin
  RXG Pharmacy/Treatment Give
  {
    --- TIMING_GIVE begin
    TQ1 Timing/Quantity
    [ { TQ2 } ] Timing/Quantity Order Sequence
  } --- TIMING_GIVE end
  { RXR } Pharmacy/Treatment Route
  [ { RXC } ] Pharmacy/Treatment Component
  {
    --- OBSERVATION begin
    [ OBX ] Observation/Results
    [ { NTE } ] Notes and Comments (for OBX)
  } --- OBSERVATION end
} --- GIVE end

```

570 Administration Information – created and maintained at the medication administration informer. In HL7 message, it consists of segments {RXA} RXR [{OBX [{NTE}]]}

```

{
  --- ADMINISTRATION begin
  { RXA } Pharmacy/Treatment Administration
  RXR Pharmacy/Treatment Route
  [ {
    OBX Observation/Result
    [ { NTE } ] Notes and Comments (for OBX)
  } ] --- OBSERVATION end
} --- ADMINISTRATION end

```

Complete message structures for both request and response messages are displayed throughout chapter 5:

575

Transaction name	HL7 message type	HMW table
Prescription Order (PHARM-H1)	009 (Request), ORP^O10 (Response)	5.5.8.1-1 5.5.8.2-1
Validated Order (PHARM-H2)	011 (Request), RRE^O12 (Response)	5.6.6.1-1 5.6.6.2-1
Medication Dispense Report (PHARM-H3)	015 (Request), RRG^O16 (Response)	5.7.5.1-1 5.7.5.2-1
Administration Report (PHARM-H4)	017 (Request), RRA^O18 (Response)	5.8.6.1-1 5.8.6.2-1
Advance Prescription Notification (PHARM-H5)	same as PHARM-H1	
Validated Order Confirmation (PHARM-H6)	same as PHARM-H2	

4.5.1 Common Data

The common data is common to all the transactions, and is to be coded in the segments
 PID [PD1] [{ NTE }] [PV1 [PV2]] [{ IN1 [IN2] [IN3] }] [GT1] [{ AL1 }]]
 and in the OBX segment.

580

Table 4.5.1-1: Common Pharmacy Order data

Parameter	Required	HL7 element	Repeatable
Patient.Name	R	PID-5	Y
Patient.Personal Identification	R	PID-3	Y
Patient.Administrative Sex	R	PID-8	
Patient.Date of Birth	R	PID-7	
Patient.Address	O	PID-11	Y
Patient.Contact Information	O	PID-13	Y
Patient.Guardian contact information	RE	NTE	Y
Patient.Guardian Name	RE	NTE	Y
Patient.Guardian Relationship	RE	NTE	Y
Patient.Marital Status	O	PID-16	
Patient.Race	O	PID-10	Y
Patient.Ethnicity	O	PID-22	Y
Patient.Religious Affiliation	O	PID-17	
Patient.Encounter.EncounterID	RE	PV1-19	
Patient.Encounter.Patient Location	RE	PV1-3	
Patient.Encounter.Organization.Name	R	ORC-21-1	Y

Parameter	Required	HL7 element	Repeatable
Patient.Encounter.Organization.Address	R	ORC-22	Y
Patient.Encounter.Organization.Organization Identifier	R	ORC-21-10	Y
Patient.Encounter.Organization.Contact Information	R	ORC-23	Y
Patient.Payers	RE	IN1, IN2, IN3	Y
Patient.Coded Vital Signs	O	OBX	Y
Patient.Allergies and Drug Sensitivities	O	AL1	Y
Patient.Active Problems	O	OBX	Y
Patient.Resolved Problems	O	OBX	Y
Patient.Immunizations	O	OBX	Y
Patient.Pregnancy History	O	OBX	Y
Prescription.Prescriber.Name	R	ORC-12-2..6	Y
Prescription.Prescriber.Address	O	ORC-24	Y
Prescription.Prescriber.HCP Identification	R	ORC-12-1	Y
Prescription.Prescriber.Contact Information	O	ORC -14	
Prescription.Prescriber.Speciality	R	ORC -12-21	
Prescription.PrescriptionID	R	ORC-4	

4.5.2 Medication Order

585 In the Basic inpatient Scenario, the Prescription data is required in all the transactions, and is to be coded in the segments

RXO [{{NTE}}] {RXR} [{{RXC [{{NTE}}]}]}]

Table 4.5.2-1: Prescription Order data

Parameter	Req'd	HL7 field	Repeatable
Prescription.Prescription_Item.Date/Time of prescription	R	ORC-9	
Prescription.Prescription_Item.Item ID	R	ORC-2	
Prescription.Prescription_Item.Frequency/Posology	RE	TQ1	Y
Prescription.Prescription_Item.Route	R	RXR-1	
Prescription.Prescription_Item.Site	RE	RXR-2	
Prescription.Prescription_Item.Dose	RE	RXO-2	
Prescription.Prescription_Item.Dose Units	RE	RXO-4	
Prescription.Prescription_Item.Rate	RE	RXO-21	
Prescription.Prescription_Item.Instructions	RE	RXO-6	Y
Prescription.Prescription_Item.Fulfilment instructions	RE	RXO-7	Y
Prescription.Prescription_Item.Medication.Code	RE	RXO-1-1	
Prescription.Prescription_Item.Medication.Coding system	RE	RXO-1-3	
Prescription.Prescription_Item.Medication.Name	RE	RXO-1-2	

Parameter	Req'd	HL7 field	Repeatable
Prescription.Prescription_Item.Medication.Form code	RE	RXO-5	
Prescription.Prescription_Item.Medication.Form coding system	RE	RXO-5	
Prescription.Prescription_Item.Medication.Active Ingredients	RE	RXC-2	
Prescription.Prescription_Item.Medication.substitution allowed	R	RXO-9	
Prescription.Prescription_Item.Medication.Observations.Obs	RE	NTE	Y
Prescription.Diagnosis	R	RXO-20	Y
Prescription Status	R	ORC-25	

590 **4.5.3 Pharmacy Validated Order**

The validated order data is to be coded in the segments

RXE [{ NTE }] { TQ1 [{ TQ2 }] } {RXR} [{RXC}]

Table 4.5.3-1: Pharmacy Validated Order data

Parameter	Req'd	HL7 field	Repeatable
Prescription.PrescriptionID	R	RXE-15	
Pharmaceutical_Advice.Pharmacist.Name	R	RXE-14	Y
Pharmaceutical_Advice.Pharmacist.Address	Not Supported		
Pharmaceutical_Advice.Pharmacist.HCP Identification	R	RXE-14-1	
Pharmaceutical_Advice.Pharmacist.Department	Not Supported		
Pharmaceutical_Advice.Pharmacist.Contact Information	Not Supported		
Pharmaceutical_Advice.Obs	RE	NTE	Y
Pharmaceutical_Advice.Date/Time of advice	R	ORC-9	
Pharmaceutical_Advice.problems	RE	NTE	Y
Pharmaceutical_Advice.Summary of physician/pharmacist discussion	RE	NTE	Y
Pharmaceutical_Advice.Status: (Open | Closed)	R	ORC-25	
Pharmaceutical_Advice.Decision	R	ORC-1	
Pharmaceutical_Advice.Validated_Item.Item ID	R	ORC-2	
Pharmaceutical_Advice.Validated_Item.Frequency	R	TQ1-3	
Pharmaceutical_Advice.Validated_Item.Route	R	RXR-1	
Pharmaceutical_Advice.Validated_Item.Site	RE	RXR-2	
Pharmaceutical_Advice.Validated_Item.Dose	R	RXE-3	
Pharmaceutical_Advice.Validated_Item.Rate	RE	RXE-23	
Pharmaceutical_Advice.Validated_Item.Administration Instructions	RE	RXE-7	Y
Pharmaceutical_Advice.Validated_Item.Advice	RE	NTE	Y
Pharmaceutical_Advice.Validated_Item.Dispense instructions	RE	RXE-21	Y
Pharmaceutical_Advice.Validated_Item.Medication.Code	R	RXE-2-1	
Pharmaceutical_Advice.Validated_Item.Medication.Coding system	R	RXE-2-3	

Parameter	Req'd	HL7 field	Repeatable
Pharmaceutical_Advice.Validated_Item.Medication.Name	R	RXE-2-2	
Pharmaceutical_Advice.Validated_Item.Medication.Form code	O	RXE-6	
Pharmaceutical_Advice.Validated_Item.Medication.Form coding system	O	RXE-6	
Pharmaceutical_Advice.Validated_Item.Medication.Active Ingredients	O	RXC-2	
Pharmaceutical_Advice.Validated_Item.Medication.substitution status	R	RXE-9	

595

4.5.4 Medication Dispense Report

The common data is common to all the transactions, and is to be coded in the segments
 RXG{TQ1 [{ TQ2 }]}{ RXR } [{ RXC }]{ [OBX] [{ NTE }]}

600

Table 4.5.4-1: Medication Preparation Report data

Parameter	Req'd	HL7 field	Repeatable
Preparation.Dispenser.Name	R	ORC-19	Y
Preparation.Dispenser.HCP Identification	R	ORC-19	
Preparation.Dispense_Item.Quantity/Timing	R	TQ1	
Preparation.Dispense_Item.Code	R	RXG-4	
Preparation.Dispense_Item.Coding system	R	RXG-4	
Preparation.Dispense_Item.Name	RE	RXG-4	
Preparation.Dispense_Item.Give Amount – Minimum	R	RXG-5	
Preparation.Dispense_Item.Give Amount – Maximum	RE	RXG-6	
Preparation.Dispense_Item.Give Units code	R	RXG-7	
Preparation.Dispense_Item.Give Units coding system	R	RXG-7	
Preparation.Dispense_Item.Form code	RE	RXG-8	
Preparation.Dispense_Item.Form coding system	RE	RXG-8	
Preparation.Dispense_Item.OBS	RE	RXG-13	Y
Preparation.Barcode	RE	RXG-25	
Administration instructions	RE	RXG-9	Y

4.5.5 Administration Report

The common data is common to all the transactions, and is to be coded in the segments
 {RXA} RXR

605

Table 4.5.5-1: Administration Report data

Parameter	Req'd	HL7 field	Repeatable
Administration.Ward_Staff.Name	R	RXA-10	Y
Administration.Ward_Staff.Address	RE	RXA-10	Y

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Parameter	Req'd	HL7 field	Repeatable
Administration.Ward_Staff.HCP Identification	R	RXA-10	Y
Administration.Ward_Staff.Department	O	RXA-10	Y
Administration.Administered_Item.Effective start date/time of administration	R	RXA-3	
Administration.Administered_Item.Effective end date/time of administration	RE	RXA-4	
Administration.Administered_Item.Administration Location	RE	RXA-11	
Administration.Administered_Item.Expiration date	RE	RXA-16	Y
Administration.Administered_Item.Batch number	RE	RXA-15	Y
Administration.Administered_Item.Quantity administered (may be later updated e.g., following patient vomiting, extravasation ...)	RE	RXA-6	
Administration.Administered_Item.Code	R	RXA-5	
Administration.Administered_Item.Name	R	RXA-5	
Administration.Administered_Item.Units	R	RXA-7	
Administration.Administered_Item.Form	RE	RXA-8	
Administration.Administered_Item.Administration comments	RE	RXA-9	Y
Administration.Administered_Item.Reason for non-administration (for instance patient refused medicine, medicine is not available...)	RE	RXA-18	Y
Administration.Administered_Item.Reaction	RE	OBX	Y
Administration.Administered_Item.Route of administration	R	RXR-1	
Administration.Administered_Item.Administration Status	R	RXA-20	
Administration.Administered_Item.Barcode	RE	RXA-25	

4.6 Order Status Management

4.6.1 Prescription, Validation, Dispense and Administration Status

610 The status of the prescription is described in the Common parts Document. In addition to the prescription status, the hospital system may desire to track the status of the validation, dispense, and administration. Since the prescription may be decomposed into additional lines, each of which may trigger several medication preparation reports, and each of which may trigger several administration reports, the status of these activities must be detailed.

615 To refer to these statuses, the following structure is used –

A prefix is used for

P-Prescription, V-Validation/Advice, D-Dispense, A-Administration

For each of these, the status can be

0 (not started), 1 (Planned), 2 (in Progress), 3 (completed) and 9 (cancelled).

620 To detail the status, we append the prefix and the status number. These 4 parts are separated by a semicolon (“;”). A field that is not mentioned is considered as “0- Not started”; each actor should fill in this information for its part of the workflow – for example, the prescription placer updates the Administration part, the administration informer updates the Administration part, etc.

The status of the prescription “In progress” can relate to a few sub-statuses:

625

Table 4.6.1-1: Detailed order status

Action	Prescription status becomes...	Validation status	Dispense status	Administration status	Order Status (ORC-5)	Order Status Detail (ORC-25)
Prescription (2 items, for a week) is placed for validation	Placed	N/A	N/A	N/A	IP	P3;V0;D0; A0
Pharmacist validates prescription	In Progress	In Progress	N/A	N/A	IP	P3;V2;D0; A0
Dispenser dispenses one of the 2 products, for a week	In Progress	Completed	In progress	N/A	IP	P3;V3;D2; A0
Dispenser dispenses the other product for 5 days	In Progress	Completed	In Progress	N/A	IP	P3;V3;D2; A0

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Action	Prescription status becomes...	Validation status	Dispense status	Administration status	Order Status (ORC-5)	Order Status Detail (ORC-25)
Dispenser dispenses the other product for the other 2 days	In Progress	Completed	Completed	N/A	IP	P3;V3;D3; A0
Nurse administers one dose of each medication line	In Progress	Completed	Completed	In Progress	IP	P3;V3;D3; A2
Nurse finishes administering the last dose of all the lines	Completed	Completed	Completed	Completed	CM	P3;V3;D3; A3
Cancel Prescription before validation	Cancelled	N/A	N/A	N/A	CA	P9;V0;D0; A0
Cancel Prescription after validation	Cancelled	Completed	N/A	N/A	CA	P9;V3;D0; A0
Cancel Prescription after dispense	Cancelled	Completed	In Progress or Completed	N/A	CA	P9;V3;D2; A0 or P9;V3;D3; A0
Cancel Prescription after administration	Cancelled	Completed	In Progress or Completed	In Progress or Completed	CA	P9;V3;D2; A2 P9;V3;D3; A2 P9;V3;D3; A3
Prescription is refused by Pharmacist	Completed	Completed	N/A	N/A	DC	P3;V3;D0; A0
Validation cancelled by Pharmacist before dispense	Completed	Cancelled	N/A	N/A	DC	P3;V9;D0; A0
Validation cancelled by Pharmacist after dispense	Completed	Cancelled	In Progress or Completed	N/A	DC	P3;V9;D2; A0 P3;V9;D3; A0

Action	Prescription status becomes...	Validation status	Dispense status	Administration status	Order Status (ORC-5)	Order Status Detail (ORC-25)
Validation cancelled by Pharmacist after administration	Completed	Cancelled	In Progress or Completed	In Progress or Completed	DC	P3;V9;D2; A2 P3;V9;D3; A2 P3;V9;D3; A3
Cancellation of an administration	Completed	Completed	In Progress or Completed	Cancelled	DC	P3;V3;D2; A9 P3;V3;D3; A9

In addition to this, the status of each prescription line, dispense line and administration line can be tracked. Example:

630 The prescription requests 21 units of Paracetamol 500 mg, the pharmacy can dispense 15 at a time. After the first dispense of 15 units, the status of the dispense line “Paracetamol 500 mg, 21 units” is “In Progress”, and so is the status of the overall dispense.

635 This also applies for the administration – each prescription item’s administration is in progress until every planned administration of that prescription item is complete; a prescription line is in progress until all instances of administration of all lines are administered.

5 Conventions

640 5.1 Technical Framework Cross-references

When references are made to another section within a Technical Framework volume, a section number is used by itself. When references are made to other volumes or to a Technical Framework in another domain, the following format is used:

<domain designator> TF-<volume number>: <section number>, where

645 <domain designator> is a short designator for the IHE domain (ITI = IT Infrastructure, PCC = Patient Care Coordination, LAB = Laboratory, PHARM-HMW is the Hospital Medication Workflow)

<volume number> is the applicable volume within the given Technical Framework (e.g., 1, 2, 3),

<section number> is the applicable section number.

650 For example: ITI TF-1: 3.1 refers to Section 3.1 in volume 1 of the IHE IT Infrastructure.

When references are made to Transaction numbers in the Technical Framework, the following format is used:

[<domain designator>-<transaction number>], where

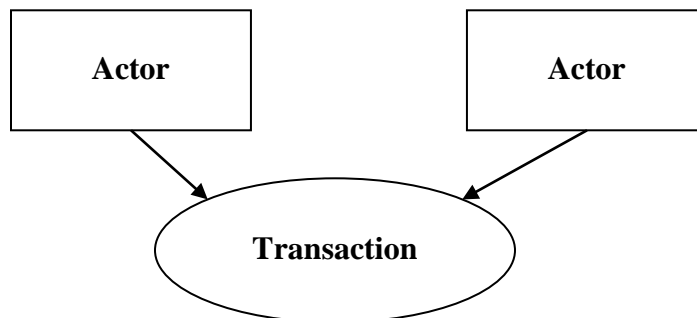
655 <transaction number> is the transaction number within the specified domain. For example: [LAB-1] refers to Transaction 1 from the IHE Laboratory Technical Framework, [ITI-30] refers to Transaction 30 from the IT Infrastructure Technical Framework.

5.2 The generic IHE Transaction Model

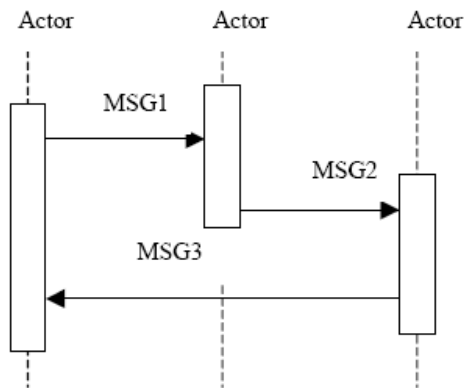
Transaction descriptions are provided in Section 3. In each transaction description the actors, the roles they play, and the transactions between them are presented as use cases.

660 The generic IHE transaction description includes the following components:

- Scope: a brief description of the transaction.
- Use case roles: textual definitions of the actors and their roles, with a simple diagram relating them, e.g.,:



- 665
- *Referenced Standards*: the standards (stating the specific parts, chapters or sections thereof) to be used for the transaction.
 - *Interaction Diagram*: a graphical depiction of the actors and messages that support the transaction, with related processing within an Actor shown as a rectangle and time progressing downward, similar to:



670

The interaction diagrams used in the IHE Hospital Medication Workflow Technical Framework are modeled after those described in Grady Booch, James Rumbaugh, and Ivar Jacobson, *The Unified Modeling Language User Guide*, ISBN 0-201-57168-4. Simple acknowledgment messages are often omitted from the diagrams for brevity. One or more messages may be required to satisfy a transaction. Each message is represented as an arrow starting from the Actor initiating the message.

675

- *Message definitions*: descriptions of each message involved in the transaction, the events that trigger the message, its semantics, and the actions that the message triggers in the receiver.

680 5.3 HL7 Profiling Conventions

The messages used by each transaction are described in this document using static definitions of "HL7 constrainable message profiles". Refer to HL7 v2.5, chapter 2B, section 2.B.6. The static definition of each message is represented within tables. At the message level, a table represents the message structure and its definition in terms of segments. At the segment level, a table details one segment and its definition in terms of fields.

685

5.3.1 Static Definition - Message Level

The table describing a message contains 5 columns:

690

- *Segment*: gives the segment name, and places the segment within the hierarchy of the HL7 message structure. Segments or segment groups not required appear between square brackets. Repeatable segments or segment groups appear between braces.
- *Meaning*: Meaning of the segment as defined by HL7

- *Usage*: Coded usage of the segment, as defined by this static definition built for the context of this particular transaction within IHE Hospital Medication Workflow Technical Framework. The coded values used in this document are:

695 **R**: Required: A compliant sending application shall populate all "R" elements with a non-empty value. A compliant receiving application shall process (save/print/archive/etc.) or ignore the information conveyed by required elements. A compliant receiving application shall not raise an error due to the presence of a required element, but may raise an error due to the absence of a required element.

700 **RE**: Required if available. The element may be missing from the message, but shall be sent by the sending application if there is relevant data. A conformant sending application shall be capable of providing all "RE" elements. If the conformant sending application knows the required values for the element, then it shall send that element. If the conformant sending application does not know the required values, then that element may be omitted.

705 Receiving applications will be expected to process (save/print/archive/etc.) or ignore data contained in the element, but shall be able to successfully process the message if the element is omitted (no error message should be generated if the element is missing).

710 **O**: Optional. IHE Hospital Medication Workflow Technical Framework has not yet defined usage requirements for this field.

C: Conditional. This usage has an associated condition predicate. (See HL7 v2.5 section 2.12.6.6 "Condition Predicate").

715 If the predicate is satisfied: A compliant sending application shall always send the element. A compliant receiving application shall process or ignore data in the element. It may raise an error if the element is not present.

If the predicate is NOT satisfied: A compliant sending application shall NOT send the element. A compliant receiving application shall NOT raise an error if the condition predicate is false and the element is not present, though it may raise an error if the element IS present.

720 **X**: Not supported. For conformant sending applications, the element will not be sent. Conformant receiving applications may ignore the element if it is sent, or may raise an application error.

- *Cardinality*: Within square brackets, minimum and maximum number of occurrences authorized for this segment, in this static definition of the message, built for the context of this particular transaction within IHE Hospital Medication Workflow Technical Framework.

- *HL7 chapter*: Reference of the HL7 v2.5 chapter that describes this segment.

Table 5.3.1-1: Example: Initial segments of a message description

Segment	Meaning	Usage	Card.	HL7 chapter
MSH	Message Header	R	[1..1]	2

Segment	Meaning	Usage	Card.	HL7 chapter
[	--- PATIENT begin	O	[0..1]	
PID	Patient Identification	R	[1..1]	3
[	--- PATIENT VISIT begin	RE	[0..1]	
PV1	Patient Visit	R	[1..1]	3

730 **5.3.2 Static Definition - Segment Level**

The table describing a segment and its definition in terms of fields contains 7 columns:

- **SEQ:** Position (sequence) of the field within the segment.
- **LEN:** Maximum length of the field
- **DT:** Field Data Type
- 735 • **Usage:** Usage of the field in this particular context of IHE Hospital Medication Workflow Technical Framework. Same coded values as in the message level: R, RE, C, O, X
- **Cardinality:** Minimum and maximum number of occurrences for the field in this particular context of IHE Hospital Medication Workflow Technical Framework. Same meaning as in the message level.
- 740 • **TBL#:** Table reference (for fields using a set of defined values)
- **ITEM#:** HL7 unique reference for this field
- **Element Name:** Name of the field.

5.4 HL7 Implementation Notes

745 **5.4.1 Network Guidelines**

The IHE Hospital Medication Workflow Technical Framework makes these recommendations:
 An application that wants to send a message (initiate a transaction) will initiate a network connection (if one does not already exist) to start the transaction. The receiver application will respond with an acknowledgement or response to query but will not initiate new transactions on this network connection.

750

5.4.2 Message Granularity

A message is generated from one trigger event in the real world. Therefore a message is related to one single business object.

5.4.3 Empty Fields

755 According to HL7 standard, if the value of a field is not present, the receiver shall not change corresponding data in its database. However, if the sender defines the field value to be the explicit NULL value (i.e., two double quotes ""), it shall be used, causing removal of any values

for that field in the receiver's database. This convention is applied by the IHE Hospital Medication Workflow Technical Framework.

- 760 In the IHE Hospital Medication Workflow, a null value for a field means that the first component of that field is to be nullified. To nullify all components in a field, these fields must be explicitly nullified.

5.4.4 Acknowledgement Modes

- 765 For the IHE Hospital Medication Workflow Technical Framework, applications that receive HL7 messages shall send acknowledgements using the HL7 acknowledgement mode as defined in HL7 v2.5 chapter 2, 2.9.2.

An OMP message shall be acknowledged by one single ORP message. These acknowledgements are application-level acknowledgements (i.e., not accept acknowledgements) and must be generated by the receiving application after it has parsed the message and processed its content.

- 770 The receiving application shall automatically generate the application acknowledgement messages without waiting for human approval of the contents of the message that was received.

5.4.5 IHE Pharmacy Technical Framework Acknowledgement Policies

The Enhanced acknowledgement mode in HL7 refers two types of acknowledgement that can be used in IHE: Accept and Application acknowledgements.

- 775 Event-triggered messages flow in one direction and accept of application acknowledgement messages related to those event-triggered messages flow in the other direction.

IHE- Hospital Medication Workflow does not impose constraints on the Acknowledgement Policies.

5.4.5.1 Application Acknowledgement

- 780 It may take the receiving system a while (seconds, minutes) to acknowledge a message or send a response. If the connection is broken whilst the sending application is still waiting for an acknowledgement, the sending application shall initiate a new connection and resend the message.

- 785 The application acknowledgement shall only be created by an application that is able to examine a message at the semantic / business-process level. Intermediate message brokers do not have this capacity and therefore shall not be used to generate the contents of application acknowledgements.

5.4.6 HL7 Data Types

This section describes the IHE constraints on some HL7 data types.

- 790 **5.4.6.1 CX – Extended Composite ID with Check Digit**

The constraints below particularly apply to the Patient Identifiers (PID segment).

HL7 Component Table - CX – Extended Composite ID with Check Digit

SEQ	LEN	DT	Usage	CARD	TBL#	COMPONENT NAME
1	15	ST	R	[1..1]		ID Number
2	1	ST	O	[0..1]		Check Digit
3	3	ID	O	[0..1]	0061	Check Digit Scheme
4	227	HD	R	[1..1]	0363	Assigning Authority
5	5	ID	R	[0..1]	0203	Identifier Type Code
6	227	HD	O	[0..1]		Assigning Facility
7	8	DT	O	[0..1]		Effective Date
8	8	DT	O	[0..1]		Expiration Date
9	705	CWE	O	[0..1]		Assigning Jurisdiction
10	705	CWE	O	[0..1]		Assigning Agency or Department

795 The data type has been constrained because the IHE Framework regards the Assigning Authority and the Identifier Type Code as essential components.

5.4.6.2 EI – Entity Identifier

The constraints below particularly apply to the following fields: placer group number, placer order number, filler order number and specimen number.

800

HL7 Component Table - EI – Entity Identifier

SEQ	LEN	DT	Usage	CARD	TBL#	COMPONENT NAME
1	199	ST	R	[1..1]		Entity Identifier
2	20	IS	C	[0..1]	0363	Namespace ID
3	199	ST	C	[0..1]		Universal ID
4	6	ID	C	[0..1]	0301	Universal ID Type

Component 1 is required. Either component 2 or both components 3 and 4 are required. Components 2, 3 and 4 may be all present.

805 The EI is appropriate for machine or software generated identifiers. The generated identifier goes in the first component. The remaining components, 2 through 4, are known as the assigning authority; they can also identify the machine/system responsible for generating the identifier in component 1.

Example 1: AB12345^RiversideHospital

Example 2: AB12345^^1.2.840.45.67^ISO

810 Example 3: AB12345^RiversideHospital^1.2.840.45.67^ISO

IHE requires component 2 “Namespace ID” to be filled in all cases. Particularly when there are several concurrent assigning authorities within the healthcare enterprise, this Namespace ID will indicate which assigning authority provided this number.

815 This happens for instance, when there are several Order Placer actors within the enterprise, each one assigning placer order numbers and placer group numbers.

Example 4: Placer order number and placer group number assigned by two different Order Placer actors.

In message 1: ORC | NW | 9876543^Nephro | | 777^Nephro | ...

In message 2: ORC | SC | 9876543^Urology | | 555^Urology | ...

820 This also commonly happens when there are several Order Filler actors within the enterprise, each one assigning its own filler order numbers and specimen numbers.

Example 5: Filler order number and specimen number assigned by the Order Filler actor operated by the clinical laboratory of cytology.

SPM | 1 | 45611^Cytology | ...

825 ...

OBR | 1 | 456^Cytology | ...

5.4.6.3 HD – Hierarchic Designator

SEQ	LEN	DT	Usage	CARD	TBL#	COMPONENT NAME
1	20	IS	R	[1..1]	0300	Namespace ID
2	199	ST	C			Universal ID
3	6	ID	C		0301	Universal ID Type

This Integration Profile requires that a field of Data Type HD be populated with:

- 830 • Either the first component “Namespace ID” alone, which in this case contains a local identifier of the object.
- Or with all three components, “Namespace ID” containing the name of the object, “Universal ID” containing its universal OID, and “Universal ID Type” containing the value **ISO**.

835 This data type is particularly used in this technical framework to identify facilities, applications and assigning authorities: sending and receiving applications, sending and receiving facilities, last update facility, assigning authority of an identifier, etc.

5.4.6.4 CWE – coded with exceptions

SEQ	LEN	DT	Usage	CARD	TBL#	COMPONENT NAME
1	20	ST	R	[1..1]		Identifier
2	199	ST	C	[0..1]		Text
3	20	ID	C	[0..1]	0396	Name of Coding System
4	20	ST	O	[0..1]		Alternate Identifier

SEQ	LEN	DT	Usage	CARD	TBL#	COMPONENT NAME
5	199	ST	O	[0..1]		Alternate Text
6	20	ID	C	[0..1]	0396	Name of Alternate Coding System
7	10	ST	O	[0..1]		Coding System Version ID
8	10	ST	O	[0..1]		Alternate Coding System Version ID
9	199	ST	O	[0..1]		Original Text

The data type has been constrained because the IHE Framework regards the Name of Coding System and the Name of Alternate Coding System Assigning as essential components

840

- If the “Identifier” is present, the Name of Coding System is required.
- If the “Alternate Identifier” is present, the Name of Alternate Coding System is required.
- In cases described in this document, the CWE.2 may contain a free-text indication, and in this case, CWE-1 and CWE-3 may be empty, if CWE-2 contains the information.

845 **5.4.7 Scenario without a Pharmaceutical Adviser**

The Pharmaceutical Adviser (PA) actor is not always a mandatory role in a hospital medication workflow.

850 For a system that implements a Prescription Placer (PP) actor, it is recommended that both transactions PHARM-H1 (Prescription Order) and PHARM-H2 (Validated Order) be implemented, in order to be able to work in both scenarios, with and without separate PA, respectively. This kind of system may implement either or both, the PP’s optional PHARM-H5 (Advance Prescription Notification) and the PA’s optional PHARM-H6 (Validated Order Confirmation) transactions.

855 Implementations of a Medication Dispenser (MD) actor, in compliance with the IHE HMW profile, shall always implement the PHARM-H2 transaction and be able to respond to an incoming RDE^O11 request message with an outgoing RRE^O12 response message.

As a consequence, since the PA is missing, no new information is generated for the RXE segment. Therefore the required fields of the RXE segment should be filled with corresponding values from the RXO segment of the prescription, e.g.,:

860

RXE field	Optionality	Description	Source field
RXE-2	R	Give Code	RXO-1
RXE-3	R	Give Amount minimum	RXO-2
RXE-5	R	Give Units	RXO-4
RXE-14	R	Pharmacist/Treatment Supplier’s Verification ID	ORC-12
etc.			

