|  |
| --- |
| Victoria State Government Department of Health and Human Services    Queue Management and  Outpatient Systems  Interfacing/Integration Principals  Digital Health Standard |
| March 2019 |

Department of Health

|  |
| --- |
| Queue Management and Outpatient Systems Interfacing/Integration Principals  Digital Health Standards  March 2019 |

# Copyright and confidentiality statement

This work is Copyright © Department of Health and Human Services. Other than as permitted by law, no part of this document may be reproduced, stored in a retrieval system or transmitted in any form or by any other process without prior written permission.

Department of Health and Human Services reserves all rights to the information and intellectual property contained herein. This document may contain information relating to the business, commercial, financial, clinical and technical activities of Department of Health and Human Services. This information is intended for the sole use of the recipient as the disclosure of this information to a third party may expose Department of Health and Human Services to a considerable disadvantage. Except for the purpose of its intention, no part of this document may be reproduced, stored in a retrieval system or transmitted in any form by any process without prior written permission

# Table of Contents

[Copyright and confidentiality statement 3](#_Toc19269467)

[Table of Contents 4](#_Toc19269468)

[Version control and reviews 5](#_Toc19269469)

[1 Standards overview 6](#_Toc19269470)

[2 Introduction 7](#_Toc19269471)

[2.1 Digital Health Branch 7](#_Toc19269472)

[2.2 Background 9](#_Toc19269473)

[2.3 Purpose 9](#_Toc19269474)

[2.4 Assumptions 9](#_Toc19269475)

[2.5 Scope 10](#_Toc19269476)

[2.6 Constraints 10](#_Toc19269477)

[2.7 Audience/Stakeholders 10](#_Toc19269478)

[3 Approach 11](#_Toc19269479)

[3.1 Population of a Queue management application – Patient and Appointment details 11](#_Toc19269480)

[3.2 Queue management application integration to PAS 12](#_Toc19269481)

[3.3 Mandatory 13](#_Toc19269482)

[3.4 Other Related Standards 14](#_Toc19269483)

[3.5 Benefits 14](#_Toc19269484)

[Appendix A – Terms and Definitions 15](#_Toc19269485)

# Version control and reviews

### Version control

The following table identifies some basic information about this document:

|  |  |  |  |
| --- | --- | --- | --- |
| Version | Issue Date | Author | Comments |
| 0.4 | 20/08/2018 | Health Sector Standards & Advisory – HSSA. (Formerly Health Design Authority). | Re-design & redevelopment of contents into a new template, with new sections and general updates. |
| 0.3 | 06/02/2014 | Health Sector Standards & Advisory. | Final Edits |

### Quality reviews

The following table identifies the reviews conducted prior to the release of this document:

| Version | Date | Name | Action |
| --- | --- | --- | --- |
| 0.4 | Aug. 2018 | Sector Design Standards Reference Groups (SDSRG) | Review and feedback |
| 0.4 | 24/08/2018 | Health Sector Standards and Advisory. | Review and update |

### Referenced artefacts / publications

The following table identifies the various artefacts/publications referenced or considered in this

document:

| Document Name | Owner /Author | Comments |
| --- | --- | --- |
| DH Unified HL7 Specification |  | HSSA HL7 Detailed Messaging Specification <http://www.health.vic.gov.au/designauthority/catalogues.htm> |
| DH HSSA Generic Outpatient Queuing Specifications | HSSA | A specification for interfacing a queue management application with the DH PAS system. Provided on request. |

### Endorsements and approvals

This document has been endorsed and approved for publication by the Standards and Advisory, Digital Health, Department of Health and Human Services

# Standards overview

This Standard provides a recommended approach and a flexible solution for interoperability between an Outpatient Appointment booking system and an Outpatient Queue Management application. Queue management solutions are technologies designed to arrange patient appointments and manage queues to support patient flow and consultation scheduling.

Typically, such systems are required to interface to and automatically update clinical, patient administration and/or billing systems.

The approach taken to support such integration may be one of these two namely:

* To accept a broadcast feed or
* Through query of a Patient Administration System.

