



**eHealth Diagnostic Imaging Report View
Presentation Guide v1.1**

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1 Introduction

1.1 Purpose

This document is a presentation guide for the Diagnostic Imaging Report View in the personally controlled electronic health record (PCEHR), frequently referred to as the “View” within this document.

The guide provides the details for presenting the View in vendor clinical information systems (CIS). The design is based on previous presentation guides to ensure a consistent display, functionality, and to reduce clinical risk.

In the past, PCEHR views have been returned as a clinical document and a supporting Clinical Document Architecture (CDA^{®1}) implementation guide has been provided to guide implementers. Given that the View will be returned as custom XML rather than as a clinical document, this document has been expanded to provide information and guidance on the use of the Diagnostic Imaging Report View custom XML.

1.2 Intended audience

This document is intended for all interested stakeholders including:

- clinical peak bodies, representative groups and subject experts in the area of diagnostic imaging and radiology;
- hospitals and health departments planning, implementing or upgrading eHealth systems;
- software vendors, software developers and designers developing eHealth system products;
- jurisdictions, health service providers and health software representative groups;
- senior managers and policy makers, clinical experts, health information managers and system integrators;
- stakeholders associated with the development and use of upcoming eHealth initiatives relating to diagnostic imaging;
- the Commonwealth Department of Health; and
- consumers and consumer representatives.

1.3 Scope

This document is limited to outlining conformance points and data usage guidance for a CIS displaying the View that is sent from the PCEHR to the CIS.

The conformance points apply regardless of technology or means of implementation.

This document does *not* cover:

- other views and requirements for the PCEHR;
- technical specification for rendering the View;

¹ CDA is a registered trademark of Health Level Seven International.

- interoperability between the systems generating the View and those rendering it; or
- non-traditional interfaces involving touch screens and mobile devices.

1.4 Overview

The Diagnostic Imaging Report View is intended to be an electronic summary of the Diagnostic Imaging report information contained in a consumer's PCEHR.

For healthcare providers and diagnostic imaging service providers, the View gives a collated summary of the consumer's diagnostic imaging reports.

For consumers accessing the national consumer portal, the View gives an overview of diagnostic imaging reports that are available in the PCEHR.

This presentation guide will:

- provide guidance on how the information should be formatted for display; and
- outline the method for constructing the Diagnostic Imaging Report Views in clinical information systems.

The PCEHR will generate the Diagnostic Imaging Report View and also present Diagnostic Imaging Report Views in the national provider and consumer portals.

This guide will support other clinical information system vendors, developers and implementers who want to interact with the PCEHR by retrieving and displaying the View within their proprietary software solutions.

As a guide, it includes multiple illustrations of the design and detailed rationale (where applicable) for the design decisions and choices. It specifies both mandatory and recommended conformance points. All mandatory conformance points are compulsory for reasons of clinical utility and will form the basis of conformance assessments of the implementation in vendor software.

The guide also includes details on the data provided in the Diagnostic Imaging Report View XML including recommendations on which fields should be displayed and how they could be used.

No branding or colour themes have been specified, and the rendering of these are left to the vendor's discretion to allow them to blend the View into their product's branding. NEHTA does however recommend that vendors select a colour palette with colour contrast with reference to accessibility standards such as WCAG 2.0² and specific jurisdictional and local site recommendations for accessibility.

1.5 Points to note

1.5.1 Supporting documents

As detailed in the References section, this guide is supported by the following technical documents that describe the data, and data structure, for the View:

- *PCEHR View Service Logical Service Specification*; and
- *PCEHR View Service Technical Service Specification*.

² <http://www.w3.org/TR/WCAG20/>.

1.5.2 Structure of the presentation guide

For each section of the View, this document will describe the following.

