**Australian Government**

**Australian Digital Health Agency**

# PCEHR B2B Gateway
# Clinical Information Systems Overview

9 December 2011   v1.0

Approved for external use

Document ID: NEHTA-1028:2011

# Document information

## Key information

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## Product or document version history

| Product or document version | Date | Release comments |
|---|---|---|
| 1.0 | 09 Dec 2011 | PCEHR Design Authority |
| 1.0 | 20 June 2025 | The document presentation has been enhanced to align with current branding guidelines, however the content has not been changed. |

## Transition of terms

Certain terms used within the context of this document have changed.  The table provides a clear comparison of the historical terms used in text and their current equivalents for your reference.

| Historical term | Current term |
|---|---|
| National eHealth Transition Authority (NEHTA) | The Australian Digital Health Agency (ADHA) |
| Personally controlled electronic health record (PCEHR) | My Health Record (MHR) |

# Preface

## Purpose

The purpose of this document is to complement the PCEHR B2B interface specifications by putting the operations exposed in the interface in to business context and provide references to the PCEHR B2B interface specification documents for easy access to the specific information. This is not a comprehensive list of all interactions between a Clinical Information System (CIS) and the PCEHR. Key interactions are illustrated to present the general interaction patterns.

## Intended audience

This specification is intended primarily for:

- Developers and implementers of software products which seek to interact with the PCEHR System

## Document map

This document is to be read in conjunction with the logical service specifications as highlighted in the figure below. This version addresses the capabilities required for Clinical Information Systems to interface with the PCEHR system. This document will be superseded by the B2B Implementation Guide, also highlighted in the figure below.

**Figure 1 – Document map**

# Table of contents

# 1    Introduction

## 1.1    Context

The Personally Controlled Electronic Healthcare Record (PCEHR) System will be launched in July 2012 and will allow individuals, their representatives, healthcare organisations and providers to manage and share electronic health records based on a regime of personally controlled access and user entitlements that promote a high level of maturity and interoperability.

The PCEHR system will expose a number of system interfaces where applications such as Clinical Information Systems (CIS) can connect. These system interface specifications are described by multiple documents over two levels; the platform independent Logical Service Specifications (LSS) and the platform specific, implementable Technical Service Specifications (TSS).

This document is intended to supplement the Logical Service Specifications by providing a short and high level overview of the operations exposed, and their usage within a number of key scenarios when interacting with the PCEHR. It also provides references to the relevant interface specifications within this context.

For further information on the PCEHR System please refer to the Concept of Operations document that is available from the NEHTA website: https://www.digitalhealth.gov.au/

## 1.2    Scope of Document

### 1.2.1    In Scope

The scope of this document is limited to a high level overview of the key interaction scenarios and the operations utilised within those scenarios to interact with the PCEHR system. They attempt to demonstrate how a local CIS might perform internal functions, which may then trigger a set of interactions between a CIS and the PCEHR system.

### 1.2.2    Out of Scope

All other aspects of the PCEHR system, its interfaces and other roles are out of scope for this document.  This document does not intend to elaborate on the internal workings of CIS, but is intended to help guide and contextualise operations that have been specified across documents for interactions between CIS and PCEHR.

# 2    PCEHR Eco System

## 2.1    Third Party Integrated Systems

In the PCEHR eco system there are several system types that can integrate to the PCEHR system. This document is intended for a subset of these types:

- Clinical Information Systems (CIS) this is a locally installed system used by practitioners. This can be e.g. a GP desktop system and is typically used by one provider organisation per installation. A provider organisation using a CIS authenticates themselves using a digital certificate associated with that provider organisation.

- Contracted Service Provider (CSP) can be thought of as a CIS in the cloud. A CSP acts on behalf of several provider organisations. Generally, a CSP is not a provider organisation and will thus authenticate themselves using a digital signature that identifies them as a CSP. Consequently, a CSP needs explicitly to state which provider organisation they are accessing the PCEHR on behalf of. Apart from this, a CIS and CSP are analogous.

For the purpose of this document the notion of a Clinical Information System is used to denote both a CIS and a CSP.

