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Implementation of Health Level Seven (HL7) Version 2.3.1

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PREFACE

This Standard was prepared by the Joint Standards Australia/Standards New Zealand Committee IT-014, Health Informatics, in response to requests from the health informatics community. It covers implementation of the Health Level Seven (HL7) Version 2.3.1 protocol, for communication in Australia and New Zealand between prescribers, dispensers and their healthcare trading partners.

This Standard is a revision of AS/NZS 4700.3:1999, based on changes between HL7 Version 2.3 and HL7 Version 2.3.1.

The previous edition of this Standard was based on an object-oriented data model that identified the players that needed to communicate with each other in a preferred electronic future. Since then, the Standard has been implemented and its value confirmed.

Information transferred between the objects are known as 'interchanges', for the convenience of system users, and these are grouped together into functional messages, for the benefit of systems developers. The main groups of data required for each functional message were identified before consideration of message syntax.

HL7 is a healthcare application protocol accredited as a Standard by the American National Standards Institute (ANSI). 'Level Seven' refers to the highest level of the International Organization for Standardization (ISO) communications model for Open Systems Interconnection (OSI)—the application level. Issues within the application level include definition of the data to be exchanged, the timing of the exchange and communication of certain errors to the application. This level supports such functions as security checks, identification of the participants, availability checks, negotiating exchange mechanisms and, importantly, structuring the data exchanges themselves.

HL7 focuses on the interface requirements of the entire healthcare organization. It allows development along the fastest possible track to the unique requirements of already installed hospital and departmental systems, some of which use mature technologies.

Australia and New Zealand already have an existing base of healthcare institutions that use the HL7 protocol to exchange key sets of data between different computer application systems. While HL7 is concerned with addressing immediate needs, there is a very strong focus on convergence with other Standards development activities in the United States of America and international HL7 initiatives in countries such as Canada, Finland, Germany, India, Japan, the Netherlands, South Africa and the United Kingdom.

The HL7 protocol is a collection of standard formats that specify the implementation of interfaces between computer applications. It is not rigid. Flexibility is built into the protocol to allow compatibility for specialized data sets that have facility-specific needs. One of HL7's strengths is its inbuilt flexibility. However, that flexibility is also one of its weaknesses. It is open to misinterpretation in its structure and format. HL7 is based on the health environment in the USA. Implementation of the HL7 Version 2.3.1 Standard in the Australian and New Zealand health environments requires a common and consistent approach.

A number of meetings were convened involving representatives from a wide range of organizations in the health sector and from others interested in the health sector. The organizations represented in pharmacy came from State Pharmacy Boards, the Pharmaceutical Society of Australia, Pharmacy Guild, Society of Hospital Pharmacists, various levels of the pharmaceutical industry, community and Defence pharmacy. The medical profession was represented by clinicians and administrators, and other health

professionals were represented at various times. The software industry, business consultancies, academia, the engineering profession and the Consumer Health Forum also participated. A very thorough object model was developed to identify all potential information interchanges between participants, not only directly in the passing of prescriptions, but also in the seeking and providing drug information, reporting adverse drug reactions, and seeking authorization and notifying dispensing of specific drugs.

The purpose of this model was to determine how well HL7 would address Australian and New Zealand needs, which were deliberately ambitious, and then to determine how each identified requirement would be satisfied by HL7.

An arbitrary border was placed around the area of interest, since it is conceivable that every piece of knowledge is in some way related to a medical prescription! It was decided that the manufacturer of drugs lay on the border, and that advising the manufacturer of an adverse drug reaction lay inside the area of interest, but that ordering supplies from a manufacturer lay outside. The purpose of this limitation was to limit the interchanges considered—it in no way limits HL7 usage per se.

In this document, frequent reference is made to AS 4700.1—2001, *Implementation of Health Level Seven (HL7) Version 2.3.1 Part 1: Patient administration* which covers the implementation of HL7 Version 2.3.1 for patient administration within and between Australian healthcare settings. AS 4700.1 provides an important foundation for the building of most clinical healthcare messages.

The IT-014-06-04, Prescription Messages working group has reviewed and interpreted data segments and data elements that are mandatory (required), conditional (required, based on a condition) or optional, and relevant usage notes in the Australian and New Zealand health environments.

In preparation of this Standard, cognizance was taken of the work being done by other parties with regard to patient confidentiality and adverse drug reactions.

4.2.1

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4.2.1 BALLOT DRAFT

STANDARDS AUSTRALIA/STANDARDS NEW ZEALAND

Australian/New Zealand Standard Implementation of Health Level Seven (HL7) Version 2.3.1

Part 3: Electronic messages for exchange of information on drug prescription

1 SCOPE

This Standard covers implementation of electronic messages for exchange of information on drug prescriptions using the Health Level Seven (HL7) Version 2.3.1 protocol.

This Standard does not deal with commercial transactions with suppliers.

This Standard provides consistent use of data definitions as well as commentary and references to the International Organization for Standardization (ISO) and the National Health Data Dictionary.

For the purposes of this Standard, only human patients are considered.

2 APPLICATION

This Standard is a guide for use by health authorities, healthcare providers, healthcare institutions, health information technology vendors, health information technology consultants, the health informatics community and the general public.

Australia and New Zealand already have an existing base of healthcare institutions that use the HL7 protocol to exchange key sets of data between different computer application systems. However, because of HL7's inbuilt flexibility, it is open to misinterpretation in structure and format. Implementation of the HL7 Standard in the Australian and New Zealand health environments requires a common and consistent approach.

This is not a stand-alone document. A good understanding and, preferably, working knowledge of HL7 is essential, as this Standard is based on and frequently refers to the HL7 Version 2.3.1 Protocol.

2.1 Alert Variance to HL7 2.3.1 Field Lengths

The Better Medication Management System (BMMS) specifies either the exact or maximum lengths that are acceptable to BMMS applications. In some instances these exceed HL7 2.3.1 length but are within the specified field lengths as defined in Version 2.4. These occurrences are notated in the specifications. For all other instances developers need to ensure that no more than the BMMS maximum lengths are sent as truncation will occur.

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The following have been highlighted as being outside the HL7 2.3.1 Standard:

ORC-2	Placer order number	Extended field length
PID-3	Patient ID	Extended Field Length
PID-5	Patient Name	Extended Field Length
RXC-2	Component Code	Extended Field Length
RXE-2	Give Code	Extended Field Length
RXO-1	Requested Give Code	Extended Field Length
NK1-2	Name	Extended Field Length
QRD-8	Subject Filter	Extended Field Length

3 REFERENCED AND RELATED DOCUMENTS

3.1 Referenced documents

The following documents are referred to in this Standard:

AS

4700 Implementation of Health Level Seven (HL7) Version 2.3.1

4700.1 Part 1: Patient administration

ISO

2955 Information processing—Representation of SI and other units in systems with limited character sets

HL7 V2.3.1 Health Level Seven Standard Version 2.3.1: Health Level Seven Inc., Ann Arbor, 1999

OTHER DOCUMENTS

Broadsheet

No: 29 SI Units Revisited: The Royal College of Pathologists of Australasia, 1986

BMMS Better Medication Management System, Commonwealth Department of Health and Ageing. <http://www.health.gov.au/bmms/>

NHDD National Health Data Dictionary Version 9.0: National Health Data Committee, Australian Institute of Health and Welfare, Canberra, 2000

3.2 Related documents

Attention is drawn to the following related documents:

AS

4400 Personal privacy protection in healthcare information systems

4700 Implementation of Health Level Seven (HL7) Version 2.3.1

4700.2 Part 2: Pathology orders and results

AS/NZS

4700.3 Part 3: Electronic messages for exchange of information on drug prescription

APAC Guidelines to achieve the Continuum of Quality Use of Medicines Between Hospital and Community

4 DEFINITIONS

For the purpose of this Standard, the definitions below apply.

4.1 Admitted patient

Refer to AS 4700.1.

4.2 Dispensary business unit

The organizational dispensing function which is responsible for financial transactions relating to the issuing of prescriptions, including client billing, invoicing to funder and payments from funder. The dispensary business unit is a conceptual 'object', as it describes a function, not necessarily a physical entity, because the dispensary business unit may or may not be an identifiably separate organizational unit within a dispensary; the dispensary business unit is part of a legal business or corporate entity such as a community pharmacy or hospital and may relate to financial transactions of one or more dispensers employed in that business entity.

4.3 Dispenser

A person authorized under relevant State or Territory legislation to supply therapeutic products to the end user (e.g. member of the public) in accordance with the legislation and standards applicable to that person's practice. Dispensers may, subject to local legislation, include the following:

(a) *Dentist*

A person registered by a State or Territory dental registering authority to practise dentistry.

(b) *Medical practitioner*

A person registered by a State or Territory medical registering authority to practise medicine.

(c) *Nurse*

A person registered by a State or Territory nurse registering authority to practise nursing.

(d) *Optometrist*

A person registered by a State or Territory optometrist registering authority to practise optometry.

(e) *Pharmacist*

A person registered by a State or Territory pharmacy registering authority to practise pharmacy.

(f) *Podiatrist*

A person registered by a State or Territory podiatry registering authority to practice podiatry.

(g) *Other*

Any person authorized under relevant State or Territory legislation to supply therapeutic products in accordance with the legislation and standards controlling that person's practice.

4.4 Dispensing

A process whereby a dispenser supplies a therapeutic product on the prescription or order of a prescriber, for the use of a patient, which ensures as far as possible that the patient receives the correct therapeutic product in the correct strength, dose form and quantity and that the product is appropriately packed and labelled such that the patient or carer understands the directions for the safe and effective use of the therapeutic product.

NOTE: Dispensing does not include the administration of a therapeutic product to a patient.

The dispensing process includes—

- (a) receiving a prescription with sufficient information to be able to properly identify the individual patient and to dispense it safely;
- (b) accurately determining the prescriber's intentions as to the therapeutic product(s) to be supplied to the patient;
- (c) making full records of all aspects of the process according to the requirements of the law;
- (d) reviewing the medication record of the patient to ensure that the medicine is safe and proper for the patient to use and that all other relevant considerations of the patient's wellbeing are taken into account;
- (e) selecting or preparing the final dose form of the product intended by the prescriber for the patient and placing it in a suitable container;
- (f) clearly labelling the container of the medicine or the device with the directions for its use as intended by the prescriber along with any other information that is desirable to encourage its proper, safe and effective use;
- (g) carefully checking all steps in the process for accuracy and completeness;
- (h) counselling the patient, or the patient's agent, sufficiently to allow a proper understanding of all the information required by the patient to use the product safely and effectively and to motivate the patient to comply with that advice; and
- (i) ensuring that the entire dispensing process has been undertaken according to law and professional practice standards, and the pharmacist's acceptance of that responsibility by placing his or her initials or signature in the prescription records of the pharmacy and any other place according to law.

4.5 Drug information source

A source of information about drugs and their use that is available to patients, prescribers, dispensers and/or regulators and which includes the following:

- (a) *Australian Drug Evaluation Committee (ADEC)*

A statutory committee appointed by the Minister for Health and Family Services to advise on the quality, safety and efficacy aspects of applications to market prescription drugs in Australia; the committee has been established pursuant to regulation 36 of the Therapeutic Goods Regulations under the *Therapeutic Goods Act 1989* (Source: H&FS.).

- (b) *Adverse Drug Reactions Advisory Committee (ADRAC)*

Subcommittee of ADEC, composed of independent experts, which monitors and provides advice on adverse drug reactions.

- (c) *Clinical pharmacist*
Registered pharmacist with particular expertise in pharmacology and pharmacokinetics.
- (d) *Clinical pharmacologist*
A clinician who specializes in the pharmacology of a drug or chemical in humans (Source: Medical Subject Headings (MeSH), National Library of Medicine, Bethesda, USA).
- (e) *Consultant pharmacist*
Registered pharmacist with particular expertise in medication management and review.
- (f) *Database*
Collection of data, with a given structure, usually stored electronically, for example a citation database such as Medline®.
- (g) *Dentist*
See Clause 4.3.
- (h) *Drug information centre*
A drug information source usually located in a hospital pharmacy department.
- (i) *Medical practitioner*
See Clause 4.3.
- (j) *Nurse*
See Clause 4.3.
- (k) *Optometrist*
See Clause 4.3.
- (l) *Pharmacist*
See Clause 4.3.
- (m) *Podiatrist*
Refer to Clause 4.3.
- (n) *Poisons information centre*
Focal point for the rapid provision of useful information relating to toxicity of drugs and other chemical substances.
- (o) *Professional and commercial organizations*
Professional bodies and independent organizations which maintain databases for the provision of drug information, e.g. Pharmaceutical Society of Australia, MIMS.
- (p) *Sponsor*
Manufacturer or company responsible for the registration and supply on the market of a particular therapeutic product.
- (q) *Therapeutic Goods Administration*
Part of the Commonwealth Department of Health and Ageing responsible for the registration on the market of a particular therapeutic product.

4.6 Filler

The application or individual responding to a request for services (order).

4.7 Funder

The person or body providing remuneration to a health service provider. Funders include the following:

- (a) Health Insurance Commission.
- (b) Insurance fund
- (c) An organization that insures patients and provides financial compensation for healthcare costs, e.g. general insurers and private health funds.
- (d) Patient.

4.8 Non-admitted patient

Refer to AS 4700.1.

4.9 Order

Synonymous with 'prescription'.

4.10 Order detail segment

One of several segments that can carry order information. An example is the OBR segment.

4.11 Patient

A person for whom a prescription, order and/or advice is issued.

4.12 Patient's agent

A person who receives a prescription, order and/or advice on behalf of a patient and includes the following:

- (a) *Carer*
Person (other than parent/guardian) who provides care for a patient including relative, nurse or other formal or informal caregiver, e.g. non-professional healthcare provider, neighbour.
- (b) *Parent/guardian.*
- (c) *Other*
Any other person authorized by the patient to receive a prescription on the patient's behalf.