- Example illustrations of the conformance points, including:
 - numbered references to data elements described in the bundled data usage guide.
- Conformance points listed with status and rationale (where applicable) such that:
 - software will be expected to meet every mandatory conformance point;
 - software will be expected to meet every conditional conformance point if the software vendor declares that the software satisfies the condition state given in the conformance point; and
 - software will not be required to meet recommended conformance points but may be assessed against recommended conformance points if there is a declaration that conformance points have been satisfied.
- Details on the data included in the View including:
 - name and descriptions;
 - cardinality;
 - recommendations on use; and
 - mapping of data elements to example screen display.
- The priority of the conformance points is given in their list order, displaying mandatory items first, and recommended items last.

Note that this guide contains conformance points that are common across multiple PCEHR views, as well as conformance points that are specific to DI Views.

1.5.3 Illustrations

The screenshots used in this guide illustrate the conformance points; they do not form the conformance points. As such, anything not explicitly mentioned in the conformance points does not form a part of the conformance points (e.g. wording, colours, fonts, font size, exact spacing).

1.5.4 Conformance process

All implementers who want their clinical information system to comply with the scope of this guide must assess the conformance of their software to the relevant requirements via NEHTA's conformance, compliance and accreditation assessment process.

Note that section 3 is provided for guidance only, and does not contain conformance testing-related requirements.

1.5.5 Accessibility assurance

PCEHR accessibility assurance is the responsibility of implementing vendors. Vendors are to determine their own requirements for a CIS to conform to accessibility standards such as WCAG 2.0 in the development of their software

solutions. Conformance with accessibility standards is encouraged but is outside the scope of assessment.

1.6 Assumptions

This document assumes the following.

- Implementations may use resolutions that differ from the screenshots in this document. Example screenshots are not intended to act as a restriction or requirement on any software displaying the Views.
- The implementer has followed all other applicable PCEHR specifications (see References section). This guide does not offer relief from any of those requirements.
- The software environment in which the View is presented handles the authentication of the user, and the accurate selection of a consumer's PCEHR.
- The implementer shall not be limited to the scope of this guide. An implementer is free to add further functionality to the View in their CIS system if that functionality does not contradict the mandatory requirements.

2 Presentation guide

This presentation guide is concerned with the display of view information; that is, to show how a system renders information via a view in a graphical user interface. This guide breaks these views down into components to provide easier understanding on how these components are to be represented in the View.

Example screen designs in this document depict how a clinical information system could implement the conformance points described in each section.

The blue numbered references in the screenshots map to the bundled data usage guide and is further explained in section 3.

To assist in describing some of the conformance points, examples of how the View conformance points could be implemented have been provided. These examples focus on the content and as such do not include CIS framework components (menu bar, navigation pane, header, footer, task bar, etc.). Note: implementers are free to add functionality not shown in the examples to their system if it does not contradict the mandatory conformance points.

2.1 View content

The following example of a View depicts how a clinical information system could implement the conformance points described in this section.

Diagnostic Imaging Report View

This is not a complete view of the individual's health information. For more information about the individual's health record or data, please consult the individual or other healthcare professionals as needed

01-Sept-2007		To	01-Sept-2014		Filter	Group by	
1	2	3	4	5	6	7	
Imaging Date	Organisation	Examination	Modality	Anatomical Region	Anatomical location	Laterality	
26-Aug-2014	Scans R Us	Mammography Breast	Mammography	Breast	Breast	Bilateral	
30-Aug-2014	Scans R Us	CT Scan Lumbar spine	CT Scan	Lumbar spine	L 3/4		
30-Aug-2014	National Scanners	Ultrasound Head	Ultrasound	Head	Orbital contents	Left	
30-Aug-2014	National Scanners	CT Scan Pelvis	CT Scan	Pelvis	Pelvis		
30-Aug-2014	National Scanners	MRI Lower Limb	MRI	Lower limb	Knee	Right	
30-Aug-2014	Scans R Us	X-Ray Cervical spine	X-Ray	Cervical spine	Cervical spine		
30-Aug-2014	Scans R Us	X-Ray Pelvis	X-Ray	Pelvis	Hip	Right	
31-Aug-2014	National Scanners	X-Ray Upper limb	X-Ray	Upper limb	Elbow	Left	
31-Aug-2014	National Scanners	X-Ray Upper limb	X-Ray	Upper limb	Wrist	Left	
31-Aug-2014	National Scanners	Ultrasound Abdomen	Ultrasound	Abdomen	Pancreas		