## 2.2    Pre requisites for Integration to PCEHR

Prior to any CIS interacting with the PCEHR System, the CIS must be integrated to the HI Service to ensure the Healthcare Identifiers have been incorporated into the local system. Interactions with the PCEHR must always provide both a HPI-O of the interacting system, and the IHI of the individual. This is illustrated in following sections, highlighting the role and context of the HI Service when interacting with the PCEHR System.

# 3 Interactions with PCEHR

This section presents a set of interactions between a CIS and the PCEHR illustrating the general interaction models expected. Not all interactions are shown in this overview; however the interaction model follows the same pattern within each functional group and other interactions will follow the same pattern. The next section, Section 4 defines the functional groups and lists all operations in each functional group for reference.

## 3.1 Register new patient in local system

When a new patient presents at a practice and a new patient record is created within the local system, the PCEHR system may be queried to find if a PCEHR exists for the patient. The interaction is illustrated below.
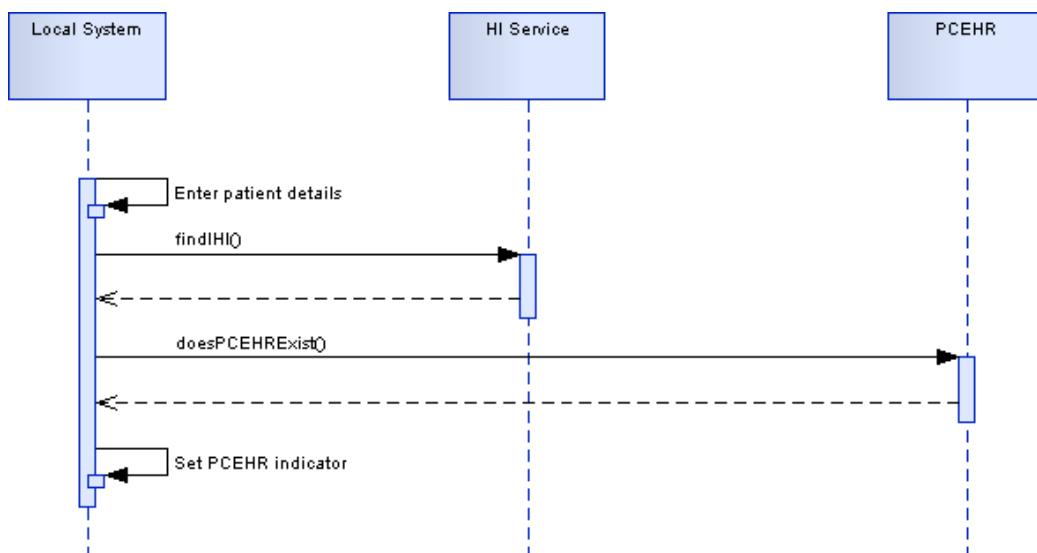


**Figure 2 Register new patient in local system**

**NOTE:** Local system actions are denoted as a local sequence. For example 'Enter patient details' in the diagram above. Exactly how local system actions and the PCEHR interactions are sequenced is outside the scope of this document. Local system actions are shown in the diagrams for illustration purposes only.

The interactions are:

1. Retrieve the IHI for the patient from the HI Service

2. If that IHI is retrieved successfully, check if the PCEHR exists from the PCEHR system

3. If the PCEHR exists then show, by some means in the local system, that a PCEHR exists for the new patient.

## 3.2 Open a patient record and access consolidated view

When a patient record is opened during (for example) a consultation, the practitioner may want to access the PCEHR of a patient. The consolidated view is the default entry point when accessing a PCEHR. The sequence diagram below shows a scenario where the PCEHR has not been accessed before to get the consolidated view, but the patient record has been associated with an IHI retrieved from the HI Service.
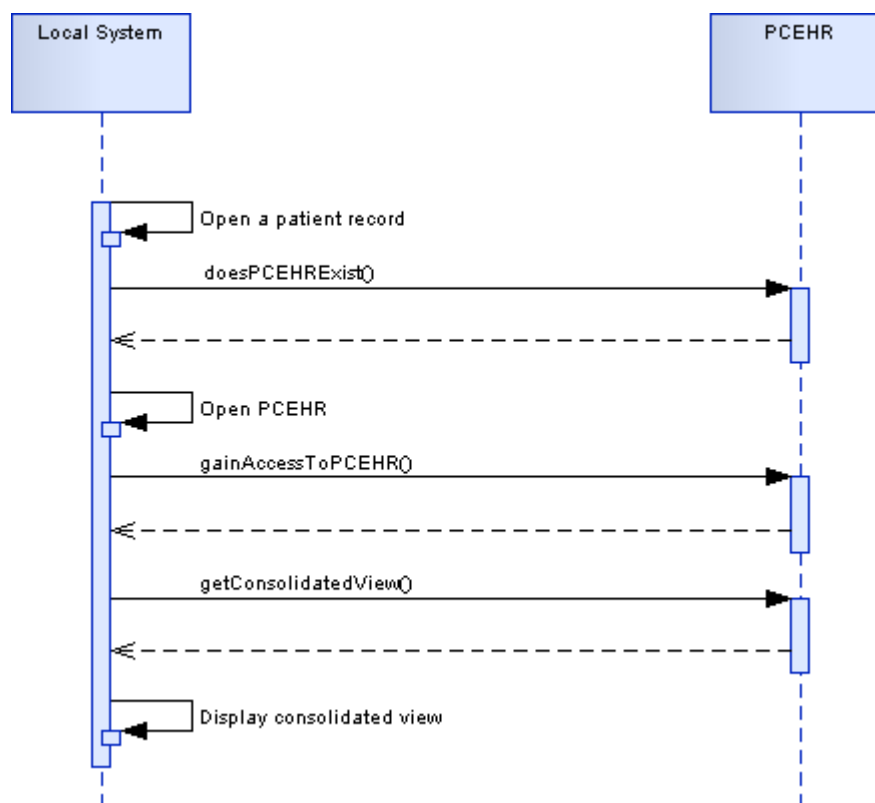


**Figure 3 Access Consolidated View**

The interactions are:

1. Invoke doesPCEHRExist to check if the PCEHR exists and receive information on how to access the PCEHR record.

2. If required (indicated by doesPCEHRExist) gainAccessToPCEHR is invoked.

3. To access the consolidated view the operation getConsolidatedView is invoked. The operation will return the consolidated view which the local system renders.

It is worth noting that once gainAccessToPCEHR has been successfully executed and there are no changes made to the personal controls of the PCEHR, that operation does not need to be invoked again. The operation doesPCEHRExist will return information that advises whether gainAccessToPCEHR needs to be invoked or not. As a consequence, invoking doesPCEHRExist every time a patient record is open is recommended.

## 3.3 Upload a Document

A provider can choose to upload a document to the PCEHR. The document should be stored in the local system, and a copy sent to the PCEHR. A document upload is done as illustrated below:



**Figure 4 Upload a Document**

In this scenario there is one interaction between the Local System and the PCEHR:

As a consequence of a consultation a document, such as an event summary, is created.

1. Invoke submitDocument to upload the document to the PCEHR record of the patient

If the PCEHR record does not exist an error message will be returned. To avoid this, the doesPCEHRExist operation may be invoked prior to upload.

## 3.4 Remove a Document

A practitioner can remove documents uploaded by the organisation. Again, in this scenario it is assumed access has been gained to the PCEHR.
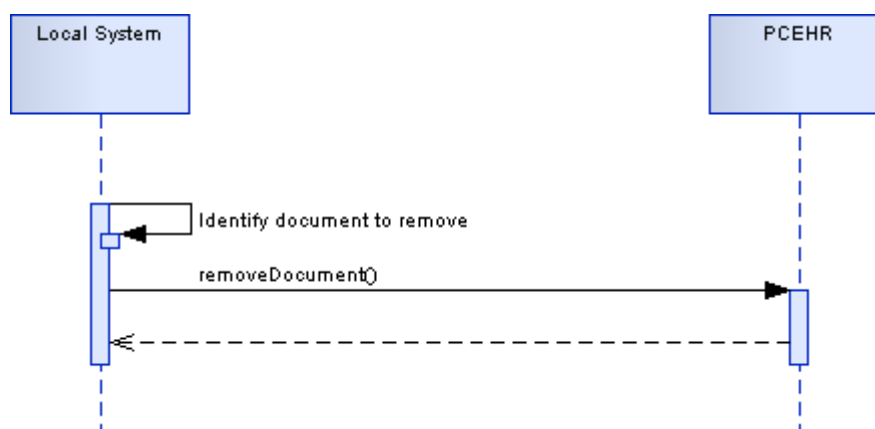