4.13 Patient medication record

A record of the prescribing, supply, provision of advice and/or use of a therapeutic product by a patient which is created by a prescriber, dispenser, patient or patient's agent. The record may be retained electronically or in hard copy. Electronic format may include a record on a computer hard disk, distributed database record, or other forms, e.g. smartcard.

4.14 Placer

The application or individual originating a request for services (order).

4.15 Placer order group

A list of associated orders coming from a single location regarding a single patient.

4.16 Prescriber

A person authorized under relevant state legislation by a registering authority to prescribe therapeutic products in accordance with the legislation and standards controlling their practice. Prescribers may, subject to local legislation, include the following:

- (a) *Dentist*—see Clause 4.3.
- (b) *Medical practitioner*—see Clause 4.3.
- (c) *Nurse*—see Clause 4.3.
- (d) *Optometrist*—see Clause 4.3.
- (e) *Pharmacist*—see Clause 4.3.
- (f) *Podiatrist*—see Clause 4.3.
- (g) *Other*—any other person authorized under relevant State legislation by a registering authority to prescribe therapeutic products in accordance with the legislation and standards controlling their practice.

4.17 Prescription

A request from a prescriber to dispense a therapeutic product.

4.18 Regulator

An authority which controls any or all of evaluation, prescribing, supply, drug approval, payment and adverse drug reporting. Regulators currently include the following:

- (a) *Health and Ageing, Department of*
Commonwealth Government agency responsible for ensuring that all Australians have access to necessary health services at reasonable cost (including Medicare and Pharmaceutical Benefits), promotion of good health through regulatory, promotional and funding programs (including therapeutic goods administration, drug abuse initiatives and health research), provision of care and services for aged people and people with disabilities; and for supporting families' access to child care and family support. (Sources: H&FS Annual Report, H&FS Program Performance Statements.)
- (b) *Veterans Affairs, Department of*
Commonwealth Government agency which is responsible under the *Veterans Entitlement Act 1986* for granting of benefits, including pharmaceutical items listed in the Repatriation Schedule of Pharmaceutical Benefits.
- (c) *Health Insurance Commission*
Commonwealth statutory authority responsible for administrative activities relating to programs such as Medicare and the Pharmaceutical Benefits Scheme.
- (d) *Registering authority*
Relevant State or Territory authority for the registration of a health provider.
- (e) *State Health*
State or Territory government department responsible for the administration of health and related matters in that State or Territory.

4.19 Therapeutic product

Therapeutic drugs and devices.

4.20 Trigger event

Refer to AS 4700.1.

4.21 Visit

Refer to AS 4700.1.

5 OVERVIEW

5.1 General

This Clause is intended as an introduction to the usage of HL7 messages in the Australian and New Zealand contexts, and in particular to act as a 'how to' pointer into the subsequent Clauses. This Clause attempts to assist developers to identify appropriate ways to construct messages for a given purpose.

It has been found by some developers when attempting to implement the HL7 Standard that there appear to be either a number of possible ways of passing certain data or none at all, and that it can take a significant amount of time to search the full Standard for the relevant information. To reduce the complexity of implementing the HL7 Standard in Australia or New Zealand and to encourage use of the Standard, the following steps should be completed, using the model:

- (a) Identify the participants involved in exchange of prescriptions and related data.
- (b) Identify the individual 'interchanges' that need to be handled. These are the individual messages, such as notifying a suspected adverse drug reaction, placing a prescription with a dispenser, or advising an authority of usage of controlled substances.
- (c) Having identified 76 distinct 'interchanges', reduce this by merging fundamentally similar interchanges. The result was 19 functional messages, based entirely on the basic purpose and type of data exchanged (and not necessarily the underlying message structure).
- (d) For each identified interchange, state the HL7 message type that will satisfy the need, and comment as necessary the exact HL7 segments, data elements and usage matters relating to the message. For example, there may be a number of ways of passing a specific item of data, and it is best to clarify exactly which way is to be used in the Australian or New Zealand context to avoid negotiating this each time that the Standard is used at a different site.

5.2 Interchange diagram

The purpose of the object-oriented diagram below (Figure 5.2) is to represent the interchanges between the objects or players in the preferred future environment for electronic message exchange of information on drug prescription. For the purpose of completeness, the model as depicted includes some interchanges that are not electronic. The patient medication record is not an object, but has been shown on the diagram to help in the understanding of the overall environment. No assumptions have been made as to the nature of the patient medication record. The objects are concerned only with their own particular database vectors. The numbers in the diagram represent specific interchanges, and are described in Table 5.3.

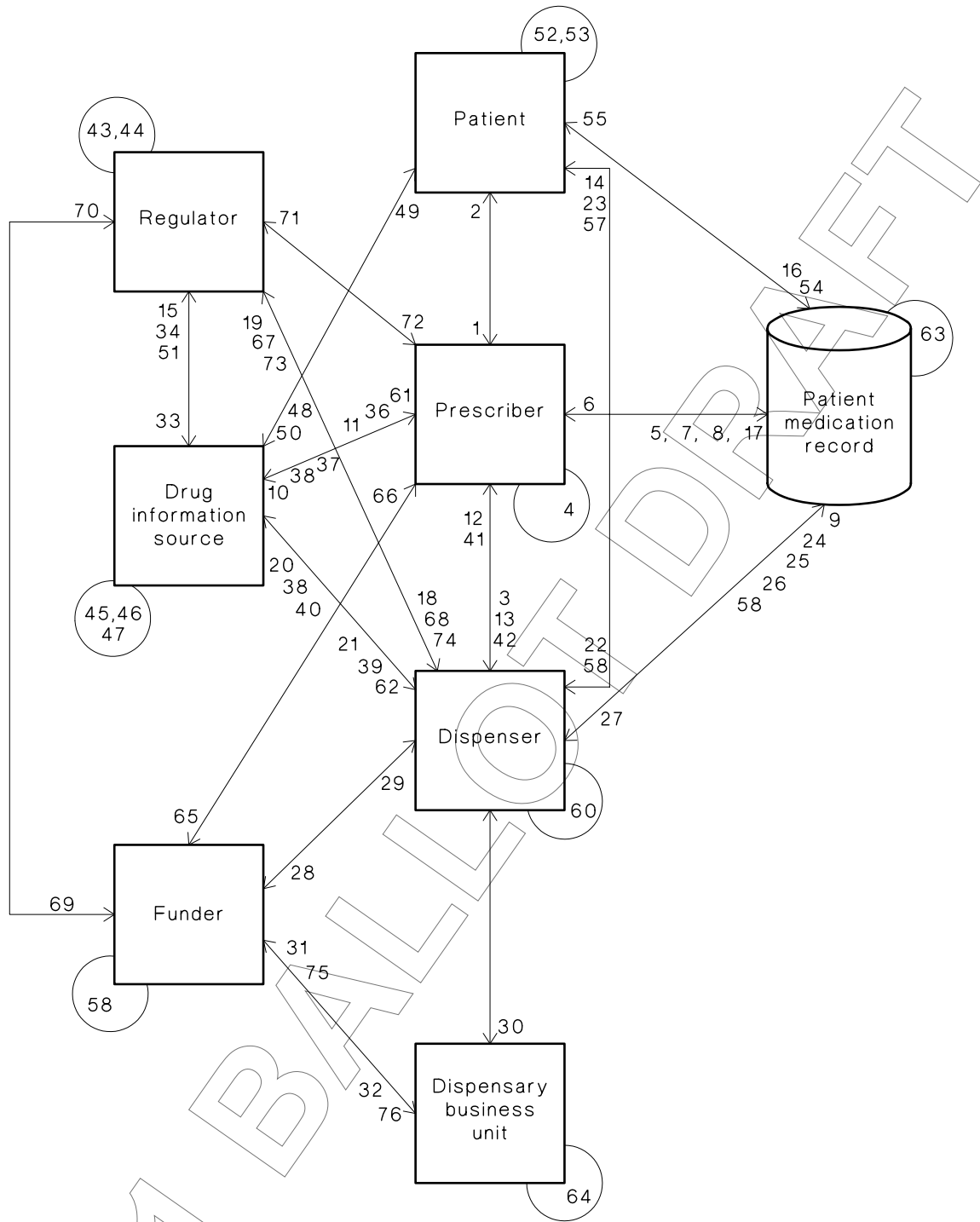


FIGURE 5.2 INTERCHANGE DIAGRAM

5.3 Interchanges

Table 5.3 identifies the interchanges between objects in the data model. Each interchange is described and assigned one of the functional messages. Notes and examples have been provided to assist in the understanding of the purpose of each interchange.

Refer to Clause 5.4 for details of the functional messages.

**TABLE 5.3
INTERCHANGES**

Interchange	Description	Functional message	Notes and examples
1	Patient presentation to prescriber Trigger: Patient need Response: Interchange 2	To be determined (TBD)	
2	Prescriber responds to patient (remote via telemedicine) that may not involve a prescription Trigger: Interchange 1 Response: Various	TBD	Not currently an electronic interchange
3	Prescriber sends a prescription to the dispenser Trigger: Prescribing Response: Simple acknowledgment	F07	
4	Prescriber referral to another prescriber Trigger: Patient referral or discharge Response: Simple acknowledgment	F05	Examples: Hospital prescriber sends a medication prescription or summary to another prescriber Could be as detailed as an entire discharge summary, i.e. hospital case notes, discharge medication. In this context only the discharge medication with notes is relevant
5	Prescriber queries the patient medication record for the patient history Trigger: Prescriber need Response: Interchange 6	F06	Patient-held records (e.g. smartcard) not considered at this point Example: Prescriber checks the computer system of the hospital or healthcare provider
6	Patient medication record supplies history to the prescriber Trigger: Interchange 5 Response: Simple acknowledgment	F06	Example: Patient prescription history is printed by the medical practitioner
7	Prescriber sends a prescription to the patient medication record Trigger: Prescribing Response: Simple acknowledgment	F07	Goal is to record the prescription in the patient medication record

(continued)

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TABLE 5.3 (continued)

Interchange	Description	Functional message	Notes and examples
8	<p>Prescriber sends additional instructions about overall medication management (not directly related to a single prescription) to the patient medication record</p> <p>Trigger: The prescriber modifies the patient medication record</p> <p>Response: Simple acknowledgment</p>	F09	<p>See also interchange 24</p> <p>Example: Add clinical notes, or supplementary information</p>
9	<p>Dispenser sends encoded prescription to patient medication record</p> <p>Trigger: Dispenser processing of prescription</p> <p>Response: Simple acknowledgment</p>	F19	<p>May contain some information as Interchange 3, but often contains additional/amended information</p> <p>Example: Pharmacist's annotation of brand dispensed or brand substitution, altered quantities, or repeat etc. It does not state that dispensing has actually occurred — see Interchange 25</p>
10	<p>Prescriber queries drug information source</p> <p>Trigger: Prescriber need</p> <p>Response: Interchange 11</p>	F15	<p>Currently would be typically done by reference to electronic or paper-based drug reference or telephone call for information</p> <p>Example: Prescriber contacts hospital drug information service regarding a particular drug</p>
11	<p>Drug information source provides drug information to prescriber</p> <p>Trigger: Interchange 10</p> <p>Response: Simple acknowledgment</p>	F15	<p>Example: Drug manufacturer updates product information</p>
12	<p>Dispenser queries the prescriber about the prescription</p> <p>Trigger: Dispenser need</p> <p>Response: Interchange 13</p>	F16	<p>Dispenser needs to change drug for some reason, such as to clarify dose</p> <p>Example: A pharmacist seeks to change the dose schedule to better suit patient</p>
13	<p>Prescriber clarifies the prescription to the dispenser</p> <p>Trigger: Interchange 12</p> <p>Response: Simple acknowledgment</p>	F16	<p>Would probably be interactive if further data is needed beyond the standard electronic request</p>
14	<p>Dispenser sends administration information to the patient's agent or patient</p> <p>Trigger: Patient need</p> <p>Response: Simple acknowledgment</p>	F19	<p>Example: Instructions to the nurse that the dose is to be administered</p>
15	<p>Drug information source advises regulator about adverse drug reaction</p> <p>Trigger: Information received</p> <p>Response: Simple acknowledgment</p>	F12	<p>Example: Drug company reports to the TGA that certain adverse effects have been reported</p>

(continued)

TABLE 5.3 (continued)

Interchange	Description	Functional message	Notes and examples
16	Recording of administration of a medication in the medication record Trigger: A medication is administered to the patient Response: Simple acknowledgment	F09	Example: Nurse records giving of medication in patient medical record
17	Prescriber records information about a suspected adverse drug reaction in the patient medication record Trigger: Suspected adverse drug reaction Response: Simple acknowledgment	F12	
18	Regulator requests the dispenser to provide a drug usage report Trigger: Regulator need Response: Interchange 19	F03 F10	Examples: Narcotic usage request to dispenser for ad hoc information about a user or specific drug usage Routine usage (currently provided monthly on regular paper reports)
19	Reply from dispenser to regulator Trigger: Interchange 18 Response: Simple acknowledgment	F04	Example: Pharmacist provides a report of all dispensings of a particular drug to a particular patient within a specified time
20	Dispenser queries drug information source Trigger: Dispenser need Response: Interchange 21	F15	Example: Pharmacist requires information about a particular drug dosage regimen
21	Drug information source provides information to dispenser Trigger: Interchange 20 Response: Simple acknowledgment	F15	Example: A report of dosage regimen for a particular drug
22	Patient/Patient's agent requests dispenser to dispense the medication Trigger: The patient/agent presents to the dispenser requesting the prescription to be filled Response: Simple acknowledgment or Interchange 23		For patients, not currently an electronic interchange
23	Dispenser provides further information or advice to the patient/patient's agent Trigger: Interchange 22 Response: Various	F09	Example: Dispenser advises nurse on drug administration

(continued)

TABLE 5.3 (continued)