Moreover, it is recommended that the optional RXO segment be included in an RDE^O11 message.

865

Glossary

Add the following terms to the Glossary:

870 Encounter: An encounter happens between a patient and a care provider who can be an individual or an organization.

Treatment or medication regime: a treatment or medication regime is a series of medications intended to heal the patient or to improve the health status or to diagnose a disease.

875 Prescription: a prescription is an order given by a clinician (usually physicians and in some particular cases pharmacists, nurses, etc.), for a medication to be dispensed to the patient according to an established pattern. The prescription includes the name of the drugs, their dosages, instructions to the patient for the intake, etc.

Medication record: A list of all medication-related data for a specific patient, including prescriptions (including (partially) fulfilled ones), dispenses and possibly administrations.

880 Pharmaceutical analysis: the action performed by a pharmacist to approve/modify or reject a prescription before it is given out to the patient.

Pharmaceutical advice: the outcome of the pharmaceutical analysis.

Healthcare Professional (HCP): a specially trained individual who provides healthcare services like a GP, specialist, nurse, midwife, dentist, physiotherapist, pharmacist etc.

System actor: information system that supports a particular function in the pharmacy domain.

885 Human actor: individual (physician, pharmacist, etc.) that usually makes use of a system actor to perform an activity in the e-pharmacy domain.

Dispensing: the act of assigning a medication to a patient, normally as indicated in the corresponding prescription. Since prescriptions can span long periods of time, a single prescription may result in medicines dispensed several times.

890 Nominative Distribution: a mode of distributing medication in which the pharmacy dispenses the medication to each patient.

Globalized Distribution: a mode of dispensing mode in which the pharmacy distributes the medication to the wards and the nurses then dispense the medication to each patient as needed.

895 Order encoding: The Prescription Placer may fill in the prescription with a free-text description of the treatment details (as simple as Paracetamol 1000 mg oral, as needed, max 3 times a day). This description has to be translated (encoded) into products, and the quantities may have to be determined for the Pharmaceutical Analysis, Dispensing and Administration to take place. This is modeled as an “encoding” sub-task.

900 Medication Preparation: the act of making medication items available for a specific intended administration action.

Pharmacy validated order: this term is used to indicate that a medication order (in the current case, a medication prescription) is considered valid after some pharmaceutical analysis. This may

require (or not) some review by one or more healthcare professionals, e.g., pharmacists or physicians.

905

Volume 2 - Transactions

Add section 5.5

5.5 Prescription Order – PHARM-H1

This section corresponds to Transaction PHARM-H1 of the IHE Technical Framework. Transaction PHARM-H1 is used by the Prescription Placer and Pharmaceutical Adviser actors.

910 **5.5.1 Scope**

This transaction is used by the Prescription Placer to issue a prescription that is sent to the Pharmaceutical Adviser.

An Order accepted by the Pharmaceutical Adviser is acknowledged to the Prescription Placer as in progress: Order Status ORC-5 = “IP” (In Progress)

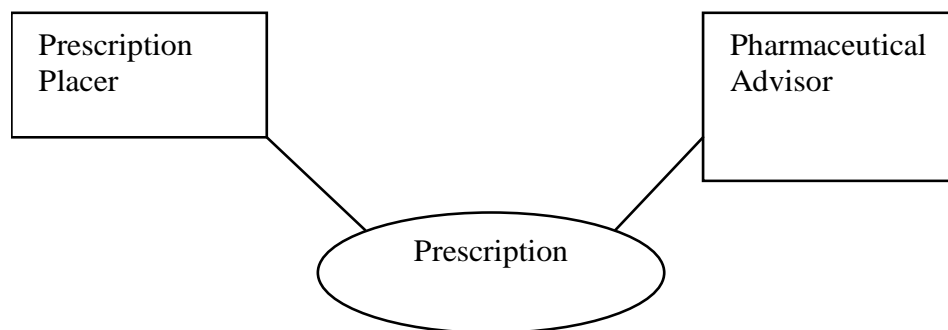
915 Prescription Placer (and, depending on local implementations, also the Pharmaceutical Adviser) may update or cancel an existing Order. Update consists in replacing some prescription lines or the complete prescription.

IHE Pharmacy uses the field ORC-4 to keep the ordering group reference (usually the prescription number), so that integrity of the order session (prescription) can be kept along the workflow.

920

To place an additional medication in an existing Order Group the Prescription Placer places a new Order added to this Order Group (same ORC-4). It is expected that the pharmacy can regroup orders for supply purposes, and this will be dealt with in later versions of IHE – HMW.

5.5.2 Use Case Roles



925

Actor: Prescription Placer

Role: Creates prescriptions, Updates prescriptions, Cancels prescriptions, receives acceptance or rejection from the Pharmaceutical Adviser, Receives prescription order Content Changes, and Status Changes.

930 **Actor:** Pharmaceutical Adviser

Role: Accepts prescriptions. Notifies acceptance or rejection to the Prescription Placer, Notifies Prescription Placer of prescription content and status changes. Notifies Medication Dispenser of New prescription orders. Notifies Medication dispenser of changes to ongoing prescription orders.

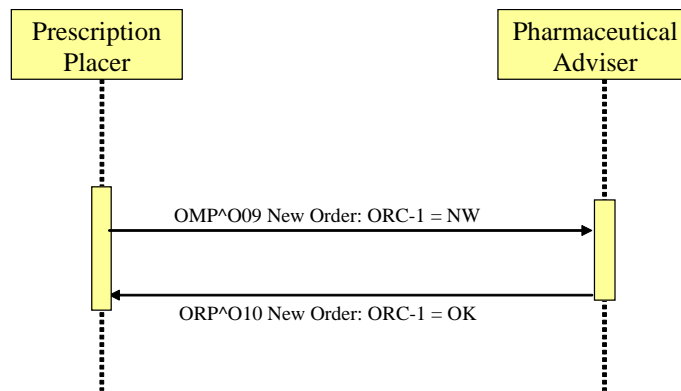
935 **5.5.3 Referenced Standard**

HL7 version 2.5:

- Chapter 2: "Control" → generic segments and data types
- Chapter 3: "ADT" → PID and PV1 segments
- Chapter 6: "Financial Management" → IN1, IN2, IN3 segments
- Chapter 4: "Order Entry" → OMP, OMP messages, other segments
- Chapter 7: "Observation Reporting" → OBX segment

940

5.5.4 Interaction Diagram



945 **5.5.4.1 New Prescription**

This message is used by the prescription placer to inform the pharmaceutical Adviser that a new prescription is ready for validation. This is a message of type OMP.

5.5.4.1.1 Trigger Events

950 The New Prescription message is triggered when the Prescription Placer submits the prescription.

Depending on the particular implementation, this message can be sent when prescriptions are either:

- validated by a physician
- validated and signed by a physician
- 955 • entered and validated by a person that is transcribing paper-based prescriptions
- ...

When an implementation supports option Advance Prescription Notification, transaction PHARM-H5 must be triggered by the same events as PHARM-H1, which means that the Advance Prescription Notification is sent to the Medication Dispenser and Administration Informer at the same time as the Prescription Order.

960

5.5.4.1.2 Message Semantics

965 One Prescription Order will be related to one patient, and may refer to a particular encounter (visit). It will contain one prescription, and this prescription refers one prescriber, and contains zero or more prescription items. A prescription item contains one medication item and zero or more observations.

The common data is common to all the transactions, and is to be coded in the segments:

PID [PD1] [{ NTE }] [PV1 [PV2]] [{ IN1 [IN2] [IN3] }] [GT1] [{ AL1 }]]

Prescription data is to be coded in segments:

RXO [{ NTE }] { RXR } [{ RXC [{ NTE }] }]

970 A Placer Order Number (ORC-2) is assigned by the prescription placer system. The Filler Order number is not assigned yet, so it will be empty. Additional cases where the Filler Order number is needed *a priori* are not yet addressed.

For a new prescription, ORC-1 is “NW”.

Encoded vs. Non-encoded Prescription Orders:

975 There are several levels of prescription encoding (see HL7 2.5, section 4.15.1). The Prescription Order Placer is free to select the level of encoding that best suits the particular implementation needs.

To support proper semantic interoperability, IHE Pharmacy strongly recommends that encoded medication orders are always used, when possible.

980 As a concrete example on a different level of encoding an order, the same example where Dr. Hippocrates prescribes Doliprane® 1000 mg tablets, 1 orally three times a day for the duration of the inpatient hospitalization, can be sent as:

Non-encoded (text description in RXO-6)

985 `ORC|NW|1000^OE|||E|...<cr>`
`RXO|||||1000 mg Paracetamol TID until discharge |...<cr>`

Encoded (RXO-1, 2 and 4 required)

`ORC|NW|1000^OE|||E|^TID^^^R|...<cr>`
`RXO|RX1001^Doliprane 1000 mg TAB^ZZZ|1000|MG^YY|Y...<cr>`
 990 `RXR|PO|...<cr>`

5.5.4.1.3 Expected Actions

Upon receiving this message, the Pharmaceutical Adviser is expected to initiate the process of validating. This validating may be done

- Manually by a pharmacist and/or
- 995 • (semi-)automatically by using a rules engine. Particular implementations may require patient data that is outside of the prescription order message.

In any of the above cases, it is expected that the Pharmaceutical Adviser has access to the medical record of the patient.

1000 It is expected that there are several systems that can work to validate the same prescription. In this case, the Prescription Order can be forwarded to other applications, which will also implement the role of Pharmaceutical Adviser. The management of this workflow is left to the applications.

To support expansions (cascading of clinical reviews and validation), parameter “Clinical Validation Status” should be considered

1005 The pharmaceutical Advice can also consist of substitution of the requested medication for another. This is frequent, and it is necessary in the case of Active Substance Prescription.

Note: In case the administration has already taken place, it is not possible for the medication to be substituted or re-encoded.

5.5.4.1.4 Response – ORP Message Semantics

1010 After the pharmaceutical advisor application processes the New Prescription item, a message of type ORP is sent confirming the status of the Order items.

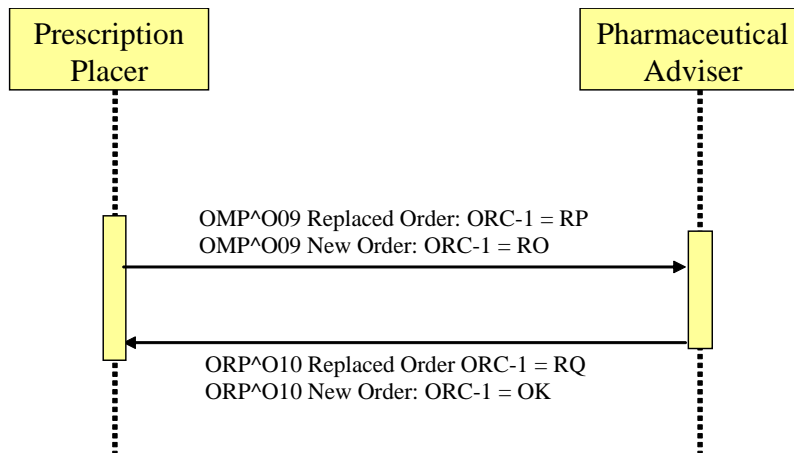
For each ORC segment / group in the OMP message, an ORC will be sent in the ORP (response) message. The Status of the Order becomes “in Progress”. In the response, ORC-1 is “OK”, ORC-

1015 5 is “In Progress”, and ORC-25 will show the status of the prescription as “Validation in Progress”.

5.5.4.1.5 Expected Actions

The Prescription Placer will update its internal prescription status to “in Progress”

5.5.4.2 Replacement of a Prescription Order Item



1020

5.5.4.2.1 Trigger Events

This message tells the Pharmaceutical Adviser that the prescription is cancelled by the Prescription Placer. It is triggered by an action in the Prescription Placer application.

5.5.4.2.2 Message Semantics

1025 In a message to replace one prescription item, an OMP message is sent containing two Order segments. The first ORC segment refers to the order that is to be replaced – the old order – with an ORC-1 value of “RP” – Replace request. The second ORC segment refers to the new order – the replacement, which has an ORC-1 value of RO – Replacement Order.

5.5.4.2.3 Expected Actions

1030 The pharmaceutical adviser application will send a confirmation message and will replace the prescribed item, also further notifying the other actors of this change.

5.5.4.2.4 Response – ORP Message Semantics

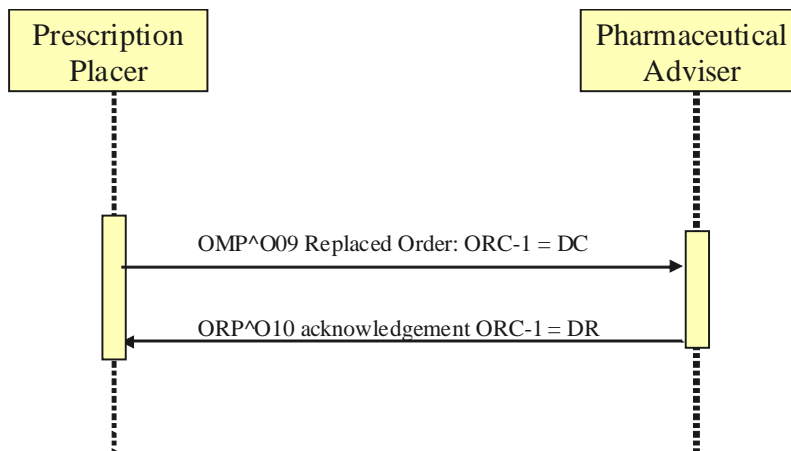
In response to a message to replace one prescription item, a message of type ORP is sent containing the two Order segments.

1035 The first ORC segment refers to the order that was requested to be replaced – the old order – with an ORC-1 value of “RQ” – Replaced as Requested Update. The second ORC segment refers to the new order – the replacement, which has an ORC-1 also value of OK.

5.5.4.2.5 Expected Actions

1040 The prescription placer considers the order as effectively replaced as of the moment that the response message is read.

5.5.4.3 Discontinuation of a Prescription Order Item



5.5.4.3.1 Trigger Events

1045 This message tells the Pharmaceutical Adviser that the prescription item is discontinued by the Prescription Placer. It is triggered by an action in the Prescription Placer application.

5.5.4.3.2 Message Semantics

1050 In a message to discontinue one prescription item, an OMP message is sent containing the discontinued item. The ORC segment refers to the order that is to be discontinued– the old order – with an ORC-1 value of “DC” – Discontinue order request.

5.5.4.3.3 Expected Actions

The pharmaceutical adviser application will send a confirmation message and will discontinue any subsequent action for the discontinued item, also further notifying the other actors of this change.

1055 5.5.4.3.4 Response – ORP Message Semantics

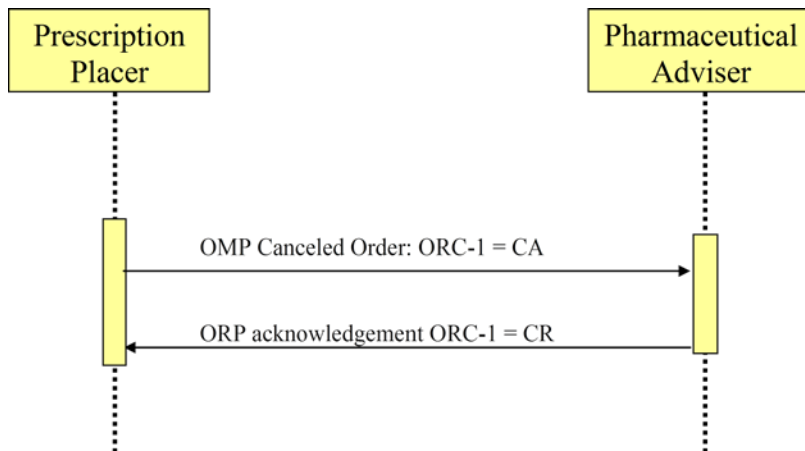
In response to a message to replace one prescription item, a message of type ORP is sent.

The ORC segment referring to the order that was requested to be discontinued will have and ORC-1 value of “DR” – Discontinued as Requested.

5.5.4.3.5 Expected Actions

1060 The prescription placer considers the order as effectively discontinued as of the moment that the response message is read.

5.5.4.4 Cancellation of a Prescription Order Item before validation



5.5.4.4.1 Trigger Events

1065 This message tells the Pharmaceutical Adviser that the Prescription Item is canceled by the Prescription Placer. It is triggered by an action in the Prescription Placer application.

5.5.4.4.2 Message Semantics

1070 In a message to cancel one Prescription Item, an OMP message is sent containing the canceled item. The ORC segment refers to the order that is to be canceled – the old order – with an ORC-1 value of “CA” – Cancel order request.

ORC-5 has a value "CA" and ORC-25 = "P9;V0;D0;A0".

5.5.4.4.3 Expected Actions

The Pharmaceutical Adviser application will send a confirmation message.

5.5.4.4.4 Response – ORP Message Semantics

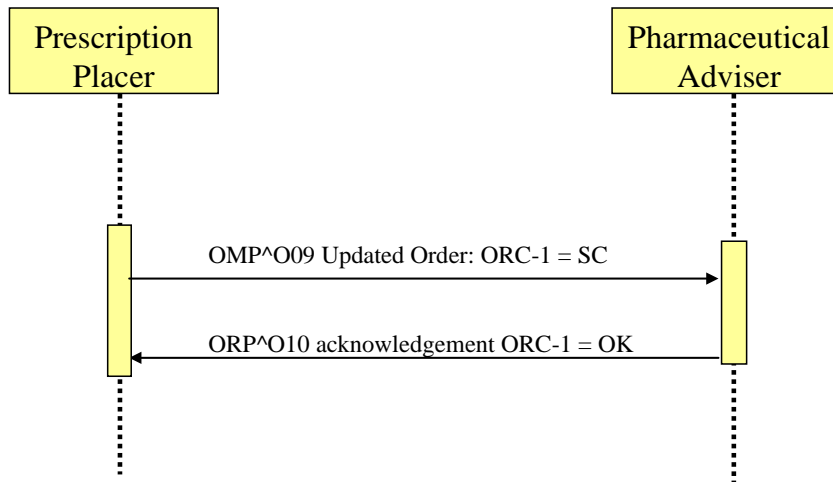
1075 In response to a message to replace one Prescription Item, a message of type ORP is sent.

The ORC segment referring to the order that was requested to be canceled will have an ORC-1 value of “CR” – Canceled as Requested.

5.5.4.4.5 Expected Actions

1080 The Prescription Placer considers the order as effectively canceled as of the moment that the response message is read.

5.5.4.5 Rejection of a refusal from the Pharmaceutical Adviser



5.5.4.5.1 Trigger Events

1085 This message is sent out to the Pharmaceutical Adviser when the Prescription Placer rejects a refusal of the Pharmaceutical Adviser (cfr. 5.6.4.9 Refusal of Prescription by the Pharmaceutical Adviser).

5.5.4.5.2 Message Semantics

This message is a re-initiation of the initial prescription. The Prescription Placer can include arguments why the refusal is rejected.

1090 ORC-1= “SC” – Status Change
 ORC-5 – Order Status = "IP", "In progress"
 ORC-25 is updated/reset to “P3;V0;D0;A0”

5.5.4.5.3 Expected Actions

1095 The Pharmaceutical Adviser is expected to take notice of the rejection of the refusal and act depending on the evaluation of the rejection:

- The Pharmaceutical Adviser accepts the override and continues as validating a new prescription.
- The Pharmaceutical Adviser refuses the rejection and follows up with a new refusal, possibly with additional arguments.

1100 5.5.4.6 Response – accepted rejection – ORP Message

In response to a message informing of a rejection, a message of type ORP is sent back to the Prescription Placer.

5.5.4.6.1 Trigger Events

1105 This message is sent out after the Pharmaceutical Adviser acknowledges and accepts the rejection of the refusal of the prescription order item.

5.5.4.6.2 Message Semantics

The ORC segment referring to the order is “OK”.

5.5.4.6.3 Expected Actions

1110 The Prescription Placer waits for the acknowledgement of the acceptance of the message by the Pharmaceutical Adviser, before effectively setting the updated status on the prescription item.

5.5.5 Security Considerations

Intentionally left blank

5.5.6 Security Audit Considerations

Intentionally left blank

1115 5.5.7 Actor Specific Security Considerations

Intentionally left blank

5.5.8 Message Static Definitions

1120 5.5.8.1 Prescription Order (request) - OMP^O09 static definition for transaction PHARM-H1

Table 5.5.8.1-1: OMP^O09 static definition for Transaction PHARM-H1

OMP^O09^OMP_O09	Pharmacy/treatment Order Message	Chapter
MSH	Message Header	2
[{ SFT }]	Software	2
[{ NTE }]	Notes and Comments (for Header)	2
[	--- PATIENT begin	
PID	Patient Identification	3
[PD1]	Additional Demographics	3
[{ NTE }]	Notes and Comments (for Patient ID)	2
[	--- PATIENT_VISIT begin	
PV1	Patient Visit	3
[PV2]	Patient Visit - Additional Info	3
]	--- PATIENT_VISIT end	
[{	--- INSURANCE begin	
IN1	Insurance	6
[IN2]	Insurance Additional Info	6
[IN3]	Insurance Add'l Info - Cert.	6
}]	--- INSURANCE end	
[GT1]	Guarantor	6
[{ AL1 }]	Allergy Information	3
]	--- PATIENT end	
{	--- ORDER begin	
ORC	Common Order	4
[{	--- TIMING begin	
TQ1	Timing/Quantity	4
[{ TQ2 }]	Timing/Quantity Order Sequence	4
}]	--- TIMING end	
RXO	Pharmacy/Treatment Order	4
[{ NTE }]	Notes and Comments (for RXO)	2
{ RXR }	Pharmacy/Treatment Route	4
[{	--- COMPONENT begin	
RXC	Pharmacy/Treatment Component	4
[{ NTE }]	Notes and Comments (for each RXC)	2
}]	--- COMPONENT end	
[{	--- OBSERVATION begin	
OBX	Observation/Result	7
[{ NTE }]	Notes and Comments (for OBX)	2
}]	--- OBSERVATION end	
[{ FT1 }]	Financial Transaction	6
[BLG]	Billing Segment	6
}	--- ORDER end	

1125

5.5.8.2 Prescription Order (response - ORP^O10 static definition for transaction PHARM-H1)

Table 5.5.8.2-1: ORP^O10 static definition for Transaction PHARM-H1

ORP^O10^ORP_O10	Description	Chapter
MSH	Message Header	2
MSA	Message Acknowledgment	2
[[{ ERR }]]	Error	2
[[{ SFT }]]	Software	2
[[{ NTE }]]	Notes and Comments (for Response Header)	2
[	--- RESPONSE begin	
[	--- PATIENT begin	
PID	Patient Identification	3
[[{ NTE }]]	Notes and Comments (for Patient ID)	2
]	--- PATIENT end	
{	--- ORDER begin	
ORC	Common Order	4
[[{	--- TIMING begin	
TQ1	Timing/Quantity	4
[[{ TQ2 }]]	Timing/Quantity Order Sequence	4
}]	--- TIMING end	
[	--- ORDER_DETAIL begin	
RXO	Pharmacy/Treatment Order	4
[[{ NTE }]]	Notes and Comments (for RXO)	2
{ RXR }	Pharmacy/Treatment Route	4
[[{	--- COMPONENT begin	
RXC	Pharmacy/Treatment Component	4
[[{ NTE }]]	Notes and Comments (for each RXC)	2
}]	--- COMPONENT end	
]	--- ORDER_DETAIL end	
}	--- ORDER end	
]	--- RESPONSE end	

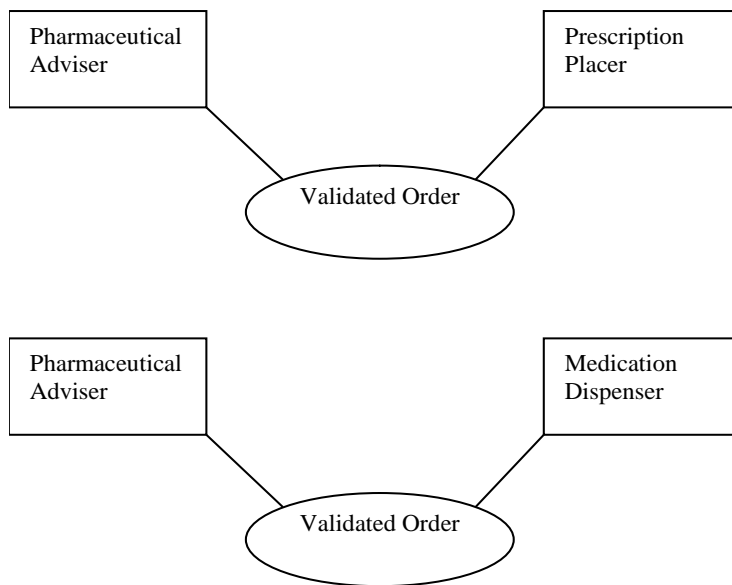
1130 Add Section 5.6

5.6 Validated Order – PHARM-H2

This section corresponds to Transaction PHARM-H2 of the IHE Technical Framework. Transaction PHARM-H2 is used by the Pharmaceutical Adviser and Prescription Placer and Medication Dispenser actors.

1135 **5.6.1 Scope**

5.6.2 Use Case Roles



1140

Actor: Pharmaceutical Adviser

Role: Validate Prescriptions, replace (substitute) prescription lines, receive replaced prescription lines

Actor: Prescription Placer

1145 **Role:** Accept validations, accepted changed prescriptions

Actor: Medication Dispensers

Role: Receive new validated orders

5.6.3 Referenced Standard

HL7 version 2.5:

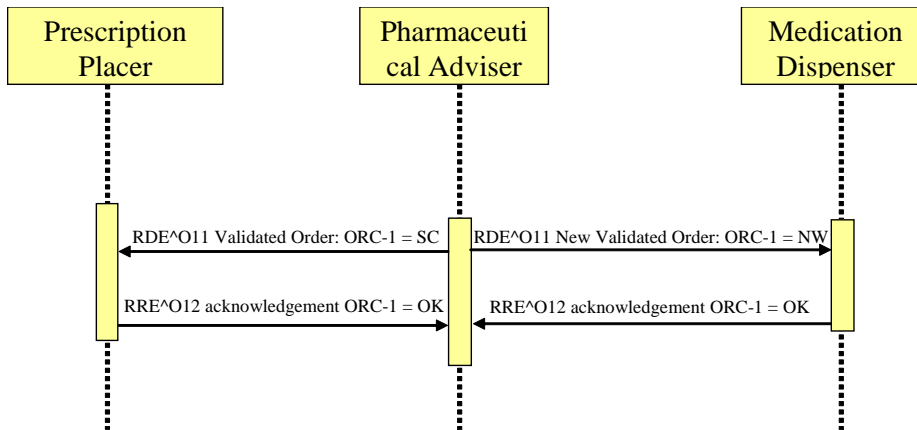
1150

- Chapter 2: "Control" → generic segments and data types

- Chapter 3: "ADT" → PID and PV1 segments
- Chapter 6: "Financial Management" → IN1, IN2, IN3 segments
- Chapter 4: "Order Entry" → other segments
- Chapter 7: "Observation Reporting" → OBX segment

1155

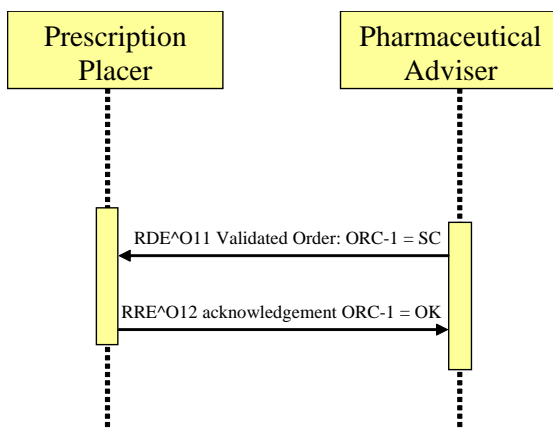
5.6.4 Interaction Diagram



1160

5.6.4.1 Validated Order - Accepted

This message contains the validation of a prescription and additional information provided by the pharmacist concerning the validation. It is used to indicate to the Prescription Placer that the order is in progress.



1165

5.6.4.1.1 Trigger Events

This message is sent out after the pharmaceutical adviser provides advice for a new prescription order.

1170 **5.6.4.1.2 Message Semantics**

When sending the Validated Order, the Pharmaceutical Advisor will append the advice to the existing prescription information. This advice will be for the complete prescription, and also for each prescription line.

1175 The validated order data is to be coded in the segments RXE [{ NTE }] { TQ1 [{ TQ2 }] } { RXR } [{ RXC }].

ORC-1= “SC” – Status Change

ORC-5 – Order Status = “In Progress”

ORC-25 is updated to “Validation in Progress”, or “Validation Complete” (see Table 4.5.1-1: Detailed order status)

1180 If the pharmaceutical advice is complete and the prescription is validated, then ORC-25 is updated.

5.6.4.1.3 Expected Actions

The Prescription placer is expected to take notice of the status of the message.

5.6.4.2 Response – RRE Message

1185 **5.6.4.2.1 Trigger Events**

This message is sent out after the prescription placer acknowledges the advice for the prescription order.

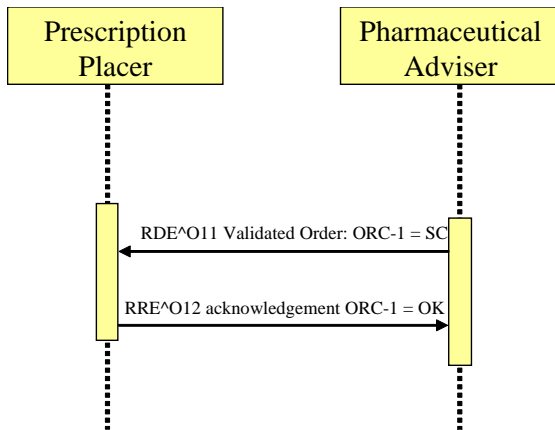
5.6.4.2.2 Message Semantics

The ORC segment referring to the order has ORC-1 = “OK”.

1190 **5.6.4.2.3 Expected Actions**

The pharmaceutical adviser acknowledges that the prescription placer has received the validation information, and decides whether to wait or not for the acknowledgement of the status change by the prescription placer, before sending the messages for dispensing.

5.6.4.3 Substitution by the Pharmaceutical Adviser



1195

5.6.4.3.1 Trigger Events

This message is sent out after the pharmaceutical adviser provides advice for a new prescription order, substituting the medication.

5.6.4.3.2 Message Semantics

1200 When sending the Validated Order, the Pharmaceutical Adviser will append the advice to the existing prescription information and use the segment RXE to detail the medication that will be used as substitution for the prescription order items.

ORC-1= “SC” – Status Change

ORC-5 – Order Status = “In Progress”

1205 ORC-25 is updated to “Validation in Progress”, or “Validation Complete” (see Table 4.5.1-1: Detailed order status)

If the pharmaceutical advice is complete and the prescription is validated, then ORC-25 is updated.

