

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



AS/NZS 4700.3:2002

This Joint Australian/New Zealand Standard was prepared by Joint Technical Committee IT-014, Health Informatics. It was approved on behalf of the Council of Standards Australia on 26 June 2002 and on behalf of the Council of Standards New Zealand on 1 October 2002. This Standard was published on 25 October 2002.

The following are represented on Committee IT-014:

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Australian Medical Association
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Pharmaceutical Society of Australia
Pharmacy Guild of Australia
Pharmacy system vendors
Practice management system vendors
Private hospitals
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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

Originated as AS/NZS 4700.3:1999.
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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 incorporates Amendment No. 1 (June 2006). The changes required by the Amendment are indicated in the text by a marginal bar and amendment number against the clause, note, table, figure or part thereof affected.

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 1999 edition will remain available for 12 months after the publication of this revision.

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This Standard was reviewed and amended in 2006 to achieve compatibility with AS 4700.3—2005 in compatibility of code sets and medication list functionality.

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.

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Standards Australia wishes to thank the Department of Health and Ageing for their continued financial support in helping us to achieve our aims.

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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

2.1 General

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.

2.2 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.

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

AS ISO

1000 The international system of units (SI) and its application

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

HL7 V2.4 Health Level Seven Standard Version 2.4: Health Level Seven Inc., Ann Arbor, 2000

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

TGAAAN TGA, Approved terminology for medicines, July 1999

<http://www.tga.gov.au/docs/pdf/aan/aan.pdf>

(Read in conjunction with any amendments published by TGA including 6 March 2001.)

Amendments to TGA approved terminology for medicines, 6 March 2001

<http://www.tga.gov.au/docs/pdf/aanamend.pdf>

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

4700.2 Part 2: Pathology orders and results

AS/NZS

4700 Implementation of Health Level Seven (HL7) Version 2.3

4700.3 Part 3: Electronic messages for exchange of information on drug prescription
(1999 edition)

APAC (Australian Pharmaceutical Advisory Committee)

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.