Interchange	Description	Functional message	Notes and examples
24	Dispenser sends additional instructions about overall medication management (not directly related to a single prescription) to the patient medication record Trigger: Additional information is generated Response: Simple acknowledgment	F09	See also Interchange 8 Example: A pharmacist has completed a medication review and makes certain notes in the patient medication record
25	Dispenser sends a record of dispensing to the patient medication record Trigger: Dispensing Response: Simple acknowledgment	F08	This interchange may be used to advise prescriber that a prescription has been dispensed The patient medication record may be in the prescriber system Example: Pharmacist advises the prescriber's patient medication record that the prescription has been dispensed
26	Dispenser queries the patient medication record Trigger: Dispenser need Response: Interchange 27	F06	Example: Pharmacist requires a complete history of all medication from all sources dispensed for a particular patient to complete a medication review
27	Patient medication record supplies the patient history to the dispenser Trigger: Interchange 26 Response: Simple acknowledgment	F06	Example: A complete medication history
28	Dispenser request to funder Trigger: Dispenser need Response: Interchange 29	F02	This interchange will be used to reach agreement as to if and when the prescription is to be paid and how much is to be paid Note that this is not a financial transaction Note that this could include an agreement reference
29	Funder response to dispenser Trigger: Interaction 28 Response: Terms for payment	F02	This interchange will be used to agree or provide alternative payment advice Note that this could include an agreement reference
30	Dispenser notifies dispensary business unit of filled order Trigger: Dispensing Response: Simple acknowledgment	TBD	Example: Hospital pharmacy dispensing system notifies hospital accounting system of order to be billed
31	Dispensary business unit sends invoice to the funder Trigger: Interchange 30 Response: Interchange 32	F11	This is a financial transaction and includes request for payment from the funder

(continued)

TABLE 5.3 (continued)

Interchange	Description	Functional message	Notes and examples
32	Funder sends payment advice to the dispensary business unit Trigger: Interchange 31 Response: Simple acknowledgment	F17	This is a financial transaction and includes advice of payment or rejected claims, etc.
33	Regulator requests information from drug information source Trigger: Regulator need Response: Interchange 34	F12	This includes requests concerning adverse drug reactions Example: A Health Department official checks product information with regard to a request for special access to a drug
34	Drug information source provides requested information to regulator Trigger: Interchange 33 Response: Simple acknowledgment	F12	
35	Prescriber requests information about a suspected adverse drug reaction from drug information source Trigger: Prescriber need Response: Interchange 36	F12	Drug information source includes ADRAC Patient demographic (de-identified) Example: Doctor asks clinical pharmacist whether drug may have caused an adverse drug reaction
36	Drug information source sends information about a suspected adverse drug reaction to prescriber Trigger: Interchange 35 Response: Various	F12	Example: Drug information source advises prescriber interaction on particular drug
37	Prescriber sends information to the drug information source about— (a) a suspected adverse drug reaction Trigger: Suspected adverse drug reaction Response: Simple acknowledgment	F12	In some cases, this may be a query Example: Adverse drug reaction advice to medical department of a drug company
	(b) other than a suspected adverse drug reaction Trigger: Prescriber need Response: Simple acknowledgment	F12	Could be clinical trial Example: Doctor may report patient difficulty with packaging or package instructions to the manufacturer
38	Dispenser requests information about a suspected adverse drug reaction from drug information source Trigger: Dispenser need Response: Interchange 39	F12	Example: Pharmacist asks ADRAC whether a particular drug causes a particular side effect

(continued)

TABLE 5.3 (continued)

Interchange	Description	Functional message	Notes and examples
39	Drug information source sends information to dispenser about— (a) a suspected adverse drug reaction Trigger: Interchange 38 Response: Simple acknowledgment	F12	ADRAC reports de-identified patient demographic
	(b) other matters Trigger: Interchange 38 Response: Simple acknowledgment	F12	Example: Expiry date extended for a particular drug
40	Dispenser sends information to drug information source about — (a) a suspected adverse drug reaction Trigger: Suspected adverse drug reaction Response: Simple acknowledgment	F12	In some cases, this response may be a query Example: Adverse drug reaction advice to medical department of a drug company
	(b) an incident Trigger: Incident Response: Simple acknowledgment	F12	
41	Dispenser sends information about a suspected adverse drug reaction to the prescriber Trigger: Suspected adverse drug reaction Response: Simple acknowledgment	F12	Example: Pharmacist suspects an adverse effect of a drug and reports this to the prescriber
42	Prescriber sends information about a suspected adverse drug reaction to the dispenser Trigger: Suspected adverse drug reaction Response: Simple acknowledgment	F12	Example: Prescriber advises dispenser of patients reporting penicillin sensitivity, for example; or to convey change in direction or use
43	Regulator queries another regulator Trigger: Regulator need Response: Interchange 44	F01	Example: Health Insurance Commission checks with State authority that the prescriber is registered in that State
44	Regulator verifies prescriber registration with regulator Trigger: Interchange 43 Response: Simple acknowledgment	F01	Example: A doctor may need prescribing rights under the PBS/RPBS in order to obtain a warrant to prescribe a particular drug
45	Drug information source advises drug information source about a product problem Trigger: Therapeutic product problem Response: Simple acknowledgment	F13	Example: The manufacturer sends general advice about a product recall

(continued)

TABLE 5.3 (continued)

Interchange	Description	Functional message	Notes and examples
46	Drug information source requests information from another drug information source about— (a) adverse drug reaction Trigger: User need Response: Interchange 47	F12	Example: Sponsor may query ADRAC about a suspected adverse drug reaction report
	(b) a matter other than adverse drug reaction Trigger: User need Response: Interchange 47	F12	Example: Clinical pharmacist may request information from Medline to answer a query of a prescriber
47	Drug information source provides information to requesting drug information source about — (a) adverse drug reaction Trigger: Interchange 46 Response: Simple acknowledgment	F12	
	(b) a matter other than adverse drug reaction Trigger: Interchange 46 Response: Simple acknowledgment		
48	Patient seeks advice from drug information source Trigger: Patient need Response: Interchange 49	TBD	Not currently an electronic interchange Example: Patient consults poisons information centre regarding possible problems as a result of children swallowing something
49	Drug information source provides information to patient Trigger: Interchange 48 Response: Simple acknowledgment	TBD	Not currently an electronic interchange
50	Patient advises drug information source of suspected adverse drug reaction Trigger: Suspected adverse drug reaction Response: Simple acknowledgment	TBD	Not currently an electronic interchange Example: Nurse contacts a drug company to advise of a suspected adverse effect
51	Drug information source advises regulator about a product problem Trigger: Therapeutic product problem Response: Simple acknowledgment	F13	Example: The manufacturer sends general advice about a product recall
52	Patient advises agent or carer Trigger: Patient need Response: Interchange 53	TBD	Not currently an electronic interchange Example: Patient asks carer to collect a prescription

(continued)

TABLE 5.3 (continued)

Interchange	Description	Functional message	Notes and examples
53	Agent or carer advises patient Trigger: Interchange 52 Response: Various	TBD	Not currently an electronic interchange Example: Carer advises patient of new prescription
54	Query from patient to patient medication record Trigger: Patient need Response: Interchange 55	TBD	Not currently an electronic interchange Example: Patient checks his or her record for the last time patient had a particular prescription filled
55	Patient medication record provides information to patient Trigger: Interchange 54 Response: Simple acknowledgment	TBD	Not currently an electronic interchange
56	Patient queries dispenser Trigger: Patient need Response: Interchange 57	TBD	Example: Question use of drug that has been prescribed Not currently an electronic interchange
57	Dispenser provides requested information to patient Trigger: Interchange 56 Response: Simple acknowledgment	TBD	Not currently an electronic interchange Example: Provision Consumer Medicines Information (CMI)
58	Dispenser records information about a suspected adverse drug reaction in the patient medication record Trigger: Suspected adverse drug reaction Response: Simple acknowledgment	F12	Example: Pharmacist records intervention in the patient medication record
59	Funder provides information to another funder Trigger: Business need Response: Various	TBD	Example: The DVA advises the HIC that a particular patient is now covered by the DVA
60	Dispenser advises another dispenser about— (a) general information Trigger: Dispenser need Response: Simple acknowledgment	F14	Example: Suspicion that a patient has been visiting several prescribers is reported to other dispensers (within and external to the pharmacy)
	(b) prescription Trigger: Dispenser need Response: Simple acknowledgment	F05	Example: Referral to specialized dispenser to prepare eye drops

(continued)

TABLE 5.3 (continued)

Interchange	Description	Functional message	Notes and examples
61	Drug information source advises prescribers about a product problem Trigger: Therapeutic product problem Response: Simple acknowledgment	F13	Examples: Drug company advises prescriber that a particular drug has changed colour because of manufacturing change Manufacturer sends general advice about a product recall
62	Drug information source advises dispensers about a product problem Trigger: Therapeutic product problem Response: Simple acknowledgment	F13	Examples: Drug company advises dispenser that a particular drug has changed colour because of manufacturing change Manufacturer sends general advice about a product recall
63	A patient medication record copies information to another patient medication record Trigger: User need Response: Simple acknowledgment	F05	Potentially, a patient's entire medication data is transferred Examples: Patient changes prescriber History transferred to consultant pharmacist for medication review
64	Dispensary business unit provides information to another dispensary business unit Trigger: Business need Response: Various	TBD	Example: Multiple pharmacy in a group with a single billing account with a particular health fund
65	Prescriber seeks authorization from funder to prescribe Trigger: Intention to prescribe Response: Interchange 66	F02	Example: Prescriber wishes to prescribe 'authority required' drug (as per National Health Act requirements)
66	Funder authorizes prescriber to prescribe drug Trigger: Interchange 65 Response: Simple acknowledgment	F02	Example: Funder provides authority number to prescribe
67	Dispenser checks with regulator that prescriber is registered Trigger: Dispenser need Response: Interchange 68	F01	Example: Pharmacist clarifies with Health Department that an unknown prescriber has approval to prescribe
68	Regulator advises prescriber registration status to the dispenser Trigger: Interchange 67 Response: Simple acknowledgment	F01	Example: Health Department confirms that medical practitioner is registered and thus permitted to prescribe
69	Regulator queries funder Trigger: Regulator need Response: Interchange 70	F02	Example: State authority queries the appropriateness of a drug to be prescribed pursuant to section 100 of the National Health Act (highly specialized drugs) where dual approval is required

(continued)

TABLE 5.3 (continued)

Interchange	Description	Functional message	Notes and examples
70		F02	
71	<p>Prescriber seeks special permission from the regulator to prescribe</p> <p>Trigger: Intention to prescribe</p> <p>Response: Interchange 72</p>	F02	<p>Examples:</p> <p>Permission to prescribe controlled substance for longer than statutory period or treatment</p> <p>Seeks warrant to prescribe particular class of drug</p> <p>Seeks approval to prescribe drug under the special access scheme</p> <p>Seeks permission to prescribe drugs in a clinical trial</p>
72	<p>Regulator grants special permission to the prescriber to prescribe a specific drug for a patient</p> <p>Trigger: Interchange 71</p> <p>Response: Simple acknowledgment</p>	F02	
73	<p>Dispenser checks with regulator whether the patient is eligible to be supplied</p> <p>Trigger: Dispenser need</p> <p>Response: Interchange 74</p>	F02	<p>Example:</p> <p>Addition of drug abuse client to methadone program</p>
74	<p>Regulator advises dispenser of patient eligibility status</p> <p>Trigger: Interchange 73</p> <p>Response: Simple acknowledgment</p>	F02	
75	<p>Dispensary business unit seeks additional information from funder</p> <p>Trigger: Business need</p> <p>Response: Interchange 76</p>	F18	<p>Example:</p> <p>Payment on a prescription is rejected and the dispensary business unit seeks explanation</p>
76	<p>Funder advises dispensary business unit</p> <p>Trigger: Interchange 75</p> <p>Response: Simple acknowledgment</p>	F18	<p>Example:</p> <p>Explanation</p>

5.4 Functional messages

Table 5.4 provides guidance to systems developers on interchange commonality and the relevant HL7 message. Usage notes have been provided to assist in the understanding of the purpose of each functional message. Where there is not an exact HL7 message for the particular purpose, such as general queries, guidance has been provided as to syntax for the message. Refer to Clause 5.3 for details of the interchanges.

