Integrating the Healthcare Enterprise

IHE

IHE Pathology and Laboratory Medicine Technical Framework Supplement

Radiology Pathology Concordance (RPC)

HL7® FHIR® R4

Using Resources at FMM Level 2

Revision 1.1 – Trial Implementation

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Foreword

This is a supplement to the IHE Pathology and Laboratory Medicine Technical Framework .
30 Each supplement undergoes a process of public comment and trial implementation before being incorporated into the volumes of the Technical Frameworks.

This supplement is published for trial implementation on November 23, 2021 and may be available for testing at subsequent IHE Connectathons. The supplement may be amended based on the results of testing. Following successful testing it will be incorporated into the Pathology
35 and Laboratory Medicine Technical Framework. Comments are invited and may be submitted at http://ihe.net/PaLM_Public_Comments.

This supplement describes changes to the existing technical framework documents.

"Boxed" instructions like the sample below indicate to the Volume Editor how to integrate the relevant section(s) into the relevant Technical Framework volume.

40 *Amend section X.X by the following:*

Where the amendment adds text, make the added text **bold underline**. Where the amendment removes text, make the removed text **bold strikethrough**. When entire new sections are added, introduce with editor's instructions to "add new text" or similar, which for readability are not bolded or underlined.

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General information about IHE can be found at IHE.

Information about the IHE Pathology and Laboratory Medicine domain can be found at IHE Domains.

Information about the organization of IHE Technical Frameworks and Supplements and the
50 process used to create them can be found at Profiles and IHE Process.

The current version of the IHE Pathology and Laboratory Medicine Technical Framework can be found at PaLM Technical Framework.

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150 **Introduction to this Supplement**

Whenever possible, IHE profiles are based on established and stable underlying standards. However, if an IHE domain determines that an emerging standard has high likelihood of industry adoption, and the standard offers significant benefits for the use cases it is attempting to address, the domain may develop IHE profiles based on such a standard. During Trial Implementation, the IHE domain will update and republish the IHE profile as the underlying standard evolves.

Product implementations and site deployments may need to be updated in order for them to remain interoperable and conformant with an updated IHE profile.

This RPC Profile incorporates content from Release 4 of the HL7® FHIR® specification. HL7 describes FHIR Change Management and Versioning at https://www.hl7.org/fhir/versions.html.

HL7 provides a rating of the maturity of FHIR content based on the FHIR Maturity Model (FMM): level 0 (draft) through N (Normative). See http://hl7.org/fhir/versions.html#maturity.

The FMM levels for FHIR content used in this profile are:

FHIR Content (Resources, ValueSets, etc.	FMM Level
Measure	2
MeasureReport	2

The Radiology Pathology Concordance (RPC) Profile describes how discrete data elements are collected from structured reports to create an integrated report, where concordance of results is assessed, and reports are shared to an EMR or system in use by a health facility.

The integrated report would extract data from structured radiology and pathology reports, compare the extracted results and assign a score based on the concordance of the results which will be included in a new integrated report.

Use cases include the correlation of structured reporting data for Breast, Prostate and Thyroid cancers, as well as the use of integrated diagnostic reports for radiologist training, as well as a tool in MCC's and Tumor Board discussions to support decision making for patient care.

180 **Open Issues and Questions**

None at this time.

Closed Issues

None at this time.

185 ## IHE Technical Frameworks General Introduction

The [IHE Technical Frameworks General Introduction](#) is shared by all of the IHE domain technical frameworks. Each technical framework volume contains links to this document where appropriate.

9 Copyright Licenses

190 IHE technical documents refer to, and make use of, a number of standards developed and published by several standards development organizations. Please refer to the IHE Technical Frameworks General Introduction, [Section 9 - Copyright Licenses](#) for copyright license information for frequently referenced base standards. Information pertaining to the use of IHE International copyrighted materials is also available there.

195 ## 10 Trademark

IHE® and the IHE logo are trademarks of the Healthcare Information Management Systems Society in the United States and trademarks of IHE Europe in the European Community. Please refer to the IHE Technical Frameworks General Introduction, [Section 10 - Trademark](#) for information on their use.

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IHE Technical Frameworks General Introduction Appendices

The IHE Technical Framework General Introduction Appendices are components shared by all of the IHE domain technical frameworks. Each technical framework volume contains links to these documents where appropriate.