5.6.4.3.3 Expected Actions

1210 The prescription placer is expected to take notice of the status of the message.

5.6.4.4 Response – accepted substitution – RRE Message

In response to a message informing of a substitution, a message of type RRE is sent back to the Pharmaceutical Adviser.

5.6.4.4.1 Trigger Events

1215 This message is sent out after the prescription placer acknowledges and accepts the substitution of the prescription order item.

5.6.4.4.2 Message Semantics

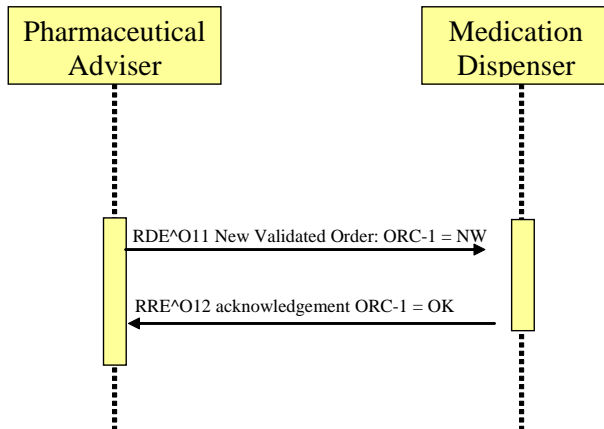
The ORC segment referring to the order is “OK”.

5.6.4.4.3 Expected Actions

1220 According to local rules, the pharmaceutical adviser decides whether to wait or not for the acknowledgement of the status change by the prescription placer, before sending the messages for dispensing.

1225

5.6.4.5 New Validated Order



1230 5.6.4.5.1 Trigger Events

This message is sent out when the pharmaceutical advisor submits the prescription order for dispensing – which may or not be the same trigger as for message Validated Order - Accepted.

5.6.4.5.2 Message Semantics

The ORC segment referring to the order has ORC-1 = “NW”, as it is a new order for dispense.

1235 ORC-5 – Order Status = “In Progress”

ORC-25 is updated to “Dispense in Progress” (see Table 4.5.1-1: Detailed order status)

5.6.4.5.3 Expected Actions

The medication dispenser is expected to trigger the dispensing of that medication and take the necessary actions for delivering the medication to the patient.

1240 5.6.4.5.4 Response – accepted dispensing – RRE Message

In response to a message informing of a substitution, a message of type RRE is sent back to the Pharmaceutical Adviser.

5.6.4.5.5 Trigger Events

1245 This message is sent out after the medication dispenser acknowledges the dispense of the prescription order item.

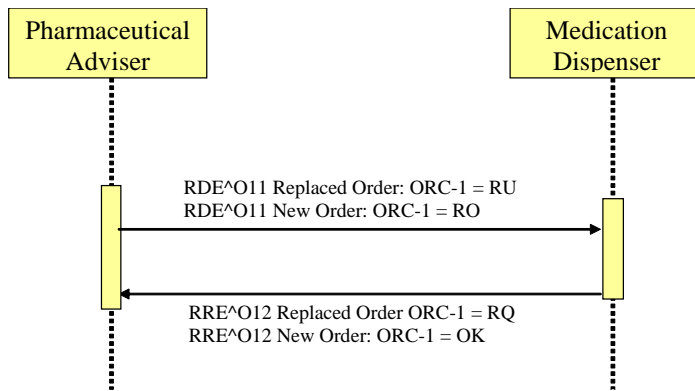
5.6.4.5.6 Message Semantics

The medication dispenser accepts the validated order for dispensing with an ORC-1 value of “OK”.

1250 5.6.4.5.7 Expected Actions

The pharmaceutical advisor acknowledges the beginning of the dispensing process.

5.6.4.6 Replacement of a Prescription Order Item



1255 5.6.4.6.1 Trigger Events

This message is sent out when the pharmaceutical advisor requests the replacement of an existing order item that had previously been sent to the dispenser.

5.6.4.6.2 Message Semantics

1260 The first ORC segment refers to the order that is to be replaced – the old order – with an ORC-1 value of “RU” – Replaced Unsolicited. The second ORC segment refers to the new order – the replacement, which has an ORC-1 value of RO – Replacement Order.

5.6.4.6.3 Expected Actions

The medication dispenser is expected to trigger the dispensing of the new medication order item, and discontinue the dispensing of the replaced (old) medication order item.

1265 5.6.4.7 Response – accepted dispensing – RRE Message

In response to a message informing of a replacement, a message of type RRE is sent back to the Pharmaceutical Adviser.

5.6.4.7.1 Trigger Events

1270 This message is sent out after the medication dispenser acknowledges the dispense of the prescription order item.

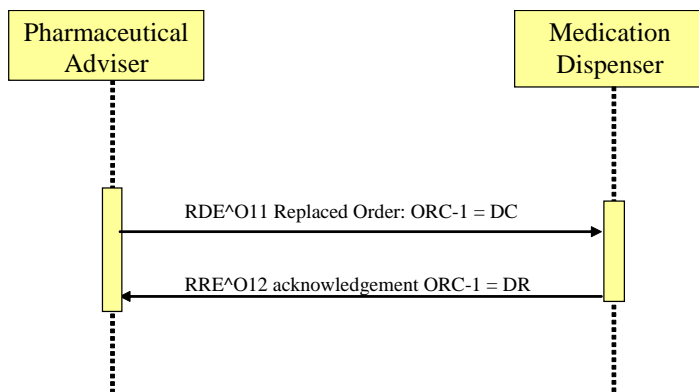
5.6.4.7.2 Message Semantics

The medication dispenser accepts the new order item for dispensing with an ORC-1 value of “OK”. The old order item is reported back with the status “RQ” – replaces as requested.

1275 5.6.4.7.3 Expected Actions

The pharmaceutical advisor acknowledges the beginning of the dispensing process.

5.6.4.8 Discontinuation of a Prescription Order Item



1280 5.6.4.8.1 Trigger Events

This message tells the Medication Dispenser that the prescription item is discontinued. It is triggered by an action in the Pharmaceutical Adviser, possibly as a reaction to a similar request from the Prescription Placer application.

5.6.4.8.2 Message Semantics

1285 In a message to discontinue one prescription item, an RDE message is sent containing the discontinued item. The ORC segment refers to the order that is to be discontinued– the old order – with an ORC-1 value of “DC” – Discontinue order request.

5.6.4.8.3 Expected Actions

1290 The Medication Dispenser application will send a confirmation message and will discontinue any subsequent action for the discontinued item, also further notifying the other actors of this change.

5.6.4.8.4 Response – RRE Message Semantics

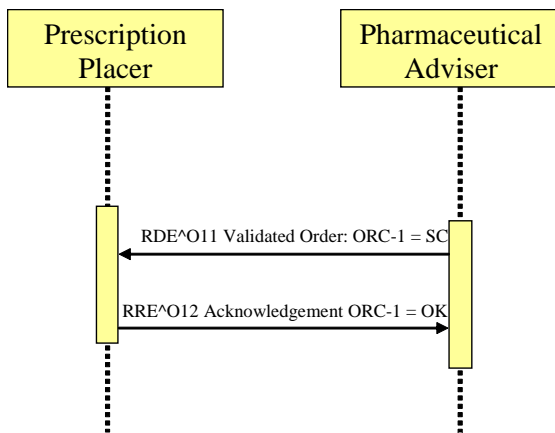
In response to a message to replace one prescription item, a message of type RRE is sent.

1295 The ORC segment referring to the order will have an ORC-1 value of “DR” – Discontinued as Requested.

5.6.4.8.5 Expected Actions

The Pharmaceutical Adviser considers the order as effectively discontinued as of the moment that the response message is read.

5.6.4.9 Refusal of Prescription by the Pharmaceutical Adviser



1300

5.6.4.9.1 Trigger Events

This message is sent out to the Prescription Placer after the Pharmaceutical Adviser refuses the Medication Order.

5.6.4.9.2 Message Semantics

1305 When sending the Validated Order, the Pharmaceutical Adviser will append the reason for refusal to the existing prescription information.

ORC-1= “SC” – Status Change

ORC-5 – Order Status = "DC", the status proposed by the Pharmacist

ORC-25 is updated to “Validation Complete”.

1310 5.6.4.9.3 Expected Actions

The Prescription Placer is expected to take notice of the status of the message.

5.6.4.10 Response – accepted refusal – RRE Message

In response to a message informing of a refusal, a message of type RRE is sent back to the Pharmaceutical Adviser.

1315 **5.6.4.10.1 Trigger Events**

This message is sent out after the Prescription Placer acknowledges and accepts the refusal of the Prescription Order Item.

If the Prescription Placer wants to order the Prescription Item again, a new Medication Order should be sent.

1320 **5.6.4.10.2 Message Semantics**

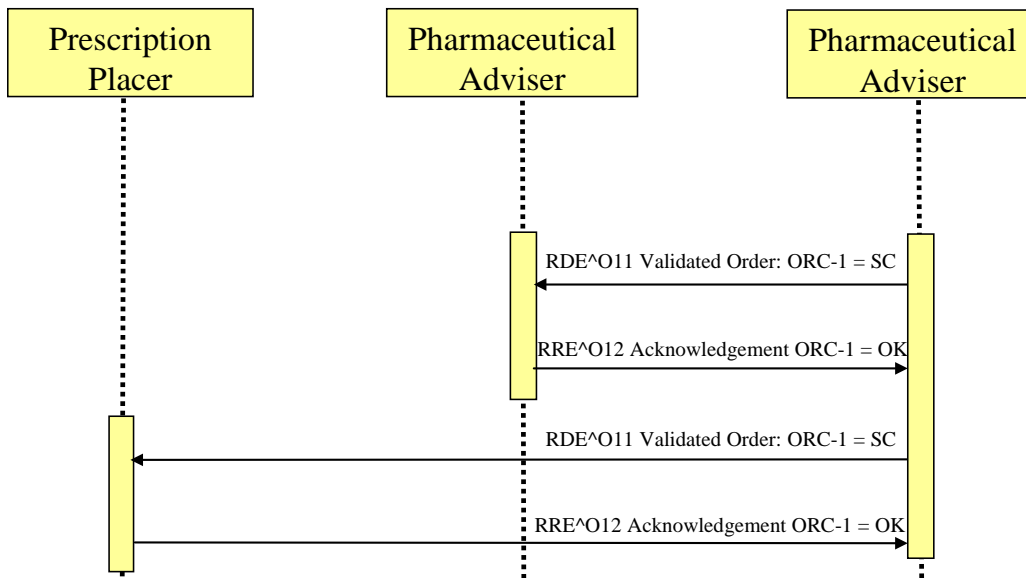
The ORC segment referring to the order is “OK”.

5.6.4.10.3 Expected Actions

The Pharmaceutical Adviser waits for the acknowledgement of the status change by the Prescription Placer, before effectively setting the refusal status (discontinued) on the Prescription Item.

1325

5.6.4.11 Change of validation by a second Pharmaceutical Adviser



5.6.4.11.1 Trigger Events

This message is sent out to the first Pharmaceutical Adviser and optionally to the Prescription Placer after the Pharmaceutical Adviser changes the initial validation.

1330

5.6.4.11.2 Message Semantics

When sending the change in validation, the Pharmaceutical Adviser will append the reason for this change to the existing prescription information.

ORC-1= “SC” – Status Change

1335 ORC-5 – Order Status = "IP", "In progress"

ORC-25 is updated to “P3;V2;D0;A0” if it is not the final validation or “P3;V3;D0;A0” if it is the final validation.

5.6.4.11.3 Expected Actions

1340 The first Pharmaceutical Adviser and optionally the Prescription Placer are expected to take notice of the status of the message.

5.6.4.12 Response – change validation accepted – RRE Message

In response to a message informing of a change in validation, a message of type RRE is sent back to the second Pharmaceutical Adviser.

5.6.4.12.1 Trigger Events

1345 This message is sent out from the first Pharmaceutical Adviser or Prescription Placer acknowledges and accepts the change in validation of the prescription order item.

5.6.4.12.2 Message Semantics

The ORC segment referring to the order is “OK”.

5.6.4.12.3 Expected Actions

1350 The second Pharmaceutical Adviser waits for the acknowledgement of the status change by the first Pharmaceutical Adviser or Prescription Placer, before effectively setting the new validation status on the Prescription Item.

5.6.5 Security Considerations

Intentionally left blank

1355 **5.6.5.1 Security Audit Considerations**

Intentionally left blank

5.6.5.2 Actor Specific Security Considerations

Intentionally left blank

5.6.6 Message Static Definitions

1360 **5.6.6.1 Validated Order (request) - RDE^O11 static definition for transaction PHARM-H2**

Table 5.6.6.1-1: RDE^O11 static definition for Transaction PHARM-H2

RDE^O11^RDE_O11	Pharmacy/Treatment Encoded Order Message	Chapter
MSH	Message Header	2

RDE^O11^RDE_O11	Pharmacy/Treatment Encoded Order Message	Chapter
[[SFT]]	Software	2
[UAC]	User Authentication Credential	2
[[NTE]]	Notes and Comments (for Header)	2
[	--- PATIENT begin	
PID	Patient Identification	3
[PD1]	Additional Demographics	3
[[NTE]]	Notes and Comments (for Patient ID)	2
[	--- PATIENT_VISIT begin	
PV1	Patient Visit	3
[PV2]	Patient Visit - Additional Info	3
]	--- PATIENT_VISIT end	
[{	--- INSURANCE begin	
IN1	Insurance	
[IN2]	Insurance Additional Information	6
[IN3]	Insurance Additional Information, Certification	6
}]	--- INSURANCE end	
[GT1]	Guarantor	6
[[AL1]]	Allergy Information	3
]	--- PATIENT end	
{	--- ORDER begin	
ORC	Common Order	4
[{	--- TIMING begin	
TQ1	Timing/Quantity	4
[[TQ2]]	Timing/Quantity Order Sequence	4
}]	--- TIMING end	
[	--- ORDER_DETAIL begin	
RXO	Pharmacy/Treatment Prescription Order	4
[[NTE]]	Notes and Comments (for RXO)	2
{ RXR }	Pharmacy/Treatment Route	4
[{	--- COMPONENT begin	
RXC	Pharmacy/Treatment Component (for RXO)	4
[[NTE]]	Notes and Comments (for each RXC)	2
}]	--- COMPONENT end	
]	--- ORDER_DETAIL end	
RXE	Pharmacy/Treatment Encoded Order	4
[[NTE]]	Notes and Comments (for RXE)	2
{	--- TIMING_ENCODED begin	
TQ1	Timing/Quantity	4
[[TQ2]]	Timing/Quantity Order Sequence	4
}]	--- TIMING_ENCODED end	
{ RXR }	Pharmacy/Treatment Route	4
[[RXC]]	Pharmacy/Treatment Component (for RXE)	4
[{	--- OBSERVATION begin	
OBX	Results	7
[[NTE]]	Notes and Comments (for OBX)	2

RDE^O11^RDE_O11	Pharmacy/Treatment Encoded Order Message	Chapter
}}	--- OBSERVATION end	
[[FT1]]	Financial Detail	6
[BLG]	Billing Segment	4
[[CTI]]	Clinical Trial Identification	7
}	--- ORDER end	

1365 **5.6.6.2 Validated Order (response) - RRE^O12 static definition for transaction PHARM-H2**

Table 5.6.6.2-1: RRE^O12 static definition for Transaction PHARM-H2

RRE^O12^RRE_O12	Pharmacy/Treatment Encoded Order Acknowledgment Message	Chapter
MSH	Message Header	2
MSA	Message Acknowledgment	2
[[ERR]]	Error	2
[[SFT]]	Software	2
[UAC]	User Authentication Credential	2
[[NTE]]	Notes and Comments (for Header)	2
[	--- RESPONSE begin	
[	--- PATIENT begin	
PID	Patient Identification	3
[[NTE]]	Notes and Comments (for PID)	2
]	--- PATIENT end	
{	--- ORDER begin	
ORC	Common Order	4
[[	--- TIMING begin	
TQ1	Timing/Quantity	4
[[TQ2]]	Timing/Quantity Order Sequence	4
]]	--- TIMING end	
[	--- ENCODING begin	
RXE	Pharmacy/Treatment Encoded Order	4
[[NTE]]	Notes and Comments (for RXE)	2
{	--- TIMING_ENCODED begin	
TQ1	Timing/Quantity	4
[[TQ2]]	Timing/Quantity Order Sequence	4
}	--- TIMING_ENCODED end	
{ RXR }	Pharmacy/Treatment Route	4
[[RXC]]	Pharmacy/Treatment Component	4
]	--- ENCODING end	
}	--- ORDER end	
]]	--- RESPONSE end	

1370

5.7 Medication Preparation Report – PHARM-H3

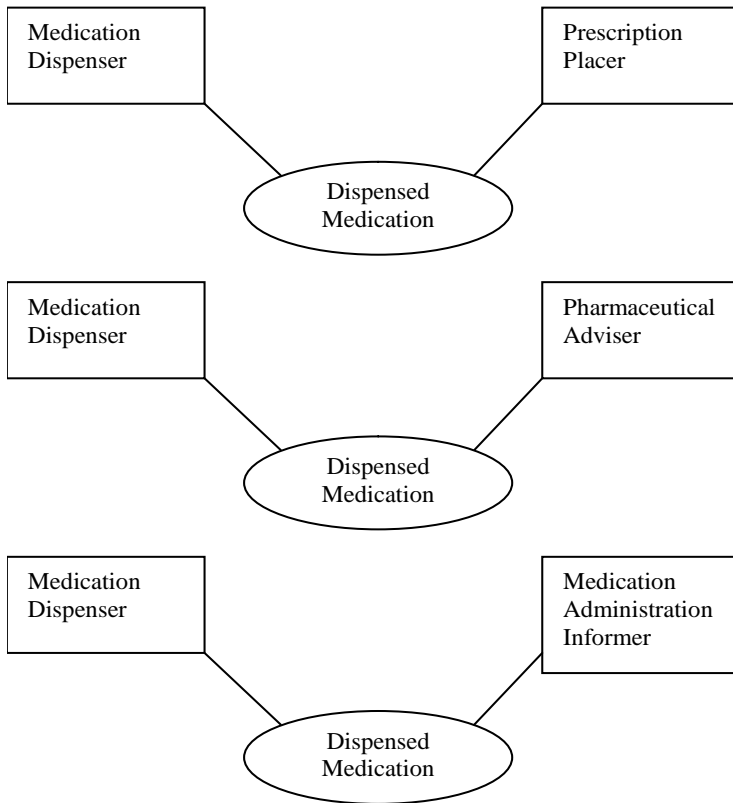
This section corresponds to Transaction PHARM-H3 of the IHE Technical Framework. Transaction PHARM-H3 is used by the Medication Dispenser and Medication Administration Informer and Prescription Placer and Pharmaceutical Adviser actors.

1375 5.7.1 Scope

This transaction informs, after a dispensing event, the Prescription Placer, Pharmaceutical Adviser and Medication Administration informer about the dispense availability for the requested medication.

5.7.2 Use Case Roles

1380



Actor: Prescription Placer

1385 **Role:** Accept dispense events

Actor: Pharmaceutical Adviser

Role: Accept dispense events

Actor: Medication Dispenser

Role: Send medication preparation reports, Send dispense events

1390 **Actor:** Medication Administration Informer

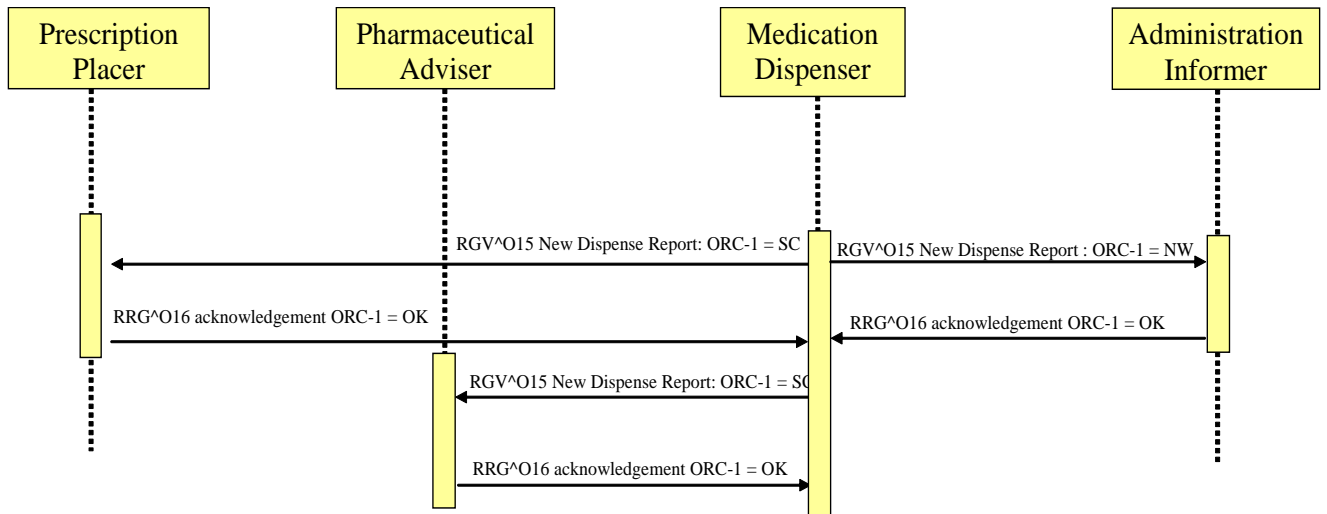
Role: Accept new medication preparation reports

5.7.3 Referenced Standard

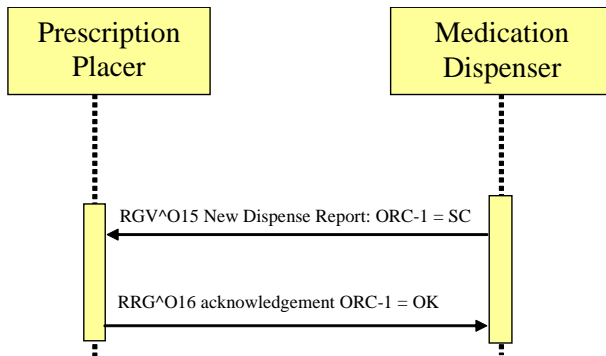
HL7 version 2.5:

- Chapter 2: "Control" → generic segments and data types
- 1395 • Chapter 3: "ADT" → PID and PV1 segments
- Chapter 6: "Financial Management" → IN1, IN2, IN3 segments
- Chapter 4: "Order Entry" → other segments
- Chapter 7: "Observation Reporting" → OBX segment

1400 5.7.4 Interaction Diagram



5.7.4.1 Preparation Event (RGV)



1405

5.7.4.1.1 Trigger Events

When medication becomes available for a patient, and is ready to be administered, a message of type RGV is sent to the Prescription Placer.

5.7.4.1.2 Message Semantics

1410 The ORC segment referring to the order has ORC-1 = “SC”, to inform that the existing order is updated.

ORC-5 – Order Status = “In Progress”; ORC-25 is updated to “Dispense in Progress”, or “Dispense Complete” (see Table 4.5.1-1: Detailed order status)

The content about the medication effectively dispensed is within segments

1415 RXG{TQ1 [{ TQ2 }]}{ RXR } [{ RXC }]{ [OBX] [{ NTE }]}.

5.7.4.1.3 Expected Actions

Upon receiving the message, the Prescription Placer will update the status of the prescription item to “Dispensed”, if the Dispense is complete.

The Pharmaceutical Adviser also updates the state of the prescription.

1420 The Medication Application Informer associates the specific medication (physical product) to the (scheduled) administration event.

Both the Prescription Order Placer, the Medication Dispenser and the Medication Administration informer will be informed of any insufficient (partial) dispensing. The actions to be taken in this case depend on the particular implementations.

1425 5.7.4.2 Preparation Event Response (RRG)

5.7.4.2.1 Trigger Events

Upon accepting the Medication Preparation Report which contains the updated prescription order, the Pharmaceutical Adviser will send a response message.

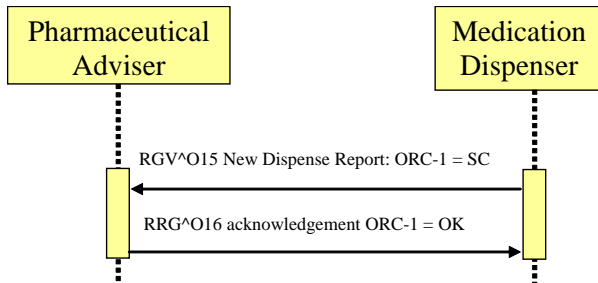
5.7.4.2.2 Message Semantics

1430 Since this is an acknowledgement message, ORC-1 = “OK”.

5.7.4.2.3 Expected Actions

The Medication Dispenser accepts the order status update.

5.7.4.3 Preparation Event (RGV)



1435 5.7.4.3.1 Trigger Events

When medication becomes available for a patient, and is ready to be administered, a message of type RGV is sent to the Pharmaceutical Adviser.

5.7.4.3.2 Message Semantics

1440 The ORC segment referring to the order has ORC-1 = “SC”, to inform that the existing order is updated.

ORC-5 – Order Status = “In Progress”; ORC-25 is updated to “Dispense in Progress”, or “Dispense Complete” (see Table 4.5.1-1: Detailed order status)

The content about the medication effectively dispensed is within segments

RXG{TQ1 [{ TQ2 }]}{ RXR } [{ RXC }]{ [OBX] [{ NTE }]}.

1445 5.7.4.3.3 Expected Actions

Upon receiving the message, the Pharmaceutical Adviser will update the status of the prescription item to “Dispensed”, if the Dispense is complete.

5.7.4.4 Preparation Event Response (RRG)

5.7.4.4.1 Trigger Events

1450 Upon accepting the Medication Preparation Report which contains the updated prescription order, the Pharmaceutical Adviser will send a response message.

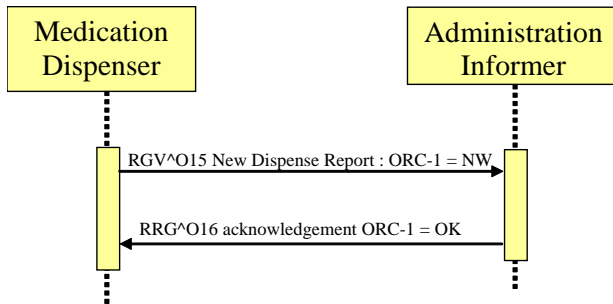
5.7.4.4.2 Message Semantics

Since this is an acknowledgement message, ORC-1 = “OK”.

5.7.4.4.3 Expected Actions

1455 The Medication Dispenser accepts the order status update.

5.7.4.5 New Medication Preparation Report (RGV)



5.7.4.5.1 Trigger Events

1460 When medication becomes available for a patient, and is ready to be administered, a message of type RGV is sent to the Administration Informer.

5.7.4.5.2 Message Semantics

The ORC segment referring to the order has ORC-1 = “NW”, as it is a new order for dispense.

ORC-5 – Order Status = “In Progress”

1465 ORC-25 is updated to “Dispense in Progress”, or “Dispense Complete” (see Table 4.5.1-1: Detailed order status)

The content about the medication effectively dispensed is associated with segments

RXG{TQ1 [{ TQ2 }]}{ RXR } [{ RXC }]{ [OBX] [{ NTE }]}.

5.7.4.5.3 Expected Actions

1470 The Medication Administration Informer associates the specific medication (physical product) to the (scheduled) administration event.

5.7.4.6 Preparation Event Response (RRG)

5.7.4.6.1 Trigger Events

1475 Upon accepting the Medication Preparation Report which contains the new prescription order, the Medication Administration Informer will prepare and schedule the administration of the medication and send a response message.

5.7.4.6.2 Message Semantics

Order Item status (ORC-25) is updated to “Administration Planned” or “Administration in Progress”.

1480 **5.7.4.6.3 Expected Actions**

The Medication Dispenser accepts the order status update.

5.7.5 Message Static Definitions

5.7.5.1 Medication Dispense Report (request) - RGV^O15 static definition for transaction PHARM-H3

1485

Table 5.7.5.1-1: RGV^O15 static definition for Transaction PHARM-H3

RGV^O15^RGV_O15	Pharmacy/Treatment Give	Chapter
MSH	Message Header	2
[[{ SFT }]]	Software	2
[[{ NTE }]]	Notes and Comments (for Header)	2
[	--- PATIENT begin	
PID	Patient Identification	3
[[{ NTE }]]	Notes and Comments (for PID)	2
[[{ AL1 }]]	Allergy Information	2
[	--- PATIENT_VISIT begin	
PV1	Patient Visit	3
[PV2]	Patient Visit - Additional Info	3
]	--- PATIENT_VISIT end	
]	--- PATIENT end	
{	--- ORDER begin	
ORC	Common Order	4
[[	--- TIMING begin	
TQ1	Timing/Quantity	4
[[{ TQ2 }]]	Timing/Quantity Order Sequence	4
]]	--- TIMING end	
[	--- ORDER_DETAIL begin	
RXO	Pharmacy /Treatment Order	4
[	--- ORDER_DETAIL_SUPPLEMENT begin	
[[{ NTE }]]	Notes and Comments (for RXO)	2
{ RXR }	Pharmacy/Treatment Route	4
[[	--- COMPONENTS begin	
RXC	Pharmacy/Treatment Component	4
[[{ NTE }]]	Notes and Comments (for each RXC)	2
]]	--- COMPONENTS end	
]	--- ORDER_DETAIL_SUPPLEMENT end	
]	--- ORDER_DETAIL end	
[	--- ENCODING begin	
RXE	Pharmacy/Treatment Encoded Order	4

RGV^O15^RGV_O15	Pharmacy/Treatment Give	Chapter
{	--- TIMING_ENCODED begin	
TQ1	Timing/Quantity	4
[{ TQ2 }]	Timing/Quantity Order Sequence	4
}	--- TIMING_ENCODED end	
{ RXR }	Pharmacy/Treatment Route	4
[{ RXC }]	Pharmacy/Treatment Component	4
]	--- ENCODING end	
{	--- GIVE begin	
RXG	Pharmacy/Treatment Give	4
{	--- TIMING_GIVE begin	
TQ1	Timing/Quantity	4
[{ TQ2 }]	Timing/Quantity Order Sequence	4
}	--- TIMING_GIVE end	
{ RXR }	Pharmacy/Treatment Route	4
[{ RXC }]	Pharmacy/Treatment Component	4
{	--- OBSERVATION begin	
[OBX]	Observation/Results	7
[{ NTE }]	Notes and Comments (for OBX)	2
}	--- OBSERVATION end	
}	--- GIVE end	
}	--- ORDER end	

5.7.5.2 Medication Dispense Report (response) - RRG^O16 static definition for transaction PHARM-H3

1490

Table 5.7.5.2-1: RRG^O16 static definition for Transaction PHARM-H3

RRG^O16^RRG_O16	Pharmacy/Treatment Give Acknowledgment Message	Chapter
MSH	Message Header	2
MSA	Message Acknowledgment	2
[{ ERR }]	Error	2
[{ SFT }]	Software	2
[{ NTE }]	Notes and Comments (for Header)	2
[	--- RESPONSE begin	
[	--- PATIENT begin	
PID	Patient Identification	3
[{ NTE }]	Notes and Comments (for PID)	2
]	--- PATIENT end	
{	--- ORDER begin	
ORC	Common Order	4
[{	--- TIMING begin	
TQ1	Timing/Quantity	4
[{ TQ2 }]	Timing/Quantity Order Sequence	4
}]	--- TIMING end	

RRG^O16^RRG_O16	Pharmacy/Treatment Give Acknowledgment Message	Chapter
[	--- GIVE begin	
RXG	Pharmacy/Treatment Give	4
{	--- TIMING_GIVE begin	
TQ1	Timing/Quantity	4
[{ TQ2 }]	Timing/Quantity Order Sequence	4
}	--- TIMING_GIVE end	
{ RXR }	Pharmacy/Treatment Route	4
[{ RXC }]	Pharmacy/Treatment Component	4
]	--- GIVE end	
}	--- ORDER end	
]	--- RESPONSE end	

5.8 Administration Report – PHARM-H4

1495 This section corresponds to Transaction PHARM-H4 of the IHE Technical Framework. Transaction PHARM-H4 is used by the Medication Administration Informer, Prescription Placer, Medication Dispenser and Pharmaceutical Adviser actors.