**Figure 5 Remove a Document**

A document is identified as a candidate for removal by the provider. The sequence to remove is:

1. Invoke removeDocument to remove the document

## 3.5 Re-authorise

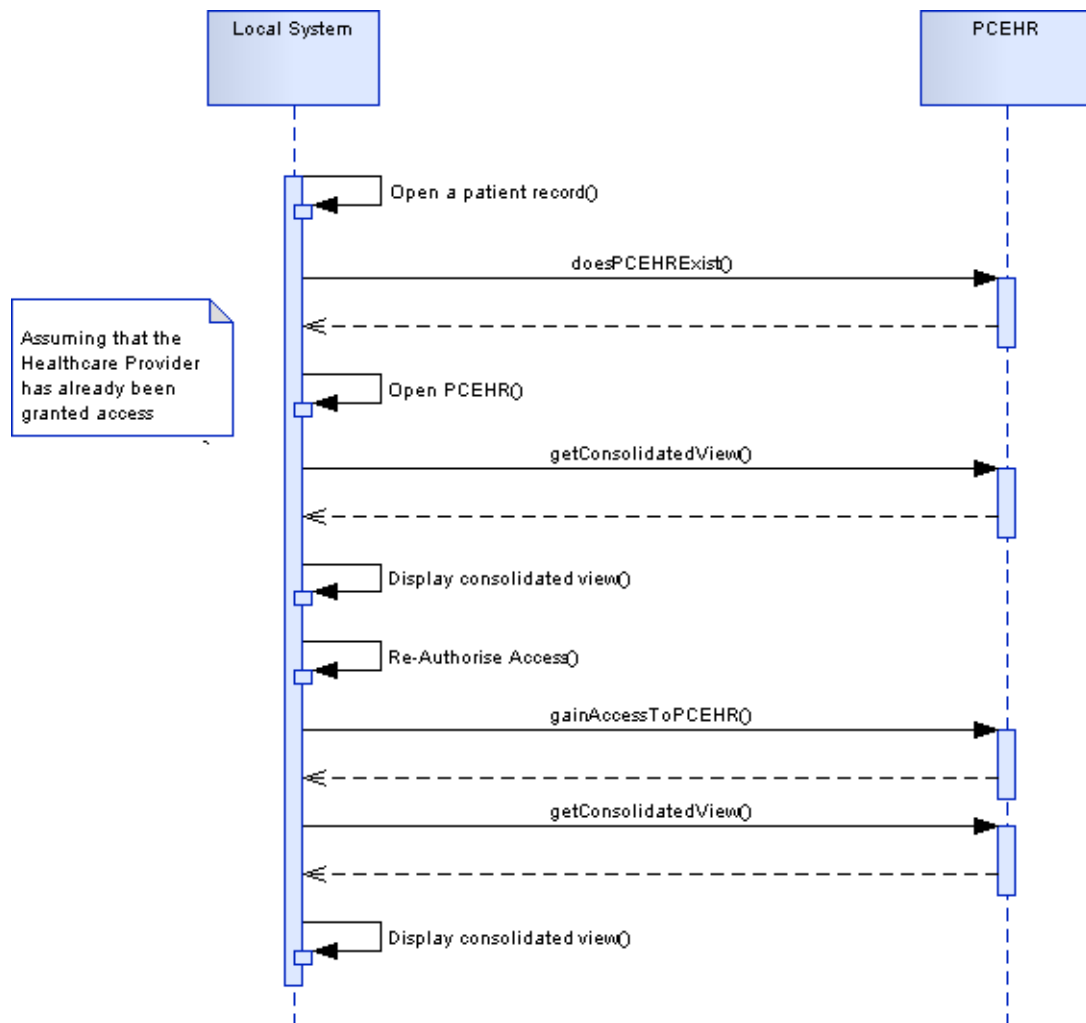When an individual who had initially granted the Provider access to their General Access documents, subsequently wishes to grant a provider access to their limited access documents, the operation gainAccessToPCEHR can be used. The following scenario illustrates an interaction where a re-authorise is performed:



**Figure 6 Re-authorise**

1.  doesPCEHRExist is invoked to get information on how to access the PCEHR. In this particular case the provider is on the access list with general access and can thus access without invoking gainAccessToPCEHR.