TABLE 5.4
FUNCTIONAL MESSAGES

Function	Description	Interchange	HL7 message	Usage notes
F01	Check that a prescriber is a registered prescriber	43/44 67/68	MFQ/ MFR—Master files query and response message Refer to HL7 V2.3.1 Clause 8.3.3	State prescribing privileges in PRA-7 privileges data element
F02	Check the eligibility of the prescription for a particular patient	28/29 65/66 69/70 71/72 73/74	ORM/ ORR—General order/response message Refer to HL7 V2.3.1 Clause 4.2 Refer to HL7 V2.3.1 Clause 4.3 for ORC details	To indicate reason for request denial — Refer to ORC-1 order control code 'UA' — Refer to ORC-16-Order control code reason to identify allergy, or description and severity of drug interaction
F03	Query specific category of drug, e.g. users of narcotic drugs	18	QRY Refer to HL7 V2.3.1: — Clause 2.15 for Queries and — Clause 2.24 for Segments	Refer to 'QRD-8-What subject filter' to identify the kind of information required to satisfy the request and the QRF segment to refine the query content Refer to HL7 V2.3.1 Clause 4.8.22 for specific query examples

(continued)

4.2.1 BALL

TABLE 5.4 (continued)

Function	Description	Interchange	HL7 message	Usage notes
F04	Notification of users or abusers of narcotic drugs. Report of patient-specific information about the use or abuse of a scheduled drug. This can be, but need not be, a response to an F03 query	19	QRY General query/ response message Refer to HL7 V2.3.1: —Clause 2.15 for Queries and —Clause 2.24 for Segments	Stipulate what level of information (such as demographic data and drug information details) is expected for standard reporting requirements Query response messages shown in Clauses 4.8.17 to 4.8.22 of HL7 V2.3.1 pertain to a single prescription (order). For multiple prescriptions for multiple patients to be reported, the following syntax is recommended: MSH MSA [ERR] {NTE} QRD [QRF { PID [{NTE}] { ORC [RXE { RXR } [{RXC }]] { RXD { RXR } [{RXC }] } } } [DSC]
F05	Prescription referral between entities of the same type	4 60(b) 63	ORM/ORR—Pharmacy order message Refer to HL7 V2.3.1 Clause 4.8	Refer to ORC-1 order control code 'RE' if prescriptions are being transferred for information only Refer to 'ORC-16-Order control code reason' to identify allergy, or description and severity of drug interaction
F06	Query patient medication record	5/6 26/27 54/55	QRY/ROR, RAR, RDR, RER, RGR—Query message Refer to HL7 V2.3.1 Clause 4.8.15 to Clause 4.8.22	Refer to appropriate use of the QRD and/or QRF segments for use as follows: —RDE for pharmacy orders —RDS for current dispense history —RGV for current dose history and —RAS for the current administration record

(continued)

TABLE 5.4 (continued)

Function	Description	Interchange	HL7 message	Usage notes
F07	Prescription from prescriber to dispenser	3 7	ORM/ORR–General order message/ response Refer to HL7 V2.3.1 Clause 4.8	This is the actual pharmacy order. Place CMI included in ORM from prescriber in 4.8.2.7. RXO-7 passed through to RXE-7
F08	Prescription from dispenser to patient medication record	25	RDS/RRD–Pharmacy/treatment dispense message Refer to HL7 V2.3.1 Clause 4.9	
F09	Ancillary information about a prescription	8 24 16 23	ORU Refer to HL7 V2.3.1 Clause 7.2.1 RDE RGV RAS/RRA–Pharmacy administration message Refer to HL7 V2.3.1 Clause 4.8.13 ORM/ORR–General order message Refer to HL7 V2.3.1 Clause 4.2	Place CMI included in ORM from prescriber in 4.8.2.7. RXO-7 passed through to RXE-7 Refer to ORC-1 order control code ‘RE’ if patient-specific information is transferred.
F10	Drug usage summary	18	See functional message F03 and F04 for HL7 V2.3.1 syntax	Although the message is the same structure as functional message F04, the actual data to be provided, and where, is an administrative matter that needs to be defined by regulatory authorities
F11	Invoice from dispensary business unit to funder	31	TBD	

(continued)

Function	Description	Interchange	HL7 message	Usage notes
F12	ADR reporting	17 41 42 58 33/34 35/36 37/38 39/40 46/47	PEX Product experience message Refer to HL7 V2.3.1 Clause 7.10 QRY General query/ response message Refer to HL7 V2.3.1 Clause 2 and Clause 4	An exact HL7 query message does not exist in Chapter 4 of the HL7 V2.3.1 Standard Therefore a generic query message is recommended with the 'What subject filter' field of the QRD segment specified as 'ADR' (Adverse Drug Reaction Query) The syntax for the query (e.g. Interchange 33) message should be as follows: MSH QRD [QRF] [DSC]

(continued)

4.2.1 BALLOTT DRAFT

TABLE 5.4 (continued)

Function	Description	Interchange	HL7 message	Usage notes
F12 (cont'd)				The syntax for the response (e.g. Interchange 34) should be as follows: MSH MSA [ERR] [{NTE}] QRD [QRF] { PID [PD1] [{NTE}] [PV1 [PV2]] { PES { PEO {PCR [RXE [{RXR }]] [{ RXA [RXR] }] [{ OBX }] [{ NTE }] [NK1 [RXE [{ RXR }]] [{ RXA [RXR] }] [{ OBX }]] [{ CSR [{ CSP }] }] } } } }
F12 (cont'd)		15	SUR Summary product experience report Refer to HL7 V2.3.1	

(continued)

TABLE 5.4 (continued)

Function	Description	Interchange	HL7 message	Usage notes
F13	Drug recall	45 51 61 62	PEX Product experience message Refer to HL7 V2.3.1 Clause 7.10	(Event type suggest 'RCL' = 'Recall')
F14	General advice	60 (a)	UDM Unsolicited display message Refer to HL7 V2.3.1 Clause 2.14	The DSP segment supports unstructured data only There appears no point in trying to define fields and data in more detail
F15	Request for detailed drug information	10/11 20/21		There appears to be no HL7 V2.3.1 message appropriate for this need. Online access (via the Internet) is a more realistic short-term method
F16	Dispenser query to prescriber	12/13	OSQ/OSR Refer to HL7 V2.3.1: —Clause 4.2.3 for query response and —Clause 2.24 for segments	
F17	Funder payment to dispensary business unit	32		
F18	Financial query	75/76	Refer to HL7 V2.3.1 Clause 4.3.2	Seeks additional information from funder
F19	Update to the prescription	9 14	RDE/RRE Refer to HL7 V2.3.1 Clause 4.8.6 RGV/RRG Refer to HL7 V2.3.1 Clause 4.8.11	

6 MESSAGES

6.1 Message structural overview

Figure 6.1 is an overview of the representation of an HL7 message. An arrowed line above a segment indicates that it may be repeated. An arrowed line below a segment indicates that the segment is optional.

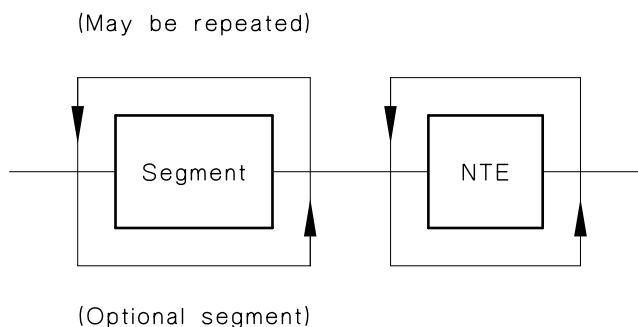


FIGURE 6.1 MESSAGE STRUCTURAL OVERVIEW

Only those segments that have been identified as relevant have been included in this Standard. Refer to HL7 V2.3.1 protocol for all other message segments. Also refer to AS 4700.1 for patient-related segments.

CAUTION: THE NTE SEGMENT MAY BE DISCARDED BY SOME RECEIVING APPLICATIONS. THIS MEANS THAT IMPORTANT INFORMATION SHOULD NOT BE PLACED IN AN NTE SEGMENT.

6.2 Order messages

6.2.1 *ORM—Pharmacy order message*

See HL7 V2.3.1 Clause 4.8.1.

The following applies:

(a) *Message overview diagram*

Figure 6.2.1 is an overview of the order message diagram (ORM) and consists of the segments as detailed.

(b) *Function*

The function of the ORM message is to initiate the transmission of information about a prescription order. This includes placing new orders, cancellation of existing orders and discontinuation. ORM messages can originate also with a placer, filler, or an interested third party.

(c) *Trigger event*

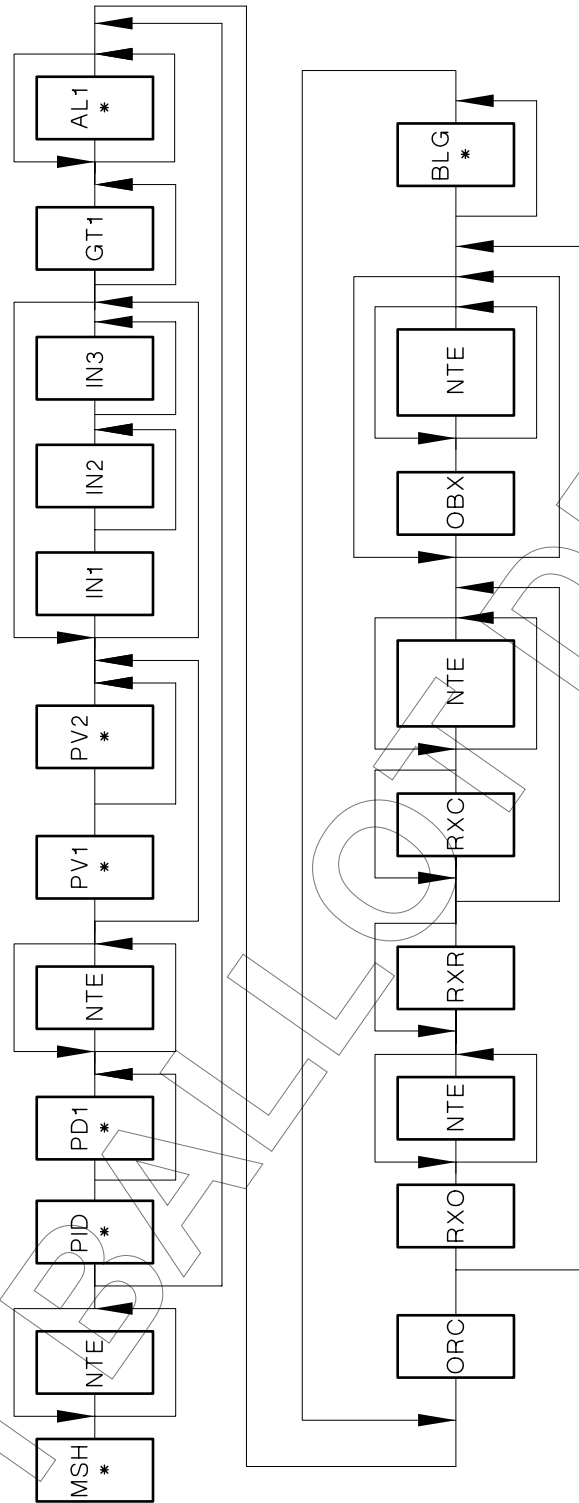
The trigger event for this message is any change to a prescription order. Such changes include submission of new orders, cancellations and updates.

(d) *Required header segment*

Message header (MSH). See AS 4700.1, Table 6.2, for Australian implementation of message header data elements and usage notes.

(e) *Optional header segment*

NOTE: The use of the Provider related (PRD) segment is no longer permitted for pharmacy messages. Ordering facility details are now accommodated in the ORC-21 to ORC-23 data elements.



* See AS4700.1

FIGURE 6.2.1 ORM ORDER MESSAGE

4.2.1

(f) *Patient related segments*

(i) Required

Patient identification (PID). See AS 4700.1, Table 6.6, for Australian implementation of patient identification data elements and usage notes. HL7 V2.3.1 specifies the PID segment as 'optional'. However, in the context of this Standard it is 'required'.

(ii) Optional patient related segments

- (A) Patient additional demographic information (PD1). See AS 4700.1, Table 6.13 for Australian implementation of patient additional demographic information segment data elements and usage notes.
- (B) Patient visit (PV1). See AS 4700.1, Table 6.7, for Australian implementation of patient visit segment data elements and usage notes.
- (C) Patient visit—additional information (PV2). See AS 4700.1, Table 6.8, for Australian implementation of patient visit—additional information. This segment may be repeated for a given patient identification. This segment may be repeated for a given patient visit.
- (D) Insurance (IN1).
- (E) Insurance additional information (IN2).
- (F) Insurance additional information—certification (IN3).
- (G) Guarantor (GT1).
- (H) Allergy information (AL1). See AS 4700.1, Table 6.10, for Australian implementation of patient allergy information segment data elements and usage notes. This segment may be repeated for a given patient identification.

(g) *Order segments*

(i) Required order segment—ORC Common order. See Clause 7.3.

(ii) Optional order segments:

- (A) Pharmacy prescription order (RXO). This segment (see Clause 7.4) may be repeated for a given common order segment.
- (B) Pharmacy route (RXR). See Clause 7.5. The alternative combination of route, site, administration device, and administration method that are prescribed.
- (C) Pharmacy component (RXC). If the drug ordered with the pharmacy prescription order segment is a compound drug or an intravenous solution, and there is not a coded value for the Universal Service ID which specifies the components (base and additives), then each component is specified by a separate RXC segment.
- (D) Result (OBX). This segment (see Clause 7.11) may be repeated for a given prescription order segment, but its use is optional. Observation information that needs to be sent with the prescription, e.g. body height and weight, body surface area, or pathology data such as creatinine, FBCs, liver enzymes should be sent in OBX segments.
- (E) Billing (BLG). See AS 4700.1, Table 6.14, for Australian implementation of billing segment data elements and usage notes. This segment may be repeated for a given common order segment.

6.2.2 ORR Pharmacy prescription response message

See HL7 V2.3.1 Clause 4.8.1.

The following applies:

(a) *Message overview diagram*

Figure 6.2.2 is an overview of the pharmacy prescription response message diagram and consists of the segments as detailed.

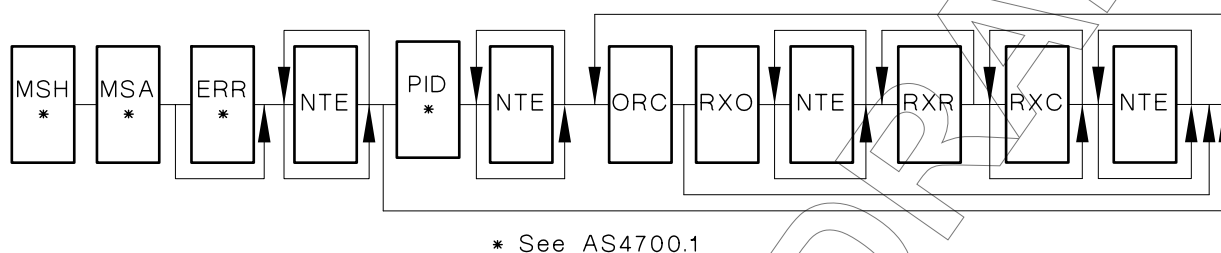


FIGURE 6.2.2 ORR PHARMACY PRESCRIPTION RESPONSE MESSAGE

(b) *Function*

The function of this message is to respond to an ORM pharmacy prescription message.

(c) *Trigger event*

An ORR message is the application acknowledgment to an ORM pharmacy prescription message.

(d) *Required header segments*

- (i) Message header (MSH).
- (ii) Message acknowledgment (MSA).

(e) *Optional acknowledgment related segment*

- (i) Error (ERR).

(f) *Returned ORM segments*

- (i) Patient identification (PID).
- (ii) Common order (ORC).
- (iii) Pharmacy prescription order (RXO).
- (iv) Pharmacy route (RXR).
- (v) Pharmacy component (RXC).