This Standard will fill the gap previously recognised by health agencies, of a need for a patient centred and integrated approach to manage outpatients’ appointments.

# Introduction

## Digital Health Branch

The Digital Health branch led by the Chief Digital Health Officer reports to the Deputy Secretary of Health and Wellbeing. As a branch in the Health and Wellbeing division, Digital Health collaborates closely with a wide range of stakeholders across the department, sector agencies and other jurisdictions to perform the following functions:

* Provides engagement, standards, policy advice, planning and assurance functions across the health sector in the areas of digital health
* Is responsible for the system management required to operationalise health sector reform
* Provides outward-facing whole of health sector leadership in digital health enablement as well as commissioning of digital health and ICT functions
* Maintain a close working relationship with other branches of the division which has the levers, relationships and responsibilities across the health system to ensure digital projects are properly governed, resourced, and ensure all risks are well managed
* Guides health ICT initiatives towards an interoperable future eHealth environment using well-established standards, best practice guides, methodologies and principles

Digital Health utilises the people, process and technology components, with a strong emphasis on transformational change elements when implanting new health systems and workflow processes.

Digital Health focus on four areas:

1. Digital Health strategy, policy and architecture standards for the Victorian health sector.
2. Commissioning of digital health functions within Victorian public health services.
3. Sponsoring digital health programs to implement sector-wide health information sharing platforms including those at a national level (to which Victoria contributes) as well as sector-enabling capabilities sponsored by DHHS.
4. Health service system management function including sector assurance (e.g. major program, operations and cybersecurity).

Digital health program areas include:

* Health Sector Standards and Advisory which provide information on emerging health technologies, feasibility, architecture, design and integration.
* Sector Assurance which provides assurance on all approved health service projects funded or co-funded by the government to ensure health services operate safely, securely and cost-effectively.
* Sector Governance and Reporting which provides governance and reporting on the system manager function and the overall digital health branch function.
* Health Sector Planning which provide planning and pipeline management for the health sector, managing concept proposals, business bases, funding bids and subsequently funding allocation and funding agreements.

Health Sector Standards and Advisory (HSSA) is committed to open, independent and best practice view of healthcare Information and Communication Technology (ICT), application solution principles. HSSA can provide recommendations to the overarching enterprise application design and associated services to integrate healthcare applications. For this guide, HSSA will:

* Deliver guides and advice around interoperability across healthcare applications
* Define messaging standards for Victorian health applications
* Facilitate a higher level of integration knowledge and associated quality processes in the Victorian health sector
* Align innovation, efficiencies and effective use of ICT within health to encourage and drive standards-based approaches that encourage a high level of interoperability

## Background

The Victorian Public Health Sector (VPHS) has gone through significant change and focus on the use of ICT and benefits over the last 10 years. It has been recognised by health agencies that there is a need for a patient centred and integrated approach to manage outpatient appointments. Implementing a queue management system within a health service improves data integrity, empowers patients to manage their own information, streamlines the intake process, and introduces resource efficiencies.

This paper presents interoperability specifications and standards for interfacing a queue management system to a PAS.

Health Sector Standards & Advisory and the Sector Design Standards and Reference Group (SDSRG – formally OCIO SIAC) has endorsed the approaches documented below.

## Purpose

Health organisations within the Victorian Public Health System (VPHS) can select from a range of applications solutions for the overall architecture and design for their business. In this setting, the health products or applications can either be integrated or interfaced.

The purpose of this paper is to provide a recommended approach and provide a flexible solution for interoperability between a PAS and an Outpatient Queue Management application. This specification informs health organisations of the recommended guiding principles that can inform agencies of standard practices associated with these interoperability choices.

This document presents key principals for interfacing a Patient Administration Systems (PAS) with a queue management application and highlights known issues or risks.

## Assumptions

This document is based on the following assumptions:

* The queue management application has the capability to send and receive HL7 messages
* The PAS and queue management application HL7 capability adheres to Digital Health Unified HL7 Specification
* The PAS is the master record of patient data
* The PAS and queue management application code sets align
* The PAS (and therefore outpatient booking system) will continue to be that master system for the management of outpatient appointment details. All HL7 appointment details will continue to be broadcast from the outpatient booking system as the master. The queue management application will only update a basic limited set of fields back to the PAS.