2.  The operation getConsolidatedView is invoked. The consolidated view will contain general access information.

3.  Re-authorisation is done by invoking gainAccessToPCEHR and providing an Access Code. The Access Code will be entered into the local system for transmission to the PCEHR via the gainAccessToPCEHR function. The Access Code should not be stored locally. Upon successful invocation of gainAccessToPCEHR the provider has now got upgraded access to the PCEHR

4.  The operation getConsolidatedView is invoked. The consolidated view will contain limited access information.

This is one example of re-authorise. Re-authorise may be used in other work flows in the local system.

# 4    PCEHR Interface Catalogue

This section lists the operations, as defined in the logical service specifications, in the PCEHR interface catalogue grouped into three documents:

- Record Access Service provides operations that describe understanding the state of a PCEHR and gaining access to a specific PCEHR.

- Document Exchange Service provides operations to exchange documents with the PCEHR System and operations to manage those documents that have already been uploaded to the PCEHR System.

- View Service provides operations to access specific views that the PCEHR System will generate for a given PCEHR.

## 4.1    Record Access Service

There are two operations that can be used to gain access to a PCEHR:

- doesPCEHRExist

- gainAccessToPCEHR

### 4.1.1    doesPCEHRExist

| | |
|---|---|
| **Purpose:** | To check the existence of and retrieve information on how to access a particular PCEHR. This operation may be used every time a patient record is opened. |
| **Documented in:** | Record Access Service LSS |

### 4.1.2    gainAccessToPCEHR

| | |
|---|---|
| **Purpose:** | This operation may be invoked after doesPCEHRExist when an access code is required and the first time a general access PCEHR is accessed. Once this operation is invoked successfully documents and views for the PCEHR can be accessed. This operation is also used in the reauthorise scenario highlighted above. |
| **Documented in:** | Record Access Service LSS |

## 4.2 Document Exchange Service

There are a series of operations to locate, access and manage documents:

- submitDocument

- retrieveDocument

- findDocuments

- removeDocument

### 4.2.1 submitDocument

| Purpose: | This operation stores a new document for a PCEHR record. |
|---|---|
| Documented in: | Document Exchange LSS |
| Pre-requisite: | The document must have a valid IHI, retrieved from the HI Service, prior to upload to the PCEHR. |

### 4.2.2 retrieveDocument

| Purpose: | This operation retrieves a document from a PCEHR record. |
|---|---|
| Documented in: | Document Exchange LSS |
| Pre-requisite: | gainAccessToPCEHR must have been successfully executed |

### 4.2.3 findDocuments

| Purpose: | This operation retrieves a document list from a PCEHR record based on a set of search parameters. |
|---|---|
| Documented in: | Document Exchange LSS |
| Pre-requisite: | gainAccessToPCEHR must have been successfully executed |

### 4.2.4 removeDocument

| Purpose: | This operation removes a document from a PCEHR. |
|---|---|
| Documented in: | Document Exchange LSS |
| Pre-requisite: | The invoker of this service must be the author (HPI-O) of the original document uploaded to the PCEHR. |

## 4.3    View Service

In addition to documents there are views. Views are read only and are accessible via a series of operations:

- getConsolidatedView

- getChangeHistoryView

- getAuditView

- getDocumentList

### 4.3.1    getConsolidatedView

| Purpose: | This operation retrieves the consolidated view from a PCEHR record. |
|---|---|
| Documented in: | View Service LSS |
| Pre-requisite: | gainAccessToPCEHR must have been successfully executed |

### 4.3.2    getChangeHistoryView

| Purpose: | This operation retrieves the change history for a documented stored within a PCEHR record. |
|---|---|
| Documented in: | View Service LSS |
| Pre-requisite: | gainAccessToPCEHR must have been successfully executed |

### 4.3.3    getAuditView

| Purpose: | This operation retrieves the audit trail for a PCEHR record. |
|---|---|
| Documented in: | View Service LSS |
| Pre-requisite: | gainAccessToPCEHR must have been successfully executed |

### 4.3.4    getDocumentList

| Purpose: | This operation retrieves the list of documents stored for a PCEHR record. |
|---|---|
| Documented in: | View Service LSS |
| Pre-requisite: | gainAccessToPCEHR must have been successfully executed |