6.3 Pharmacy encoded order messages

6.3.1 RDE Pharmacy encoded order message

See HL7 V2.3.1 Clause 4.8.6.

The following applies:

(a) *Message overview diagram*

Figure 6.3.1 is an overview of the pharmacy encoded order (RDE) message diagram and consists of the segments as detailed.

(b) *Function*

The function of the RDE message is to communicate the pharmacy application's encoding of the pharmacy order (ORM message with pharmacy prescription order segment).

(c) *Trigger event*

The RDE message may be sent as an unsolicited message to report on either a single order or multiple orders for a patient.

(d) *Required header segment*

Message header (MSH). See AS 4700.1, Table 6.2, for Australian implementation of message header data elements and usage notes.

(e) *Patient related segments*

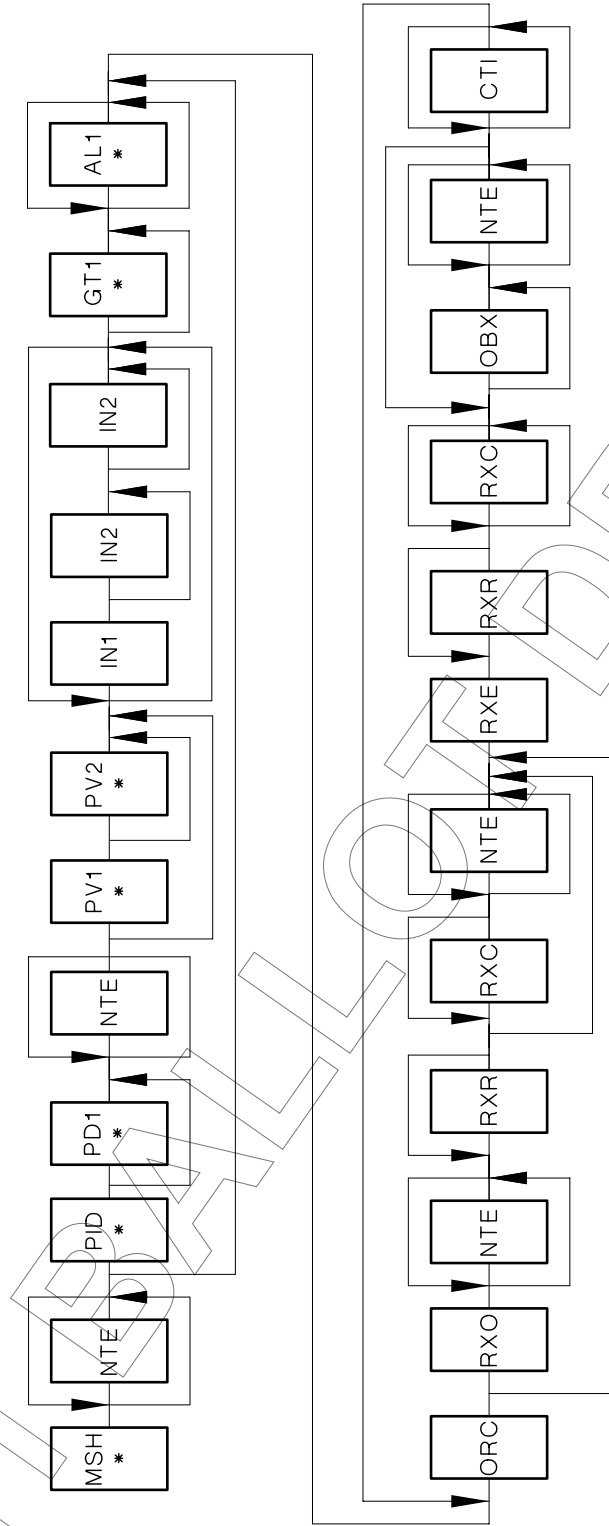
(i) *Required*

- (A) PID Patient identification. See AS 4700.1, Table 6.6, for Australian implementation of patient identification data elements and usage notes. HL7 V2.3.1 specifies the PID as 'optional'. However, in the context of this Standard it is 'required'.

(ii) *Optional segments*

- (A) Patient additional demographic information (PD1). See AS 4700.1, Table 6.13, for Australian implementation of patient additional demographic information segment data elements and usage notes.
- (B) Patient visit (PV1). See AS 4700.1, Table 6.7, for Australian implementation of patient visit segment data elements and usage notes.
- (C) Patient visit—additional information (PV2). See AS 4700.1, Table 6.8, for Australian implementation of patient visit—additional information segment data elements and usage notes. This segment may be repeated for a given patient identification. This segment may be repeated for a given patient visit.
- (D) Insurance (IN1).
- (E) Insurance additional information (IN2).

4.2.1



* See AS4700.1

FIGURE 6.3.1 RDE PHARMACY ENCODED ORDER MESSAGE

4.2.1

- (F) Insurance additional information—certification (IN3).
 - (G) Guarantor (GT1).
 - (H) Allergy information (AL1). See AS 4700.1, Table 6.10, for Australian implementation of patient allergy information segment data elements and usage notes. This segment may be repeated for a given patient identification.
- (f) *Required order segment*
Common order (ORC). See Clause 7.3.
- (g) *Optional prescription order segments*
- (i) Pharmacy prescription order (RXO). This segment (see Clause 7.4) may be repeated for a given common order segment.
 - (ii) Pharmacy route (RXR). See Clause 7.5. Refers to pharmacy prescription order segment data elements.
 - (iii) Pharmacy component (RXC). See Clause 7.6. Refers to pharmacy prescription order segment data elements.
- (h) *Optional pharmacy encoded order segments*
- (i) Pharmacy encoded order (RXE). This segment may be repeated for a given common order segment. See Clause 7.7.
 - (ii) Pharmacy route (RXR). Refers to pharmacy encoded order segment data elements. See Clause 7.5.
 - (iii) Pharmacy component (RXC). Refers to pharmacy encoded order segment data elements. See Clause 7.6.
- (i) *Optional result segments*
- (i) Result (OBX). This segment may be repeated for a given prescription order segment, but its use is optional. See Clause 7.11.
- (j) *Optional*
Clinical trial (CTI) segment.

6.3.2 RRE Pharmacy encoded order acknowledgment message

The following applies:

- (a) *Message overview diagram*

Figure 6.3.2 is an overview of the pharmacy encoded order acknowledgment message and consists of the segments as detailed.

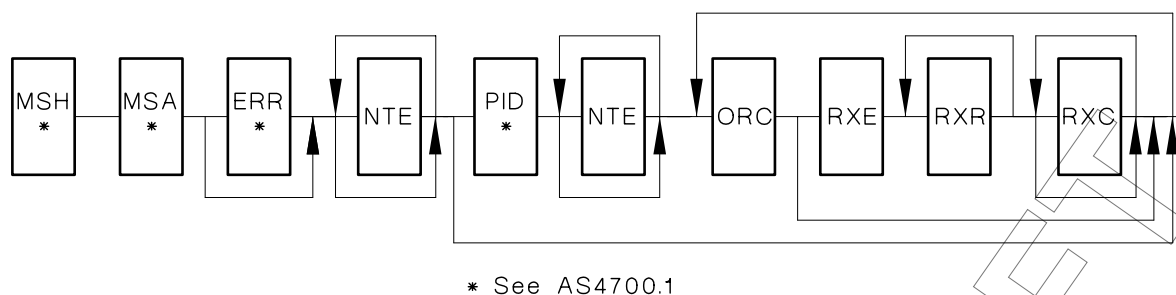


FIGURE 6.3.2 RRE PHARMACY ENCODED ORDER ACKNOWLEDGMENT MESSAGE

(b) *Function*

The function of this message is to respond to an RDE pharmacy encoded order message.

(c) *Trigger event*

An RRE message is the application acknowledgment to an RDE pharmacy encoded order message.

(d) *Required header segments*

- (i) Message header (MSH).
- (ii) Message acknowledgment (MSA).

(e) *Optional acknowledgment related header segments*

- (i) Error (ERR).

(f) *Returned RDE segments*

- (i) Patient identification (PID).
- (ii) Common order (ORC).
- (iii) Pharmacy encoded order (RXE).
- (iv) Pharmacy route (RXR).
- (v) Pharmacy component (RXC).

6.4 Pharmacy dispensing messages

6.4.1 RDS Pharmacy dispense message

See HL7 V2.3.1 Clause 4.8.9.

The following applies:

(a) *Message overview diagram*

Figure 6.4.1 is an overview of the pharmacy dispense (RDS) message diagram and consists of the segments as detailed.

- (b) *Function*
The RDS message is created by the pharmacy application for each instance of dispensing drugs to fill an existing order or orders.
- (c) *Trigger event*
Dispensing of drugs.
- (d) *Required header segment*
Message header (MSH).
- (e) *Patient related segments*
- (i) *Required segment*
Patient identification (PID). See AS 4700.1, Table 6.6, for Australian implementation of patient identification data elements and usage notes. This segment is not repeated.
 - (ii) *Optional segments*
 - (A) Patient additional demographic information (PD1). See AS 4700.1, Table 6.13, for Australian implementation of patient additional demographic information segment data elements and usage notes.
 - (B) Allergy information (AL1). See AS 4700.1, Table 6.10, for Australian implementation of patient allergy information segment data elements and usage notes. This segment may be repeated for a given patient identification.
 - (C) Patient visit (PV1). See AS 4700.1, Table 6.7, for Australian implementation of patient visit segment data elements and usage notes.
 - (D) Patient visit–additional information (PV2). See AS 4700.1, Table 6.8, for Australian implementation segment data elements and usage notes. This segment may be repeated for a given patient identification. This segment may be repeated for a given patient visit.
- (f) *Required order segment*
Common order (ORC). See Clause 7.3.
- (g) *Optional prescription order segments*
- (i) Pharmacy prescription order (RXO)—This segment may be repeated for a given common order segment. See Clause 7.4.
 - (ii) Pharmacy route (RXR)—Refers to pharmacy prescription order segment data elements. See Clause 7.5.
 - (iii) Pharmacy component (RXC)—Refers to pharmacy prescription order segment data elements. See Clause 7.6.
- (h) *Optional pharmacy encoded order segments*
- (i) Pharmacy encoded order (RXE)—This segment may be repeated for a given common order segment. See Clause 7.7.
 - (ii) Pharmacy route (RXR)—Refers to pharmacy encoded order segment data elements. See Clause 7.5.
 - (iii) Pharmacy component (RXC)—Refers to pharmacy encoded order segment data elements. See Clause 7.6.

- (i) *Optional pharmacy dispense segments*
- (i) Pharmacy dispense (RXD)—This segment may be repeated for a given common order segment. See Clause 7.8.
- (ii) Pharmacy route (RXR)—Refers to pharmacy dispense segment data elements. See Clause 7.5.
- (iii) Pharmacy component (RXC)—Refers to pharmacy dispense segment data elements. See Clause 7.6.
- (j) *Optional result segments*
 - (i) Result (OBX)—This segment may be repeated for a given prescription order segment, but its use is optional. See Clause 7.11.

6.4.2 RRD Pharmacy dispense acknowledgment message

See HL7 V2.3.1 Clause 4.8.9.

The following applies:

(a) *Message overview diagram*

Figure 6.4.2 is an overview of the pharmacy dispense acknowledgment message and consists of the segments as detailed.

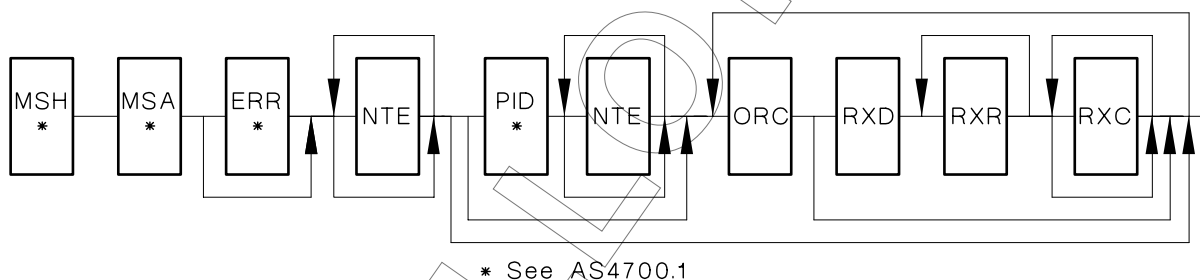


FIGURE 6.4.2 RRD PHARMACY DISPENSE ACKNOWLEDGMENT MESSAGE

- (b) *Function*

The function of this message is to respond to an RDS pharmacy dispense message.
- (c) *Trigger event*

An RRD message is the application acknowledgment to an RDS pharmacy dispense message.
- (d) *Required segments*
 - (i) Message header (MSH).
 - (ii) Message acknowledgment (MSA).
- (e) *Optional acknowledgment related segments*
 - (i) Error (ERR).
- (f) *Returned RDS segments*
 - (i) Patient identification (PID).
 - (ii) Common order (ORC).
 - (iii) Pharmacy dispense (RXD).

- (iv) Pharmacy route (RXR).
- (v) Pharmacy component (RXC).

6.5 Pharmacy prescription give messages

6.5.1 RGV Pharmacy give message

See HL7 V2.3.1 Clause 4.8.11.

The following applies:

(a) *Message overview diagram*

Figure 6.5.1 is an overview of the pharmacy give (RGV) message diagram and consists of the segments as detailed.