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> *Update the following appendices to the General Introduction as indicated below. Note that these are **not** appendices to this domain's Technical Framework (TF-1, TF-2, TF-3 or TF-4) but rather, they are appendices to the IHE Technical Frameworks General Introduction located here.*

210

Appendix A – Actors

> *Add the following **new or modified** actors to the IHE Technical Frameworks General Introduction Appendix A:*

New (or modified) Actor Name	Definition
No new actors	

215

The table below lists existing actors that are utilized in this profile.

Complete List of Existing Actors Utilized in this Profile

Existing Actor Name	Definition
Content Creator	The Content Creator creates content and transmits to a Content Consumer.
Content Consumer	The Content Consumer views, imports, or performs other processing of content created by a Content Creator.
Content Data Structure Creator	The Content Data Structure Creator creates a message structure definition that may be employed by a Content Creator to develop profile-conformant messages for exchange with a Content Consumer.
Content Data Structure Consumer	The Content Data Structure Consumer consumes a message structure definition that may be employed by a Content Creator to develop profile-conformant messages for exchange with a Content Consumer.

220   **Appendix B** – Transactions

*Add the following **new or modified** transactions to the IHE Technical Frameworks General
Introduction Appendix B:*

New (or modified) Transaction Name and Number	Definition
Send Concordance Report [LAB-90]	This transaction is used to transfer a structured concordance report from a Content Creator to the Content Consumer
Retrieve Concordance Report Definition [LAB-91]	This transaction is used by Content Data Structure Consumer and Content Data Structure Creator to retrieve a definition of a concordance report so that a concordance report can be created and/or validated.

225   **Appendix D** – Glossary

*Add the following **new or updated glossary** terms to the IHE Technical Frameworks General
Introduction Appendix D.*

New (or modified) Glossary Term	Definition
No new Glossary Terms	

Volume 1 – Profiles

230

Domain-specific additions

Not applicable

235

> *Add new Section X*

X Radiology Pathology Concordance (RPC) Profile

240　The correlation of radiologic and pathologic findings is well established as a key component in
the evaluation of cancer, enabling accurate diagnosis and informing treatment decisions. As
technologies have improved and the field of molecular diagnostics has grown, there is now an
opportunity to build on the traditional correlation between imaging, and ex vivo and
histopathologic findings.

245　In recent years there has been a greater push to standardize the way in which diagnostic
pathology and radiology data is captured, and synoptic reporting has been emphasized as a tool
to enable this collection of data. While synoptic reports offer improved standardization and
analysis of data, it is the integration and correlation of pathologic and radiologic data that could
offer great benefits for health care facilities as well as in the clinical setting.

250　The RPC Profile aims to leverage the discrete data collected through structured pathology and
radiology reports to correlate diagnostic results. The reports created can then be used in health
care facilities for training, care planning and quality improvement.

This profile describes how to use the FHIR Measure and MeasureReport resources in order to
correlate radiology and pathology results at a patient level. The Measure resource defines how to
255　correlate a given results, and the MeasureReport is the actual result for a given patient.

X.1 RPC Actors, Transactions, and Content Modules

This section defines the actors, transactions, and/or content modules in this profile. General
definitions of actors are given in the Technical Frameworks General Introduction Appendix A.
IHE Transactions can be found in the Technical Frameworks General Introduction Appendix B.
260　Both appendices are located at http://ihe.net/Technical_Frameworks/#GenIntro

Figure X.1-1 shows the actors directly involved in the RPC Profile and the relevant transactions
between them. If needed for context, other actors that may be indirectly involved due to their
participation in other related profiles are shown in dotted lines. Actors which have a required
grouping are shown in conjoined boxes (see Section X.3).