## Scope

### In Scope

This standard includes:

* Approaches to populate a queue management application and
* A base set of minimum requirements to implement a PAS interface to a queue management application

### Out of Scope

Interface specifications to clinical/EMR and billing solutions

## Constraints

N/A

## Audience/Stakeholders

This include:

* Victoria Public Health Services
* Digital Health branch
* DHHS Health Sector Projects
* DHHS Health Technology Solutions

# Approach

## Population of a Queue management application – Patient and Appointment details

A queue management application product will require both patient demographic information and appointment information. The patient information will be used to prompt the patient for confirmation of their details, which is a requirement of the Department of Health & Human Services.

One of the following two approaches may be adopted to do this:

### Approach 1: Accept a broadcast feed

In this approach, the Queue management application will accept a broadcast feed of the following Scheduling messages from the PAS, containing relevant patient and Appointment information:

* SIU^S12 – New Outpatient Booking
* SIU^S13 – Reschedule Outpatient Booking
* SIU^S14 – Update Outpatient Booking
* SIU^S15 – Cancel Outpatient Booking
* SIU^S17 – Delete Outpatient Booking
* SIU^S26 – Outpatient Booking Did Not Attend

The following ADT messages, containing both patient and actualised appointment information, will also be accepted by the Queue management application to ensure consistency in appointment details:

* ADT^A31 – Update Patient Information
* ADT^A04 – Insert Outpatient Attendance
* ADT^A08 – Update Outpatient Appointment Attendance
* ADT^A03 – Discharge Outpatient Appointment Attendance

### Approach 2: Query PAS

Utilising this approach, the Queue management application will trigger a query to the PAS when the patient arrives for their appointment. This could occur via one of the two following methods:

* a clerk could trigger the query from the Queue management application itself, or
* the patient could trigger the query by scanning a bar code on an appointment letter at a queue

management kiosk.

The following query message and response will be used to return the relevant patient and Appointment information to the Queue management application:

* SQM^S25 – Schedule Query Message
* SQR^S25 – Schedule Query Response

By employing this approach, acceptance of the broadcast feed into the queue management application is not required.

## Queue management application integration to PAS

Irrespective of which approach is employed to populate the queue management application with patient and appointment details, the queue management application will be used to progress a patient through the appointment and record the progress back to the PAS via the sending of HL7 messages. The full specifications show that a limited set of fields can be updated back to the PAS/Outpatient Appointment Booking system.

These messages can be sent Inbound to the PAS from the Queue management application:

* ADT^A04 – Patient Arrived
* ADT^A08 – Patient Called/Seen by Doctor
* ADT^A03 – Patient Departed
* SIU^S26 – Patient Did Not Attend the Appointment

Note: The PAS is the master record for patient demographic information. In all circumstances, any updates to patient demographics and further episodic information will be entered directly into the PAS.

## 

## Mandatory

The following key minimum requirements for a PAS have been identified as required to implement integration between a PAS and queue management application. Refer to the full PAS standards document for further details.

It also includes a column, to indicate level of compliance by each agency. Level of compliance is based on agency’s own judgement and not a universal rating. A guide to the compliance rating is:

**1: None or Low compliance 2: Partial compliance 3: Compliant**

| **Category** | **Sub Category** | **Description** | **Notes** | **Agency Compliance Rating (1 – 3)** |
| --- | --- | --- | --- | --- |
| Provider Directory | NHSD | National Health Services Directory (Previously the Victorian Human Services Directory). The product must use the content from the NHSD for general practitioner, specialist and allied health information.  Process HL7 messaging for automated updates of NHSD information into the PAS, as per HSSA HL7 standards. | Current Requirement |  |
| Interfacing | HL7 Standards for application to application interfacing | Alignment and adoption with the DHHS HL7 Guidelines and code sets: “DHHS Unified Implementation Guide”.  <http://www.health.vic.gov.au/designauthority/catalogues.htm>  Where the Health Sector Standards & Advisory Guidelines do not apply, adherence at a minimum to HL7 v2.4 Australian Standards.  This information also provides standard codes and details on Medication Order interfaces and Orders interfaces. |  |  |
| Patient Registration, and details updates | Patient registration details and identifiers are allocated by the PAS system, as the master. Ongoing, bi-directional patient detail updates across applications is not an endorsed practice.  Sector Design Standards and Reference Group (SDSRG) for Victoria has endorsed emergency department system as a special case for this standard (e.g. for a quick registration process), however, even in this case, the above principle still applies. |  |  |
| Localisation to Australian and Victorian requirements | Reporting | Victorian regulatory and statutory reporting requirements, where relevant. Example VINAH Specialist Outpatient Clinics. |  |  |

## Other Related Standards

Other related specifications to this standard include:

* SNOMED-CT
* ICD-10- AM[[1]](#footnote-2)
* Pharmaceutical Benefit Scheme (PBS)
* Australian Medicines Terminology (AMT)
* National Human Service Directory (NHSD – operated by Healthdirect Australia)
* HL7 2.4
* Commonwealth Medicare Benefits Schedule (CMBS)

## Benefits

Application of this standard to manage outpatient appointments will:

* Improve data integrity
* Empowers patients to manage their own information
* Streamlines the intake process and
* Introduces resource efficiencies

# Appendix A – Terms and Definitions

|  |  |
| --- | --- |
| **Term** | **Description** |
| AMT | Australian Medicines Terminology |
| ACHI | Australian Classification of Heath Interventions |
| ADHA | Australian Digital Health Agency |
| BTIM | Business Technology and Information Management System |
| CIS | Clinical Information System |
| CMBS | Commonwealth Medicare benefit Scheme |
| DHHS | Victorian Department of Health & Human Services |
| DH | Digital Health |
| Dose Range Checking | Functional medications administration capability that:   * assists pharmacists to validate a patient’s dose based on age, weight and surface area, frequency and route of administration, and other patient criteria * takes into consideration, dosing interval and duration of therapy * enables decision support rules across atomic pathology and medication doses to be formed |
| EHR | Electronic Healthcare Record |
| ELS | Endpoint Locator Service |
| EMR | Electronic Medical Record |
| eTP | Electronic Transfer of Prescriptions |
| GP | General Practitioner |
| HSD | Human Services Directory |
| HSSA | Health Sector Standards and Advisory |
| HI | Healthcare Identifier |
| HL7 | Health Level 7, a widely accepted standard to support exchange of medical information, both administrative or clinical |
| ICT | Information & Communication Technology |
| NASH | National Authentication Service for Health |
| NHSD | National Health Services Directory |
| PAS | Patient Administration System – a system used for the recording of patient and provider information to support management and coordination of service provision. |
| MHR | My Health Record |
| PBS | Pharmaceutical Benefit Scheme |
| Queue management application | Outpatient Appointment Queuing Application |
| SDSRG | Sector Design Standards and Reference Group |
| SHS | Shared Health Summary |
| SNOMED CT | Systematised Nomenclature of Medicine Clinical Terms.  The most comprehensive and precise clinical health terminology product in the world, owned and distributed around the world by SNOMED International. |
| VPHS or Health Service Agency | Victorian Public Health Sector  One of the 85 Victorian Public Health Services offering healthcare across the state |
| VEMD | Victorian Emergency Minimum Dataset |
| VAED | Victorian Admitted Episodes Data |
| VINAH | Victorian Integrated Non-Admitted Health Minimum Dataset |
| VPHS | Victorian Public Health System |

|  |
| --- |
| To receive this publication in an accessible format email DigitalHealth@dhhs.vic.gov.au  Authorised and published by the Victorian Government, 1 Treasury Place, Melbourne.  © State of Victoria, Department of Health and Human Services, September 2019. |

1. http://apps.who.int/classifications/icd10/browse/2016/en [↑](#footnote-ref-2)