(b) *Function*

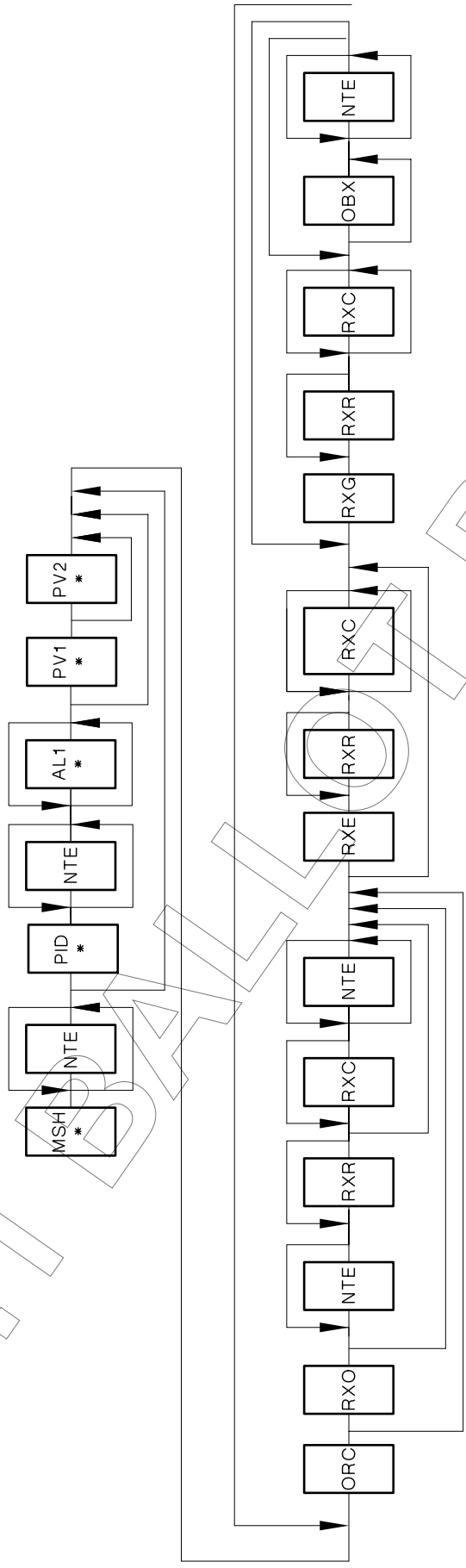
The RDS message's pharmacy dispense segment carries the dispense data for a given issuance of medication, thus it may describe a single dose, an half-day dose, a daily dose, a refill of a prescription, etc. It does not contain the 'give' instructions or scheduling information. When this 'give' (i.e., administration) information needs to be transmitted from the Pharmacy application to another application, it is done with the RGV message.

The RGV message uses the RXG segment to record drug administration instructions. It may carry information about a single scheduled administration on a drug, or it may carry information about multiple administrations of a drug. If the pharmacy (or some other application) needs to create a nonambiguous MAR report where each administration is matched to a particular give date/time instruction, it may use the RGV message as described below.

For each scheduled administration of the medication, the pharmacy issues either a single RGV message or a single RGV message with multiple RXG segments, one for each scheduled administration. The actual administrations (transmitted by one or more RAS messages) are matched against the scheduled ones by recording in each RXA segment the Give Sub-ID of the corresponding RXG segment. If more than one administration needs to be matched (as in the case of recording a change or rate of an IV solution) the administering application issues additional RXA segment(s) (corresponding to the same RXG segment). If no matching is needed, the Give Sub-ID of the RXA segments has the value zero (0).

The common order must have the filler order number and the order control code. The pharmacy encoded order and associated pharmacy components may be present if the receiving application needs any of their data. The RXG carries the scheduled administration data for either a single 'give instruction' (single dose) of medication or for multiple 'give instructions'. The RXG is not a complete record of an order. Use the pharmacy prescription order and pharmacy encoded order segments if a complete order is needed. It is a record from the Pharmacy to the Nursing application (or other) with drug administration instructions.

4.2.1



* See AS4700.1

FIGURE 6.5.1 RGV PHARMACY PRESCRIPTION GIVE MESSAGE

- (c) *Trigger event*
‘Give’ of drugs.
- (d) *Required header segment*
Message header (MSH).
- (e) *Patient related segments*
 - (i) *Required*
Patient identification (PID). See AS 4700.1, Table 6.6, for Australian implementation of patient identification data elements and usage notes. HL7 V2.3.1 specifies the PID as ‘optional’. However, in the context of this Standard it is ‘required’.
 - (ii) *Optional*
 - (A) Allergy information (AL1). See AS 4700.1, Table 6.10, for Australian implementation of patient allergy information segment data elements and usage notes. This segment may be repeated for a given patient identification.
 - (B) Patient visit (PV1). See AS 4700.1, Table 6.7, for Australian implementation of patient visit segment data elements and usage notes.
 - (C) Patient visit—additional information (PV2). See AS 4700.1, Table 6.8, for Australian implementation of patient visit—additional information segment data elements and usage notes. This segment may be repeated for a given patient identification. This segment may be repeated for a given patient visit.
- (f) *Required order segment*
Common order (ORC). See Clause 7.3.
- (g) *Optional prescription order segments*
 - (i) Pharmacy prescription order (RXO)—This segment may be repeated for a given common order segment. See Clause 7.4.
 - (ii) Pharmacy route (RXR)—Refers to pharmacy prescription order segment data elements. See Clause 7.5.
 - (iii) Pharmacy component (RXC)—Refers to pharmacy prescription order segment data elements. See Clause 7.6.
- (h) *Optional pharmacy encoded order segments*
 - (i) Pharmacy encoded order (RXE)—This segment may be repeated for a given common order segment. See Clause 7.7.
 - (ii) Pharmacy route (RXR)—Refers to pharmacy encoded order segment data elements. See Clause 7.5.
 - (iii) Pharmacy component (RXC)—Refers to pharmacy encoded order segment data elements. See Clause 7.6.
- (i) *Optional pharmacy give segments*
 - (i) Pharmacy give (RXG)—This segment may be repeated for a given common order segment. See Clause 7.9.
 - (ii) Pharmacy route (RXR)—Refers to pharmacy give segment data elements. See Clause 7.5.

- (iii) Pharmacy component (RXC)—Refers to pharmacy give segment data elements. See Clause 7.6.
- (j) *Optional observation/result segments*
 - (i) Observation/result (OBX)—This segment may be repeated for a given prescription order segment, but its use is optional. See Clause 7.11.

6.5.2 RRG Pharmacy give acknowledgment message

See HL7 V2.3.1 Clause 4.8.11.

The following applies:

(a) *Message overview diagram*

Figure 6.5.2 is an overview of the pharmacy give acknowledgment message and consists of the segments as detailed.

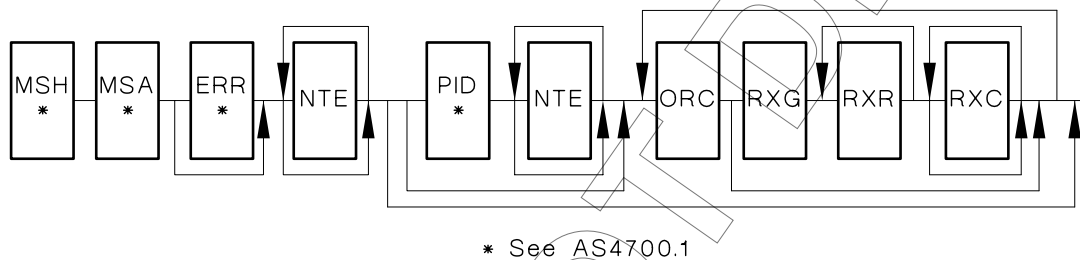


FIGURE 6.5.2 RRG PHARMACY GIVE ACKNOWLEDGMENT MESSAGE

(b) *Function*

The function of this message is to respond to an RGV pharmacy give message.

(c) *Trigger event*

An RRG message is the application acknowledgment to an RGV pharmacy give message.

(d) *Required segments*

- (i) Message header (MSH).
- (ii) Message acknowledgment (MSA).

(e) *Optional acknowledgment related segment*

- (i) Error (ERR).

(f) *Returned RGV segments*

- (i) Patient identification (PID).
- (ii) Common order (ORC).
- (iii) Pharmacy give (RXG).
- (iv) Pharmacy route (RXR).
- (v) Pharmacy component (RXC).

6.6 Pharmacy administration messages

6.6.1 RAS Pharmacy administration message

See HL7 V2.3.1 Clause 4.8.13.

The following applies:

(a) *Message overview diagram*

Figure 6.6.1 is an overview of the pharmacy administration message diagram (RAS) and consists of the segments as detailed.

4.2.1 BALLOT DRAFT

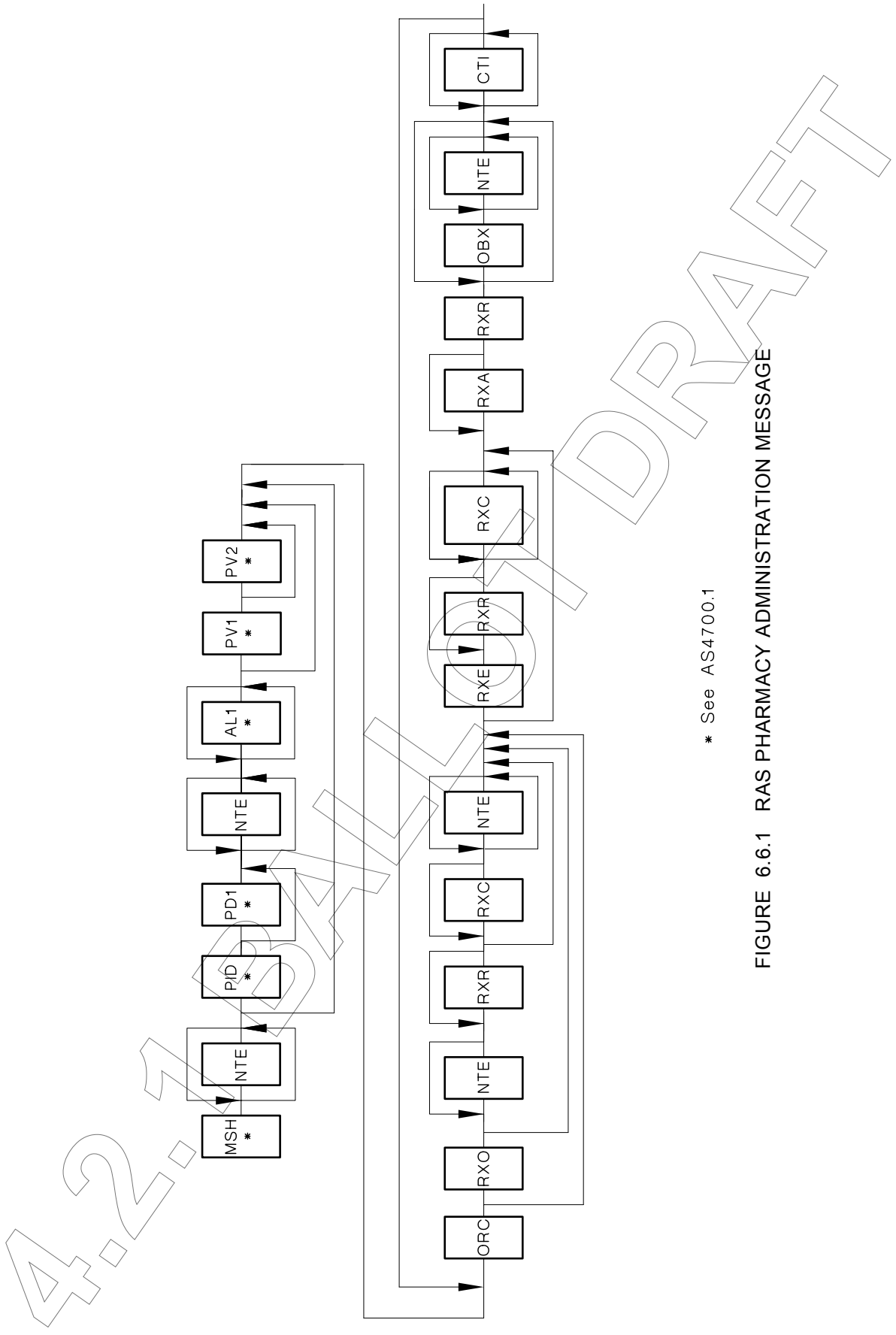


FIGURE 6.6.1 RAS PHARMACY ADMINISTRATION MESSAGE

* See AS4700.1

(b) *Function*

The RAS message may be created by the administering application (e.g. nursing application) for each instance of administration for an existing order.

(c) *Trigger event*

Administration of drugs.

(d) *Required header segment.*

Message header (MSH).

(e) *Patient related segments*

(i) *Required*

Patient identification (PID). See AS 4700.1, Table 6.6, for Australian implementation of patient identification data elements and usage notes. This segment is not repeated.

(ii) *Optional*

(A) Patient additional demographic information (PD1) See AS 4700.1, Table 6.13, for Australian implementation of patient additional demographic information segment data elements and usage notes.

(B) Allergy information (AL1)—See AS 4700.1, Table 6.10, for Australian implementation of patient allergy information segment data elements and usage notes. This segment may be repeated for a given patient identification.

(C) Patient visit (PV1)—See AS 4700.1, Table 6.7, for Australian implementation of patient visit segment data elements and usage notes.

(D) Patient visit—additional information (PV2)—See AS 4700.1, Table 6.8, for Australian implementation of patient visit—additional information segment data elements and usage notes. This segment may be repeated for a given patient identification. This segment may be repeated for a given patient visit.

(f) *Required order segment*

Common order (ORC). See Clause 7.3.

(g) *Optional prescription order segments*

(i) Pharmacy prescription order (RXO)—This segment may be repeated for a given common order segment. See Clause 7.4.

(ii) Pharmacy route (RXR)—Refers to pharmacy prescription order segment data elements. See Clause 7.5.

(iii) Pharmacy component (RXC)—Refers to pharmacy prescription order segment data elements. See Clause 7.6.

(h) *Optional pharmacy encoded order segments*

(i) Pharmacy encoded order (RXE)—This segment may be repeated for a given common order segment. See Clause 7.7.

(ii) Pharmacy route (RXR)—Refers to pharmacy encoded order segment data elements. See Clause 7.5.

(iii) Pharmacy component (RXC)—Refers to pharmacy encoded order segment data elements. See Clause 7.6.