265
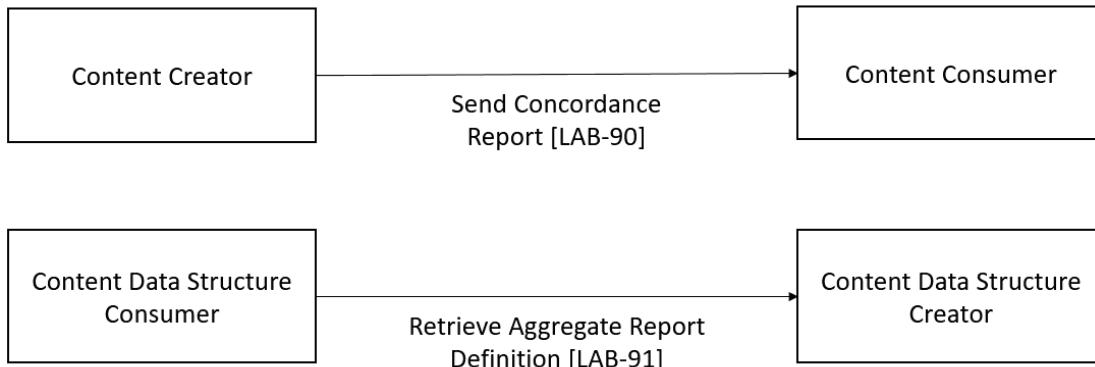
Figure X.1-1: RPC Actor Diagram

Table X.1-1 lists the transactions for each actor directly involved in the RPC Profile. To claim
compliance with this profile, an actor shall support all required transactions (labeled "R") and
270 may support the optional transactions (labeled "O").

Table X.1-1: RPC Profile – Actors and Transactions

Actors	Transactions	Initiator or Responder	Optionality	Reference
Content Creator	Send Concordance Report [LAB-90]	Initiator	R	PaLM TF-2: 3.Y
Content Consumer	Send Concordance Report Response [LAB-90]	Responder	R	PaLM TF-2: 3.Y
Content Data Structure Consumer	Retrieve Concordance Report Definition [LAB-91]	Initiator	R	PaLM TF-2: 3.Y2
Content Data Structure Creator	Retrieve Concordance Report Definition Response [LAB-91]	Responder	R	PaLM TF-2: 3.Y2

Table X.1-2 lists the content module(s) defined in the RPC Profile. To claim support with this
profile, an actor shall support all required content modules (labeled "R") and may support
275 optional content modules (labeled "O").

Table X.1-2: RPC Profile – Actors and Content Modules

Actors	Content Modules	Optionality	Reference
Content Data Structure Creator	RPC Measure	R	PaLM TF-3: A.1
Content Data Structure Consumer	RPC Measure	R	PaLM TF-3: A.1

X.1.1 Actor Descriptions and Actor Profile Requirements

X.1.1.1 Content Creator

280 The Content Creator associates key data elements from the Pathology and Radiology structured reports, evaluates the identified data elements for concordance, and assigns a concordance score to the case and creates a concordance report.

X.1.1.2 Content Consumer

The Content Creator notifies the Content Consumer of the availability of the concordance report. Clinicians can log into the Content Consumer to retrieve the report and review for correlation
285 and concordance.

X.1.1.3 Content Data Structure Creator

The Content Data Structure creator defines a Measure Resource that would be exchanged between the Content Creator and Content Consumer. The implementing site would define the aggregate health data to be exchanged.

290 ### X.1.1.4 Content Data Structure Consumer

The Content Data Structure Consumer consumes a Measure Resource produced by a content data structure creator. The content creator or the content consumer may act as a Content Data Structure Consumer.

X.2 RPC Actor Options

295 No options have been defined for this profile.

X.3 RPC Required Actor Groupings

RPC has no required actor groupings. Optional actor groupings are defined in Section X.1.

X.4 RPC Overview

X.4.1 Concepts

300 The following concepts are used in this profile:

- Measure: the FHIR resource which defines a correlation measure.

- MeasureReport: the FHIR resource which specifies the data captured according to a Measure.

X.4.1.1 Use Case #1: Concordance Scoring for Radiologist Training

X.4.1.1.1 Concordance Scoring for Radiologist Training Use Case Description Use Case Description

305

In this use case Rad-Path concordance will be used as a training tool for Radiologists. The application will assess concordance in identified data elements extracted from structured radiology and pathology reports for Breast, Prostate, and Thyroid.

310

A report will be produced based on the extracted data and will be assigned a score based on how concordant the radiology report was to the pathology report.

This concordance score will then be shared back with the Radiologist issuing the radiology report for training and quality improvement purposes. The goal is to decrease the number of discordant results and improve accuracy of interpretation and reporting.