Figure 1: View Content diagram

ID	Conformance Points	Status
View-CM01	The View SHALL display a title at the top of the View.	Mandatory
View-CM06	A printed View SHALL contain the page number as part of the Footer at the bottom of each page.	Mandatory
View-CM07	The View SHALL be displayed in such a way as to allow the entire dataset to be viewed (e.g. provide vertical scrolling / paging).	Mandatory
View-CM08	The Rendering System SHALL NOT allow horizontal scrolling of the View.	Mandatory
View-CM09	The View SHALL display the following statement to healthcare providers: "This is not a complete view of the individual's health information. For more information about the individual's health record or data, please consult the individual or other healthcare professionals as needed."	Mandatory
View- DI01	The View title SHALL display the text "Diagnostic Imaging Report View". Also see View-CM01.	Mandatory
View-CM02	The title SHOULD have a font-size larger than the font-size used in other text components in the View.	Recommended
View-CM03	The title SHOULD have a font-weight larger than the font-weight used in other text components in the View.	Recommended
View-CM05	A printed View SHOULD contain page numbers as "Page N of T" on each page as part of the Footer.	Recommended
View-CM51	Except when specifically stated within a requirement, times and time zones SHOULD NOT be displayed in the View.	Recommended

2.1.1 One or more rows available

These conformance points apply when a PCEHR has at least one row available.

ID	Conformance Points	Status
View-CM17	Each Document Line in the View SHALL act as a link to the source CDA [®] document in the PCEHR, such that the CDA [®] document is presented first or at the same time as any PDF attached to the CDA [®] document.	Mandatory
View-CM35	<p>Text that does not fit horizontally within the available space SHALL be wrapped onto a new line.</p> <p>If the available space is adjustable (e.g. resizable columns) or the entire block of text can be presented by another means (e.g. a tooltip or popup box), then the View SHALL instead indicate that some text is hidden (where applicable), via an ellipsis or other means.</p> <p><i>Rationale</i></p> <p>“Available space” may mean a column, a line, the width of a page, an annotation, or other designated space designed to hold text. Space that is too narrow to hold the necessary text must support the wrapping of that text in a predictable way so that information is not lost or hidden from the reader.</p>	Mandatory
View-CM04a	<p>A printed View SHALL contain, as part of the Header at the top of each page, the following consumer information:</p> <ul style="list-style-type: none">• Family name• Given name(s), where provided• Date of birth• Sex• Individual Healthcare Identifier (IHI) <p><i>Rationale</i></p> <p>Including identifying information for the individual helps the reader of the printed View understand who the data in the View is related to.</p>	Mandatory

ID	Conformance Points	Status
View-DI05	<p>The View SHALL display at least the following information (where provided by the payload), in any order, for each examination within a report (where available):</p> <ul style="list-style-type: none"> • Imaging date • Authoring organisation name • Exam procedure • Modality • Anatomical location • Laterality <p>Each item SHALL be described with labels, column headings or similar, so that the meaning of dates and organisations is clear.</p>	Mandatory
View-CM11	<p>Structured DateTime values in the View SHOULD be in the format [DD-Mmm-YYYY] e.g. 14-Aug-2013</p>	Recommended

2.1.2 No information is available

A PCEHR that contains no information or a view with restrictive filtering applied may return no results. These conformance points apply in these circumstances.



Figure 2: No information is available diagram

ID	Conformance Points	Status
View-CM10	<p>The View SHALL only contain a single statement when no information is available: "No information is available"</p>	Mandatory

2.2 Date filter

The date filter is a feature (mandatory conformance point) that allows the user to specify a date range and restrict the display to only those events which occurred within the period specified. This section details conformance points related to this function.