- (i) *Optional pharmacy administration segments*
 - (i) Pharmacy administration (RXA)—This segment may be repeated for a given common order segment. See Clause 7.10.
 - (ii) Pharmacy route (RXR)—Refers to pharmacy give segment data elements. See Clause 7.5.
- (j) *Optional observation/result segments*
 - (i) Observation/result (OBX)—This segment may be repeated for a given prescription order segment, but its use is optional. See Clause 7.11.
- (k) *Optional—Clinical trial identification (CTI).*

6.6.2 RRA Pharmacy administration acknowledgment message

The following applies:

(a) Message overview diagram

Figure 6.6.2 is an overview of the pharmacy administration acknowledgment message and consists of the segments as detailed.

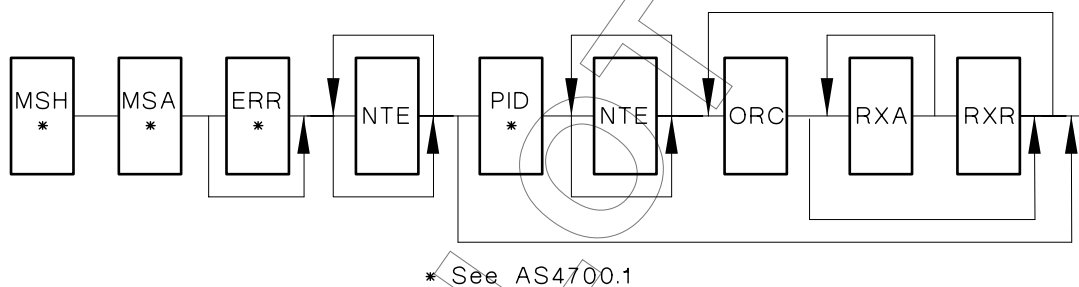


FIGURE 6.6.2 RRA PHARMACY ADMINISTRATION ACKNOWLEDGMENT MESSAGE

- (b) *Function*

The function of this message is to respond to an RAS pharmacy administration message.
- (c) *Trigger event*

An RRA message is the application acknowledgment to an RAS pharmacy administration message.
- (d) *Required segments*
 - (i) Message header (MSH).
 - (ii) Message acknowledgment (MSA).
- (e) *Optional acknowledgment related segment*
 - (i) Error (ERR).
- (f) *Returned RGV segments*
 - (i) Patient identification (PID).
 - (ii) Common order (ORC).
 - (iii) Pharmacy administration (RXA).
 - (iv) Pharmacy route (RXR).

7 MESSAGE SEGMENTS

7.1 General

All HL7 V2.3.1 protocol message segment definitions, types and descriptions shall be followed. The associated data element definition, formats and usage shall be followed unless otherwise indicated. The following should be noted:

- (a) *Sequence (Seq)*

The sequence number of the data element within the segment.
- (b) *Length (Len)*

The maximum number of characters that one occurrence of the data element may occupy.
- (c) *Data type (DT)*

Applies to the restrictions on the contents of the data element. (See HL7 V2.3.1, Clause 2.8.)
- (d) *Optionality*

One of the following applies for each data element:

 - (i) *Required (R)*

Data element should be present for every transmission.
 - (ii) *Conditional (C)*

Data element should be present for specified trigger events.
 - (iii) *Optional (O)*

Data element need not be present for any transmission.
 - (iv) *Backward compatibility (B/X)*

This means that the data element superseded. It appears for backward compatibility only.
- (e) *Repetition (Rp/#)*

Indicates whether the data element may repeat. A 'Y' indicates that repetition is indefinite or site determined. An integer indicates repetition to the number of times specified in the integer.
- (f) *Table (Tbl#)*

The number of the HL7 V2.3.1 table that defines the values for the data element. These values should be followed unless otherwise indicated.
- (g) *ID number (Item#)*

The small integer that uniquely identifies the data element in the HL7 V2.3.1 protocol.
- (h) *Element name*

The descriptive name for the data element.
- (i) *Usage notes*

Usage notes are provided for data elements to assist health institutions and health information technology vendors with interpretation of data elements, their use and

implementation in the Australian and New Zealand health information technology environment.

7.2 Provider data (PRD) segment

This Standard no longer permits the use of the PRD segment for exchange of information on drug prescription.

Ordering facility details are now recorded in the new data elements ORC-21 to ORC-23, with the prescriber address in ORC-22.

Alert: Variance to AS/NZS 4700.3:1999

7.3 Common order (ORC) segment

The following applies:

(a) *Function*

The ORC segment is used to transmit data elements that are common to all orders (all types of services that are requested). It is required in both the pharmacy prescription order (ORM) and pharmacy prescription order acknowledgment (ORR) messages.

(b) *Data elements and usage notes*

See Table 7.3.

4.2.1

BALLOT

**TABLE 7.3
COMMON ORDER (ORC) SEGMENT**

Seq	Len	DT	Opt	Rp#	Tbl#	Item#	Element name	Usage notes
1	2	ID	R		0119	00215	Order control	<p>Equivalent to event type, this data element indicates the transaction type</p> <p>For a new order use 'NW', to cancel an order use 'CA', to confirm a cancelled order use 'OC', etc.</p> <p>To indicate that the order provides information on previous results to facilitate, for example, the interpretation of that order's results, use 'RE'</p> <p>To indicate reason for request denial, use 'UA' and refer to ORC-16-Order control code reason to identify allergy, or description and severity of drug interaction</p> <p>Alert: 'UA' replaces previous recommended use of 'DF'</p>
2	22	EI	C			00216	Placer order number	
3	22	EI	C			00217	Filler order number	
4	22	EI	O			00218	Placer group number	Alert: Hospital facility number should not be used here. Use MSH-4 or MSH-6
5	2	ID	O		0038	00219	Order status	
6	1	ID	O		0121	00220	Response flag	
7	200	TQ	O			00221	Quantity/timing	
8	200	CM	O			00222	Parent	
9	26	TS	O			00223	Date/time of transaction	<p>Actual date/time that the order was entered into the ordering application</p> <p>NOTE: Refer also ORC-15-order effective date/time</p>
10	120	XCN	O	Y		00224	Entered by	
11	120	XCN	O	Y		00225	Verified by	Other authorized provider

(continued)

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TABLE 7.3 (continued)

Seq	Len	DT	Opt	Rp#	Tbl#	Item#	Element name	Usage notes
12	120	XCN	O	Y		00226	Ordering provider	Use Medicare PBS prescriber number for ID component if available for PBS and RPBS scripts <ID Number> = Prescriber number <Family Name>= Prescriber surname <Given Name>= Prescriber First Name <Middle Initial>= Prescriber second initial <Prefix>=Prescriber Title <Identifier type code>= PRES <Assigning Authority>=AUSHIC
13	80	PL	O			00227	Enterer's location	Use ORC-21 to ORC-24 for ordering provider location details
14	40	XTN	O	Y/2		00228	Call-back phone number	Telephone number to call for clarification of a request or other information regarding the order This can include extension number and/or beeper number when applicable
15	26	TS	O			00229	Order effective date/time	Actual date/time that the order was signed or certified by the prescriber
16	200	CE	O			00230	Order control code reason	
17	60	CE	O			00231	Entering organization	
18	60	CE	O			00232	Entering device	
19	120	XCN	O	Y		00233	Action by	
20	40	CE	O		0339	01310	Advanced beneficiary notice code	New data element in HL7 V2.3.1
21	60	XON	O	Y		01311	Ordering facility name	New data element in HL7 V2.3.1
22	106	XAD	O	Y		01312	Ordering facility address	New data element in HL7 V2.3.1
23	48	XTN	O	Y		01313	Ordering facility phone number	New data element in HL7 V2.3.1
24	106	XAD	O	Y		01314	Ordering provider address	New data element in HL7 V2.3.1 Not used Use ORC-22 for the address of the prescriber

7.4 Pharmacy prescription order (RXO) segment

The following applies:

(a) *Function*

This is the 'master' pharmacy order segment. It contains order data not specific to components or additives. It can be used for any type of pharmacy order, including admitted patient (unit dose and compound unit dose), non-admitted patient, IVS, and hyper alimentation IVS (nutritional IVS). In addition to the pharmaceutical information, this segment contains additional data such as provider and text comments. A quantity/timing field is not needed in the pharmacy prescription order segment. The common order segment contains the requested ORC-7-quantity/timing of the original order that does not change as the order is encoded, dispensed, or administered.

(b) *Data elements and usage notes*

See Table 7.4.

TABLE 7.4
PHARMACY PRESCRIPTION ORDER (RXO) SEGMENT

Seq	Len	DT	Opt	Rp#	Tbl#	Item#	Element name	Usage notes
1	100	CE	R			00292	Requested give code	<identifier> = Brand name <alternate identifier> = Generic name (Australian approved) European Article Number (EAN) single reference number to be used NOTE: RXO-1 may need qualification by RXO-6 for extemporaneous products. Optionality changed to "R" Alert: Variance to HL7
2	20	NM	R			00293	Requested give amount—Minimum	Optionality changed to "R" Alert: Variance to HL7
3	20	NM	O			00294	Requested give amount—Maximum	
4	60	CE	R			00295	Requested give units	To be specified Use Broadsheet No. 29 Optionality changed to "R" Alert: Variance to HL7
5	60	CE	O			00296	Requested dosage form	<identifier> = manufacturer's dose form <alternate identifier> = PBS (not completely defined)

(continued)

TABLE 7.4 (continued)

Seq	Len	DT	Opt	Rp#	Tbl#	Item#	Element name	Usage notes
6	200	CE	O	Y		00297	Provider's pharmacy instructions	The transmission of the prescription as free text is not allowed Alert: Variance to HL7 Use for additional instructions for the pharmacist. For example: Reg 24 Minimum dispensing interval Place a <null> in the first component and <free text instructions> in the second.
7	200	CE	O	Y		00298	Provider's administration instructions	
8	200	CM	O			00299	Deliver-to location	
9	1	ID	R		0161	00300	Allow substitutions	Default is 'G' Do not leave blank Optionality changed to "R" Alert: Variance to HL7
10	100	CE	O			00301	Requested dispense code	
11	20	NM	O			00302	Requested dispense amount	
12	60	CE	O			00303	Requested dispense units	
13	3	NM	O			00304	Number of refills	Repeats = refills
14	60	XCN	C	Y		00305	Ordering provider's DEA number	Use State or Territory Warrant Number or Permit Number
15	60	XCN	C	Y		00306	Pharmacist verifier ID	<ID number> = State Registration Number <assigning authority> = state of issue
16	1	ID	O		0136	00307	Needs human review	Y = Needs human review N = Override need for human review – specific reason for override must be documented in RXO-6 <null> = unspecified Alert: Australian definition of N is at variance to HL7, but is safer than HL7 usage.
17	20	ST	C			00308	Requested give per (time unit)	

(continued)

TABLE 7.4 (continued)

Seq	Len	DT	Opt	Rp#	Tbl#	Item#	Element name	Usage notes
18	20	NM	O			01121	Requested give strength	
19	60	CE	O			01122	Requested give strength units	See RXO-4
20	200	CE	O	Y		01123	Indication	
21	6	ST	O			01218	Requested give rate amount	
22	60	CE	O			01219	Requested give rate units	See RXO-4
23	10	CQ	O			00329	Total daily dose	New data element in HL7 V2.3.1

7.5 Pharmacy route (RXR) segment

The following applies:

(a) *Function*

The pharmacy route segment contains the alternative combination of route, site, administration device, and administration method that are prescribed. The pharmacy and/or nursing staff has a choice between the routes based on either their professional judgment or administration instructions provided by the physician.

(b) *Data elements and usage notes*

See Table 7.5.

TABLE 7.5
PHARMACY ROUTE (RXR) SEGMENT

Seq	Len	DT	Opt	Rp#	Tbl#	Item#	Element name	Usage notes
1	60	CE	R		0162	00309	Route	
2	60	CE	O		0163	00310	Site	
3	60	CE	O		0164	00311	Administration device	
4	60	CE	O		0165	00312	Administration method	Add two values to HL7 Table 0165: SW = 'Swallow' or 'Take' Error: PT = 'Paint' not 'Pain' Alert: Variance to HL7
5	60	CE	O			01315	Routing instruction	New data element in HL7 V2.3.1

7.6 Pharmacy component (RXC) segment

The following applies:

(a) *Function*

If the drug ordered with the pharmacy prescription order segment is a compound drug or an IV solution, and there is not a coded value for the Universal Service ID, which specifies the components (base and all additives), then the components (the base and additives) are specified by two or more pharmacy component segments. The policy of

the Pharmacy application on substitutions at the pharmacy component level is identical to that for the pharmacy prescription order level.

(b) *Data elements and usage notes*

See Table 7.6.

TABLE 7.6
PHARMACY COMPONENT (RXC) SEGMENT

Seq	Len	DT	Opt	Rp#	Tbl#	Item#	Element name	Usage notes
1	1	ID	R		0166	00313	RX component type	
2	100	CE	R			00314	Component code	See RXO-1
3	20	NM	R			00315	Component amount	
4	60	CE	R			00316	Component units	See RXO-4
5	20	NM	O			01124	Component strength	
6	60	CE	O			01125	Component strength units	See RXO-4

7.7 Pharmacy encoded order (RXE) segment

The following applies:

(a) *Function*

The pharmacy encoded order segment details the pharmacy application's encoding of the order. It also contains several pharmacy-specific order status fields, such as RXE-16—*number of refills remaining*, RXE-17—*number of refills/doses dispensed*, RXE-18—*date/time of most recent refill/dose*, and RXE-19—*total daily dose*.

ORC-7—*quantity/timing* has a different meaning from RXE-1—*quantity/timing* and RXG-3—*quantity/timing*. The pharmacy department has the 'authority' (and/or necessity) to schedule dispense/give events. Hence, the pharmacy department has the responsibility to encode this scheduling information in RXE-1—*quantity/timing* and RXG-3—*quantity/timing*. ORC-7—*quantity/timing* does not change: it always specifies the requested give/dispense schedule of the original order.

(b) *Data elements and usage notes*

See Table 7.7.