X.4.1.1.2 Radiologist Training Process Flow
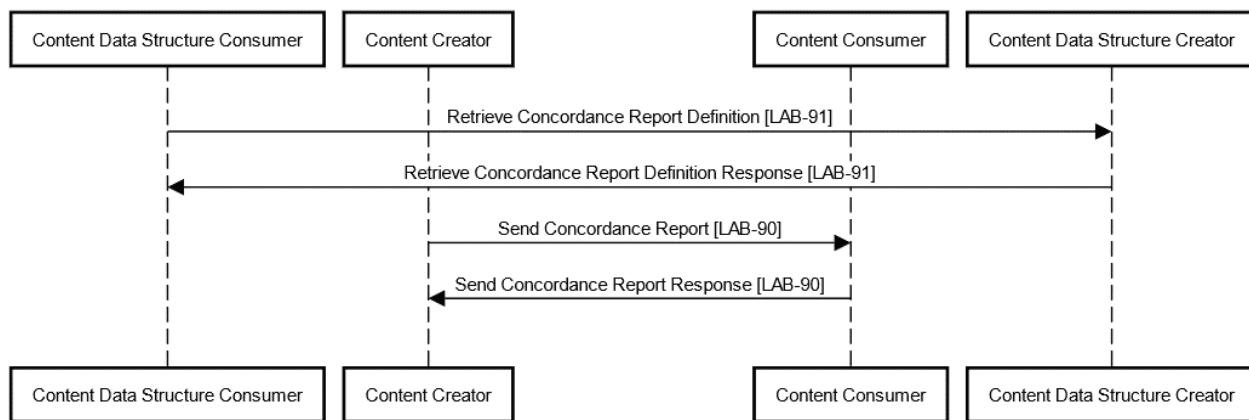
315

Figure X.4.1.1.2-1: Basic Process Flow in RPC Profile

X.4.1.2 Use Case #2: Rad-Path Concordance and Reporting for MCC/Tumor Board Review

X.4.1.2.1 Rad-Path Concordance and Reporting for MCC/Tumor Board Review Use Case Description

320

In this use case an integrated diagnostic report will be created to facilitate discussions in a group setting such as Tumor Boards/ Multidisciplinary Cancer Conferences (MCC). Tumor Boards/ MCCs bring together a multidisciplinary group of clinicians and other care providers to review cancer cases, share knowledge and develop care plans for cancer patients. Radiology and

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pathology reports provide key information needed to make care plans and treatment decisions.

Radiology and Pathology data will be extracted from structured Radiology and Pathology reports based on identified key data elements. Extracted data will automatically be assessed for concordance and an integrated report will be issued.

An integrated diagnostic report would enable the clinicians in a group setting to more quickly and effectively make treatment or care decisions for a cancer patient.

X.4.1.3 Use Case #3: Breast Rad-Path Concordance

X.4.1.3.1 Breast Rad-Path Concordance Use Case Description

In this use case an application extracts data from structured radiology and pathology reports to create an integrated diagnostic report for Breast lesions.

The Breast Imaging Reporting and Data System (BI-RADS) enables the structured and standardized collection of Mammography, Ultrasound, and MRI results through radiology information systems (RIS) or voice recognition systems.

The College of American Pathologists (CAP) Cancer Protocols for DCIS Biopsy and Invasive Breast Cancer Biopsy collect pathologic data in a structured format which is integrated with Laboratory Information Systems (LIS).

Data elements important to the diagnosis of Breast Cancer will be extracted from the LIS and RIS or Voice Recognition System through an application, to create an integrated diagnostic report that correlates radiology and pathology results. In particular it is the correlation of 'Masses' 'Calcifications' and 'Laterality' in BI-RADS and 'Histologic Type', ' Microcalcifications' and 'Specimen Laterality' within the CAP Cancer Protocols that is required as part of an integrated diagnostic report to confirm diagnosis.

X.4.1.4 Use Case #4: Prostate Rad-Path Concordance

X.4.1.4.1 Prostate Rad-Path Concordance Use Case Description

In this use case an application extracts data from structured radiology and pathology reports to create an integrated diagnostic report for Prostate lesions.