Figure 3: Date filter diagram

ID	Conformance Points	Status
View-CM14	Views filtered by date SHALL display the dates entered in the Date Filter 'From' and 'To' fields to indicate the applied date range.	Mandatory
View-CM40	<p>The "TO" date in the date filter SHALL default to today's date.</p> <p><i>Rationale</i></p> <p>Defaulting this date value to today's date aids usability.</p>	Mandatory
View-CM12a	<p>The View SHALL be able to be filtered by a date range.</p> <p><i>Rationale</i></p> <p>Permitting the filtering of large data sets by date increases view utility.</p>	Mandatory
View-DI11	<p>The "TO" date in the date filter SHALL NOT be modified by the end user and will remain read only and defaulted to Today's date.</p> <p><i>Rationale</i></p> <p>The PCEHR system currently has a defect in the processing of the To Date filter. While this defect is being resolved, implementers must not allow the user to change the "TO" date from Today's date.</p> <p>This conformance requirement is temporary and will be removed once the PCEHR system defect has been resolved.</p>	Mandatory
View-DI09	When the View is filtered by a date range, the results SHALL be in reverse date/time order, such that the most recent date is at the top of the list by default in the absence of user preferences.	Mandatory
View-DI10	The default view SHALL be filtered by date with a date range not greater than seven years.	Mandatory

ID	Conformance Points	Status
	<p><i>Rationale</i></p> <p>To prevent excess View data diminishing the user experience, views are required to apply a default date filter. A period of seven years aligns with many document retention policies required in many states and territories. The default view may be changed or removed by the user.</p>	
View-DI11	<p>The "TO" date in the date filter SHALL NOT be modified by the end user and will remain read only and defaulted to Today's date.</p> <p><i>Rationale</i></p> <p>The PCEHR system currently has a defect in the processing of the To Date filter. While this defect is being resolved, implementers must not allow the user to change the "TO" date from Today's date.</p> <p>This conformance requirement is temporary and will be removed once the PCEHR system defect has been resolved.</p>	Mandatory
View-CM13	The dates displayed in the 'From' and 'To' controls of the Date Filter SHOULD be in the format [DD-Mmm-YYYY] e.g. 14-Aug-2013.	Recommended
View-CM15	DateTime values displayed in a column SHOULD be right aligned in the View.	Recommended

2.3 Group by

The Group By function provides the user with grouping options for documents available on the View list.

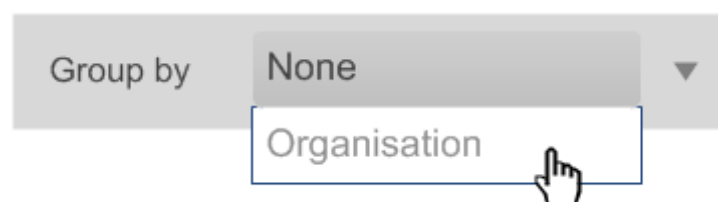


Figure 4: Group by diagram

ID	Conformance Points	Status
View-CM54	<p>Rows SHALL be sorted within the summary line they belong to. (For example, sorted within the organisation and not across organisations.)</p> <p><i>Rationale</i></p> <p>When sorting lines that are grouped it is important for lines to be sorted within the natural group they are attached to, such that context is not lost.</p>	Mandatory
View-DI03	<p>The View SHALL permit the provider to group on at least the following items:</p> <ul style="list-style-type: none">• Authoring organisation name <p><i>Rationale</i></p> <p>The ability to group by modality, anatomical location, or procedure offers a quick means of locating required examination results. It is problematic to group by this metadata due to inconsistent naming standards for these items. When nationally agreed naming standards or coding sets become available then this conformance point may be updated to expand the list of groups available,</p> <p>Organisation names are derived from HPI-O instances and are regulated by the HI Service so it is possible to group by organisation name.</p>	Mandatory

2.4 Ordering

If a View has more than one document line then the document lines within that view should be permitted to be ordered by preference.