The current scope of IHE-HMW only includes the events triggered upon administration itself. After this – e.g., Adverse Drug Events or other complications – are not yet covered by this profile.

1500 If several medications from a same prescription are given at the same time to one patient, then the Administration Report may send out more than one Administration Lines, but this is not recommended.

Example: if a prescription is for Alprazolam, 3 times a day, and Paracetamol 500 mg per needed, when the nurse administers Alprazolam and also the Paracetamol (because the patient needed it) at 8 am, the same message could contain the two administration lines. It is however recommended that 2 messages are generated.

1505 If, for example, the nurse records in a single round the administration for all the patients in a ward room, then one message must be sent per patient for that single round. It is up to the application to split the administration events in separate messages.

1510 While this message can be used to inform the supply chain of the use of a medication (for example, in the case where the nurse administers a drug from the ER or the OR stock before a prescription), this message should not be used for informing the supply chain about, for example, dropped or lost medication.

5.8.1 Scope

1515 The currently defined scope is the simple inpatient scenario described in Volume 1, 4.3 - Intra-Hospital Workflow Process Flow.

5.8.2 Use Case Roles





1520

Actor: Prescription placer

Role: Receive administration reports, send acknowledgements

Actor: Medication Dispenser

Role: Receive administration reports, send acknowledgements

1525

Actor: Medication Administration Informer

Role: Send administration reports, receive acknowledgements

5.8.3 Referenced Standard

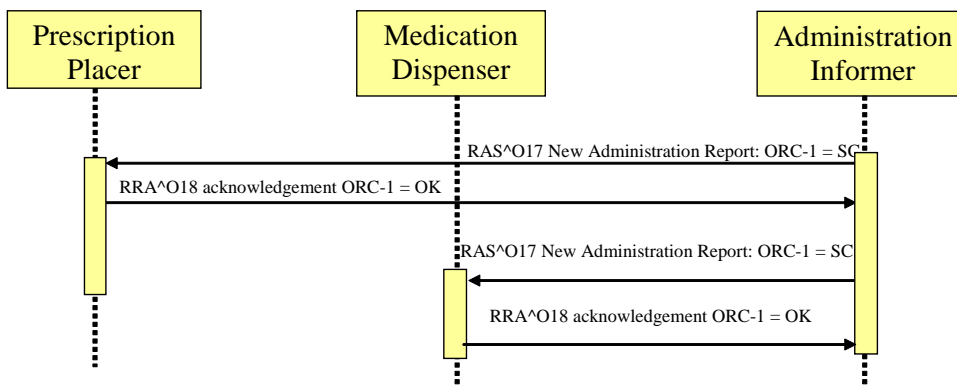
HL7 version 2.5:

- Chapter 2: "Control" → generic segments and data types
- Chapter 3: "ADT" → PID and PV1 segments
- Chapter 6: "Financial Management" → IN1, IN2, IN3 segments
- Chapter 4: "Order Entry" → other segments
- Chapter 7: "Observation Reporting" → OBX segment

1530

1535

5.8.4 Interaction Diagram



5.8.4.1 New Administration Report

5.8.4.1.1 Trigger Event

1540 When the nurse has administered a treatment, this transaction is triggered. This transaction is triggered for each administration moment, for each prescription.

If for a single patient there are medications from two concurrent prescriptions, the application must also send different messages for the administrations concerning each prescription.

5.8.4.1.2 Message Semantics

1545 The Administration Report contains ORC-1 = “SC” and the detailed status will mention that Administration is In Progress.

ORC-5 will be “IP” – In Progress, or “CM” if all the administration needed for the prescription has been given. In the case of Per Needed medication, since it may be impossible for the nurse to determine whether the patient will need more medication, the status is “in Progress”.

5.8.4.1.3 Expected Actions

1550 The Prescription Placer and Medication Dispenser will receive this information and update the status of the prescription.

5.8.4.2 Response

5.8.4.2.1 Trigger Events

1555 After the message has been received by the Prescription Placer, a response message (RRA) is sent back to the Medication Administration Informer.

5.8.4.2.2 Message Semantics

1560 The Administration Report contains ORC-1 = “OK” and the detailed status will mention that Administration is In Progress, or complete. If the prescription placer determines that the administration was the last one of the prescription order item, then the status of the order item is set to complete and ORC-5 = “CM”.

5.8.4.2.3 Expected Actions

The Medication Administration Informer will notice and update the status change of the administration and of the prescription, if any.

5.8.4.3 Update Administration

5.8.4.3.1 Trigger Events

1565 This message is triggered when a previously administered item is to be updated. This can happen in case of some event in the administration itself (change of site, rejection by the patient), or in the case of changes in a continuous administration (like change of perfusion rate, etc).

5.8.4.3.2 Message Semantics

1570 The Administration Report contains ORC-1 = “OK” and the detailed status will mention that Administration is In Progress, or complete.

5.8.4.3.3 Expected Actions

The Prescription Placer and Medication Dispenser will receive this information and update the status of the prescription.

1575 **5.8.4.4 Response**

5.8.4.4.1 Trigger Events

After the message has been received by the Prescription Placer, a response message (RRA) is sent back to the Medication Administration Informer.

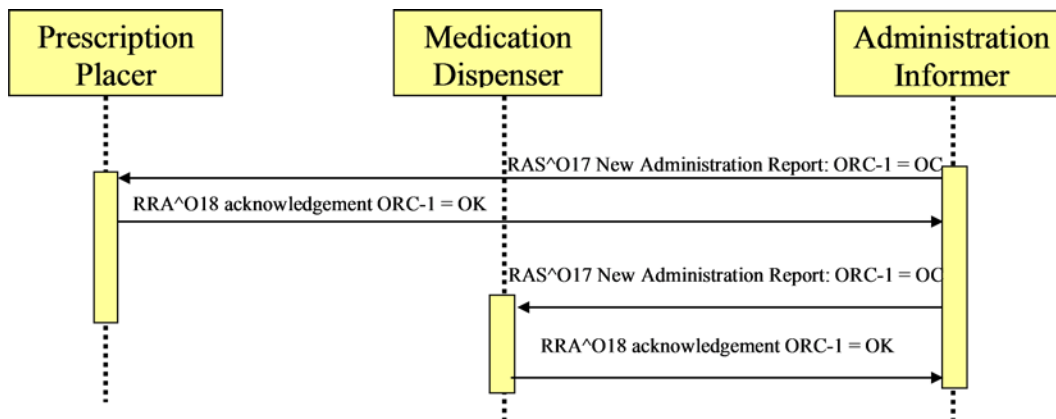
5.8.4.4.2 Message Semantics

1580 The Administration Report contains ORC-1 = “OK” and the detailed status will mention that Administration is In Progress, or complete. If the prescription placer determines that the administration was the last one of the prescription order item, then the status of the order item is set to complete and ORC-5 = “CM”.

5.8.4.4.3 Expected Actions

1585 The Medication Administration Informer will notice and update the status change of the administration and of the prescription, if any.

5.8.4.5 Cancel Administration



1590

5.8.4.5.1 Trigger Events

This message is triggered when a previously administered item is canceled. This can happen in case of some event in the administration itself (change of site, rejection by the patient).

5.8.4.5.2 Message Semantics

1595 The Administration Report contains ORC-1 = “OC”, Service Canceled and the detailed status will mention that Administration is canceled.

ORC-5 has the value "CA" and ORC-25 = "P3;V3;D2;A9" or "P3;V3;D3;A9", depending on the status of the dispense status.

5.8.4.5.3 Expected Actions

1600 The Prescription Placer and Medication Dispenser will receive this information and update the status of the administration.

5.8.4.6 Response

5.8.4.6.1 Trigger Events

1605 After the message has been received by the Prescription Placer, a response message (RRA) is sent back to the Medication Administration Informer.

5.8.4.6.2 Message Semantics

The Administration Report contains ORC-1 = “OK” and the detailed status will mention that Administration is canceled.

5.8.4.6.3 Expected Actions

1610 The Medication Administration Informer will notice and update the status change of the administration and of the prescription, if any.

5.8.5 Security Considerations

Intentionally left blank

5.8.5.1 Security Audit Considerations

1615 Intentionally left blank

5.8.5.2 Actor Specific Security Considerations

Intentionally left blank

1620

5.8.6 Message Static Definitions

5.8.6.1 Administration Report (request) - RAS^O17 static definition for transaction PHARM-H4

1625

Table 5.8.6.1-1: RAS^O17 static definition for Transaction PHARM-H4

RAS^O17^RAS_O17	Pharmacy/Treatment Administration	Chapter
MSH	Message Header	2
[{ SFT }]	Software	2
[UAC]	User Authentication Credential	2
[{ NTE }]	Notes and Comments (for Header)	2
[	--- PATIENT begin	
PID	Patient Identification	3
[PD1]	Additional Demographics	3
[{ NTE }]	Notes and Comments (for PID)	2
[{ AL1 }]	Allergy Information	2
[	--- PATIENT_VISIT begin	
PV1	Patient Visit	3
[PV2]	Patient Visit - Additional Info	3
]	--- PATIENT_VISIT end	
]	--- PATIENT end	
{	--- ORDER begin	
ORC	Common Order	4
[{	--- TIMING begin	
TQ1	Timing/Quantity	4
[{ TQ2 }]	Timing/Quantity Order Sequence	4
}]	--- TIMING end	
[	--- ORDER_DETAIL begin	
RXO	Pharmacy /Treatment Order	4
[	--- ORDER_DETAIL_SUPPLEMENT begin	
[{ NTE }]	Notes and Comments (for RXO)	2
{ RXR }	Pharmacy/Treatment Route	4
[{	--- COMPONENTS begin	
RXC	Pharmacy/Treatment Component	4
[{ NTE }]	Notes and Comments (for each RXC)	2
}]	--- COMPONENTS end	
]	--- ORDER_DETAIL_SUPPLEMENT end	
]	--- ORDER_DETAIL end	
[	--- ENCODING begin	
RXE	Pharmacy/Treatment Encoded Order	4
{	--- TIMING_ENCODED begin	
TQ1	Timing/Quantity	4
[{ TQ2 }]	Timing/Quantity Order Sequence	4
}	--- TIMING_ENCODED end	
{ RXR }	Pharmacy/Treatment Route	4
[{ RXC }]	Pharmacy/Treatment Component	4

RAS^O17^RAS_O17	Pharmacy/Treatment Administration	Chapter
]	--- ENCODING end	
{	--- ADMINISTRATION begin	
{ RXA }	Pharmacy/Treatment Administration	4
RXR	Pharmacy/Treatment Route	4
[[	--- OBSERVATION begin	
OBX	Observation/Result	7
[[NTE]]	Notes and Comments (for OBX)	2
]]	--- OBSERVATION end	
}	--- ADMINISTRATION end	
[[CTI]]	Clinical Trial Identification	7
}	--- ORDER end	

5.8.6.2 Administration Report (response) - RRA^O18 static definition for transaction PHARM-H4

Table 5.8.6.2-1: RRA^O18 static definition for Transaction PHARM-H4

RRA^O18^RRA_O18	Pharmacy/Treatment Administration Acknowledgment Message	Chapter
MSH	Message Header	2
MSA	Message Acknowledgment	2
[[ERR]]	Error	2
[[SFT]]	Software	2
[UAC]	User Authentication Credential	2
[[NTE]]	Notes and Comments (for Header)	2
[	--- RESPONSE begin	
[	--- PATIENT begin	
PID	Patient Identification	3
[[NTE]]	Notes and Comments (for PID)	2
]	--- PATIENT end	
{	--- ORDER begin	
ORC	Common Order	4
[[	--- TIMING begin	
TQ1	Timing/Quantity	4
[[TQ2]]	Timing/Quantity Order Sequence	4
]]	--- TIMING end	
[	--- ADMINISTRATION begin	
{ RXA }	Pharmacy/Treatment Administration	4
RXR	Pharmacy/Treatment Route	4
]	--- ADMINISTRATION end	
}	--- ORDER end	
]	--- RESPONSE end	

1630

5.9 Advance Prescription Notification PHARM-H5

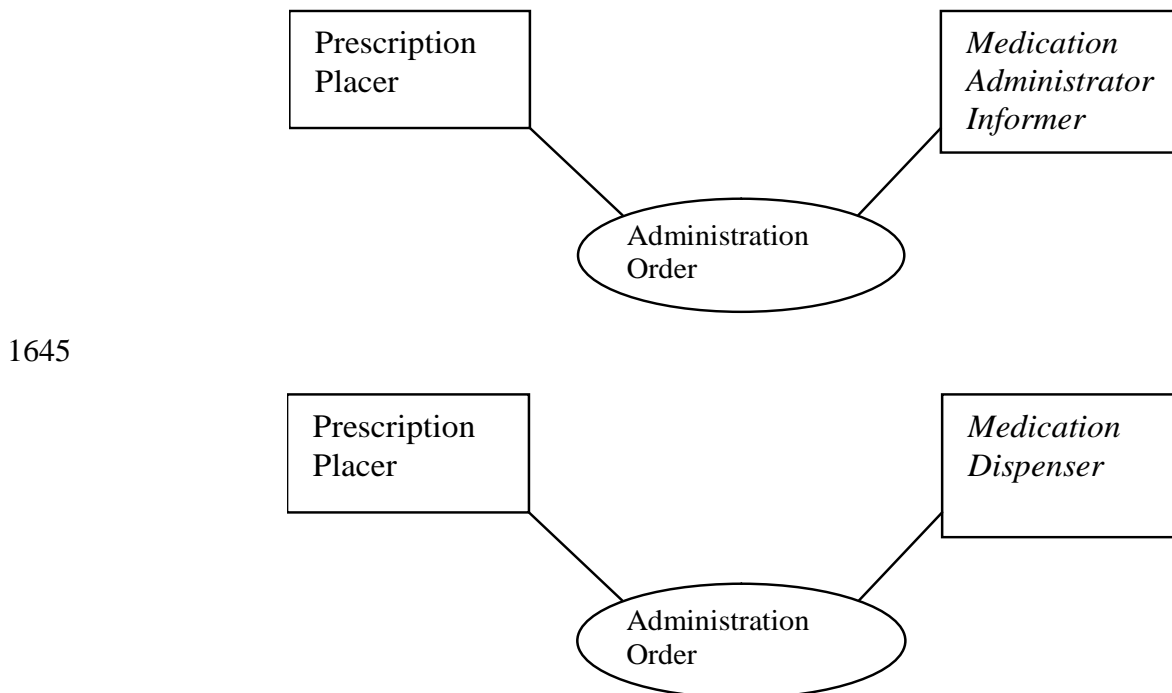
This section corresponds to Transaction PHARM-H5 of the IHE Technical Framework. Transaction PHARM-H5 is used for the Prescription Placer to notify the Medication Dispenser and Administration Informer of a prescription order, to allow for preparation in advance.

1635 5.9.1 Scope

This transaction is used when the Prescription Placer informs the Medication Administration Informer and Medication Dispenser.

1640 This order contains the information concerning the treatment that is to be administered to a patient, e.g., for the Medication Administration Informer to populate the nurse worklist and to prepare the patient. It does not trigger the preparation and/or picking of the medication at the patient care location: in this case, as the nurse is the dispenser, the Validated Order is responsible to do so.

5.9.2 Use Case Roles



Actor: Prescription Placer

1650 **Role:** Creates Administration Order, Updates Administration Orders, Cancels Administration Orders, receives acceptance or rejection from the Medication Administration Informer, Receives Administration Orders order Content Changes, and Status Changes.

Actor: Medication Administration Informer

Role: Accepts Administration Orders. Notifies acceptance or rejection to the Prescription Placer, Notifies Prescription Placer of Administration Orders content and status changes.

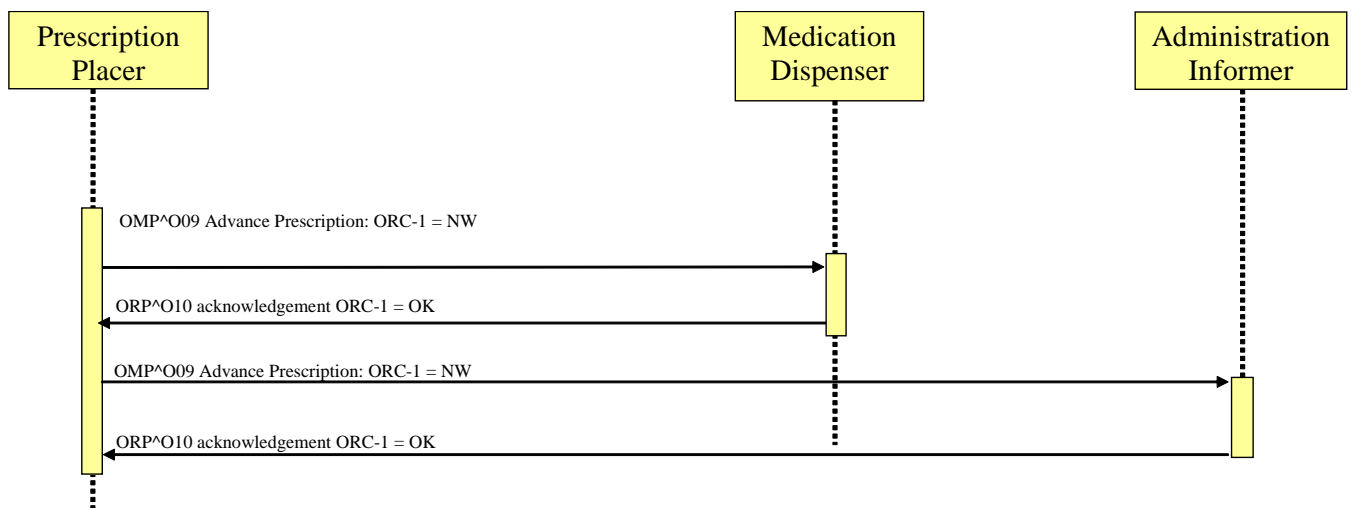
1655 **5.9.3 Referenced Standard**

HL7 version 2.5:

- Chapter 2: "Control" → generic segments and data types
- Chapter 3: "ADT" → PID and PV1 segments
- Chapter 6: "Financial Management" → IN1, IN2, IN3 segments
- Chapter 4: "Order Entry" → other segments
- Chapter 7: "Observation Reporting" → OBX segment

1660

5.9.4 Interaction Diagram



1665

5.9.4.1 New Prescription - Administration Order

5.9.4.1.1 Trigger Event

This transaction is triggered optionally when a prescription order is submitted. It is similar to 5.5.4.1 - New Prescription

1670 **5.9.4.1.2 Message Semantics**

The semantics are identical to 5.5.4.1 - New Prescription

5.9.4.1.3 Expected Actions

The Medication Administration Informer is expected to populate the worklist and begin the preparation of the patient when appropriate.

1675 5.9.4.2 Response – ORP Message

5.9.4.2.1 Trigger Events

This message is sent out after the Medication Administration Informer acknowledges the new prescription order.

5.9.4.2.2 Message Semantics

1680 The ORC segment referring to the order has ORC-1 = “OK”. ORC-25 does not assume or change the validation or dispense status.

5.9.4.2.3 Expected Actions

The Prescription Placer acknowledges that the Medication Administration Informer has received the prescription.

1685 5.9.5 Security Considerations

Intentionally left blank

5.9.5.1 Security Audit Considerations

Intentionally left blank

5.9.5.2 Actor Specific Security Considerations

1690 Intentionally left blank

5.9.6 Message Static Definitions

See 5.5.8 - Message Static Definitions for transaction PHARM-H1

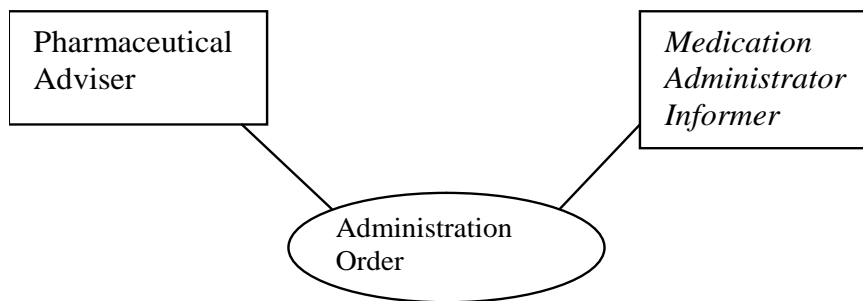
5.10 Validated Order Confirmation PHARM-H6

1695 This section corresponds to Transaction PHARM-H6 of the IHE Technical Framework. Transaction PHARM-H6 is used for the Pharmaceutical Adviser to notify the Medication Administration Informer that the prescription order is validated, to allow for administration preparation.

5.10.1 Scope

1700 This Validated Order confirmation contains the information that the prescription has been validated and therefore the nurse worklist can be populated, and the patient prepared. It triggers the final preparation at the patient care location.

5.10.2 Use Case Roles



1705

Actor: Pharmaceutical Adviser

Role: Creates new confirmation of order validation, receives acceptance or rejection of order validation.

Actor: Medication Administration Informer

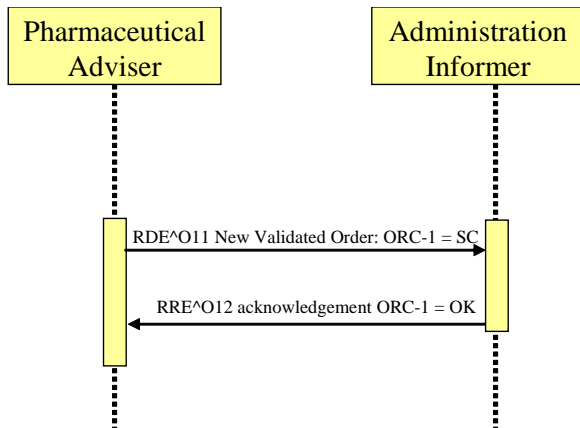
1710 **Role:** Receives new confirmation of order validation, accepts or rejects confirmation of order validation.

5.10.3 Referenced Standard

HL7 version 2.5:

- Chapter 2: "Control" → generic segments and data types
- Chapter 3: "ADT" → PID and PV1 segments
- Chapter 6: "Financial Management" → IN1, IN2, IN3 segments
- Chapter 4: "Order Entry" → other segments
- Chapter 7: "Observation Reporting" → OBX segment

1720 **5.10.4 Interaction Diagram**



5.10.4.1 New Validated Order

5.10.4.1.1 Trigger Events

1725 This message is sent out when the pharmaceutical advisor submits the prescription order for dispensing.

5.10.4.1.2 Message Semantics

The ORC segment referring to the order has ORC-1 = “SC”, as it is understood that the Medication Administration Informer has received the order.

ORC-5 – Order Status = “In Progress”

1730 ORC-25 is updated to “Validation Complete” (see Table 4.5.1-1: Detailed order status)

5.10.4.1.3 Expected Actions

The nurse worklist is to be populated and preparation can be started. If there are detected differences between the instructions in transaction PHARM-H6 and Pharm-H3, the instructions in PHARM-H3 shall prevail.

1735 The Medication Administration Informer is free to accept the validated order or to reply with an error message.

5.10.4.1.4 Response – accepted validated order – RRE Message

A message of type RRE is sent back to the Pharmaceutical Adviser.

5.10.4.1.5 Trigger Events

1740 This message is sent out after the Medication Administration Informer acknowledges the reception of the validated order item.

5.10.4.1.6 Message Semantics

The medication dispenser accepts the validated order with an ORC-1 value of “OK”.

5.10.4.1.7 Expected Actions

1745 The pharmaceutical advisor acknowledges the beginning of the preparation.

5.10.4.1.8 Response – Unable to accept validated order– RRE Message

A message of type RRE is sent back to the Pharmaceutical Adviser.

5.10.4.1.9 Trigger Events

1750 This message is sent out after the Medication Administration Informer acknowledges the reception of the validated order item.

5.10.4.1.10 Message Semantics

The medication dispenser informs of the impossibility to accept the validated order with an ORC-1 value of “UA”.

5.10.4.1.11 Expected Actions

1755 The pharmaceutical advisor must determine the corrective actions to the validated order.

5.10.5 Security Considerations

Intentionally left blank

5.10.5.1 Security Audit Considerations

Intentionally left blank

1760 **5.10.5.2 Actor Specific Security Considerations**

Intentionally left blank

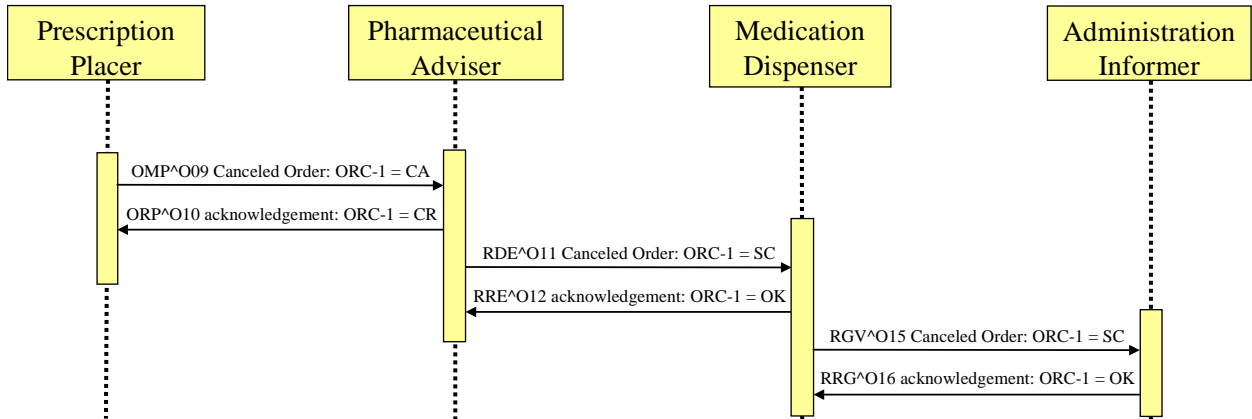
5.10.6 Message Static Definitions

See 5.6.6 - Message Static Definitions for transaction PHARM-H2

1765 **5.11 Exceptional Cases**

5.11.1 Cancel Prescription in advanced workflow

5.11.1.1 Cancel Prescription after validation, dispense or administration



5.11.1.1.1 Trigger Events

1770 This message is sent out from the Prescription Placer to the Pharmaceutical Adviser when the Prescription Placer cancels the prescription, after validation but before the completion of the last administration.

Depending on the last status of the order, this canceling is propagated towards the last involved actor:

- 1775
- after validation: up to the Medication Dispenser,
 - after dispense or administration: up to the Administration Informer.

5.11.1.1.2 Message Semantics

1780 The initial message from Prescription Placer to Pharmaceutical Adviser is a cancel of a Prescription Item, sent by an OMP message containing the canceled item. The ORC segment refers to the order that is to be canceled with:

ORC-1 = “CA” – Cancel order request.

ORC-5 = “CA”

ORC-25 is updated to a new value, depending on the last status of the order at the moment of canceling:

- 1785
- after validation: to “P9;V3;0;0”,
 - after dispense: to “P9;V3;D2;0” after partial dispense, “P9;V3;D3;0” after complete dispense
 - after administration: to “P9;V3;D3;A2”, as the administration isn't completed yet.

Propagation of the cancelation is done by means of:

- 1790
- a RDE message from the Pharmaceutical Adviser to the Medication Dispenser, having ORC-1 = “SC”, ORC-5 = “CA” and ORC-25 the status of the order as received in the OMP message.
 - a RGV message from the Medication Dispenser to the Administration Informer, if the dispense has already been performed, having ORC-1 = “SC”, ORC-5 = “CA” and ORC-25 the status of the order as received in the RDE message.
- 1795

5.11.1.1.3 Expected Actions

The Pharmaceutical Adviser is expected to take notice of the cancelation and send an acknowledgement.

1800 He will also propagate the cancelation of the prescription to the Medication Dispenser, as a status change of the order to "Canceled".

The Medication Dispenser will take notice of the cancelation, send an acknowledgement and propagate the cancelation to the Administration Informer, if dispense or administration has already started.

1805 The Administration Informer in his turn will take notice of the cancelation and send an acknowledgement message to the Medication Dispenser.

5.11.1.2 Response – accepted cancel – ORP/RRE/RRG Message

In response to the message indicating the cancelation of a Prescription Item, the Pharmaceutical Adviser responds with an ORP as acknowledgement. The ORC segment referring to the order that was requested to be canceled will have an ORC-1 value of “CR” – Canceled as Requested.

1810 The acknowledgments on the propagations are acknowledgements on the received status updates, having ORC-1 = “OK”:

- from the Medication Dispenser to the Pharmaceutical Adviser this is an RRE message,
- from the Administration Informer to the Medication Dispenser this is an RRG message.

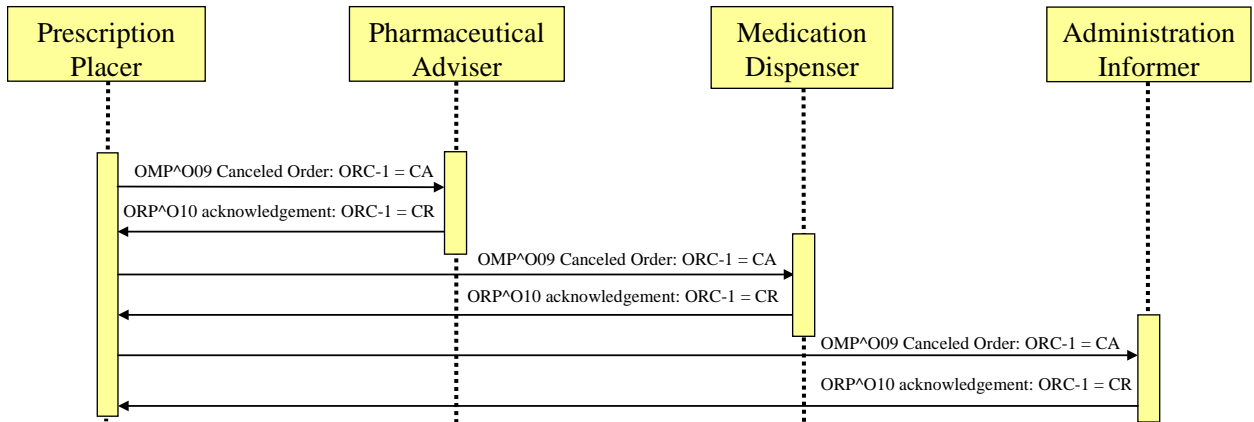
5.11.1.2.1 Trigger Events

1815 This message is sent out after the Pharmaceutical Adviser, Medication Informer or Administration Informer acknowledges and accepts the cancelation of the Prescription Order Item.