The Prostate Imaging Reporting and Data System (PI-RADS) enables the structured and standardized collection of prostate MRI results and reporting through radiology information systems (RIS) or voice recognition systems.

The College of American Pathologists (CAP) Cancer Protocols for Radical Prostatectomy collect pathologic data in a structured format which is integrated with laboratory information systems.

Data elements important to the diagnosis of Prostate Cancer will be extracted from the LIS, and RIS or voice recognition system through an application, to create an integrated diagnostic report that correlates radiology and pathology results. The data elements being extracted are as follows:

PI-RADS	CAP Radical Prostatectomy Protocol
Prostate Size	Prostate Size: Size (centimeters)
Lesion Size	Tumor Size (Dominant Nodule, if present)
Tumor Location	Location of Dominant Nodule
Extracapsular Extension	Extraprostatic Extension
Seminal Vesicle Invasion	Seminal Vesicle Invasion
Adjacent Organ Invasion	Bladder Neck Invasion
Pelvic Lymph Nodes	Regional Lymph Nodes
Gleason Score	Gleason Score
Grade Group	Histologic Grade, Grade Group and Gleason Score

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X.4.1.5 Use Case #5: Thyroid Rad-Path Concordance

X.4.1.5.1 Thyroid Rad-Path Concordance Use Case Description

In this use case an application extracts data from structured radiology and pathology reports to create an integrated diagnostic report for Thyroid tumors.

365 The Thyroid Imaging Reporting and Data System (TI-RADS) enables the structured and standardized collection of Ultrasound results and reporting through radiology information systems (RIS) or voice recognition systems.

The College of American Pathologists (CAP) 'Protocol for Examination of Specimens from Patients with Carcinomas of the Thyroid Gland' collect pathologic data in a structured format
370 which is integrated with laboratory information systems.

Data elements important to the diagnosis of Thyroid Cancer will be extracted from the LIS, and RIS or Voice Recognition System through an application, to create an integrated diagnostic report that correlates radiology and pathology results. In particular it is the correlation of 'Shape' and 'Margin' in TI-RADS and 'Tumor Size' and 'Margins' and within the CAP Cancer
375 Protocols that is required as part of an integrated diagnostic report to confirm diagnosis.

X.5 RPC Security Considerations

PaLM defines a number of security considerations. Implementers are expected to follow all security best practices in order to safeguard patient data.

See PaLM Security Environment Considerations in PaLM TF-1: Appendix A.

380 See ATNA Security considerations in ITI TF-1: 9.5

See IUA Security considerations in ITI IUA Supplement Section TF-1: 34.5

X.6 RPC Cross Profile Considerations

X.6.1 SDC - Structured Data Capture

385 A Form Filler may be grouped with a Content Creator to push data to a Content Consumer. A Form Filler would generate structured data which is capable of being transformed to a FHIR message compliant with this profile.

X.6.2 APSR - Anatomic Pathology Structured Report

An APSR Content Creator may create content that an RPC Content Creator can send to an RPC Content Consumer. The APSR content could be structured in a FHIR message much like the data 390 captured by an SDC Form Filler.

Appendices to Volume 1

Not Applicable

Volume 2 – Transactions

395 | *Add Section 3.Y*

3.Y Send Concordance Report [LAB-90]

This transaction describes how to send data from a Content Creator to a Content Consumer.

3.Y.1 Scope

The Send Concordance Report [LAB-90] transaction is used to transfer a structured concordance
400 report from a Content Creator to the Content Consumer