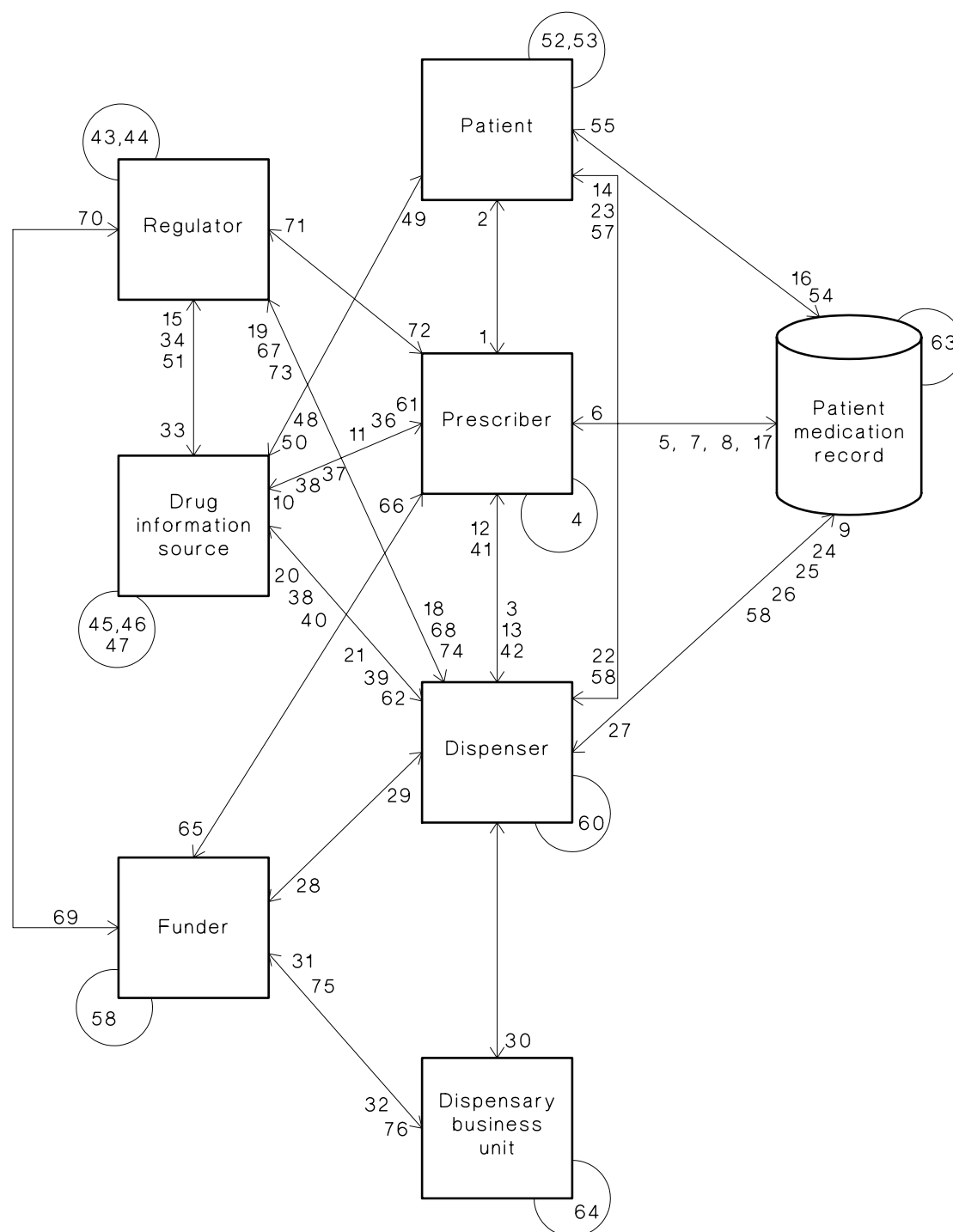


FIGURE 5.2 INTERCHANGE DIAGRAM

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
8	Prescriber sends additional instructions about overall medication management (not directly related to a single prescription) to the patient medication record Trigger: The prescriber modifies the patient medication record Response: Simple acknowledgment	F09	See also interchange 24 Example: Add clinical notes, or supplementary information

(continued)

TABLE 5.3 *(continued)*

Interchange	Description	Functional message	Notes and examples
9	Dispenser sends encoded prescription to patient medication record Trigger: Dispenser processing of prescription Response: Simple acknowledgment	F19	May contain some information as Interchange 3, but often contains additional/amended information 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
10	Prescriber queries drug information source Trigger: Prescriber need Response: Interchange 11	F15	Currently would be typically done by reference to electronic or paper-based drug reference or telephone call for information Example: Prescriber contacts hospital drug information service regarding a particular drug
11	Drug information source provides drug information to prescriber Trigger: Interchange 10 Response: Simple acknowledgment	F15	Example: Drug manufacturer updates product information
12	Dispenser queries the prescriber about the prescription Trigger: Dispenser need Response: Interchange 13	F16	Dispenser needs to change drug for some reason, such as to clarify dose Example: A pharmacist seeks to change the dose schedule to better suit patient
13	Prescriber clarifies the prescription to the dispenser Trigger: Interchange 12 Response: Simple acknowledgment	F16	Would probably be interactive if further data is needed beyond the standard electronic request
14	Dispenser sends administration information to the patient's agent or patient Trigger: Patient need Response: Simple acknowledgment	F19	Example: Instructions to the nurse that the dose is to be administered
15	Drug information source advises regulator about adverse drug reaction Trigger: Information received Response: Simple acknowledgment	F12	Example: Drug company reports to the TGA that certain adverse effects have been reported
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

(continued)

TABLE 5.3 *(continued)*

Interchange	Description	Functional message	Notes and examples
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
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

(continued)

TABLE 5.3 (continued)

Interchange	Description	Functional message	Notes and examples
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
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.

(continued)

TABLE 5.3 (continued)

Interchange	Description	Functional message	Notes and examples
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
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

(continued)

TABLE 5.3 *(continued)*

Interchange	Description	Functional message	Notes and examples
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
46	Drug information source requests information from another drug information source about— (a) adverse drug reaction Trigger: User need Response: Interchange 47 (b) a matter other than adverse drug reaction Trigger: User need Response: Interchange 47	F12	Example: Sponsor may query ADRAC about a suspected adverse drug reaction report Example: Clinical pharmacist may request information from Medline to answer a query of a prescriber

(continued)

TABLE 5.3 (continued)

Interchange	Description	Functional message	Notes and examples
47	Drug information source provides information to requesting drug information source about — (a) adverse drug reaction Trigger: Interchange 46 Response: Simple acknowledgment (b) a matter other than adverse drug reaction Trigger: Interchange 46 Response: Simple acknowledgment	F12	
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
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

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