5.11.1.2.2 Expected Actions

1820 The Prescription Placer waits for the acknowledgement of the acceptance of the message by the Pharmaceutical Adviser, before effectively setting the updated status on the Prescription Item.

5.11.1.3 Cancel Prescription after validation, dispense or administration with Advance Prescription Notification



1825 5.11.1.3.1 Trigger Events

This message is sent out from the Prescription Placer to the Pharmaceutical Adviser, Medication Dispenser and/or Administration Informer when the Prescription Placer cancels a prescription.

To the Prescription Placer this is part of the PHARM-H1 transaction, to the Medication Dispenser and/or the Administration Informer this is an optional message in scope of the PHARM-H5 transaction.

5.11.1.3.2 Message Semantics

The message sent by the Prescription Placer, is a cancel of a Prescription Item, being an OMP message containing the canceled item. The ORC segment refers to the order that is to be canceled with:

1835 ORC-1 = “CA” – Cancel order request.

ORC-5 = “CA”

ORC-25 is updated to a new value, depending on the last status of the order at the moment of canceling:

- after validation: to “P9;V3;0;0”,
- 1840 • after dispense: to “P9;V3;D2;0” after partial dispense, “P9;V3;D3;0” after complete dispense
- after administration: to “P9;V3;D3;A2”, as the administration isn't completed yet.

5.11.1.3.3 Expected Actions

1845 The Pharmaceutical Adviser, Medication Dispenser and Administration Informer are expected to take notice of the cancelation and send an acknowledgement.

5.11.1.4 Response – accepted cancel – ORP Message

1850 In response to the message indicating the cancelation of a Prescription Item, the Pharmaceutical Adviser, Medication Dispenser and Administration Informer respond with an ORP as acknowledgement. The ORC segment referring to the order that was requested to be canceled will have an ORC-1 value of “CR” – Canceled as Requested.

5.11.1.4.1 Trigger Events

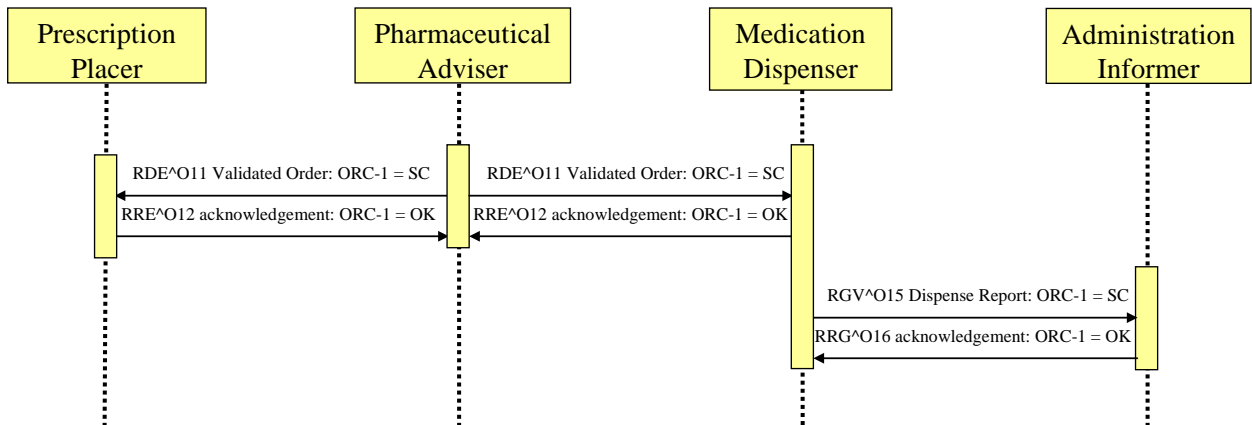
This message is sent out after the Pharmaceutical Adviser, Medication Informer or Administration Informer acknowledges and accepts the cancelation of the Prescription Order Item.

1855 5.11.1.4.2 Expected Actions

The Prescription Placer waits for the acknowledgement of the acceptance of the message by the Pharmaceutical Adviser, Medication Dispenser and Administration Informer, before effectively setting the updated status on the Prescription Item.

5.11.2 Cancel Validation in advanced workflow

1860 5.11.2.1 Cancel validation after dispense or administration



5.11.2.1.1 Trigger Events

1865 This message is sent out from the Pharmaceutical Adviser to Prescription Placer and the Medication Dispenser when the validation of a prescription item is canceled, after dispense but before the completion of the last administration.

This canceling is propagated by the Medication Dispenser towards the Administration Informer.

5.11.2.1.2 Message Semantics

The initial message from the Pharmaceutical Adviser to the Prescription Placer and the Medication Dispenser is the cancelation of the validation, sent by an RDE message containing

1870 the Prescription Item for which the validation is canceled. The ORC segment refers to the order that is to be canceled with:

ORC-1 = “SC” – Status Changed

ORC-5 = “DC” – Discontinue

1875 ORC-25 is updated to a new value, depending on the last status of the order at the moment of canceling:

- after dispense: to “P3;V9;D2;0” after partial dispense, “P3;V9;D3;0” after complete dispense
- after administration: to “P3;V9;D3;A2”, as the administration isn't completed yet.

Propagation of the cancelation is done by means of:

1880 • a RGV message from the Medication Dispenser to the Administration Informer, if the dispense has already been performed, having ORC-1 = “SC”, ORC-5 = “DC” and ORC-25 the status of the order as received in the RDE message.

5.11.2.1.3 Expected Actions

1885 The Prescription Placer and Medication Dispenser are expected to take notice of the cancelation and send an acknowledgement.

The Medication Dispenser will also propagate the cancelation of the prescription to the Administration Informer, as a status change of the order to "Discontinued".

5.11.2.2 Response – accepted cancel – RRE/RRG Message

1890 In response to the message indicating the cancelation of the validation of a Prescription Item, the Prescription Placer and Medication Dispenser respond with an RRE as acknowledgement. The ORC segment referring to the order for which the validation that was requested to be canceled will have an ORC-1 value of “OK”.

The acknowledgment from the Administration Informer to the Medication Dispenser, on the propagation, is an RRG message, having ORC-1 = “OK”.

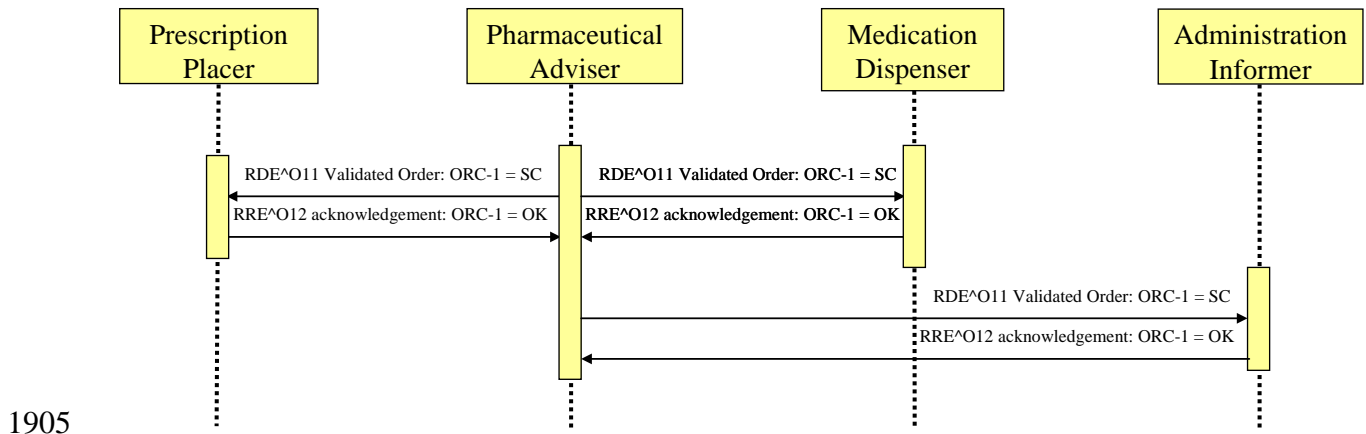
1895 5.11.2.2.1 Trigger Events

This message is sent out after the Prescription Placer, Medication Informer or Administration Informer acknowledges and accepts the cancelation of the validation of the Prescription Order Item.

5.11.2.2.2 Expected Actions

1900 The Pharmaceutical Adviser waits for the acknowledgement of the acceptance of the message by the Prescription Placer and the Medication Dispenser, before effectively setting the updated validation status on the Prescription Item.

5.11.2.3 Cancel validation after dispense or administration with Validated Order Confirmation



5.11.2.3.1 Trigger Events

This message is sent out from the Pharmaceutical Adviser to the Prescription Placer, Medication Dispenser and/or Administration Informer when the Prescription Placer cancels the validation of a Prescription Item.

1910 To the Prescription Placer this is part of the PHARM-H2 transaction, to the Medication Dispenser and/or the Administration Informer this is an optional message in scope of the PHARM-H6 transaction.

5.11.2.3.2 Message Semantics

1915 The message sent by the Pharmaceutical Adviser, is a cancelation of a validation of a prescription item, being an RDE message containing the canceled item. The ORC segment refers to the order that is to be canceled with:

ORC-1 = “SC” – Status Changed.

ORC-5 = “DC” – Discontinued.

1920 ORC-25 is updated to a new value, depending on the last status of the order at the moment of canceling:

- after dispense: to “P3;V9;D2;0” after partial dispense, “P3;V9;D3;0” after complete dispense
- after administration: to “P3;V9;D3;A2”, as the administration isn't completed yet.

5.11.2.3.3 Expected Actions

1925 The Prescription Placer, Medication Dispenser and Administration Informer are expected to take notice of the cancelation and send an acknowledgement.

5.11.2.4 Response – accepted cancel – ORP Message

1930 In response to the message indicating the cancelation of a Prescription Item, the Prescription Placer, Medication Dispenser and Administration Informer respond with an RRE as acknowledgement. The ORC segment referring to the order for which the validation was requested to be canceled will have an ORC-1 value of “OK”.

5.11.2.4.1 Trigger Events

This message is sent out after the Prescription Placer, Medication Informer or Administration Informer acknowledges and accepts the cancelation of the validation of the Prescription Item.

1935 5.11.2.4.2 Expected Actions

The Pharmaceutical Adviser waits for the acknowledgement of the acceptance of the message by the Prescription Placer, Medication Dispenser and Administration Informer, before effectively setting the updated status on the Prescription Item.

1940

Add Appendix A to Volume 2

Appendix A - Common HL7 Message Segments for IHE HMW TF

1945 This section describes the common message segments used by the transactions IHE Hospital Medication Workflow.

Each table represents a segment. Below the table are commented only the fields for which IHE Hospital Medication Workflow Technical Framework brings some precision on usage. The optional fields are not shown in the table, unless they require a particular comment within the context of the IHE Framework.

1950 As in the HL7 specifications from which these tables are extracted, the TBL# in the tables refer to HL7 tables, which can be found in HL7 version 2.x, chapter 2.

A.1 MSH - Message Header Segment

HL7 v2.5: chapter 2 (2.15 Message control)

1955 This segment defines the intent, source, destination, and some specifics of the syntax of a message.

Table A.1-1: MSH - Message Header

SEQ	LEN	DT	Usage	Card.	TBL#	ITEM #	ELEMENT NAME
1	1	ST	R	[1..1]		00001	Field Separator
2	4	ST	R	[1..1]		00002	Encoding Characters
3	227	HD	O	[0..1]	0361	00003	Sending Application
4	227	HD	R	[1..1]	0362	00004	Sending Facility
5	227	HD	O	[0..1]	0361	00005	Receiving Application
6	227	HD	R	[1..1]	0362	00006	Receiving Facility
7	26	TS	R	[1..1]		00007	Date/Time Of Message
8	40	ST	X	[0..0]		00008	Security
9	15	MSG	R	[1..1]		00009	Message Type
10	20	ST	R	[1..1]		00010	Message Control ID
11	3	PT	R	[1..1]		00011	Processing ID
12	60	VID	R	[1..1]		00012	Version ID
13	15	NM	O	[0..1]		00013	Sequence Number
14	180	ST	X	[0..0]		00014	Continuation Pointer
15	2	ID	O	[0..1]	0155	00015	Accept Acknowledgment Type
16	2	ID	O	[0..1]	0155	00016	Application Acknowledgment Type
7	3	ID	RE	[1..1]	0399	00017	Country Code

SEQ	LEN	DT	Usage	Card.	TBL#	ITEM #	ELEMENT NAME
18	16	ID	C	[0..1]	0211	00692	Character Set
19	250	CE	RE	[0..1]		00693	Principal Language Of Message
20	20	ID	C	[0..1]	0356	01317	Alternate Character Set Handling Scheme
21	427	EI	RE	[0..*]		01598	Message Profile Identifier

MSH-1 Field Separator, required:

1960 The IHE Hospital Medication Workflow Technical Framework requires that applications support HL7-recommended value that is | (ASCII 124).

MSH-2 Encoding Characters, required:

1965 This field contains the four characters in the following order: the component separator, repetition separator, escape character, and subcomponent separator. The IHE Hospital Medication Workflow Technical Framework requires that applications support HL7-recommended values ^~\& (ASCII 94, 126, 92, and 38, respectively).

The use of the encoding characters as a part of a field requires the use of escape sequence (see Section Country Code (NM)).

1970

MSH-4 Sending Facility (HD), required:

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

The IHE Hospital Medication Workflow Technical Framework requires that this field be populated with:

1975 First component (required): Namespace ID. The name of the organizational entity responsible for the sending application.

Second component (optional): The URI (OID) of the organizational entity responsible for the sending application.

1980 Third component (optional): The type of identification URI provided in the second component of this field. The codification of these three components is entirely site-defined. It may be detailed in the national extensions of this framework.

MSH-6 Receiving Facility (HD), required:

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

1985 The IHE Hospital Medication Workflow Technical Framework requires that this field be populated with:

First component (required): Namespace ID. The name of the organizational entity responsible for the receiving application.

1990 Second component (optional): The URI (e.g., OID) of the organizational entity responsible for the receiving application.

Third component (optional): The type of identification URI provided in the second component of this field. The codification of these three components is entirely site-defined. It may be detailed in the national extensions of this framework.

MSH-9 Message Type (MSG), required:

1995 Components: <Message Code (ID)> ^ <Trigger Event (ID)> ^ <Message Structure (ID)>

This field contains the message type, trigger event, and the message structure ID for the message. All three components are required.

Its content is defined within each transaction-specific section of this document.

2000 **MSH-10 Message Control Id (ST), required:**

This field contains a number or other identifier that uniquely identifies the message. Each message should be given a unique identifier by the sending system. The receiving system will echo this ID back to the sending system in the Message Acknowledgment segment (MSA). The combination of this identifier and the name of the sending application (MSH-3) should be unique across the Healthcare Enterprise.

2005

MSH-11 Processing ID (PT), required:

Components: <Processing ID (ID)> ^ <Processing Mode (ID)>

2010 HL7 definition: This field indicates whether to process a message as defined in HL7 Application (level 7) Processing rules.

This IHE Hospital Medication Workflow Technical Framework mandates only the first component, with permitted values listed in HL7 table 0103 – Processing ID:

HL7 Table 0103 - Processing ID

Value	Meaning	Comment
D	Debugging	
P	Production	
T	Training	

2015

MSH-12 Version ID (VID), required:

Components: <Version ID (ID)> ^ <Internationalization Code (CE)> ^ <International Version ID (CE)>

2020 This field is matched by the receiving system to its own version to be sure the message will be interpreted correctly.

The IHE Hospital Medication Workflow Technical framework requires the first component to be populated with a value starting with the character string "2.6" representing HL7 major release 2.6. Release 2.5 and minor releases, like the release 2.5.1, are also supported by the Hospital Medication Workflow Technical Framework.

2025 Valid examples: |2.6| |2.5.1|

MSH-15 Accept Acknowledgment Type (ID), optional.

IHE –Pharmacy can use the HL7 original or enhanced acknowledgement mode.

MSH-16 Application Acknowledgment Type (ID), not supported for the same reason.

2030

MSH-17 Country Code (ID), required if available.

This field contains the country of origin for the message. The values to be used are those of ISO 3166, with the 3-character (alphabetic form). Refer to HL7 Table 0399 - Country code

Examples of valid values:

2035 JPN = Japan, USA = United States, GBR = United Kingdom, ITA = Italy, FRA = France, NLD = Netherlands.

MSH-18 Character Set (ID), conditional.

2040 This field contains the character set for the entire message. Refer to HL7 table 0211 - Alternate character sets for valid values.

Examples of valid values:

ASCII: The printable 7-bit ASCII character set.

8859/1: The printable characters from the ISO 8859/1 Character set used by Western Europe.

2045 This character set can still be used, but 8859/15 should be used by preference. This character set is the forward-compatible version of 8859/1 and includes new characters such as the Euro currency symbol.

ISO IR87: Code for the Japanese Graphic Character set for information interchange (JIS X 0208-1990).

UNICODE UTF-8: UCS Transformation Format, 8-bit form.

2050 Condition predicate: This field shall only be valued if the message uses a character set other than the 7-bit ASCII character set. Though the field is repeatable in HL7, IHE authorizes only one occurrence (i.e., one character set). The character set specified in this field is used for the encoding of all of the characters within the message.

2055 **IHE - HMW does not recommend any character set; however, implementations must ensure the use of a character set that can satisfy the interoperability needs within each transaction.**

MSH-19 Principal Language of Message (CE), required if available. Coded from ISO 639.

2060 Examples: DE = German, EN = English, ES=Spanish, JA = Japanese, FR = French, NL = Dutch, IT = Italian

MSH-20 Alternate Character Set Handling Scheme (ID), conditional:

2065 HL7 definition: When any alternative character sets are used (as specified in the second or later iterations of MSH-18 character sets), and if any special handling scheme is needed, this component is to specify the scheme used, according to HL7 Table 0356- Alternate character set handling scheme as defined below:

HL7 Table 0356 - Alternate character set handling scheme

Value	Description	Comment
ISO 2022-1994	This standard is titled "Information Technology - Character Code Structure and Extension Technique". .	This standard specifies an escape sequence from basic one byte character set to specified other character set, and vice versa. The escape sequence explicitly specifies what alternate character set to be evoked. Note that in this mode, the actual ASCII escape character is used as defined in the referenced ISO document. As noted in 1.7.1, escape sequences to/from alternate character set should occur within HL7 delimiters. In other words, HL7 delimiters are basic one byte characters only, and just before and just after delimiters, character encoding status should be the basic one byte set.
2.3	The character set switching mode specified in HL7 2.5, section 2.7.2, "Escape sequences supporting multiple character sets" and section 2.A.46, "XPN – extended person name".	Note that the escape sequences used in this mode do not use the ASCII "esc" character, as defined in ISO 2022-1994. They are "HL7 escape sequences" as first defined in HL7 2.3, sec. 2.9.2. (Also, note that sections 2.8.28.6.1 and 2.9.2 in HL7 2.3 correspond to sections 2.16.93 and 2.7.2 in HL7 2.5.)
<null>	This is the default, indicating that there is no character set switching occurring in this message.	This is the default.

Condition predicate: This field shall be valued for messages using more than one character set.

2070 **MSH-21 Message Profile Identifier (EI)**, required if available.

For IHE Hospital Medication Workflow Technical Framework, this field shall only be valued in the messages for which a Message Profile has been officially defined and identified. When

2075 multiple message profiles are listed in this field they should be (vendor specific, country specific) constraints of the IHE Hospital Medication Workflow Profile. Note that the overriding of IHE Hospital Medication Workflow Profile constraints is only allowed in national extensions to this framework.

A.2 NTE - Notes and Comment Segment

HL7 v2.5: chapter 2 (2.15 Message control)

This segment is used for sending notes and comments.

2080 Information that can be coded in OBX segments or OBR segments shall not be sent in a NTE segment.

Table A.2-1: NTE - Notes and Comment segment

SEQ	LEN	DT	Usage	Card.	TBL#	ITEM#	Element name
1	4	SI	R	[1..1]		00096	Set ID – NTE
2	8	ID	RE	[0..1]		00097	Source of Comment
3	65536	FT	RE	[0..1]		00098	Comment
4	250	CE	RE	[0..1]		01318	Comment Type

2085 **NTE-1 Set ID - NTE (SI), required.**

NTE-2 Source of Comment (ID), required if existing.

IHE Hospital Medication Workflow Technical Framework populates this field with one of these values:

2090

Table A.2-2: Source of Comment

Value	Meaning	Comment
L	The source of the comment is the Pharmaceutical Advisor, Medication Dispenser, or the Administration Informer	
P	Order Placer is the source of the comment	
O	Other system is the source of the comment	

NTE-3 Comment (FT), required if available:

2095 This field contains the text of the comment. This text may be formatted. In order to delete an existing comment, the field shall contain a null value - empty quotation marks: "".

Comment text of identical type (NTE-4) and source (NTE-2) shall be included in the same occurrence of an NTE segment, and not be split over multiple segments.

NTE-4 Comment Type (CE), required if available.

2100 The IHE Hospital Medication Workflow Technical Framework populates this field with one of these values:

Table A.2-3: Comment Type

Value	Description	Comment
PA	Prescription-wide Advice notes	
IA	Prescription Item Advice notes	
PI	Patient Instructions	
RE	Remark	
PI	Patient Instructions	
GI	General Instructions	

A.3 PID - Patient Identification Segment

2105 HL7 v2.5: chapter 3 (3.4.2)

The PID segment is used by all applications as the primary means of communicating patient identification information. This segment contains permanent patient identifying and demographic information that, for the most part, is not likely to change frequently.

2110

Table A.3-1: PID - Patient Identification segment

SEQ	LEN	DT	Usage	Card.	TBL #	ITEM#	ELEMENT NAME
1	4	SI	O	[0..1]		00104	Set ID – PID
2	20	CX	X	[0..0]		00105	Patient ID
3	250	CX	R	[1..*]		00106	Patient Identifier List
4	20	CX	X	[0..0]		00107	Alternate Patient ID - PID
5	250	XPN	R	[1..*]		00108	Patient Name
6	250	XPN	O	[0..*]		00109	Mother's Maiden Name
7	26	TS	RE	[0..1]		00110	Date/Time of Birth
8	1	IS	R	[1..1]	0001	00111	Administrative Sex
9	250	XPN	X	[0..0]		00112	Patient Alias
10	250	CE	O	[0..*]	0005	00113	Race
11	250	XAD	O	[0..*]		00114	Patient Address
12	4	IS	X	[0..0]	0289	00115	County Code
13	250	XTN	O	[0..*]		00116	Phone Number - Home
14	250	XTN	O	[0..*]		00117	Phone Number - Business
15	250	CE	O	[0..1]	0296	00118	Primary Language

SEQ	LEN	DT	Usage	Card.	TBL #	ITEM#	ELEMENT NAME
16	250	CE	O	[0..1]	0002	00119	Marital Status
17	250	CE	O	[0..1]	0006	00120	Religion
18	250	CX	RE	[0..1]		00121	Patient Account Number
19	16	ST	O	[0..1]		00122	SSN Number - Patient
20	25	DLN	O	[0..1]		00123	Driver's License Number - Patient
21	250	CX	O	[0..*]		00124	Mother's Identifier
22	250	CE	O	[0..1]	0189	00125	Ethnic Group
23	250	ST	O	[0..1]		00126	Birth Place
24	1	ID	O	[0..1]	0136	00127	Multiple Birth Indicator
25	2	NM	O	[0..1]		00128	Birth Order
26	250	CE	O	[0..1]	0171	00129	Citizenship
27	250	CE	O	[0..1]	0172	00130	Veterans Military Status
28	250	CE	X	[0..0]	0212	00739	Nationality
29	26	TS	O	[0..1]		00740	Patient Death Date and Time
30	1	ID	O	[0..1]	0136	00741	Patient Death Indicator
31	1	ID	RE	[0..1]	0136	01535	Identity Unknown Indicator
32	20	IS	RE	[0..1]	0445	01536	Identity Reliability Code
33	26	TS	C	[0..1]		01537	Last Update Date/Time
34	241	HD	C	[0..1]		01538	Last Update Facility
35	250	CE			0446	01539	Species Code
36	250	CE			0447	01540	Breed Code
37	80	ST				01541	Strain
38	250	CE			0429	01542	Production Class Code
39	250	CWE			0171	01840	Tribal Citizenship

The specific usage of these fields, especially those fields with usage "O" (optional) in the table above, is explained in the national extensions.

2115 PID-3 Patient Identifier List (CX), required, repeatable

Components: <ID Number (ST)> ^ <Check Digit (ST)> ^ <Check Digit Scheme (ID)> ^ <Assigning Authority (HD)> ^ <Identifier Type Code (ID)> ^ <Assigning Facility (HD)> ^ <Effective Date (DT)> ^ <Expiration Date (DT)> ^ <Assigning Jurisdiction (CWE)> ^ <Assigning Agency or Department (CWE)>

2120 Subcomponents for Assigning Authority (HD): <Namespace ID (IS)> & <Universal ID (ST)> & <Universal ID Type (ID)>

Subcomponents for Assigning Facility (HD): <Namespace ID (IS)> & <Universal ID (ST)> & <Universal ID Type (ID)>

2125 Subcomponents for Assigning Jurisdiction (CWE): <Identifier (ST)> & <Text (ST)> & <Name of Coding System (ID)> & <Alternate Identifier (ST)> & <Alternate Text (ST)> & <Name of Alternate Coding System (ID)> & <Coding System

Version ID (ST)> & <Alternate Coding System Version ID (ST)> & <Original Text (ST)>

2130

Subcomponents for Assigning Agency or Department (CWE): <Identifier (ST)> & <Text (ST)> & <Name of Coding System (ID)> & <Alternate Identifier (ST)> & <Alternate Text (ST)> & <Name of Alternate Coding System (ID)> & <Coding System Version ID (ST)> & <Alternate Coding System Version ID (ST)> & <Original Text (ST)>

2135

This field contains the list of identifiers (one or more) used by the healthcare facility to uniquely identify a patient (e.g., medical record number, billing number, birth registry, national unique individual identifier, etc.). In Canada, the Canadian Provincial Healthcare Number should be sent in this field. The arbitrary term of “internal ID” has been removed from the name of this field for clarity.

2140

This field contains the Patient Identifier(s) as used by the hospital. The Assigning Authority and Identifier Type Code are mandatory.

PID-5 Patient Name (XPN), required, repeatable

This field contains the Patient Identifier(s) as used by the hospital. The Assigning Authority and Identifier Type Code are mandatory.

2145

Components: <Family Name (FN)> ^ <Given Name (ST)> ^ <Second and Further Given Names or Initials Thereof (ST)> ^ <Suffix (e.g., JR or III) (ST)> ^ <Prefix (e.g., DR) (ST)> ^ <Degree (e.g., MD) (IS)> ^ <Name Type Code (ID)> ^ <Name Representation Code (ID)> ^ <Name Context (CE)> ^ <Name Validity Range (DR)> ^ <Name Assembly Order (ID)> ^ <Effective Date (TS)> ^ <Expiration Date (TS)> ^ <Professional Suffix (ST)>

2150

Repetition of this field is allowed for representing the same name in different character sets. Note that “last name prefix” is synonymous to “own family name prefix” of previous versions of HL7, as is “second and further given names or initials thereof” to “middle initial or name”. Multiple given names and/or initials are separated by spaces.

2155

HL7 Table 0200 - Name Type

Value	Description	Comment
A	Alias Name	
B	Name at Birth	
C	Adopted Name	
D	Display Name	
I	Licensing Name	
L	Legal Name	
M	Maiden Name	
N	Nickname /"Call me" Name/Street Name	
P	Name of Partner/Spouse - obsolete	Deprecated in V2.4
R	Registered Name (animals only)	
S	Coded Pseudo-Name to ensure anonymity	
T	Indigenous/Tribal/Community Name	

Value	Description	Comment
U	Unspecified	

PID-7 Date/Time of Birth (TS), required if available

Components: <Time (DTM)> ^ <Degree of Precision (ID)>

2160 This field contains the patient’s date and time of birth.

PID-8 Administrative Sex (IS), required

This field contains the patient’s sex. Supported values are defined in User-defined Table 0001:

2165

User-defined Table 0001 - Administrative Sex

Value	Description	Comment
F	Female	
M	Male	
O	Other	
U	Unknown	
A	Ambiguous	
N	Not applicable	

PID-10 Race (CE), optional, repeatable

Components: <Identifier (ST)> ^ <Text (ST)> ^ <Name of Coding System (ID)> ^ <Alternate Identifier (ST)> ^ <Alternate Text (ST)> ^ <Name of Alternate Coding System (ID)>

2170

This field refers to the patient’s race. Refer to User-defined Table 0005 - Race for suggested values. The second triplet of the CE data type for race (alternate identifier, alternate text, and name of alternate coding system) cannot be filled.

2175

User-defined Table 0005 - Race

Value	Description	Comment
1002-5	American Indian or Alaska Native	
2028-9	Asian	
2054-5	Black or African American	
2076-8	Native Hawaiian or Other Pacific Islander	
2106-3	White	
2131-1	Other Race	

PID-11 Patient Address (XAD), optional, repeatable

2180 Components: <Street Address (SAD)> ^ <Other Designation (ST)> ^ <City (ST)> ^ <State or Province (ST)> ^ <Zip or Postal Code (ST)> ^ <Country (ID)> ^ <Address Type (ID)> ^ <Other Geographic Designation (ST)> ^ <County/Parish Code (IS)> ^ <Census Tract (IS)> ^ <Address Representation Code (ID)> ^ <Address Validity Range (DR)> ^ <Effective Date (TS)> ^ <Expiration Date (TS)>

2185 The Hospital Medication Workflow Technical Framework does not constrain the usage of this field, but reserves it for the patient’s main address.

PID-13 Phone Number - Home (XTN), optional

2190 Components: <Telephone Number (ST)> ^ <Telecommunication Use Code (ID)> ^ <Telecommunication Equipment Type (ID)> ^ <Email Address (ST)> ^ <Country Code (NM)> ^ <Area/City Code (NM)> ^ <Local Number (NM)> ^ <Extension (NM)> ^ <Any Text (ST)> ^ <Extension Prefix (ST)> ^ <Speed Dial Code (ST)> ^ <Unformatted Telephone number (ST)>

2195 This field contains the patient’s personal phone numbers. All personal phone numbers for the patient are sent in the following sequence. The first sequence is considered the primary number (for backward compatibility). If the primary number is not sent, then a repeat delimiter is sent in the first sequence.