TABLE 7.7
PHARMACY ENCODED ORDER (RXE) SEGMENT

Seq	Len	DT	Opt	Rp#	Tbl#	Item#	Element name	Usage notes
1	200	TQ	R			00221	Quantity/timing	
2	100	CE	R		0292	00317	Give code	See RXO-1
3	20	NM	R			00318	Give amount— Minimum	
4	20	NM	O			00319	Give amount— Maximum	
5	60	CE	R			00320	Give units	See RXO-4
6	60	CE	O			00321	Give dosage form	
7	200	CE	O	Y		00298	Provider's administration instructions	
8	200	CM	C			00299	Deliver-to location	
9	1	ID	O		0167	00322	Substitution status	
10	20	NM	C			00323	Dispense amount	
11	60	CE	C			00324	Dispense units	
12	3	NM	O			00304	Number of refills	Repeats = refills
13	60	XCN	C	Y		00305	Ordering provider's DEA number	Use State or Territory Warrant Number or Permit Number
14	60	XCN	O	Y		00306	Pharmacist verifier ID	
15	20	ST	R			00325	Prescription number	Unique identifier for the pharmacy and patient Optionality changed to "R" Alert: Variance to HL7
16	20	NM	C			00326	Number of refills remaining	
17	20	NM	C			00327	Number of refills/doses dispensed	
18	26	TS	C			00328	D/T of most recent refill or dose dispensed	
19	10	CQ	C			00329	Total daily dose	
20	1	ID	O		0136	00307	Needs human review	See RXO-16 Refer to RXE-21 – Pharmacy special dispensing instructions HL7 V2.3.1 Clause 4.8.7.20 reference to Table 0136 should refer to RXE-21 not RXE-22 Alert: Variance to HL7

(continued)

TABLE 7.7 (continued)

Seq	Len	DT	Opt	Rp#	Tbl#	Item#	Element name	Usage notes
21	200	CE	O	Y		00330	Pharmacy special dispensing instructions	Special case: If RXE-20 – Needs human review = Y (Yes), use this data element to set the daily limit not to be exceeded
22	20	ST	C			00331	Give per (time unit)	
23	6	ST	O			00332	Give rate amount	
24	60	CE	O			00333	Give rate units	See RXO-4
25	20	NM	O			01126	Give strength	
26	60	CE	O			01127	Give strength units	See RXO-4
27	200	CE	O	Y		01128	Give indication	
28	20	NM	O			01220	Dispense package size	
29	60	CE	O			01221	Dispense package size units	
30	2	ID	O		0321	01222	Dispense package method	<dispense method (ID)>= TR (to be dispensed from pharmacy stock) <dispense method (ID)>= F (to be dispensed from ward imprest supply) <dispense method (ID)>= AD (to be dispensed from ward automatic dispensing machines)

7.8 Pharmacy dispense (RXD) segment

The following applies:

(a) *Function*

The RXD segment carries the dispense data for a given supply of therapeutic product.

(b) *Data elements and usage notes*

See Table 7.8.

TABLE 7.8
PHARMACY DISPENSE (RXD) SEGMENT

Seq	Len	DT	Opt	Rp#	Tbl#	Item#	Element name	Usage notes
1	4	NM	R			00334	Dispense sub-ID counter	
2	100	CE	R		0292	00335	Dispense/give code	
3	26	TS	R			00336	Date/time dispensed	
4	20	NM	R			00337	Actual dispense amount	
5	60	CE	C			00338	Actual dispense units	See RXO-4
6	60	CE	O			00339	Actual dosage form	
7	20	ST	C			00325	Prescription number	
8	20	NM	C			00326	Number of refills remaining	
9	200	ST	C	Y		00340	Dispense notes	
10	200	XCN	O	Y		00341	Dispensing provider	See RXO-15
11	1	ID	O		0167	00322	Substitution status	
12	10	CQ	O			00329	Total daily dose	
13	200	CM	C			01303	Dispense-to location	
14	1	ID	O		0136	00307	Needs human review	See RXO-16
15	200	CE	O	Y		00330	Pharmacy special dispensing instructions	
16	20	NM	O			01132	Actual strength	
17	60	CE	O			01133	Actual strength unit	
18	20	ST	O	Y		01129	Substance lot number	Batch number
19	26	TS	O	Y		01130	Substance expiration date	
20	60	CE	O	Y	0227	01131	Substance manufacturer name	(Seek TGA advice)
21	200	CE	O	Y		01123	Indication	Use ICD-10-AM <identifier> = ICD-10-AM code <text> = clinician's description <name of coding system> = ICD-10-AM
22	20	NM	O			01220	Dispense package size	
23	60	CE	O			01221	Dispense package size unit	
24	2	ID	O		0321	01222	Dispense package method	<dispense method (ID)>= TR (to be dispensed from pharmacy stock) <dispense method (ID)>= F (to be dispensed from ward imprest supply) <dispense method (ID)>= AD (to be dispensed from ward automatic dispensing machines)

7.9 Pharmacy give and acknowledgment message (RXG) segment

The following applies:

(a) *Function*

The RGV message uses the RXG segment to record therapeutic product administration instructions.

(b) *Data elements and usage notes*

See Table 7.9.

TABLE 7.9
PHARMACY GIVE AND ACKNOWLEDGMENT MESSAGE (RXG) SEGMENT

Seq	Len	DT	Opt	Rp#	Tbl#	Item#	Element name	Usage notes
1	4	NM	R			00342	Give sub-ID counter	
2	4	NM	O			00334	Dispense sub-ID	
3	200	TQ	R			00221	Quantity/timing	
4	100	CE	R		0292	00317	Give code	See RXO-1
5	20	NM	R			00318	Give amount— Minimum	
6	20	NM	O			00319	Give amount— Maximum	
7	60	CE	R			00320	Give units	See RXO-4
8	60	CE	O			00321	Give dosage form	
9	200	CE	O	Y		00351	Administration notes	
10	1	ID	O		0167	00322	Substitution status	
11	200	CM	O			01303	Dispense-to location	
12	1	ID	O		0136	00307	Needs human review	See RXO-16
13	200	CE	O	Y		00343	Pharmacy special administration instructions	
14	20	ST	C			00331	Give per (time unit)	
15	6	ST	O			00332	Give rate amount	
16	60	CE	O			00333	Give rate units	See RXO-4
17	20	NM	O			01126	Give strength	
18	60	CE	O			01127	Give strength units	See RXO-4
19	20	ST	O	Y		01129	Substance lot number	
20	26	TS	O	Y		01130	Substance expiration date	
21	60	CE	O	Y		01131	Substance manufacturer name	(Refer TGA)
22	200	CE	O	Y		01123	Indication	See RXD-21

7.10 Pharmacy administration and acknowledgment message (RXA) segment

The following applies:

(a) *Function*

The RAS message may be created by the administering application, e.g. nursing application, for each instance of administration for an existing order. If the administering application wants to report several administrations of medication for a given order with a single RAS message, each instance is reported by a separate (repeating) RXA segment. In addition, the administration records for a group of orders may be sent in a single message by creating repeating groups of segments at the common order level.

In the most common case, the RAS messages would be sent from a nursing application to the pharmacy application (or to the ordering application or another clinical application), which could use the data to generate the medication administration reports. Multiple RXA segments, each corresponding to a separate administration instance for a given order, may be sent with a single common order.

(b) *Data elements and usage notes*

See Table 7.10.

TABLE 7.10
PHARMACY ADMINISTRATION AND
ACKNOWLEDGMENT MESSAGE (RXA) SEGMENT

Seq	Len	DT	Opt	Rp#	Tbl#	Item#	Element name	Usage notes
1	4	NM	R			00342	Give sub-ID counter	
2	4	NM	R			00344	Administration sub-ID counter	
3	26	TS	R			00345	Date/time start of administration	
4	26	TS	R			00346	Date/time end of administration	
5	100	CE	R		0292	00347	Administered code	See RXO-1
6	20	NM	R			00348	Administered amount	
7	60	CE	C			00349	Administered units	See RXO-4
8	60	CE	O			00350	Administered dosage form	
9	200	CE	O	Y		00351	Administration notes	
10	200	XCN	O	Y		00352	Administering provider	
11	200	CM	C			00353	Administered-at location	
12	20	ST	C			00354	Administered per (time unit)	
13	20	NM	O			01134	Administered strength	
14	60	CE	O			01135	Administered strength units	See RXO-4

(continued)

TABLE 7.10 (continued)

Seq	Len	DT	Opt	Rp#	Tbl#	Item#	Element name	Usage notes
15	20	ST	O	Y		01129	Substance lot number	
16	26	TS	O	Y		01130	Substance expiration date	
17	60	CE	O	Y	0227	01131	Substance manufacturer name	(Refer TGA)
18	200	CE	O	Y		01136	Substance refusal reason	
19	200	CE	O	Y		01123	Indication	See RXD-21
20	2	ID	O		0322	01223	Completion status	
21	2	ID	O		0323	01224	Action code-RXA	
22	26	TS	O			01225	System entry date/time	

7.11 Observation/Result (OBX) segment

The following applies:

(a) *Function*

This segment is used to transmit observation information that needs to be sent with the prescription, e.g. body height and weight, body surface area, or pathology data such as creatinine, FBCs, liver enzymes.

(b) *Data elements and usage notes*

See Table 7.11.

TABLE 7.11
OBSERVATION/RESULT (OBX) SEGMENT

Seq	Len	DT	Opt	Rp#	Tbl#	Item#	Element name	Usage notes
1	10	SI	O			00569	Set ID	
2	2	ID	C		0125	00570	Value type	<p>For numeric results, use 'NM' or 'SN'</p> <p>For atomic text results, use 'ST' or 'TX'</p> <p>For full text reports, use 'FT'</p> <p>The last OBX segment may contain the report in full text, with value types of 'ED' for TIFF, FAX, JPEG, MSWORD, etc. or 'FT' for HTML, RTF, and other ASCII formats. The text should start with the 'no-wrap' command ('\nf'), HL7 delimiter escape sequences apply and the 'begin new output line' command ('\br') replaces carriage return and/or line feed</p>

(continued)

TABLE 7.11 (continued)

Seq	Len	DT	Opt	Rp#	Tbl#	Item#	Element name	Usage notes
3	590	CE	R			00571	Observation identifier	
4	20	ST	C			00572	Observation sub-ID	
5	655 36	*	C	Y		00573	Observation value	The length of the observation value field is variable, depending upon value type The data element may repeat for multipart, single answer results with appropriate data types, e.g. CE, TX and FT data types
6	60	CE	O			00574	Units	Refer to ISO 2955 Use the SI Broadsheet Number 29 from The Royal College of Pathologists of Australasia
7	10	ST	O			00575	References range	For less than specified ratio, e.g. 1 in 32<1:32
8	5	ID	O	Y/5	0078	00576	Abnormal flags	HL7 V2.3.1 supports only two levels Most Australian laboratories support three levels There is the need to add: LLL Below lower extreme panic point HHH Above upper extreme panic point No changes to existing codes Alert: Variance to HL7
9	5	NM	O			00577	Probability	
10	2	ID	O	Y	0080	00578	Nature of abnormal test	
11	1	ID	R		0085	00579	Observe result status	
12	26	TS	O			00580	Date last obs normal values	
13	20	ST	O			00581	User defined access checks	
14	26	TS	O			00582	Date/time of the observation	
15	60	CE	O			00583	Producer's ID	
16	80	XCN	O			00584	Responsible observer	
17	60	CE	O	Y		00936	Observation method	

*** END OF DRAFT ***

PREPARATION OF AUSTRALIAN STANDARDS

Australian Standards are prepared by a consensus process involving representatives nominated by organizations drawn from all major interests associated with the subject. Australian Standards may be derived from existing industry Standards, from established international Standards and practices or may be developed within a Standards Australia technical committee.

During the development process, Australian Standards are made available in draft form at all sales offices and through affiliated overseas bodies in order that all interests concerned with the application of a proposed Standard are given the opportunity to submit views on the requirements to be included.

The following interests are represented on the committee responsible for this draft Australian Standard:

Australian and New Zealand College of Anaesthetists
Australian Association of Pathology Practices
Australian Health Insurance Association
Australian Healthcare Association
Australian Institute of Health and Welfare
Australian Medical Association
Australian Private Hospitals Association
Central Queensland University
Commonwealth Department of Health and Aged Care
Consumers Federation of Australia
Consumers Health Forum of Australia
Department of Human Services, South Australia
Department of Human Services, Victoria
Health Department of Western Australia
Health Informatics Society of Australia
Health Information Management Association of Australia
Health Insurance Commission
Institution of Engineers Australia
Medical Software Industry Association
National Health Information Management Group
New Zealand Health Information Foundation
New South Wales Health Department
Queensland Health
Royal Australasian College of Radiologists
Royal Australian and New Zealand College of Obstetricians and Gynaecologists
Royal Australian College of General Practitioners
Royal Australian College of Medical Administrators
Royal College of Nursing, Australia

Additional interests:

Association of Pharmacy Registering Authorities
Australian Dental Association
Health informatics consultants
Information technology consultants
Information technology software vendors
Pharmaceutical Society of Australia
Pharmacy Guild of Australia
Pharmacy system vendors
Practice management system vendors
Private and public hospitals

DRAFT FOR COMMENT

STANDARDS AUSTRALIA/STANDARDS NEW ZEALAND

Committee IT-014—Health Informatics

Subcommittee IT-014-06-04—Prescription Messages

DRAFT

Australian/New Zealand Standard

Implementation of Health Level Seven (HL7) Version 2.3.1

Part 3: Electronic messages for exchange of information on drug prescription

(Revision of AS/NZS 4700.3:1999)

(To be AS/NZS 4700.3:XXXX)

This draft Standard proposes guidance for the exchange of information on drug prescription using the HL7 Version 2.3.1 protocol, for communication between prescribers, dispensers and their healthcare trading partners.

Comment on the draft is invited from persons and organizations concerned with this subject. It would be appreciated if those submitting comment would follow the guidelines given on the inside front cover.

Attention is drawn to the fact that this document is a draft Joint Standard only and is liable to alteration in the light of comment received. It is not to be regarded as a Joint Australian/New Zealand Standard until finally issued as such by Standards Australia and Standards New Zealand.