

Australian Standard<sup>®</sup>

**Implementation of Health Level Seven  
(HL7) Version 2.4**

**STANDARDS**  
Australia



This Australian Standard® was prepared by Committee IT-014, Health Informatics. It was approved on behalf of the Council of Standards Australia on 2 August 2005. This Standard was published on 9 September 2005.

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Standards Australia wishes to acknowledge the participation of the expert individuals that contributed to the development of this Standard through their representation on the Committee and through public comment period.

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Australian Standard<sup>®</sup>

**Implementation of Health Level Seven  
(HL7) Version 2.4**

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## PREFACE

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This Standard was prepared by the IT-014-06-04 Prescription Messages Working Group under the direction of the Standards Australia Committee IT-014, Health Informatics in response to requests from the health informatics community. It covers Implementation of the Health Level Seven (HL7) Version 2.4 protocol and is based on AS/NZS 4700.3:2002 *Implementation of the Health Level Seven (HL7) Version 2.3.1, Part 3: Electronic messages for exchange of information on drug prescription* and incorporates the differences between HL7 Version 2.3.1 and HL7 Version 2.4. AS/NZS 4700.3:2002, HL7 Version 2.3.1 and AS/NZS 4700.3:1999, HL7 Version 2.3 will remain current versions.

*This Standard incorporates Amendments No.1 (March 2006) and No. 2 (June 2006). The changes required by the Amendment are indicated in the text by a marginal bar and an amendment number against the clause, note, table, figure or part thereof affected.*

The objective of this Standard is to cover implementation of the Health Level Seven (HL7) Version 2.4 protocol, for communication between prescribers, dispensers and their health care trading partners.

In this document, frequent reference is made to AS 4700.1—2005, *Implementation of Health Level Seven (HL7) Version 2.4, Part 1: Patient administration* which covers the implementation of HL7 Version 2.4 for patient administration within and between Australian health care settings. AS 4700.1 provides an important foundation for the building of most clinical health care messages.

The term ‘informative’ has been used in this Standard to define the application of the appendix to which it applies. An ‘informative’ appendix is only for information and guidance.

This Standard utilizes notes to some of the clauses. They are designated Note 1, Note 2, and so on, and are set in smaller point size, immediately following the clause. These Notes are for information and guidance only and compliance with them is not a requirement of the Standard.

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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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## FOREWORD

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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 health environment.

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

In the initial development of AS/NZS 4700.3:1999, 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 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*.

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 health care 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 health care 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.

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Australia already has an existing base of health care 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 2.4 Standard in the Australian health environment requires a common and consistent approach.

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## STANDARDS AUSTRALIA

### Australian Standard

## Implementation of Health Level Seven (HL7) Version 2.4

### 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 2.4 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, health care providers, health care institutions, health information technology vendors, health information technology consultants, the health informatics community and the general public.

A1 | Australia already has an existing base of health care 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.  
A1 | Implementation of the HL7 Standard in the Australian 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 2.4 Protocol.

#### 3 REFERENCED AND RELATED DOCUMENTS

##### 3.1 Referenced documents

The following documents are referred to in this Standard:

A1	AS 4700	Implementation of Health Level Seven (HL7) Version 2.4 Part 1: Patient administration
	AS 4700.1	Implementation of Health Level Seven (HL7) Version 2.4 Part 1: Patient administration
	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

NHDD National Health Data Dictionary Version 11.0: National Health Data Committee, Australian Institute of Health and Welfare, Canberra, 2002