Supported values for Fields Telecommunication Use Code are described in HL7 table 0201

HL7 Table 0201 - Telecommunication use code

Value	Description	Comment
PRN	Primary Residence Number	
ORN	Other Residence Number	
WPN	Work Number	
VHN	Vacation Home Number	
ASN	Answering Service Number	
EMR	Emergency Number	
NET	Network (email) Address	
BPN	Beeper Number	

2200 Supported values for Fields Telecommunication equipment type are described in HL7 table 0202

HL7 Table 0202 - Telecommunication equipment type

Value	Description	Comment
PH	Telephone	
FX	Fax	
MD	Modem	
CP	Cellular Phone	
BP	Beeper	
Internet	Internet Address: Use Only If Telecommunication Use Code Is NET	

Value	Description	Comment
X.400	X.400 email address: Use Only If Telecommunication Use Code Is NET	
TDD	Telecommunications Device for the Deaf	
TTY	Teletypewriter	

PID-16 Marital Status (CE), optional

2205

Components: <Identifier (ST)> ^ <Text (ST)> ^ <Name of Coding System (ID)> ^ <Alternate Identifier (ST)> ^ <Alternate Text (ST)> ^ <Name of Alternate Coding System (ID)>

This field contains the patient’s marital (civil) status. Refer to User-defined Table 0002 - Marital Status for suggested values.

2210

User-defined Table 0002 - Marital Status

Value	Description	Comment
A	Separated	
D	Divorced	
M	Married	
S	Single	
W	Widowed	
C	Common law	
G	Living together	
P	Domestic partner	
R	Registered domestic partner	
E	Legally Separated	
N	Annulled	
I	Interlocutory	
B	Unmarried	
U	Unknown	
O	Other	
T	Unreported	

PID-17 Religion (CE), optional

2215

Components: <Identifier (ST)> ^ <Text (ST)> ^ <Name of Coding System (ID)> ^ <Alternate Identifier (ST)> ^ <Alternate Text (ST)> ^ <Name of Alternate Coding System (ID)>

IHE Pharmacy reserves this field for the patient’s religion. IHE Pharmacy does not impose additional constraints on this field.

PID-22 Ethnic Group (CE), optional

2220

Components: <Identifier (ST)> ^ <Text (ST)> ^ <Name of Coding System (ID)> ^
<Alternate Identifier (ST)> ^ <Alternate Text (ST)> ^ <Name of Alternate
Coding System (ID)>

2225

IHE Pharmacy reserves this field for defining the patient’s ancestry. Refer to HL7 User-defined Table 0189 - Ethnic Group for suggested values. The second triplet of the CE data type for ethnic group (alternate identifier, alternate text, and name of alternate coding system) is reserved for governmentally assigned codes. See HL7 v2.5, chapter 3, section 3.4.2.22.

A.4 PV1 - Patient Visit Segment

HL7 v2.5: chapter 3 (3.4.3)

The PV1 segment is used by Registration/Patient Administration applications to communicate information on an account or visit-specific basis.

2230

Table A.4-1: PV1 - Patient Visit segment

SEQ	LEN	DT	Usage	Card.	TBL#	ITEM#	ELEMENT NAME
1	4	SI	O	[0..1]		00131	Set ID - PV1
2	1	IS	R	[1..1]	0004	00132	Patient Class
3	80	PL	RE	[0..1]		00133	Assigned Patient Location
4	2	IS	O	[0..1]	0007	00134	Admission Type
5	250	CX	O	[0..1]		00135	Preadmit Number
6	80	PL	O	[0..1]		00136	Prior Patient Location
7	250	XCN	O	[0..*]	0010	00137	Attending Doctor
8	250	XCN	O	[0..*]	0010	00138	Referring Doctor
9	250	XCN	X	[0..0]	0010	00139	Consulting Doctor
10	3	IS	O	[0..1]	0069	00140	Hospital Service
11	80	PL	O	[0..1]		00141	Temporary Location
12	2	IS	O	[0..1]	0087	00142	Preadmit Test Indicator
13	2	IS	O	[0..1]	0092	00143	Re-admission Indicator
14	6	IS	O	[0..1]	0023	00144	Admit Source
15	2	IS	O	[0..*]	0009	00145	Ambulatory Status
16	2	IS	O	[0..1]	0099	00146	VIP Indicator
17	250	XCN	O	[0..*]	0010	00147	Admitting Doctor
18	2	IS	O	[0..1]	0018	00148	Patient Type
19	250	CX	RE	[0..1]		00149	Visit Number
20	50	FC	O	[0..*]	0064	00150	Financial Class
21	2	IS	O	[0..1]	0032	00151	Charge Price Indicator
22	2	IS	O	[0..1]	0045	00152	Courtesy Code
23	2	IS	O	[0..1]	0046	00153	Credit Rating
24	2	IS	O	[0..*]	0044	00154	Contract Code
25	8	DT	O	[0..*]		00155	Contract Effective Date

SEQ	LEN	DT	Usage	Card.	TBL#	ITEM#	ELEMENT NAME
26	12	NM	O	[0..*]		00156	Contract Amount
27	3	NM	O	[0..*]		00157	Contract Period
28	2	IS	O	[0..1]	0073	00158	Interest Code
29	4	IS	O	[0..1]	0110	00159	Transfer to Bad Debt Code
30	8	DT	O	[0..1]		00160	Transfer to Bad Debt Date
31	10	IS	O	[0..1]	0021	00161	Bad Debt Agency Code
32	12	NM	O	[0..1]		00162	Bad Debt Transfer Amount
33	12	NM	O	[0..1]		00163	Bad Debt Recovery Amount
34	1	IS	O	[0..1]	0111	00164	Delete Account Indicator
35	8	DT	O	[0..1]		00165	Delete Account Date
36	3	IS	O	[0..1]	0112	00166	Discharge Disposition
37	47	DLD	O	[0..1]	0113	00167	Discharged to Location
38	250	CE	O	[0..1]	0114	00168	Diet Type
39	2	IS	O	[0..1]	0115	00169	Servicing Facility
40	1	IS	X	[0..0]	0116	00170	Bed Status
41	2	IS	O	[0..1]	0117	00171	Account Status
42	80	PL	O	[0..1]		00172	Pending Location
43	80	PL	O	[0..1]		00173	Prior Temporary Location
44	26	TS	O	[0..1]		00174	Admit Date/Time
45	26	TS	O	[0..*]		00175	Discharge Date/Time
46	12	NM	O	[0..1]		00176	Current Patient Balance
47	12	NM	O	[0..1]		00177	Total Charges
48	12	NM	O	[0..1]		00178	Total Adjustments
49	12	NM	O	[0..1]		00179	Total Payments
50	250	CX	O	[0..1]	0203	00180	Alternate Visit ID
51	1	IS	O	[0..1]	0326	01226	Visit Indicator
52	250	XCN	X	[0..1]	0010	01274	Other Healthcare Provider

The specific usage of these fields may be elaborated upon in the national extensions.

The only field mandatory in segment PV1 is PV1-2 “Patient Class”.

2235 **PV1-2 Patient Class, Required**

This field is used by systems to categorize patients by site. It does not have a consistent industry-wide definition. It is subject to site-specific variations. Refer to User-defined Table 0004 - Patient Class for suggested values. If the sender of this message does not know the patient class, it SHALL value the field PV1-2 “U”, which stands for “patient class unknown”.

2240

PV1-3 Assigned Patient Location (PL), required if available

2245 Components: <Point of Care (IS)> ^ <Room (IS)> ^ <Bed (IS)> ^ <Facility (HD)> ^ <Location Status (IS)> ^ <Person Location Type (IS)> ^ <Building (IS)> ^ <Floor (IS)> ^ <Location Description (ST)> ^ <Comprehensive Location Identifier (EI)> ^ <Assigning Authority for Location (HD)>

This field contains the patient’s assigned location or the location to which the patient is being moved. The first component may be the nursing station for inpatient locations, or clinic or department, for locations other than inpatient. If a value exists in the fifth component (location status), it supersedes the value in PV1-40 - Bed Status.

2250

PV1-19 Visit Number (CX), required if available

2255 Components: <ID Number (ST)> ^ <check Digit (ST)> ^ <Check Digit Scheme (ID)> ^ <Assigning Authority (HD)> ^ <Identifier Type Code (ID)> ^ <Assigning Facility (HD)> ^ <Effective Date (DT)> ^ <Expiration Date (DT)> ^ <Assigning Jurisdiction (CWE)> ^ <Assigning Agency or Department (CWE)>

IHE requires that implementations use the CX data type. This field contains the unique number assigned to the patient visit. If a value is present, the identifier type code is mandatory.

A.5 ORC Common Order Segment

HL7 v2.5: chapter 4 (4.5.1).

2260

Table A.5-1: ORC – Common Order Segment

SEQ	LEN	DT	Usage	Card.	TBL#	ITEM#	ELEMENT NAME
1	2	ID	R	[1..1]	0119	00215	Order Control
2	22	EI	C	[0..1]		00216	Placer Order Number
3	22	EI	C	[0..1]		00217	Filler Order Number
4	22	EI	C	[0..1]		00218	Placer Group Number
5	2	ID	C	[0..1]	0038	00219	Order Status
6	1	ID	O	[0..1]	0121	00220	Response Flag
7	200	TQ	X	[0..0]		00221	Quantity/Timing
8	200	EIP	O	[0..1]		00222	Parent
9	26	TS	R	[1..1]		00223	Date/Time of Transaction
10	250	XCN	O	[0..*]		00224	Entered By
11	250	XCN	O	[0..*]		00225	Verified By
12	250	XCN	C	[0..*]		00226	Ordering Provider
13	80	PL	O	[0..1]		00227	Enterer's Location
14	250	XTN	O	[0..*]		00228	Call Back Phone Number
15	26	TS	O	[0..1]		00229	Order Effective Date/Time
16	250	CE	O	[0..1]		00230	Order Control Code Reason
17	250	CE	O	[0..1]		00231	Entering Organization
18	250	CE	O	[0..1]		00232	Entering Device

SEQ	LEN	DT	Usage	Card.	TBL#	ITEM#	ELEMENT NAME
19	250	XCN	R	[1..*]		00233	Action By
20	250	CE	O	[0..1]	0339	01310	Advanced Beneficiary Notice Code
21	250	XON	R	[1..*]		01311	Ordering Facility Name
22	250	XAD	O	[0..*]		01312	Ordering Facility Address
23	250	XTN	R	[1..*]		01313	Ordering Facility Phone Number
24	250	XAD	O	[0..*]		01314	Ordering Provider Address
25	250	CWE	C	[0..1]		01473	Order Status Modifier
26	60	CWE	C	[0..1]	0552	01641	Advanced Beneficiary Notice Override Reason
27	26	TS	O	[0..1]		01642	Filler's Expected Availability Date/Time
28	250	CWE	O	[0..1]	0177	00615	Confidentiality Code
29	250	CWE	O	[0..1]	0482	01643	Order Type
30	250	CNE	O	[0..1]	0483	01644	Enterer Authorization Mode

ORC-1 Order Control (ID), required

This field holds the status for the order. The subset of allowed values is described in the table below:

2265

Table A.5-2: Order control codes

Value ¹	Description	Event/Message Type	Originator	Field Note ³
NW	New order/service		P	l
		OMP^O09^OMP_O09		
OK	Order/service accepted & OK		F	l
		ORP^O10^ORP_O10		
		RRE^O12^RRE_O12		
		RRG^O16^RRG_O16		
		RRA^O18^RRA_O18		
UA	Unable to accept order/service		F	n
		ORP^O10^ORP_O10		
		RRE^O12^RRE_O12		
		RRG^O16^RRG_O16		
		RRA^O18^RRA_O18		
CA	Cancel order/service request		P	a
		OMP^O09^OMP_O09		
OC	Order/service canceled		F	
		RDE^O11^RDE_O11		
		RGV^O15^RGV_O15		

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Value ¹	Description	Event/Message Type	Originator	Field Note ³
		RAS^O01^RAS_O01		
CR	Canceled as requested		F	
		ORP^O10^ORP_O10		
UC	Unable to cancel		F	b
		ORP^O10^ORP_O10		
DC	Discontinue order/service request		P	c
		OMP^O09^OMP_O09		
OD	Order/service discontinued		F	
		RDE^O11^RDE_O11		
		RGV^O15^RGV_O15		
		RAS^O01^RAS_O01		
DR	Discontinued as requested		F	
		ORP^O10^ORP_O10		
UD	Unable to discontinue		F	
		ORP^O10^ORP_O10		
HD	Hold order request		P	
		OMP^O09^OMP_O09		
OH	Order/service held		F	
		RDE^O11^RDE_O11		
		RGV^O15^RGV_O15		
		RAS^O01^RAS_O01		
UH	Unable to put on hold		F	
		ORP^O10^ORP_O10		
HR	On hold as requested		F	
		ORP^O10^ORP_O10		
RL	Release previous hold		P	
		OMP^O09^OMP_O09		
OE	Order/service released		F	
		RDE^O11^RDE_O11		
		RGV^O15^RGV_O15		
		RAS^O01^RAS_O01		
OR	Released as requested		F	
		ORP^O10^ORP_O10		
UR	Unable to release		F	
		ORP^O10^ORP_O10		
RP	Order/service replace request		P	"e,d"
		OMP^O09^OMP_O09		
RU	Replaced unsolicited		F	"f,d"

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Value ¹	Description	Event/Message Type	Originator	Field Note ³
		RDE^O11^RDE_O11		
RO	Replacement order	OMP^O09^OMP_O09	"P,F"	"g,d"
		RDE^O11^RDE_O11		
RQ	Replaced as requested	ORP^O10^ORP_O10	F	"d,e"
		ORP^O10^ORP_O10		
UM	Unable to replace	ORP^O10^ORP_O10	F	
		ORP^O10^ORP_O10		
PA	Parent order/service	OMP^O09^OMP_O09	F	I
		OMP^O09^OMP_O09		
		RDE^O11^RDE_O11		
		RGV^O15^RGV_O15		
		RAS^O01^RAS_O01		
CH	Child order/service	RAS^O01^RAS_O01	"F,P"	I
		RDE^O11^RDE_O11		
		RGV^O15^RGV_O15		
		RAS^O01^RAS_O01		
XO	Change order/service request	OMP^O09^OMP_O09	P	
		OMP^O09^OMP_O09		
XX	Order/service changed, unsol.	RDE^O11^RDE_O11	F	
		RDE^O11^RDE_O11		
		RGV^O15^RGV_O15		
		RAS^O01^RAS_O01		
UX	Unable to change	ORP^O10^ORP_O10	F	
		ORP^O10^ORP_O10		
XR	Changed as requested	ORP^O10^ORP_O10	F	
		ORP^O10^ORP_O10		
DE	Data errors	ORP^O10^ORP_O10	"P,F"	
		ORP^O10^ORP_O10		
		RRE^O12^RRE_O12		
		RRG^O16^RRG_O16		
		RRA^O18^RRA_O18		
RE	Observations/Performed Service to follow	RDE^O11^RDE_O11	"P,F"	j
		RDE^O11^RDE_O11		
		RGV^O15^RGV_O15		
		RAS^O01^RAS_O01		
		RAS^O01^RAS_O01		
		OML^O21^OML_O21		

Value ¹	Description	Event/Message Type	Originator	Field Note ³
SC	Status changed		"F,P"	
SN	Send order/service number		F	l
		RDE^O11^RDE_O11		
NA	Number assigned		P	l
		RRE^O12^RRE_O12		
RF	Refill order/service request		F	o
		OMP^O09^OMP_O09		
		RDE^O11^RDE_O11		
AF	Order/service refill request approval		P	p
		RRE^O12^RRE_O12		
DF	Order/service refill request denied		P	q
		ORP^O10^ORP_O10		
		RRE^O12^RRE_O12		
FU	Order/service refilled, unsolicited		F	r
		RDE^O11^RDE_O11		
OF	Order/service refilled as requested		F	s
		ORP^O10^ORP_O10		
UF	Unable to refill		F	t
		ORP^O10^ORP_O10		
LI	Link order/service to patient care problem or goal			u
		OMP^O09^OMP_O09		
		RDE^O11^RDE_O11		
		RAS^O01^RAS_O01		
UN	Unlink order/service from patient care problem or goal			u
		OMP^O09^OMP_O09		
		RDE^O11^RDE_O11		
		RAS^O01^RAS_O01		
OP	Notification of order for outside dispense	OMP^O09^OMP_O09	P	w
PY	Notification of replacement order for outside dispense	OMP^O09^OMP_O09	P,F	w

See HL7 v2.5, chapter 4, 4.5.1.1.1 for the field notes

2270 **ORC-2 Placer Order Number (EI), conditional**

This number is assigned by the prescription placer application or by another placer order number assigning system. IHE-Pharmacy requires that this number is present as from the moment that a prescription order is placed. In a prescription, this number has a meaning of the Prescription item ID.

2275

ORC-3 Filler Order Number (EI), conditional

This number is assigned by the pharmaceutical Advisor or by another filler order number assigning system. IHE-Pharmacy requires that this number is present as from the moment that a prescription order is validated, dispensed or administered, whichever comes first.

2280

ORC-4 Placer Group Number (EI), conditional

In transactions PHARM-H1, PHARM-H3, PHARM-H4, PHARM-H5, IHE-Pharmacy specifies that this field may contain an order grouping unique identifier. This is usually the prescription ID. It is required if the number described in ORC-2 is part of an order session (like a prescription) that must be identified.

2285

The order group may change within the supply chain, e.g., to allow the pharmacist to order all the medications of the same type, regardless of the prescriptions involved, and for this reason, in supply messages (not in scope), this field may contain another group identifier, given that RXE-15 will contain the prescription identifier.

2290

ORC-5 Order Status (ID), conditional

Condition predicate: This field shall be valued in all OMP, RDE, RGV and RAS messages. It represents the status of the order.

The allowed values for this field within IHE Hospital Medication Workflow Technical Framework are a subset from *HL7 table 0038 - Order Status*:

2295

Table A.5-3: Order Status: IHE set for all transactions

Value	Description	Comment
A	Some, but not all, results available	
CA	Order was canceled	
CM	Order is completed	
DC	Order was discontinued	
ER	Error, order not found	
HD	Order is on hold	
IP	In process, unspecified	
RP	Order has been replaced	

Value	Description	Comment
SC	In process, scheduled	

ORC-9 Date/Time of Transaction (TS), required

2300 This field contains the date and time of the event that initiated the current transaction as reflected in *ORC-1 Order Control Code*. This field is not equivalent to *MSH-7 Date and Time of Message* which reflects the date/time of the physical message.

ORC-10 Entered By (XCN), optional, repeatable

2305 This field is used for the identification of the healthcare professional in charge of the first action concerning the prescription – i.e., usually the person entering the prescription, if different from the ordering physician (which is identified in ORC-12).

ORC-12 Ordering Provider (XCN), conditional, repeatable

2310 Components: <ID Number (ST)> ^ <Family Name (FN)> ^ <Given Name (ST)> ^ <Second and Further Given Names or Initials Thereof (ST)> ^ <Suffix (e.g., JR or III) (ST)> ^ <Prefix (e.g., DR) (ST)> ^ <DEPRECATED-Degree (e.g., MD) (IS)> ^ <Source Table (IS)> ^ <Assigning Authority (HD)> ^ <Name Type Code (ID)> ^ <Identifier Check Digit (ST)> ^ <Check Digit Scheme (ID)> ^ <Identifier Type Code (ID)> ^ <Assigning Facility (HD)> ^ <Name Representation Code (ID)> ^ <Name Context (CE)> ^ <DEPRECATED-Name Validity Range (DR)> ^ <Name Assembly Order (ID)> ^ <Effective Date (TS)> ^ <Expiration Date (TS)> ^ <Professional Suffix (ST)> ^ <Assigning Jurisdiction (CWE)> ^ <Assigning Agency or Department (CWE)>

2315

This field contains the identification of the physician responsible for the prescription order.

2320 If a prescription exists (i.e., always in the current scope, except in the cases where the prescription is created a posteriori), this field is mandatory in transaction PHARM-H1 and subsequent.

ORC-14 Call Back Phone Number (XTN), optional

2325 This field contains the telephone number or contact of the prescription placer, to call for clarification of a request or other information regarding the order.

ORC-17 Entering Organization (CE), required

2330 Components: <Identifier (ST)> ^ <Text (ST)> ^ <Name of Coding System (ID)> ^ <Alternate Identifier (ST)> ^ <Alternate Text (ST)> ^ <Name of Alternate Coding System (ID)>

This field identifies the organization that the enterer belonged to at the time he/she enters/maintains the order, such as medical group or department. The person who first entered the request is defined in *ORC-10 -entered by*.

2335 **ORC-21 Ordering Facility Name (XON), required**

Components: <Organization Name (ST)> ^ <Organization Name Type Code (IS)> ^
 <DEPRECATED-ID Number (NM)> ^ <Check Digit (NM)> ^ <Check Digit Scheme
 (ID)> ^ <Assigning Authority (HD)> ^ <Identifier Type Code (ID)> ^
 2340 <Assigning Facility (HD)> ^ <Name Representation Code (ID)> ^
 <Organization Identifier (ST)>

This field contains the name of the facility placing the order. If there is more than one facility, or there are different levels of detail (e.g., the facility, sub-facility, specialty), this field can be repeated.

2345 **ORC-19 Action By (XCN), required**

Components: <ID Number (ST)> ^ <Family Name (FN)> ^ <Given Name (ST)> ^ <Second and
 Further Given Names or Initials Thereof (ST)> ^ <Suffix (e.g., JR or III)
 (ST)> ^ <Prefix (e.g., DR) (ST)> ^ <DEPRECATED-Degree (e.g., MD) (IS)> ^
 2350 <Source Table (IS)> ^ <Assigning Authority (HD)> ^ <Name Type Code (ID)> ^
 <Identifier Check Digit (ST)> ^ <Check Digit Scheme (ID)> ^ <Identifier
 Type Code (ID)> ^ <Assigning Facility (HD)> ^ <Name Representation Code
 (ID)> ^ <Name Context (CE)> ^ <DEPRECATED-Name Validity Range (DR)> ^
 <Name Assembly Order (ID)> ^ <Effective Date (TS)> ^ <Expiration Date
 (TS)> ^ <Professional Suffix (ST)> ^ <Assigning Jurisdiction (CWE)> ^
 2355 <Assigning Agency or Department (CWE)>

Subcomponents for Family Name (FN): <Surname (ST)> & <Own Surname Prefix (ST)> & <Own
 Surname (ST)> & <Surname Prefix From Partner/Spouse (ST)> & <Surname From
 Partner/Spouse (ST)>

Subcomponents for Assigning Authority (HD): <Namespace ID (IS)> & <Universal ID (ST)>
 & <Universal ID Type (ID)>

Subcomponents for Assigning Facility (HD): <Namespace ID (IS)> & <Universal ID (ST)>
 & <Universal ID Type (ID)>

Subcomponents for Name Context (CE): <Identifier (ST)> & <Text (ST)> & <Name of
 Coding System (ID)> & <Alternate Identifier (ST)> & <Alternate Text (ST)>
 2365 & <Name of Alternate Coding System (ID)>

Subcomponents for DEPRECATED-Name Validity Range (DR): <Range Start Date/Time (TS)> &
 <Range End Date/Time (TS)>

Note subcomponent contains sub-subcomponents

Subcomponents for Effective Date (TS): <Time (DTM)> & <DEPRECATED-Degree of Precision
 (ID)>

Subcomponents for Expiration Date (TS): <Time (DTM)> & <DEPRECATED-Degree of
 Precision (ID)>

Subcomponents for Assigning Jurisdiction (CWE): <Identifier (ST)> & <Text (ST)> &
 <Name of Coding System (ID)> & <Alternate Identifier (ST)> & <Alternate
 2375 Text (ST)> & <Name of Alternate Coding System (ID)> & <Coding System
 Version ID (ST)> & <Alternate Coding System Version ID (ST)> & <Original
 Text (ST)>

Subcomponents for Assigning Agency or Department (CWE): <Identifier (ST)> & <Text
 (ST)> & <Name of Coding System (ID)> & <Alternate Identifier (ST)> &
 2380 <Alternate Text (ST)> & <Name of Alternate Coding System (ID)> & <Coding
 System Version ID (ST)> & <Alternate Coding System Version ID (ST)> &
 <Original Text (ST)>

Definition: This field contains the identity of the person who initiated the event represented by the corresponding order control code. For example, if the order control code is CA (cancel order request), this field represents the person who requested the order cancellation. This person is

typically a care provider but may not always be the same as ORC-12 ordering *provider*. For example, when a medication is prepared for a patient, this field has the identification of the medication dispenser.

2390 **ORC-22 Ordering Facility Address (XAD), optional**

This field is used to send the address of the facility responsible for the order.

ORC-23 Ordering Facility Phone Number (XTN), required

This field is used to send the contact information of the facility responsible for the order.

2395

ORC-24 Ordering Provider Address (XAD), optional

Components: <Street Address (SAD)> ^ <Other Designation (ST)> ^ <City (ST)> ^ <State or Province (ST)> ^ <Zip or Postal Code (ST)> ^ <Country (ID)> ^ <Address Type (ID)> ^ <Other Geographic Designation (ST)> ^ <County/Parish Code (IS)> ^ <Census Tract (IS)> ^ <Address Representation Code (ID)> ^ <DEPRECATED-Address Validity Range (DR)> ^ <Effective Date (TS)> ^ <Expiration Date (TS)>

2400

This field is used to send the address of the prescription placer. Its use is optional.

ORC-25 Order Status Modifier (CWE), conditional

2405 This field is a refiner of the ORC-5-Order status field and shall be valued in all OMP, RDE, RGV and RAS messages. This is used to provide additional levels of specificity or additional information for the defined order status codes. Unlike the Order Status field, which is controlled by an HL7 defined table, this field is a CWE data type allowing applications to support an unlimited library of Order Status Modifier codes.

2410 See section 4.6 - Order Status Management for the details about the different order, validation, dispense and administration status supported.

A.6 TQ1 - Timing Quantity Segment

This segment is used in messages OMP, RDE, RGV and RAS in different contexts:

2415 After an ORC segment (optional in all messages), it indicates the encoded timing/quantity of the medication prescribed for the patient.

After an RXE segment (required in RDE, optional in all other messages), it indicates the encoded timing/quantity of the medication as determined by the pharmaceutical advisor.

2420 After an RXG segment (required in RGV, optional in all other messages), it indicates the encoded timing/quantity of the medication to be taken by the patient, as determined by the medication dispenser (this is the case when the dispenser is in charge of scheduling the nurse administration list – as is the case when a nurse daily dispenses medication for the patient for the whole day.)

After an RXA segment (optional in all messages), it indicates the encoded timing/quantity of the medication taken by the patient.

2425 HL7 v2.5: chapter 4 (4.5.4)

Table A.6-1: TQ1 - Timing Quantity Segment

SEQ	LEN	DT	Usage	Card.	TBL #	ITEM#	Element name
1	4	SI	R	[1..1]		01627	Set ID - TQ1
2	20	CQ	R	[1..1]		01628	Quantity
3	540	RPT	R	[1..*]	0335	01629	Repeat Pattern
4	20	TM	O	[0..*]		01630	Explicit Time
5	20	CQ	O	[0..*]		01631	Relative Time and Units
6	20	CQ	O	[0..1]		01632	Service Duration
7	26	TS	C	[0..1]		01633	Start date/time
8	26	TS	RE	[0..1]		01634	End date/time
9	250	CWE	O	[0..*]	0485	01635	Priority
10	250	TX	O	[0..1]		01636	Condition text
11	250	TX	O	[0..1]		01637	Text instruction
12	10	ID	C	[0..1]	0427	01638	Conjunction
13	20	CQ	O	[0..1]		01639	Occurrence duration
14	10	NM	O	[0..1]		01640	Total occurrences

TQ1-1 Set ID - TQ1 (SI), required

2430 Definition: For the first timing specification transmitted, the sequence number shall be 1; for the second timing specification, it shall be 2; and so on.

TQ1-2 Quantity (CQ), required

Components: <Quantity (NM)> ^ <Units (CE)>

2435

Subcomponents for Units (CE): <Identifier (ST)> & <Text (ST)> & <Name of Coding System (ID)> & <Alternate Identifier (ST)> & <Alternate Text (ST)> & <Name of Alternate Coding System (ID)>

Definition: This field specifies the numeric quantity of the service that should be provided at each service interval. For example, if two capsules are to be administered every 4 hours, the quantity would be 2. The default value for this field is 1.

2440

If multiple identical services are to be requested, it is strongly recommended that multiple service requests be placed; giving each service request its own unique placer/filler number.

TQ1-3 Repeat Pattern (RPT), required

- 2445 Components: <Repeat Pattern Code (CWE)> ^ <Calendar Alignment (ID)> ^ <Phase Range Begin Value (NM)> ^ <Phase Range End Value (NM)> ^ <Period Quantity (NM)> ^ <Period Units (IS)> ^ <Institution Specified Time (ID)> ^ <Event (ID)> ^ <Event Offset Quantity (NM)> ^ <Event Offset Units (IS)> ^ <General Timing Specification (GTS)>
- 2450 Subcomponents for Repeat Pattern Code (CWE): <Identifier (ST)> & <Text (ST)> & <Name of Coding System (ID)> & <Alternate Identifier (ST)> & <Alternate Text (ST)> & <Name of Alternate Coding System (ID)> & <Coding System Version ID (ST)> & <Alternate Coding System Version ID (ST)> & <Original Text (ST)>

2455 Definition: The repeating frequency with which the treatment is to be administered. It is similar to the frequency and SIG code tables used in order entry systems.

This field may be repeated to build up more complex repeat patterns. For example, daily at bedtime can be represent as "|QD~HS|".

2460 When the quantity timing specification must change to a different repeat pattern after some period of time, a new TQ1 segment must be used to show the new repeat pattern. Note that the end date of the current TQ1 will show when the current timing specification ends, and the start date of the next TQ1 shows when the new timing specification begins. The Conjunction field, TQ1-12 determines if the next TQ1 segment is to be performed sequentially or in parallel.

TQ1-7 Start date/time (TS), conditional

2465 HL7 definition: This field may be specified by the requester, in which case it indicates the earliest date/time at which the services should be started. In many cases, however, the start date/time will be implied or will be defined by other fields in the service request record (e.g., urgency - STAT). In such a case, this field will be empty.

2470 **TQ1-8 End date/time (TS), required if available**

2475 Definition: When filled in by the requester of the service, this field should contain the latest date/time that the service should be performed. If it has not been performed by the specified time, it should not be performed at all. Regardless of the value of the end date/time, the service should be stopped at the earliest of the date/times specified by either the duration or the end date/time.

TQ1-9 Priority (CWE), required if available

Value	Description	Comment
S	Stat	With highest priority
A	ASAP	Fill after S orders
R	Routine	Default
P	Preop	

Value	Description	Comment
C	Callback	
T	Timing critical	A request implying that it is critical to come as close as possible to the requested time, e.g., for a trough anti-microbial level.
TS<integer>		Timing critical within <integer> seconds.
TM<integer>		Timing critical within <integer> minutes.
TH<integer>		Timing critical within <integer> hours.
TD<integer>		Timing critical within <integer> days.
TW<integer>		Timing critical within <integer> weeks.
TL<integer>		Timing critical within <integer> months.
PRN	As needed	

This field is required by IHE-Pharmacy if a priority different than Routine is indicated.