Imaging Date	Organisation	Exam Procedure	Modality	Anatomical Region	Anatomical location	Laterality
30-Aug-2014	Scans R Us	CT Scan Lumbar spine	CT Scan	Lumbar spine	L3/4	
30-Aug-2014	National Scanners	CT Scan Pelvis	CT Scan	Pelvis	Pelvis	
26-Aug-2014	Scans R Us	Mammography Breast	Mammography	Breast	Breast	Bilateral
30-Aug-2014	National Scanners	MRI Lower Limb	MRI	Lower limb	Knee	Right
30-Aug-2014	Scans R Us	Ultrasound Breast	Ultrasound	Breast	Left	
30-Aug-2014	National Scanners	Ultrasound Head	Ultrasound	Head	Orbital contents	Left
31-Aug-2014	National Scanners	Ultrasound Abdomen	Ultrasound	Abdomen	Pancreas	
30-Aug-2014	Scans R Us	X-Ray Cervical spine	X-Ray	Cervical spine	Cervical spine	
30-Aug-2014	Scans R Us	X-Ray Pelvis	X-Ray	Pelvis	Hip	Right
31-Aug-2014	National Scanners	X-Ray Upper limb	X-Ray	Upper limb	Elbow	Left
31-Aug-2014	National Scanners	X-Ray Upper limb	X-Ray	Upper limb	Wrist	Left

Figure 5: Ordering diagram

ID	Conformance Points	Status
View-DI02	<p>The View SHALL allow the user to order the rows within the view via the following items:</p> <ul style="list-style-type: none"> • Authoring organisation name • Imaging date • Exam procedur • Modality • Anatomical location <p>Unless changed by the user, the default sort order SHALL be "imaging date" in reverse chronological order.</p>	Mandatory
View-CM36	<p>Ordering items by date SHOULD be done using dates in a common time zone (e.g. UTC).</p> <p><i>Rationale</i></p> <p>All the date ordering specified in this guide uses time zone aware dates.</p> <p>Failure to sort dates on a common time-zone may result in data appearing out of sequence and detracting from the user experience.</p>	Recommended

2.5 Collapsed and expanded items view

Clinical information systems may opt to display PCEHR Diagnostic Imaging Report items in a collapsed summary format. In this case, users will be able to select a Summary Line item to display details of the diagnostic imaging results for each. This section outlines the conformance requirements for systems that opt to use this approach for displaying Diagnostic Imaging Report items.

National Scanners					
Scans R Us					
Imaging date	Exam procedure	Modality	Anatomical Region	Anatomical location	Laterality
26-Aug-2014	Mammography Breast	Mammography	Breast	Breast	Bilateral
30-Aug-2014	Ultrasound Breast	Ultrasound	Breast	Left	
30-Aug-2014	CT Scan Lumbar spine	CT Scan	Lumbar spine	L3/4	
30-Aug-2014	X-Ray Cervical spine	X-Ray	Cervical spine	Cervical spine	
30-Aug-2014	X-Ray Pelvis	X-Ray	Pelvis	Hip	Right

Figure 6: Collapsed and expanded items view diagram

ID	Conformance Points	Status
View-CM20	Text based data used for ordering Summary Lines in the View SHALL be ordered in ascending alphabetical order. Note: Alphabetical order includes the ordering of alphanumeric characters (letters and numbers) as well as the ordering of symbols. Ordering should maintain the standard applied within other areas of the system.	Mandatory
View-CM30	Collapsed Summary Line displayed in the View SHALL be expandable.	Mandatory
View-CM33	The View SHALL display Summary and Document lines in a way that visually separates them (e.g. with alternate shading or a line).	Mandatory
View-DI07	Each Document Line within the expanded Summary Line SHALL include at least the following items in the expanded section: <ul style="list-style-type: none"> Imaging date Modality Exam procedure Anatomical location Laterality Each item SHALL be described with labels,	Mandatory