3.Y.2 Actor Roles
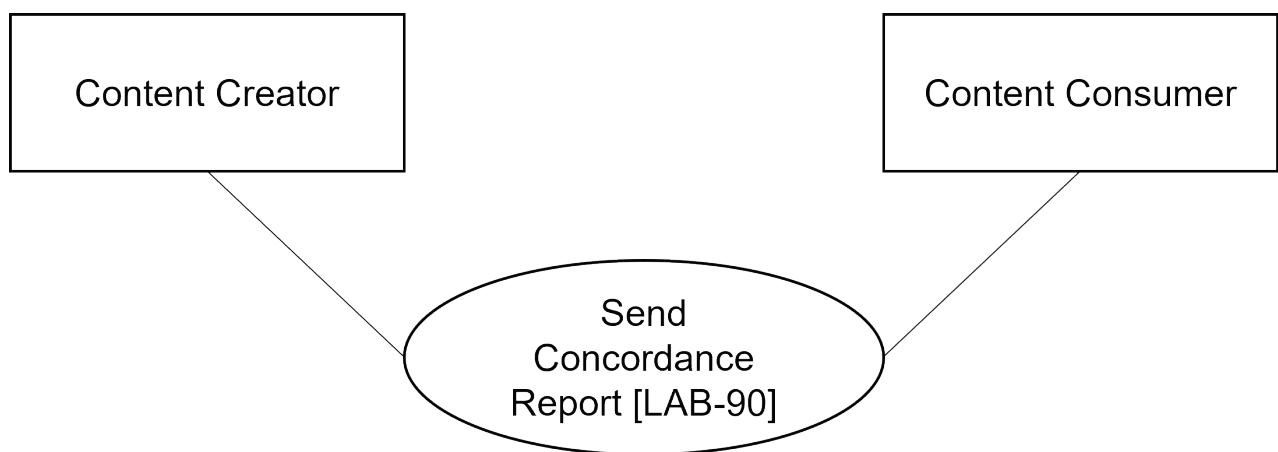
Figure 3.Y.2-1: Use Case Diagram

Table 3.Y.2-1: Actor Roles

Actor:	Content Creator
Role:	The Content Creator is responsible for the creation of a FHIR MeasureReport containing correlated radiology and pathology data.
Actor:	Content Consumer
Role:	The content consumer receives the concordance report containing correlated results

405

3.Y.3 Referenced Standards

- HL7 FHIR MeasureReport

3.Y.4 Messages
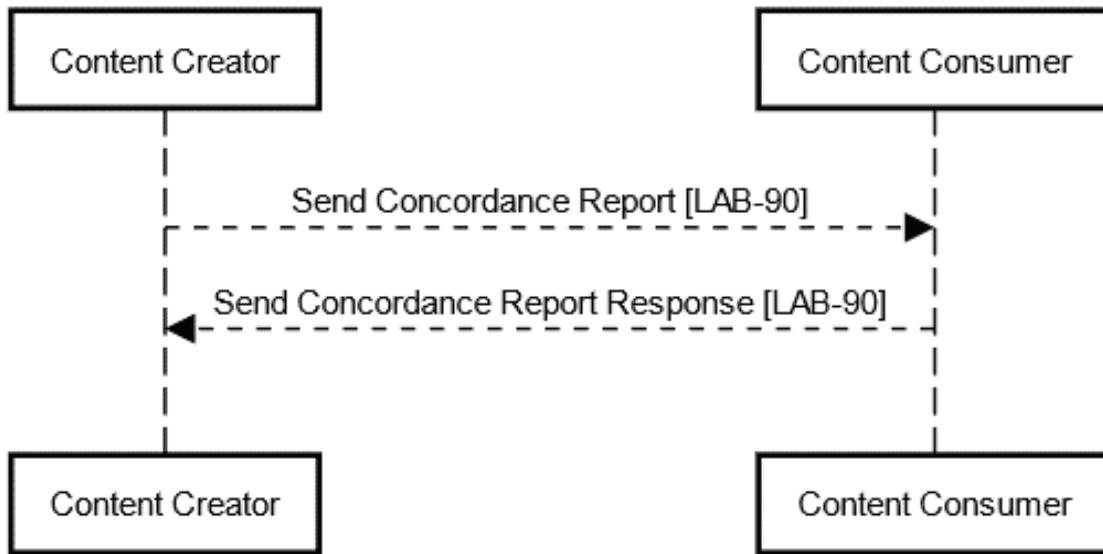
Figure 3.Y.4-1: Interaction Diagram

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3.Y.4.1 Send Concordance Report

This transaction transmits RPC-conformant messages containing correlated results from the content creator to the content consumer.