2480 A.7 TQ2 - Timing/Quantity Relationship

HL7 v2.5: chapter 4 (4.5.5)

Table A.7-1: TQ2 – Timing/Quantity Relationship

SEQ	LEN	DT	Usage	Card.	TBL#	ITEM#	Element name
1	4	SI	O	[0..1]		01648	Set ID - TQ2
2	1	ID	O	[0..1]	0503	01649	Sequence/Results Flag
3	22	EI	C	[0..*]		01650	Related Placer Number
4	22	EI	C	[0..*]		01651	Related Filler Number
5	22	EI	C	[0..*]		01652	Related Placer Group Number
6	2	ID	C	[0..1]	0504	01653	Sequence Condition Code
7	1	ID	C	[0..1]	0505	01654	Cyclic Entry/Exit Indicator
8	20	CQ	O	[0..1]		01655	Sequence Condition Time Interval
9	10	NM	O	[0..1]		01656	Cyclic Group Maximum Number of Repeats
10	1	ID	C	[0..1]	0506	01657	Special Service Request Relationship

2485 A.8 RXO - Pharmacy/Treatment Order Segment

The RXO segment is created and updated at the Prescription Placer. It is forwarded in the other messages, to trace back to the original Prescription Order.

HL7 v2.5: chapter 4 (4.14.1)

Table A.8-1: RXO – Pharmacy/Treatment Order Segment

SEQ	LEN	DT	Usage	Card.	TBL#	ITEM#	Element name
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SEQ	LEN	DT	Usage	Card.	TBL#	ITEM#	Element name
1	250	CE	RE	[0..1]		00292	Requested Give Code
2	20	NM	C	[0..1]		00293	Requested Give Amount - Minimum
3	20	NM	O	[0..1]		00294	Requested Give Amount - Maximum
4	250	CE	C	[0..1]		00295	Requested Give Units
5	250	CE	C	[0..1]		00296	Requested Dosage Form
6	250	CE	RE	[0..*]		00297	Provider's Pharmacy/Treatment Instructions
7	250	CE	RE	[0..*]		00298	Provider's Administration Instructions
8	200	LA1	O	[0..1]		00299	Deliver-To Location
9	1	ID	R	[0..1]	0161	00300	Allow Substitutions
10	250	CE	O	[0..1]		00301	Requested Dispense Code
11	20	NM	C	[0..1]		00302	Requested Dispense Amount
12	250	CE	C	[0..1]		00303	Requested Dispense Units
13	3	NM	O	[0..1]		00304	Number Of Refills
14	250	XCN	C	[0..*]		00305	Ordering Provider's DEA Number
15	250	XCN	C	[0..*]		00306	Pharmacist/Treatment Supplier's Verifier ID
16	1	ID	O	[0..1]	0136	00307	Needs Human Review
17	20	ST	C	[0..1]		00308	Requested Give Per (Time Unit)
18	20	NM	O	[0..1]		01121	Requested Give Strength
19	250	CE	O	[0..1]		01122	Requested Give Strength Units
20	250	CE	R	[1..*]		01123	Indication
21	6	ST	C	[0..1]		01218	Requested Give Rate Amount
22	250	CE	C	[0..1]		01219	Requested Give Rate Units
23	10	CQ	O	[0..1]		00329	Total Daily Dose
24	250	CE	O	[0..*]		01476	Supplementary Code
25	5	NM	O	[0..1]		01666	Requested Drug Strength Volume
26	250	CWE	O	[0..1]		01667	Requested Drug Strength Volume Units
27	1	ID	O	[0..1]	0480	01668	Pharmacy Order Type
28	20	NM	O	[0..1]		01669	Dispensing Interval

RXO-1 Requested Give Code (CE), conditional

This field identifies the treatment product or treatment ordered to be given to the patient.

2495

The RXO-1, RXO-2 and RXO-4 are mandatory unless the prescription/treatment is transmitted as free text using RXO-6, then RXO-1, RXO-2, and RXO-4 may be blank and the first subcomponent of RXO-6 must be blank. For semantic interoperability, use of encoded information is strongly recommended.

RXO-2 Requested Give Amount – Minimum (NM) , required if available

2500 This field is the ordered amount. In a variable dose order, this is the minimum ordered amount. In a non-varying dose order, this is the exact amount of the order.

The RXO-1, RXO-2 and RXO-4 are mandatory unless the prescription/treatment is transmitted as free text using RXO-6, then RXO-1, RXO-2, and RXO-4 may be blank and the first subcomponent of RXO-6 must be blank.

2505 **Note:** This field is not a duplication of the first component of the quantity/timing field, since in non-pharmacy/treatment orders, that component can be used to specify multiples of an ordered amount.

2510 Another way to say this is that, for pharmacy/treatment orders, the quantity component of the quantity/timing field refers to what is to be given out at each service interval; thus, in terms of the RX order, that first component always defaults to 1. Hence, in the actual execution of the order, the value of 1 in the first component of the quantity/timing field always refers to one administration of the amount specified in this field (the Requested Give Amount field).

RXO-4 Requested Give Units (CE), required if available

2515 Components: <Identifier (ST)> ^ <Text (ST)> ^ <Name of Coding System (ID)> ^ <Alternate Identifier (ST)> ^ <Alternate Text (ST)> ^ <Name of Alternate Coding System (ID)>

This field indicates the units for the give amount.

2520 The RXO-1, RXO-2 and RXO-4 are mandatory unless the prescription is transmitted as free text using RXO-6, then RXO-1, RXO-2, and RXO-4 may be blank and the first subcomponent of RXO-6 must be blank.

Note: These units can be a "compound quantity"; i.e., the units may contain the word "per." For example, micrograms per KG (micg/kg) is an acceptable value, which means that the units are micrograms per KG (of body weight). See Chapter 7 for full definition of ISO+ units.

RXO-5 Requested Dosage Form (CE), required if available

2525 Components: <Identifier (ST)> ^ <Text (ST)> ^ <Name of Coding System (ID)> ^ <Alternate Identifier (ST)> ^ <Alternate Text (ST)> ^ <Name of Alternate Coding System (ID)>

2530 This field indicates the manner in which the treatment is aggregated for dispensing, e.g., tablets, capsules suppositories. In some cases, this information is implied by the dispense/give code in *RXO-1-requested give code* or *RXO-10-Requested dispense code*. Required when both *RXO-1-Requested give code* and *RXO-10-Requested dispense code* do not specify the drug/treatment form. Optionally included otherwise.

RXO-6 Provider's Pharmacy/Treatment Instructions (CE), conditional

2535 This field identifies the ordering provider's instructions to the pharmacy or the non-pharmacy treatment provider (e.g., respiratory therapy). If coded, a user-defined table must be used. If transmitted as a free text field, place a null in the first component and the text in the second, e.g., [^this is a free text treatment instruction].

2540 If the prescription is transmitted as free text using RXO-6, then RXO-1, RXO-2, and RXO-4 may be blank and the first subcomponent of RXO-6 must be blank. Otherwise, RXO-1, RXO-2 and RXO-4 are mandatory.

RXO-7 Provider's Administration Instructions (CE), required if available

2545 This field identifies the ordering provider's instructions to the patient or to the provider administering the drug or treatment. If coded, a user-defined table must be used. If transmitted as free text, place a null in the first component and the text in the second, e.g., [^this is a free text administration instruction|.

RXO-9 Allow Substitution, required

2550 This field specifies if substitutions are allowed by the prescription placer. An empty field must always be interpreted as “no substitutions allowed”.

Value	Description	Comment
N	Substitutions are NOT authorized. (This is the default - null.)	
G	Allow generic substitutions.	
T	Allow therapeutic substitutions	

2555 Biosimilar substitution cannot be supported in HL7 v2.5 or v2.6. If the prescriber allows biosimilar substitution, then the value “G” should be used, and in the immediately next NTE segment the reference to Biosimilar substitution is sent. This means that receiving applications must parse this NTE segment when it exists.

RXO-10 Requested Dispense Code (CE), Optional

2560 This field indicates what is to be/was dispensed – in case the prescription placer wishes to inform the product to be dispensed – e.g., the box size, or commercial name - if the RXO-1 Requested Give Code refers to a generic substance name and the prescriber wants to also specify the dispensed product.

2565 In Option “Advance Prescription Notification”, RXO-10, RXO-11 and RXO-12 can be mandatory: if the Medication Dispenser or Administration Informer are not able to interpret the Requested Give Code – for example if this code refers to a substance – or if the order is sent as free text in RXO-6.

RXO-11 Requested Dispense Amount (NM), conditional

2570 This field must be used if RXO-10 Requested Dispense Code is used – to indicate the amount of dispensed units. Example: to dispense (2 boxes of 30 pills), if the code in RXO-10 refers to a box of 30 pills, this value is 2.

RXO-12 Requested Dispense Units (CE), conditional

2575 This field must be used if RXO-10 Requested Dispense Code is used – to indicate the units of the dispense. Example: to dispense (2 boxes of 30 pills), if the code in RXO-10 refers to a box of 30 pills, this value can be “Box”.

RXO-20 Indication (CE), required, repeatable

2580 This field identifies the diagnosis, condition or problem for which the drug/treatment was prescribed. May repeat if multiple indications are relevant.

RXO-24 Supplementary Code (CE)

2585 This field accommodates the identification of any codes that might be associated with the pharmaceutical substance. Common codes include: the Generic Product Identifier (GPI), Generic Code Number_Sequence Number (GCN_SEQNO), National Drug Code (NDC).

A.9 RXR - Pharmacy/Treatment Route Segment

HL7 v2.5: chapter 4 (4.14.2)

2590 **Table A.9-1: RXR - Pharmacy/Treatment Route Segment**

SEQ	LEN	DT	Usage	Card.	TBL#	ITEM#	Element name
1	250	CE	R	[1..1]		00309	Route
2	250	CWE	RE	[0..1]		00310	Administration Site
3	250	CE	O	[0..1]		00311	Administration Device
4	250	CWE	O	[0..1]		00312	Administration Method
5	250	CE	O	[0..1]		01315	Routing Instruction
6	250	CWE	O	[0..1]		01670	Administration Site Modifier

RXR-1 Route (CE), required

2595 This field is the route of administration. If after RXO, it is the intended route of administration. If after RXA, it is the effective route of administration. HL7 User-defined Table 0162 lists proposed routes of Administration.

User-defined Table 0162 - Route of Administration

Value	Description	Comment
AP	Apply Externally	
B	Buccal	
DT	Dental	
EP	Epidural	
ET	Endotracheal Tube*	used primarily for respiratory therapy and anesthesia delivery
GTT	Gastrostomy Tube	
GU	GU Irrigant	
IMR	Immerse (Soak) Body Part	
IA	Intra-arterial	
IB	Intrabursal	
IC	Intracardiac	
ICV	Intracervical (uterus)	
ID	Intradermal	
IH	Inhalation	
IHA	Intrahepatic Artery	
IM	Intramuscular	
IN	Intranasal	
IO	Intraocular	
IP	Intraperitoneal	
IS	Intrasynovial	
IT	Intrathecal	
IU	Intrauterine	
IV	Intravenous	
MTH	Mouth/Throat	
MM	Mucous Membrane	
NS	Nasal	
NG	Nasogastric	
NP	Nasal Prongs*	used primarily for respiratory therapy and anesthesia delivery
NT	Nasotracheal Tube	
OP	Ophthalmic	
OT	Otic	
OTH	Other/Miscellaneous	
PF	Perfusion	
PO	Oral	
PR	Rectal	
RM	Rebreather Mask*	used primarily for respiratory

Value	Description	Comment
		therapy and anesthesia delivery
SD	Soaked Dressing	
SC	Subcutaneous	
SL	Sublingual	
TP	Topical	
TRA	Tracheostomy*	used primarily for respiratory therapy and anesthesia delivery
TD	Transdermal	
TL	Translingual	
UR	Urethral	
VG	Vaginal	
VM	Ventimask	
WND	Wound	

RXR-2 Administration Site (CWE), required if available

2600 This field contains the site of the administration route. When using a post-coordinated code table in this field, RXR-6 Administration Site may be used to modify the meaning of this field. Refer to [HL7 Table 0550 – Body Parts](#) for valid values.

A.10 RXC - Pharmacy/Treatment Component Order Segment

HL7 v2.5: chapter 4 (4.14.3)

2605

Table A.10-1: RXC - Pharmacy/Treatment Component Order Segment

SEQ	LEN	DT	A.10 Usage	Card.	TBL #	ITEM#	Element name
1	1	ID	R	[1..1]	0166	00313	RX Component Type
2	250	CE	R	[1..1]		00314	Component Code
3	20	NM	R	[1..1]		00315	Component Amount
4	250	CE	R	[1..1]		00316	Component Units
5	20	NM	O	[0..1]		01124	Component Strength
6	250	CE	O	[0..1]		01125	Component Strength Units
7	250	CE	O	[0..*]		01476	Supplementary Code
8	5	NM	O	[0..1]		01671	Component Drug Strength Volume
9	250	CWE	O	[0..1]		01672	Component Drug Strength Volume Units

RXC-2 Component Code, required if available

2610 IHE-Pharmacy uses this field to detail the component of a compound preparation, for example perfusions or components for a magistral preparation.

RXC-3 Component Amount, required if available

2615 IHE-Pharmacy uses this field to detail the amount of the component of a compound preparation, for example perfusions or components for a magistral preparation.

RXC-4 Component Units, required if available

IHE-Pharmacy uses this field to detail the units in which RXC-3 is expressed.

A.11 RXE - Pharmacy/Treatment Encoded Order Segment

2620 The RXE segment is created and updated at the Pharmaceutical Advisor. It is forwarded in the other messages, to trace back to the original Pharmaceutical Advice.

HL7 v2.5: chapter 4 (4.14.4)

Table A.11-1: RXE - Pharmacy/Treatment Encoded Order Segment

SEQ	LEN	DT	Usage	Card.	TBL#	ITEM#	Element name
1	200	TQ	X	[0..0]		00221	Quantity/Timing
2	250	CE	R	[1..1]	0292 / 0479	00317	Give Code
3	20	NM	R	[1..1]		00318	Give Amount – Minimum
4	20	NM	O			00319	Give Amount – Maximum
5	250	CE	R	[1..1]		00320	Give Units
6	250	CE	O	[0..1]		00321	Give Dosage Form
7	250	CE	O	[0..*]		00298	Provider's Administration Instructions
8	200	LA1	X	[0..0]		00299	Deliver-to Location
9	1	ID	O	[0..1]	0167	00322	Substitution Status
10	20	NM	C	[0..1]		00323	Dispense Amount
11	250	CE	C	[0..1]		00324	Dispense Units
12	3	NM	O	[0..1]		00304	Number of Refills
13	250	XCN	C	[0..*]		00305	Ordering Provider's DEA Number
14	250	XCN	R	[1..*]		00306	Pharmacist/Treatment Supplier's Verifier ID
15	20	ST	C	[0..1]		00325	Prescription Number
16	20	NM	C	[0..1]		00326	Number of Refills Remaining
17	20	NM	C	[0..1]		00327	Number of Refills/Doses Dispensed

SEQ	LEN	DT	Usage	Card.	TBL#	ITEM#	Element name
18	26	TS	C	[0..1]		00328	D/T of Most Recent Refill or Dose Dispensed
19	10	CQ	C	[0..1]		00329	Total Daily Dose
20	1	ID	O	[0..1]	0136	00307	Needs Human Review
21	250	CE	O	[0..*]		00330	Pharmacy/Treatment Supplier's Special Dispensing Instructions
22	20	ST	C	[0..1]		00331	Give Per (Time Unit)
23	6	ST	O	[0..1]		00332	Give Rate Amount
24	250	CE	O	[0..1]		00333	Give Rate Units
25	20	NM	O	[0..1]		01126	Give Strength
26	250	CE	O	[0..1]		01127	Give Strength Units
27	250	CE	O	[0..*]		01128	Give Indication
28	20	NM	O	[0..1]		01220	Dispense Package Size
29	250	CE	O	[0..1]		01221	Dispense Package Size Unit
30	2	ID	O	[0..1]	0321	01222	Dispense Package Method
31	250	CE	O	[0..*]		01476	Supplementary Code
32	26	TS	O	[0..1]		01673	Original Order Date/Time
33	5	NM	O	[0..1]		01674	Give Drug Strength Volume
34	250	CWE	O	[0..1]		01675	Give Drug Strength Volume Units
35	60	CWE	O	[0..1]	0477	01676	Controlled Substance Schedule
36	1	ID	O	[0..1]	0478	01677	Formulary Status
37	60	CWE	O	[0..*]		01678	Pharmaceutical Substance Alternative
38	250	CWE	O	[0..1]		01679	Pharmacy of Most Recent Fill
39	250	NM	O	[0..1]		01680	Initial Dispense Amount
40	250	CWE	O	[0..1]		01681	Dispensing Pharmacy
41	250	XAD	O	[0..1]		01682	Dispensing Pharmacy Address
42	80	PL	O	[0..1]		01683	Deliver-to Patient Location
43	250	XAD	O	[0..1]		01684	Deliver-to Address
44	1	ID	O	[0..1]	0480	01685	Pharmacy Order Type

2625

RXE-1 Quantity/Timing (TQ), not used

This field is not used. Quantity/timing information is sent in the TQ1 segment.

2630 **RXE-2 Give Code (CE), required**

Components: <Identifier (ST)> ^ <Text (ST)> ^ <Name of Coding System (ID)> ^ <Alternate Identifier (ST)> ^ <Alternate Text (ST)> ^ <Name of Alternate Coding System (ID)>

2635 This field identifies the medical substance or treatment that has been ordered to be given to the patient, as encoded by the pharmacy or treatment supplier;

It may be the same as RXO-1, if the pharmacist does not re-encode the item. In the RXE segment, this give code must be encoded. The dispense fields, which define the units and amount of what is to be issued to the patient (see RXE-10-dispense amount and RXE-11-dispense units below), do not necessarily correlate with the instructions of what amount is to be "given" or administered with each dose, and may or may not be specified with the order.

2640

RXE-3 Give Amount - Minimum (NM), required

This field contains the ordered amount as encoded by the pharmacy or treatment supplier. In a variable dose order, this is the minimum ordered amount. In a nonvarying dose order, this is the exact amount of the order.

2645

RXE-4 Give Amount - Maximum (NM) , required if available

In a variable dose order, this is the maximum ordered amount. In a non-varying dose, this field is not used.

2650

RXE-5 Give Units (CE), required

Components: <Identifier (ST)> ^ <Text (ST)> ^ <Name of Coding System (ID)> ^
<Alternate Identifier (ST)> ^ <Alternate Text (ST)> ^ <Name of Alternate
Coding System (ID)>

2655 This field contains the units for the give amount as encoded by the pharmacy or treatment (e.g., respiratory therapy) application.

It is required when a quantity is transmitted in RXE-3 or RXE-4

RXE-6 Give Dosage Form (CE), optional

2660 Components: <Identifier (ST)> ^ <Text (ST)> ^ <Name of Coding System (ID)> ^
<Alternate Identifier (ST)> ^ <Alternate Text (ST)> ^ <Name of Alternate
Coding System (ID)>

The dosage form indicates the manner in which the medication or treatment is aggregated for dispensing, e.g., tablets, capsules, suppositories. In some cases, this information is implied by the give code *in RXE-2-Give Code*. Use the *RXE-6-Give Dosage Form* when the give code does not specify the dosage form.

2665

RXE-7 Provider's Administration Instructions, Required if Available

2670 Components: <Identifier (ST)> ^ <Text (ST)> ^ <Name of Coding System (ID)> ^
<Alternate Identifier (ST)> ^ <Alternate Text (ST)> ^ <Name of Alternate
Coding System (ID)>

2675 This field contains the ordering provider's instructions to the patient or the provider administering the drug or treatment. If coded, a user-defined table must be used; if free text (describing a custom IV, mixture, or salve, for example), place the text in the second component, e.g., |^this is a free text administration instruction|.

RXE-9 Substitution Status (ID), required

2680 Refer to HL7 Table 0167 - Substitution Status for valid values. If a substitution has been made, and a record of the original requested give code (*RXO-1-requested give code*) is needed, the optional RXO segment can be included in the RDE message.

HL7 Table 0167 - Substitution Status

Value	Description	Comment
N	No substitute was dispensed. This is equivalent to the default (null) value.	
G	A generic substitution was dispensed.	
T	A therapeutic substitution was dispensed.	
0	No product selection indicated	
1	Substitution not allowed by prescriber	
2	Substitution allowed - patient requested product dispensed	
3	Substitution allowed - pharmacist selected product dispensed	
4	Substitution allowed - generic drug not in stock	
5	Substitution allowed - brand drug dispensed as a generic	
7	Substitution not allowed - brand drug mandated by law	
8	Substitution allowed - generic drug not available in marketplace	

RXE-10 Dispense Amount, Optional

2685 This field contains the amount to be dispensed as encoded by the pharmacy or treatment supplier.

RXE-11 Dispense Units (CE) 00324

Components: <Identifier (ST)> ^ <Text (ST)> ^ <Name of Coding System (ID)> ^ <Alternate Identifier (ST)> ^ <Alternate Text (ST)> ^ <Name of Alternate Coding System (ID)>

2690 This field contains the units for the dispense amount as encoded by the pharmacy or treatment supplier. This field is required if the units are not implied by the actual dispense code. This must be in simple units that reflect the actual quantity of the substance dispensed. It does not include compound units.

RXE-14 Pharmacist/Treatment Supplier's Verifier ID, required, repeatable

2695 This field is used to identify the pharmacists that have validated the prescription. In case a prescription is validated by more than one system / pharmacist, the field is repeated. The

difference between intermediate or final validations is that the field ORC-25 is to be set to indicate that the validation is complete.

2700

RXE-15 Prescription Number (ST), required

This field contains the prescription number as assigned by the pharmacy or treatment application. Equivalent in uniqueness to the pharmacy/treatment filler order number. At some sites, this may be the pharmacy or treatment system (internal) sequential form. At other sites, this may be an external form. This is a required field in RXE when used in pharmacy/treatment messages.

2705

RXE-21 Pharmacy/Treatment Supplier's Special Dispensing Instructions (CE), required if available

Definition: This field contains the pharmacy or treatment supplier's provider-generated special instructions to the provider dispensing/administering the order.

2710

RXE-22 Give Per (Time Unit), required if available

This field contains the time unit to use to calculate the rate at which the pharmaceutical is to be administered, as specified by the Pharmaceutical Advisor.

2715

Format:

S<integer>	=	<integer> seconds
M<integer>	=	<integer> minutes
H<integer>	=	<integer> hours
D<integer>	=	<integer> days
W<integer>	=	<integer> weeks
L<integer>	=	<integer> months
T<integer>	=	at the interval and amount stated until a total of <integer> "DOSAGE" is accumulated. Units would be assumed to be the same as in the QUANTITY field.
INDEF	=	do indefinitely - also the default

This is the same as the format specified for the DURATION component of the quantity/timing field, excluding the "X" specification.

This field is defined as conditional because it is required when the ordered substance is to be administered continuously at a prescribed rate (e.g., certain IVs). For example, if the "give amount/units" were 300 ml and the "give per" time unit were H1 (equivalent to one hour), the rate is 300ml/hr.

2720

RXE-23 Give Rate Amount (ST), required if available

2725 This field contains the rate at which the substance should be administered, as specified by the Pharmaceutical Advisor.

RXE-24 Give Rate Units (CE), required if available

2730 Components: <Identifier (ST)> ^ <Text (ST)> ^ <Name of Coding System (ID)> ^
<Alternate Identifier (ST)> ^ <Alternate Text (ST)> ^ <Name of Alternate
Coding System (ID)>

2735 This field contains the units for *RXE-23-give rate amount*, as specified by the Pharmaceutical Advisor. May be composite. The ratio of the *RXE-23-give rate amount* and *RXE-24-give rate units* defines the actual rate of administration. Thus, if *RXE-23-give rate amount* = 100 and *RXE-24-give rate units* = ml/hr, the requested rate of administration is 100 ml/hr. (See ISO+ Figure 7-9 in Chapter 7 for possible compound units codes.)

RXE-27 Give Indication (CE), required if existing

2740 Components: <Identifier (ST)> ^ <Text (ST)> ^ <Name of Coding System (ID)> ^
<Alternate Identifier (ST)> ^ <Alternate Text (ST)> ^ <Name of Alternate
Coding System (ID)>

This field identifies the condition or problem for which the drug/treatment was prescribed. May repeat if multiple indications are relevant. If RXO-20 is present, RXE-27 has the same value as RXO-20.

2745 **RXE-28 Dispense Package Size (NM), required if existing**

This field contains the size of package to be dispensed. Units are transmitted in *RXE-29-dispense package size unit*.

RXE-29 Dispense Package Size Unit (CE), required if existing

2750 Components: <Identifier (ST)> ^ <Text (ST)> ^ <Name of Coding System (ID)> ^
<Alternate Identifier (ST)> ^ <Alternate Text (ST)> ^ <Name of Alternate
Coding System (ID)>

This field contains the units in which RXE-28-dispense package size is denominated.

A.12 OBX - Observation/Result Segment

2755 HL7 v2.5.1: chapter 7 (7.4.2)

The Observation segment is used to convey the following information. Each if these information types must be in a separate OBX segment:

- Pregnancy history (Required, if the patient is currently pregnant)
- Immunizations

- 2760
- Active Problems
 - Resolved Problems
 - Coded Vital Signs
 - Other patient data (weight, etc.) when relevant

2765

Table A.12-1: Observation/Result Segment

SEQ	LEN	DT	Usage	Card.	TBL#	ITEM#	ELEMENT NAME
1	4	SI	O	[0..1]		00569	Set ID – OBX
2	2	ID	C		0125	00570	Value Type
3	250	CE	R			00571	Observation Identifier
4	20	ST	C			00572	Observation Sub-ID
5	99999 ²	varie s	C	Y ³		00573	Observation Value
6	250	CE	O			00574	Units
7	60	ST	O			00575	References Range
8	5	IS	O	Y	0078	00576	Abnormal Flags
9	5	NM	O			00577	Probability
10	2	ID	O	Y	0080	00578	Nature of Abnormal Test
11	1	ID	R		0085	00579	Observation Result Status
12	26	TS	O			00580	Effective Date of Reference Range
13	20	ST	O			00581	User Defined Access Checks
14	26	TS	R			00582	Date/Time of the Observation
15	250	CE	R			00583	Producer's ID
16	250	XCN	R	Y		00584	Responsible Observer
17	250	CE	O	Y		00936	Observation Method
18	22	EI	O	Y		01479	Equipment Instance Identifier
19	26	TS	O			01480	Date/Time of the Analysis

OBX-1 Set ID - OBX (SI), required.

This field contains the sequence number of the OBX.

² The length of the observation field is variable, depending upon value type. See *OBX-2 value type*.

³ May repeat for multipart, single answer results with appropriate data types, e.g., CE, TX, and FT data types.

2770 **OBX-2 Value Type (ID), required**

Condition predicate: This field shall be valued since OBX-5 (Observation Value) is also populated. The Value Type field should be filled according to HL7 Version 2.5 standard (table 0125). For example, if the result is ">300" the Value Type "SN" (Structured Numeric) SHALL be used instead of the "ST" (String) value type that was used in previous versions of HL7. See the details and the examples in the HL7 V2.5 (7.4.2). For an observation that consists of a time measurement (e.g., bleeding time) the TM Value Type is preferred to NM but this is not made mandatory.

2775

HL7 Table 0125 - Value type

Value	Description	Comment
AD	Address	
CE	Coded Entry	
CF	Coded Element With Formatted Values	
CK	Composite ID With Check Digit	
CN	Composite ID And Name	
CP	Composite Price	
CX	Extended Composite ID With Check Digit	
DT	Date	
ED	Encapsulated Data	
FT	Formatted Text (Display)	
MO	Money	
NM	Numeric	
PN	Person Name	
RP	Reference Pointer	
SN	Structured Numeric	
ST	String Data.	
TM	Time	
TN	Telephone Number	
TS	Time Stamp (Date & Time)	
TX	Text Data (Display)	
XAD	Extended Address	
XCN	Extended Composite Name And Number For Persons	
XON	Extended Composite Name And Number For Organizations	
XPN	Extended Person Name	
XTN	Extended Telecommunications Number	

2780 **OBX-3 Observation Identifier (CE), required**

The usage of LOINC® test codes for the identification of tests is strongly recommended. Details of this free vocabulary can be found at <http://www.loinc.org>.

The first and third sub-fields “Identifier”, and “Name of Coding System” are required in all transactions. The value of the “Name of Coding System” in the case of LOINC is “LN”.

2785 The last three sub-fields are optional in all transactions.**OBX-4 Observation Sub-ID (ST), conditional.**

HL7 Definition: This field is used to distinguish between multiple OBX segments with the same observation ID organized under one OBR.

2790 Condition predicate: This field is required when the observations are appended/ changed after initial creation – each entry that changes the parameters has a new value of OBX-4.

In all other situations this field is optional.

OBX-5 Observation Value (varies), required.

2795 **OBX-6 Units (CE), conditional.**

This field is required if the Value Type field (OBX-2) is valued either with "NM", or "SN". If valued, this field should identify SI or SI-derived units only.

OBX-7 References Range (ST), required if available.

2800 This field should be valued as described in HL7 V2.5 for all observations for which it is relevant. The References range that figures in this field is supposed to be related to age and sex of the patient or to other parameters such as number of weeks of pregnancy when applicable, which makes the OBX-10 field (nature of abnormal test) unnecessary.

2805 **OBX-8 Abnormal Flags (IS), required if available.**

This field is required when applicable. This field is not repeatable in the IHE Hospital Medication Workflow Framework. Among the possible values listed for this field in HL7 table 0078, the actors of IHE Hospital Medication Workflow Technical Framework should support the following values:

2810

HL7 table 0078

Value	Description	Comment
L	Below low normal	
H	Above high normal	
LL	Below lower panic limits	
HH	Above upper panic limits	

Value	Description	Comment
N	Normal (applies to non-numeric results)	
A	Abnormal (applies to non-numeric results)	
AA	Very abnormal (applies to non-numeric units, analogous to panic limits for numeric units)	
Null	No range defined, or normal ranges don't apply	
S	Susceptible. Indicates for microbiology susceptibilities only.	
R	Resistant. Indicates for microbiology susceptibilities only.	
I	Intermediate. Indicates for microbiology susceptibilities only.	
MS	Moderately susceptible. Indicates for microbiology susceptibilities only.	
VS	Very susceptible. Indicates for microbiology susceptibilities only.	

2815 The S, R, I, MS and VS values shall be used to indicate the interpreted result of susceptibilities in microbiology, in case the value field (OBX-5) contains a numeric value that represents the MIC (Minimum Inhibitive Concentration). In case the order filler only reports the interpreted result for susceptibilities, the S, R, I, MS and VS value could be filled in the value field (OBX-5) with a Value Type (OBX-2) set to "ST".

Note: For reporting antimicrobial susceptibilities in microbiology see section 3.11 "Microbiology Reporting Rules" and the microbiology example in section 19.5)

OBX-14 Date/Time of the Observation (TS), required if available.

2820 This field should be valued when the OBX-5 field (Value field) is also valued. In all cases, the observation date-time is the physiologically relevant date-time or the closest approximation to that date-time.

OBX-16 Responsible Observer (XCN), required if available.