ID	Conformance Points	Status
	<p>column headings or similar, so that the meaning of dates and organisations is clear.</p> <p><i>Rationale</i></p> <p>Specifying the minimum data set to be displayed guarantees a level of view utility.</p>	
View-DI08	The Summary Line SHALL display at least the authoring organisation name as the left most or first item.	Mandatory
View-CM29	The Summary Line in the View SHOULD be displayed as collapsed rows by default.	Recommended
View-CM31	Expanded Summary Line displayed in the View SHOULD be collapsible.	Recommended
View-CM32	Collapsing and expanding Summary Line in the View SHOULD be possible by clicking on any part of the Summary Line.	Recommended
View-CM24	When the mouse cursor is rolled over any part of the Document Line in the View, the background of the entire Document Line SHOULD be highlighted.	Recommended
View-CM23	When the mouse cursor is rolled over any part of the Summary Line in the View, the background of the entire Summary Line SHOULD be highlighted.	Recommended
View-CM25	Each Summary Line SHOULD have a 'roll-over' state, activated by the movement of the mouse cursor over any part of the Item, with a font colour that provides colour differentiation according to accessibility standards.	Recommended
View-CM26	Each Document Line SHOULD have a 'roll-over' state, activated by the movement of the mouse cursor over any part of the Item, with a font colour that provides colour differentiation according to accessibility standards.	Recommended

3 Data usage

The accompanying spreadsheet (data usage guide) provides guidance and recommendations on how the View XML can be used for screen display, but does not contain testable requirements for conformance, compliance and accreditation purposes, or other similar processes.

The spreadsheet is derived from the PCEHR View XML and includes:

- data element name;
- numbered references to sample screen layouts in section 2;
- data element description;
- cardinality; and
- recommendation for use.

The screenshots in this document include numbered references that map to column A in the spreadsheet. A developer wishing to locate a particular data item in the XML stream can use the numbered references to map data items in the screenshots to the data usage guide spreadsheet. Not every element in the XML stream has been represented on the screenshots. The screenshots and numbered references are not exhaustive but are a guide to developers.

Acronyms

Acronym	Description
CCA	conformance, compliance and accreditation
CDA®	Clinical Document Architecture
CIS	clinical information system
DI	diagnostic imaging
IHI	individual healthcare identifier
NIO	national infrastructure operator
PCEHR	personally controlled electronic health record
UTC	Coordinated Universal Time
WCAG	Web Content Accessibility Guidelines

Glossary

Term	Meaning
Clinical Document Architecture	An XML-based mark-up standard intended to specify the encoding, structure, and semantics of clinical documents for exchange. CDA [®] is an ANSI-certified standard from Health Level Seven International.
Dataset	The complete information available for a given view.
document line	A row within the view representing a single document is called a document line. Typically, the row or line can be clicked and the document that line is representing can be opened and viewed.
implementer	A person or organisation that is putting a technical solution in place. Typically an organisation with software developers or a software vendor.
Individual Healthcare Identifier	A unique 16-digit number that identifies individuals within Australia who receive healthcare, for example Australian citizens, permanent residents or visitors to Australia.
Payload	The information or data provided from the PCEHR to the end system requesting the View.
Present in View Payload	This indicates if the attribute will be provided by the PCEHR in any view requested by a CIS. This does not indicate it will be available in the CIS user interface, report or clinical document – only that it is provided in the view payload.
roll-over	The act of moving a mouse pointer over an area, button or other screen control. A term used in a graphical user interface context.
SHALL	The term SHALL in a requirement indicates a mandatory requirement. Its negative form SHALL NOT indicates a prohibition.
SHOULD	The term SHOULD in a requirement indicates a recommendation. Its negative form SHOULD NOT indicates an option that is not recommended.
Summary Line	A row of text that is a short description of information that could be expanded and viewed directly below.
View	Display of related information in a structured way.

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