2825 This field is required when the observation result status (OBX-11) is valued with "D" or "R" or "P" or "F" or "C" or "X" and the Producer's ID field is not valued. It should contain the identity of the observer that causes the change of the observation result status. Only the first component (ID number) of this field is required, provided that it is possible to retrieve the full identity of responsible person with only this ID number.

2830

OBX-17 Observation Method (CE), conditional.

2835 Condition predicate: This field is required when the value of the result may be dependent of the Observation Method and the Observation Identifier does not permit to identify the Method. With some Observation Identifiers such as LOINC(r) Codes, the identifier also identifies the Method, in which case this field does not need to be valued.

A.13 RXG - Pharmacy/Treatment Give Segment

HL7 v2.5: chapter 4 (4.14.6)

Table A.13-1: RXG - Pharmacy/Treatment Give Segment

SEQ	LEN	DT	Usage	Card.	TBL#	ITEM#	Element name
1	4	NM	R	[1..1]		00342	Give Sub-ID Counter
2	4	NM	O	[0..1]		00334	Dispense Sub-ID Counter
3	200	TQ	X	[0..0]		00221	Quantity/Timing
4	250	CE	R	[1..1]	0292	00317	Give Code
5	20	NM	R	[1..1]		00318	Give Amount – Minimum
6	20	NM	O	[0..1]		00319	Give Amount – Maximum
7	250	CE	R	[1..1]		00320	Give Units
8	250	CE	O	[0..1]		00321	Give Dosage Form
9	250	CE	O	[0..*]		00351	Administration Notes
10	1	ID	O	[0..1]	0167	00322	Substitution Status
11	200	LA2	O	[0..1]		01303	Dispense-To Location
12	1	ID	O	[0..1]	0136	00307	Needs Human Review
13	250	CE	O	[0..*]		00343	Pharmacy/Treatment Supplier's Special Administration Instructions
14	20	ST	C	[0..1]		00331	Give Per (Time Unit)
15	6	ST	C	[0..1]		00332	Give Rate Amount
16	250	CE	C	[0..1]		00333	Give Rate Units
17	20	NM	O	[0..1]		01126	Give Strength
18	250	CE	O	[0..1]		01127	Give Strength Units
19	20	ST	O	[0..*]		01129	Substance Lot Number
20	26	TS	O	[0..*]		01130	Substance Expiration Date
21	250	CE	O	[0..*]	0227	01131	Substance Manufacturer Name
22	250	CE	O	[0..*]		01123	Indication
23	5	NM	O	[0..1]		01692	Give Drug Strength Volume
24	250	CWE	O	[0..1]		01693	Give Drug Strength Volume Units
25	60	CWE	O	[0..1]		01694	Give Barcode Identifier
26	1	ID	O	[0..1]	0480	01695	Pharmacy Order Type

RXG-3 Quantity/Timing, Not used

2840

RXG-4 Give Code, required

Components: <Identifier (ST)> ^ <Text (ST)> ^ <Name of Coding System (ID)> ^
 <Alternate Identifier (ST)> ^ <Alternate Text (ST)> ^ <Name of Alternate
 Coding System (ID)>

2845 This field is the identifier of the medical substance/treatment ordered to be given to the patient.

RXG-5 Give Amount – Minimum, required

2850 This field contains the ordered amount as encoded by the pharmacy/treatment supplier. In a variable dose order, this is the minimum ordered amount. In a nonvarying dose order, this is the exact amount of the order.

Note: This field is not a duplication of the first component of the quantity/timing field, since in non-pharmacy/treatment orders, that component can be used to specify multiples of an ordered amount.

2855 Another way to say this is that, for pharmacy/treatment orders, the quantity component of the quantity/timing field refers to what is to be given out at each service interval; and thus, in terms of the RX order, that first component always defaults to 1. Hence, in the actual execution of the order, the value of 1 in the first component of the quantity/timing field always refers to one administration of the amount specified in this field (the requested Give Amount field).

RXG-6 Give Amount - Maximum, required if available

2860 In a variable dose order, this is the maximum ordered amount. In a nonvarying dose order, this field is not used.

RXG-7 Give Units (CE), required

2865 Components: <Identifier (ST)> ^ <Text (ST)> ^ <Name of Coding System (ID)> ^
<Alternate Identifier (ST)> ^ <Alternate Text (ST)> ^ <Name of Alternate
Coding System (ID)>

This field contains the units for the give amount.

Note: These units can be a "compound quantity;" i.e., the units may contain the word "per." For example, micrograms per KG (micg/kg) is an acceptable value, which means that the units are micrograms per KG (of body weight).

2870 A table of standard units that contains compound units is needed. Until such a table is agreed on, a user-defined table is needed for each site.

RXG-8 Give Dosage Form, required if available

2875 Components: <Identifier (ST)> ^ <Text (ST)> ^ <Name of Coding System (ID)> ^
<Alternate Identifier (ST)> ^ <Alternate Text (ST)> ^ <Name of Alternate
Coding System (ID)>

The dosage form indicates the manner in which the medication/treatment is aggregated for dispensing, e.g., tablets, capsules, suppositories. In some cases, this information is implied by the give code in *RXG-4-Give Code*. Use this field when the give code does not specify the dosage form, i.e., when an explicit indication of a specific dosage is available.

2880

RXG-9 Administration Notes, required if available

2885 Components: <Identifier (ST)> ^ <Text (ST)> ^ <Name of Coding System (ID)> ^
<Alternate Identifier (ST)> ^ <Alternate Text (ST)> ^ <Name of Alternate
Coding System (ID)>

This field contains notes to the person administering the medication/treatment (may include the ordering provider's original notes, as well as any notes from the formulary or the pharmacy or

treatment supplier). If coded, a user-defined table must be used. If free text, place a null in the first component and the text in the second, e.g., |^this is a free text administration note|.

2890

RXG-10 Substitution Status, Optional

Refer to HL7 Table 0167 - Substitution Status for valid values.

Note: The next two fields are equivalent to the corresponding fields of the RXE segment. They are included (optionally) in the RXG so that it may "stand alone" as a "give" instruction segment.

2895

HL7 Table 0167 - Substitution Status

Value	Description	Comment
N	No substitute was dispensed. This is equivalent to the default (null) value.	
G	A generic substitution was dispensed.	
T	A therapeutic substitution was dispensed.	
0	No product selection indicated	
1	Substitution not allowed by prescriber	
2	Substitution allowed - patient requested product dispensed	
3	Substitution allowed - pharmacist selected product dispensed	
4	Substitution allowed - generic drug not in stock	
5	Substitution allowed - brand drug dispensed as a generic	
7	Substitution not allowed - brand drug mandated by law	
8	Substitution allowed - generic drug not available in marketplace	

RXG-13 Pharmacy/Treatment Supplier's Special Administration Instructions, Optional

Components: <Identifier (ST)> ^ <Text (ST)> ^ <Name of Coding System (ID)> ^ <Alternate Identifier (ST)> ^ <Alternate Text (ST)> ^ <Name of Alternate Coding System (ID)>

2900

This field contains pharmacy/treatment supplier-generated special instructions to the provider administering the order.

RXG-14 Give Per (Time Unit), Conditional

2905

This field contains the time unit to use to calculate the rate at which the pharmaceutical/treatment is to be administered.

Format:

- S<integer> = <integer> seconds
- M<integer> = <integer> minutes
- H<integer> = <integer> hours
- D<integer> = <integer> days
- W<integer> = <integer> weeks

L<integer> = <integer> months
T<integer> = at the interval and amount stated until a total of <integer> "DOSAGE" is accumulated.
Units would be assumed to be the same as in the QUANTITY field.
INDEF = do indefinitely - also the default

This is the same as the format specified for the DURATION component of the quantity/timing field, excluding the "X" specification.

2910 Required when relevant (e.g., certain IVs). For example, if the "give amount/units" were 300 ml and the "give per" time unit were H1 (equivalent to one hour), the rate is 300ml/hr.

RXG-15 Give Rate Amount, Conditional

2915 This field contains the rate amount of substance/treatment to be administered. Required when relevant.

RXG-16 Give Rate Units, Optional

2920 Components: <Identifier (ST)> ^ <Text (ST)> ^ <Name of Coding System (ID)> ^
<Alternate Identifier (ST)> ^ <Alternate Text (ST)> ^ <Name of Alternate Coding System (ID)>

This field contains the units for *RXG-15-give rate amount*. May be composite. The ratio of the *RXG-15-give rate amount* and *RXG-16-give rate units* fields define the actual rate of administration. Thus, if *RXG-15-give rate amount* = 100 and *RXG-16-give rate units* = ml/hr, the requested rate of administration is 100 ml/hr.

2925

RXG-19 Substance Lot Number, Optional

This field contains the lot number of the medical substance administered.

2930 Note: The lot number is the number printed on the label attached to the container holding the substance and on the packaging which houses the container. If the substance is a vaccine, for example, and a diluent is required, a lot number may appear on the vial containing the diluent; however, any such identifier associated with a diluent is not the identifier of interest. The substance lot number should be reported, not that of the diluent.

RXG-20 Substance Expiration Date , Optional

Components: <Time (DTM)> ^ <DEPRECATED-Degree of Precision (ID)>

2935 This field contains the expiration date of the medical substance administered.

Note: Vaccine expiration date does not always have a "day" component; therefore, such a date may be transmitted as YYYYMM.

RXG-22 Indication, Optional

2940 Components: <Identifier (ST)> ^ <Text (ST)> ^ <Name of Coding System (ID)> ^
<Alternate Identifier (ST)> ^ <Alternate Text (ST)> ^ <Name of Alternate Coding System (ID)>

2945

This field contains the identifier of the condition or problem for which the drug/treatment was prescribed. May repeat if multiple indications are relevant. If RXO-20 is present, RXG-22 has the same value as RXO-20.

A.14 RXA - Pharmacy/Treatment Administration Segment

HL7 v2.5: chapter 4 (4.14.7)

This segment is used in an RAS message, to inform about the medication that has been administered to the patient.

2950

Table A.14-1: RXA - Pharmacy/Treatment Administration Segment

SEQ	LEN	DT	Usage	Card.	TBL#	ITEM#	Element name
1	4	NM	R	[1..1]		00342	Give Sub-ID Counter
2	4	NM	R	[1..1]		00344	Administration Sub-ID Counter
3	26	TS	R	[1..1]		00345	Date/Time Start of Administration
4	26	TS	R	[1..1]		00346	Date/Time End of Administration
5	250	CE	R	[1..1]	0292	00347	Administered Code
6	20	NM	R	[1..1]		00348	Administered Amount
7	250	CE	C	[0..1]		00349	Administered Units
8	250	CE	RE	[0..1]		00350	Administered Dosage Form
9	250	CE	RE	[0..*]		00351	Administration Notes
10	250	XCN	R	[0..*]		00352	Administering Provider
11	200	LA2	RE	[0..1]		00353	Administered-at Location
12	20	ST	C	[0..1]		00354	Administered Per (Time Unit)
13	20	NM	O	[0..1]		01134	Administered Strength
14	250	CE	O	[0..1]		01135	Administered Strength Units
15	20	ST	RE	[0..*]		01129	Substance Lot Number
16	26	TS	RE	[0..*]		01130	Substance Expiration Date
17	250	CE	O	[0..*]	0227	01131	Substance Manufacturer Name
18	250	CE	RE	[0..*]		01136	Substance/Treatment Refusal Reason
19	250	CE	O	[0..*]		01123	Indication
20	2	ID	R	[0..1]	0322	01223	Completion Status
21	2	ID	O	[0..1]	0323	01224	Action Code – RXA
22	26	TS	O	[0..1]		01225	System Entry Date/Time
23	5	NM	O	[0..1]		01696	Administered Drug Strength Volume
24	250	CWE	O	[0..1]		01697	Administered Drug Strength Volume Units
25	60	CWE	RE	[0..1]		01698	Administered Barcode Identifier
26	1	ID	O	[0..1]	0480	01699	Pharmacy Order Type

RXA-1 Give Sub-ID Counter, Required

2955 Use this field if matching this RXA segment to its corresponding RXG segment. If the two applications are not matching RXG and RXA segments, this field's value is zero (0).

RXA-2 Administration Sub-ID Counter, Required

This field starts with 1 the first time that medication/treatment is administered for this order. Increments by one with each additional administration the medication/treatment.

2960 **Note:** More than one RXA segment can be "matched" to a single RXG segment, as is the case when recording a change of the rate of administration of an IV solution.

RXA-3 Date/Time Start of Administration, Required

Components: <Time (DTM)> ^ <DEPRECATED-Degree of Precision (ID)>

2965 If the order is for a continuous administration (such as an IV), and the rate is changed at a certain time after the start, an RAS message can be issued to record the change. For such an RAS message, this field records the time the rate was changed to the new value recorded in *the RXA-12-administered per (time unit)* of the same message.

RXA-4 Date/Time End of Administration (If Applies), Required

Components: <Time (DTM)> ^ <DEPRECATED-Degree of Precision (ID)>

2970 This is the end time/date of the administration. If null, the date/time of *RXA-3-Date/Time Start of Administration* is assumed by the application to be also the end date/time. In case of a continuous administration like IV, this field refers to the expected end/date time, and will be updated in subsequent RAS messages, if there is a change in the rate, for example.

RXA-5 Administered Code, Required

Components: <Identifier (ST)> ^ <Text (ST)> ^ <Name of Coding System (ID)> ^
<Alternate Identifier (ST)> ^ <Alternate Text (ST)> ^ <Name of Alternate
Coding System (ID)>

2980 This field contains the identifier of the medical substance/treatment administered.

RXA-6 Administered Amount, Required

This field contains the amount administered.

2985

RXA-7 Administered units, Conditional

Components: <Identifier (ST)> ^ <Text (ST)> ^ <Name of Coding System (ID)> ^
<Alternate Identifier (ST)> ^ <Alternate Text (ST)> ^ <Name of Alternate
Coding System (ID)>

2990 This field is conditional because it is required if the administered amount code does not implicitly contain units. This field must be in simple units that reflect the actual quantity of the substance administered. It does not include compound units.

RXA-8 Administered Dosage Form, Optional

2995 Components: <Identifier (ST)> ^ <Text (ST)> ^ <Name of Coding System (ID)> ^
<Alternate Identifier (ST)> ^ <Alternate Text (ST)> ^ <Name of Alternate
Coding System (ID)>

3000 The dosage form indicates the manner in which the medication/treatment is aggregated for dispensing, e.g., tablets, capsules, suppositories. In some cases, this information is implied by the dispense/give code in *RXA-5-Administered Code*. Use this field when the administered code does not specify the dosage form.

RXA-9 Administration Notes, Optional

3005 Components: <Identifier (ST)> ^ <Text (ST)> ^ <Name of Coding System (ID)> ^
<Alternate Identifier (ST)> ^ <Alternate Text (ST)> ^ <Name of Alternate
Coding System (ID)>

This field contains notes from the provider administering the medication/treatment. If coded, requires a user-defined table. If free text (describing a custom IV, mixture, or salve, for example) place a null in the first component and the text in the second, e.g., | ^this is a free text administration note|.

3010

RXA-10 Administering Provider, Required

3015 Components: <ID Number (ST)> ^ <Family Name (FN)> ^ <Given Name (ST)> ^ <Second and
Further Given Names or Initials Thereof (ST)> ^ <Suffix (e.g., JR or III)
(ST)> ^ <Prefix (e.g., DR) (ST)> ^ <DEPRECATED-Degree (e.g., MD) (IS)> ^
<Source Table (IS)> ^ <Assigning Authority (HD)> ^ <Name Type Code (ID)> ^
<Identifier Check Digit (ST)> ^ <Check Digit Scheme (ID)> ^ <Identifier
Type Code (ID)> ^ <Assigning Facility (HD)> ^ <Name Representation Code
(ID)> ^ <Name Context (CE)> ^ <DEPRECATED-Name Validity Range (DR)> ^
3020 <Name Assembly Order (ID)> ^ <Effective Date (TS)> ^ <Expiration Date
(TS)> ^ <Professional Suffix (ST)> ^ <Assigning Jurisdiction (CWE)> ^
<Assigning Agency or Department (CWE)>

This field contains the provider ID of the person administering the pharmaceutical/treatment.

RXA-11 Administered-at Location, Optional

3025 Components: <Point of Care (IS)> ^ <Room (IS)> ^ <Bed (IS)> ^ <Facility (HD)> ^
<Location Status (IS)> ^ <Patient Location Type (IS)> ^ <Building (IS)> ^
<Floor (IS)> ^ <Street Address (ST)> ^ <Other Designation (ST)> ^ <City
(ST)> ^ <State or Province (ST)> ^ <Zip or Postal Code (ST)> ^ <Country
(ID)> ^ <Address Type (ID)> ^ <Other Geographic Designation (ST)>
3030 Subcomponents for Facility (HD): <Namespace ID (IS)> & <Universal ID (ST)> &
<Universal ID Type (ID)>

The first component contains the inpatient or outpatient location at which the drug or treatment was administered (if applicable). The default (null) value is the current census location for the patient.

3035

RXA-12 Administered Per (Time Unit), Conditional

This field contains the rate at which this medication/treatment was administered as calculated by using *RXA-6-administered amount* and *RXA-7-administered units*. This field is conditional because it is required when a treatment is administered continuously at a prescribed rate, e.g., certain IV solutions.

3040

RXA-15 Substance Lot Number, Optional

This field contains the lot number of the medical substance administered.

3045

Note: The lot number is the number printed on the label attached to the container holding the substance and on the packaging which houses the container. If the substance is a vaccine, for example, and a diluent is required, a lot number may appear on the vial containing the diluent; however, any such identifier associated with a diluent is not the identifier of interest. The substance lot number should be reported, not that of the diluent.

RXA-16 Substance Expiration Date, Optional

3050

Components: <Time (DTM)> ^ <DEPRECATED-Degree of Precision (ID)>

This field contains the expiration date of the medical substance administered.

Note: Vaccine expiration date does not always have a "day" component; therefore, such a date may be transmitted as YYYYMM.

3055

RXA-17 Substance Manufacturer Name, Optional

Components: <Identifier (ST)> ^ <Text (ST)> ^ <Name of Coding System (ID)> ^
<Alternate Identifier (ST)> ^ <Alternate Text (ST)> ^ <Name of Alternate
Coding System (ID)>

This field contains the manufacturer of the medical substance administered.

3060

Note: For vaccines, code system MVX may be used to code this field). This field may be used if the manufacturer of the substance is not identified by the code used in *RXA-5- administered code*.

RXA-18 Substance/Treatment Refusal Reason, Optional

3065

Components: <Identifier (ST)> ^ <Text (ST)> ^ <Name of Coding System (ID)> ^
<Alternate Identifier (ST)> ^ <Alternate Text (ST)> ^ <Name of Alternate
Coding System (ID)>

This field contains the reason the patient refused the medical substance/treatment. Any entry in the field indicates that the patient did not take the substance.

3070 **RXA-19 Indication, Optional**

Components: <Identifier (ST)> ^ <Text (ST)> ^ <Name of Coding System (ID)> ^ <Alternate Identifier (ST)> ^ <Alternate Text (ST)> ^ <Name of Alternate Coding System (ID)>

3075 This field contains the identifier of the condition or problem for which the drug/treatment was prescribed. May repeat if multiple indications are relevant. If RXO segment is present, RXA-19 has the same value as RXO-20.

RXA-20 Completion Status, Optional

3080 Status of treatment administration event. Refer to HL7 Table 0322 - Completion Status for valid values.

HL7 Table 0322 - Completion Status

Value	Description	Comment
CP	Complete	
RE	Refused	
NA	Not Administered	
PA	Partially Administered	

RXA-25 Administered Barcode Identifier, Optional

3085 Components: <Identifier (ST)> ^ <Text (ST)> ^ <Name of Coding System (ID)> ^ <Alternate Identifier (ST)> ^ <Alternate Text (ST)> ^ <Name of Alternate Coding System (ID)> ^ <Coding System Version ID (ST)> ^ <Alternate Coding System Version ID (ST)> ^ <Original Text (ST)>

3090 This field contains the pharmacy system's assigned barcode number for the give occurrence. For IV orders, many pharmacy systems generate a barcode number to identify a specific bag/bottle of the order. This number can be an instance identifier; unique for the patient, drug combination, and schedule instance or it may be just a drug identifier. The format and composition of the barcode information are not in scope of IHE; IHE relies on the barcode being uniquely identifiable as needed.

A.15 AL1- Patient Allergy Information Segment

3095 This segment is used in all transactions and is used to send information about the patient's allergies. IHE-HMW does not impose additional constraints on the use of this segment.

HL7 v2.5: chapter 3 (3.4.6)

Table A.15-1: AL1- Patient Allergy Information Segment

SEQ	LEN	DT	Usage	Card.	TBL#	ITEM#	Element name
1	4	SI	R	[1..1]		00203	Set ID - AL1
2	250	CE	O	[0..1]	0127	00204	Allergen Type Code

SEQ	LEN	DT	Usage	Card.	TBL#	ITEM#	Element name
3	250	CE	R	[1..1]		00205	Allergen Code/Mnemonic/Description
4	250	CE	O	[0..1]	0128	00206	Allergy Severity Code
5	15	ST	O	[0..*]		00207	Allergy Reaction Code
6	8	DT	X	[0..0]		00208	Identification Date

3100 **A.16 IN1 - Insurance Segment**

The IN1 segment contains insurance policy coverage information necessary to produce properly pro-rated and patient and insurance bills.

Table A.16-1: IN1- Insurance Segment

SEQ	LEN	DT	OPT	RP/#	TBL#	ITEM#	ELEMENT NAME
1	4	SI	R			00426	Set ID - IN1
2	250	CE	R		0072	00368	Insurance Plan ID
3	250	CX	R	Y		00428	Insurance Company ID
4	250	XON	O	Y		00429	Insurance Company Name
5	250	XAD	O	Y		00430	Insurance Company Address
6	250	XPN	O	Y		00431	Insurance Co Contact Person
7	250	XTN	O	Y		00432	Insurance Co Phone Number
8	12	ST	O			00433	Group Number
9	250	XON	O	Y		00434	Group Name
10	250	CX	O	Y		00435	Insured's Group Emp ID
11	250	XON	O	Y		00436	Insured's Group Emp Name
12	8	DT	O			00437	Plan Effective Date
13	8	DT	O			00438	Plan Expiration Date
14	239	AUI	O			00439	Authorization Information
15	3	IS	O		0086	00440	Plan Type
16	250	XPN	O	Y		00441	Name Of Insured
17	250	CE	O		0063	00442	Insured's Relationship To Patient
18	26	TS	O			00443	Insured's Date Of Birth
19	250	XAD	O	Y		00444	Insured's Address
20	2	IS	O		0135	00445	Assignment Of Benefits
21	2	IS	O		0173	00446	Coordination Of Benefits
22	2	ST	O			00447	Coord Of Ben. Priority
23	1	ID	O		0136	00448	Notice Of Admission Flag
24	8	DT	O			00449	Notice Of Admission Date
25	1	ID	O		0136	00450	Report Of Eligibility Flag
26	8	DT	O			00451	Report Of Eligibility Date
27	2	IS	O		0093	00452	Release Information Code

SEQ	LEN	DT	OPT	RP/#	TBL#	ITEM#	ELEMENT NAME
28	15	ST	O			00453	Pre-Admit Cert (PAC)
29	26	TS	O			00454	Verification Date/Time
30	250	XCN	O	Y		00455	Verification By
31	2	IS	O		0098	00456	Type Of Agreement Code
32	2	IS	O		0022	00457	Billing Status
33	4	NM	O			00458	Lifetime Reserve Days
34	4	NM	O			00459	Delay Before L.R. Day
35	8	IS	O		0042	00460	Company Plan Code
36	15	ST	O			00461	Policy Number
37	12	CP	O			00462	Policy Deductible
38	12	CP	B			00463	Policy Limit - Amount
39	4	NM	O			00464	Policy Limit - Days
40	12	CP	B			00465	Room Rate - Semi-Private
41	12	CP	B			00466	Room Rate - Private
42	250	CE	O		0066	00467	Insured's Employment Status
43	1	IS	O		0001	00468	Insured's Administrative Sex
44	250	XAD	O	Y		00469	Insured's Employer's Address
45	2	ST	O			00470	Verification Status
46	8	IS	O		0072	00471	Prior Insurance Plan ID
47	3	IS	O		0309	01227	Coverage Type
48	2	IS	O		0295	00753	Handicap
49	250	CX	O	Y		01230	Insured's ID Number
50	1	IS	O		0535	01854	Signature Code
51	8	DT	O			01855	Signature Code Date
52	250	ST	O			01899	Insured's Birth Place
53	2	IS	O		0099	01852	VIP Indicator

3105 A.17 IN2 - Insurance Additional Information Segment

The IN2 segment contains additional insurance policy coverage and benefit information necessary for proper billing and reimbursement. Fields used by this segment are defined by CMS or other regulatory agencies.

Table A.17-1: IN2 - Insurance Additional Information Segment

SEQ	LEN	DT	OPT	RP/#	TBL#	ITEM#	ELEMENT NAME
1	250	CX	O	Y		00472	Insured's Employee ID
2	11	ST	O			00473	Insured's Social Security Number
3	250	XCN	O	Y		00474	Insured's Employer's Name and ID
4	1	IS	O		0139	00475	Employer Information Data

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SEQ	LEN	DT	OPT	RP/ #	TBL#	ITEM#	ELEMENT NAME
5	1	IS	O	Y	0137	00476	Mail Claim Party
6	15	ST	O			00477	Medicare Health Ins Card Number
7	250	XPN	O	Y		00478	Medicaid Case Name
8	15	ST	O			00479	Medicaid Case Number
9	250	XPN	O	Y		00480	Military Sponsor Name
10	20	ST	O			00481	Military ID Number
11	250	CE	O		0342	00482	Dependent Of Military Recipient
12	25	ST	O			00483	Military Organization
13	25	ST	O			00484	Military Station
14	14	IS	O		0140	00485	Military Service
15	2	IS	O		0141	00486	Military Rank/Grade
16	3	IS	O		0142	00487	Military Status
17	8	DT	O			00488	Military Retire Date
18	1	ID	O		0136	00489	Military Non-Avail Cert On File
19	1	ID	O		0136	00490	Baby Coverage
20	1	ID	O		0136	00491	Combine Baby Bill
21	1	ST	O			00492	Blood Deductible
22	250	XPN	O	Y		00493	Special Coverage Approval Name
23	30	ST	O			00494	Special Coverage Approval Title
24	8	IS	O	Y	0143	00495	Non-Covered Insurance Code
25	250	CX	O	Y		00496	Payor ID
26	250	CX	O	Y		00497	Payor Subscriber ID
27	1	IS	O		0144	00498	Eligibility Source
28	82	RMC	O	Y		00499	Room Coverage Type/Amount
29	56	PTA	O	Y		00500	Policy Type/Amount
30	25	DDI	O			00501	Daily Deductible
31	2	IS	O		0223	00755	Living Dependency
32	2	IS	O	Y	0009	00145	Ambulatory Status
33	250	CE	O	Y	0171	00129	Citizenship
34	250	CE	O		0296	00118	Primary Language
35	2	IS	O		0220	00742	Living Arrangement
36	250	CE	O		0215	00743	Publicity Code
37	1	ID	O		0136	00744	Protection Indicator
38	2	IS	O		0231	00745	Student Indicator
39	250	CE	O		0006	00120	Religion
40	250	XPN	O	Y		00109	Mother's Maiden Name
41	250	CE	O		0212	00739	Nationality
42	250	CE	O	Y	0189	00125	Ethnic Group

SEQ	LEN	DT	OPT	RP/ #	TBL#	ITEM#	ELEMENT NAME
43	250	CE	O	Y	0002	00119	Marital Status
44	8	DT	O			00787	Insured's Employment Start Date
45	8	DT	O			00783	Employment Stop Date
46	20	ST	O			00785	Job Title
47	20	JCC	O			00786	Job Code/Class
48	2	IS	O		0311	00752	Job Status
49	250	XPN	O	Y		00789	Employer Contact Person Name
50	250	XTN	O	Y		00790	Employer Contact Person Phone Number
51	2	IS	O		0222	00791	Employer Contact Reason
52	250	XPN	O	Y		00792	Insured's Contact Person's Name
53	250	XTN	O	Y		00793	Insured's Contact Person Phone Number
54	2	IS	O	Y	0222	00794	Insured's Contact Person Reason
55	8	DT	O			00795	Relationship to the Patient Start Date
56	8	DT	O	Y		00796	Relationship to the Patient Stop Date
57	2	IS	O		0232	00797	Insurance Co. Contact Reason
58	250	XTN	O			00798	Insurance Co Contact Phone Number
59	2	IS	O		0312	00799	Policy Scope
60	2	IS	O		0313	00800	Policy Source
61	250	CX	O			00801	Patient Member Number
62	250	CE	O		0063	00802	Guarantor's Relationship to Insured
63	250	XTN	O	Y		00803	Insured's Phone Number - Home
64	250	XTN	O	Y		00804	Insured's Employer Phone Number
65	250	CE	O		0343	00805	Military Handicapped Program
66	1	ID	O		0136	00806	Suspend Flag
67	1	ID	O		0136	00807	Copay Limit Flag
68	1	ID	O		0136	00808	Stoploss Limit Flag
69	250	XON	O	Y		00809	Insured Organization Name and ID
70	250	XON	O	Y		00810	Insured Employer Organization Name and ID
71	250	CE	O	Y	0005	00113	Race
72	250	CE	O		0344	00811	CMS Patient's Relationship to Insured

3110 **A.18 IN3- Insurance Additional Information, Certification Segment**

The IN3 segment contains additional insurance information for certifying the need for patient care. Fields used by this segment are defined by CMS, or other regulatory agencies.

Table A.18-1: IN3 - Insurance Additional Information, Certification Segment

SEQ	LEN	DT	OPT	RP/#	TBL #	ITEM#	ELEMENT NAME
1	4	SI	R			00502	Set ID - IN3
2	250	CX	O			00503	Certification Number
3	250	XCN	O	Y		00504	Certified By
4	1	ID	O		0136	00505	Certification Required
5	23	MOP	O			00506	Penalty
6	26	TS	O			00507	Certification Date/Time
7	26	TS	O			00508	Certification Modify Date/Time
8	250	XCN	O	Y		00509	Operator
9	8	DT	O			00510	Certification Begin Date
10	8	DT	O			00511	Certification End Date
11	6	DTN	O			00512	Days
12	250	CE	O		0233	00513	Non-Concur Code/Description
13	26	TS	O			00514	Non-Concur Effective Date/Time
14	250	XCN	O	Y	0010	00515	Physician Reviewer
15	48	ST	O			00516	Certification Contact
16	250	XTN	O	Y		00517	Certification Contact Phone Number
17	250	CE	O		0345	00518	Appeal Reason
18	250	CE	O		0346	00519	Certification Agency
19	250	XTN	O	Y		00520	Certification Agency Phone Number
20	40	ICD	O	Y		00521	Pre-Certification Requirement
21	48	ST	O			00522	Case Manager
22	8	DT	O			00523	Second Opinion Date
23	1	IS	O		0151	00524	Second Opinion Status
24	1	IS	O	Y	0152	00525	Second Opinion Documentation Received
25	250	XCN	O	Y	0010	00526	Second Opinion Physician