The Send Concordance Report is implemented as a FHIR create Transaction defined in the RESTful API implementation guide: https://www.hl7.org/fhir/http.html#create

415

The format for this transaction is as follows:

POST/PUT [base]/MeasureReport

3.Y.4.1.1 Trigger Events

Examples of events which might trigger a Send Concordance Report transaction include, but are not limited to:

420

- Completion of a radiology and pathology report where results are collected and a concordance report is created immediately

- An overnight batch job where the report is created whenever the function is run

3.Y.4.1.2 Message Semantics

425 The Content Creator creates an RPC conformant message containing correlated results that meets the requirements of the RPC Measure. The Content Creator SHALL send the message using Send Concordance Report and the Content Consumer SHALL consume the message according to the RPC Measure. The table below describes the request.

Table 3.Y.4.1.2-1: Message Semantics for Send Concordance Report

	Description
URL	The RPC Profile does not prescribe the form of the URL to be advertised by a Content Consumer except that the scheme of the URL SHALL be "https."
Headers	The Update request SHALL contain a Content-type header identifying the payload
	Type:Content-type: application/fhir+xml
	Type:Content-type: application/fhir+json
	The request MAY contain any additional headers. For example, a Content Consumer may require an Authorization header.
	A Content Consumer MAY support additional parameters
BODY	The body of a RPC Send Concordance Report request SHALL contain a valid RPC data payload as described in Section 8.2 of this profile.

430

The report SHALL contain the following elements:

`subject`

> A required patient or group reference

`period`

435 > The start and end of the reporting period

`group.coding.code`

> A required reference for a valid report

`stratifier.stratum.value`

> A required value for each report

440 3.Y.4.1.3 Expected Actions

The Content Consumer SHALL processes the RPC message received and return the status of the transaction as a Send Concordance Report Result as defined in Section 3.Y.4.2.

3.Y.4.2 Send Concordance Report Response

445 This transaction is an acknowledgement of RPC POST Content transaction from the Content Consumer to the Content Creator.

The Send Concordance Report Response is implemented as an HTTP response. It is expected to be made synchronously.

3.Y.4.2.1 Trigger Events

450 A Content Consumer sends a Send Concordance Report Response when the Concordance report is received from the Content Creator.

3.Y.4.2.2 Message Semantics

The Send Concordance Report Result is implemented as an HTTP Response. The response may include content in the body to provide an implementation specific informative message on the completed status of the transaction. The response shall contain an HTTP status code. The table
455 below describes the codes which may be produced by the Content Consumer which have a specific meaning related to the transaction.

Note that a Content Creator should be prepared to handle additional status codes not particular to the transaction, such as authorization, server or network error codes. HTTP status codes correspond to FHIR HTTP 3.1.0.4.2 Rejecting Updates
460 (https://www.hl7.org/fhir/http.html#rejecting-updates).

Table 3.Y.4.2.2-1: Send Concordance Report Result status codes

HTTP Status Code	Interpretation
200	Send Concordance Report Request was successfully processed
202	Send Concordance Report Request has been accepted for processing, but the processing has not been completed. The request might or might not be eventually acted upon, and may be disallowed when processing occurs.
303	The response to the Send Concordance Report when the task is complete can be retrieved from another URL. When received in response to a Send Concordance Report, the client should presume that the server has received the data and should issue a redirect with a separate GET message.
400	Bad Request - message content is badly formed or invalid
401	Not authorized - authorization is required for the interaction that was attempted
404	Not found - resource type is not supported

HTTP Status Code	Interpretation
405	Method not allowed - the resource did not exist prior to the update, and the server does not allow client defined ids
409/412	Conflict - invalid identifier in the message content.
415	Unsupported content-type or media
422	Unprocessable entity - The MeasureReport does not adhere to RPC Profile on the required fields, etc.
501	The request method is not implemented.

3.Y.4.2.3 Expected Actions

465 A Content Consumer SHALL respond with appropriate error codes in the event of receiving an invalid MeasureReport according to the FHIR 3.1.0.4.2 Rejecting Updates. This response should include the appropriate code detailed in Table 3.Y.4.2.2-1 in a FHIR OperationOutcome resource.

3.Y.5 Protocol Requirements

See ITI TF-2: Appendix Z.

470 3.Y.6 Security Considerations

This profile is assumed to use patient data. The appropriate security precautions are expected to be taken to protect PHI, these should include the precautions outlined in the PaLM Security Environment Considerations in PaLM TF-1: Appendix A.

475 Transport of RPC data SHOULD be safeguarded according to jurisdictional guidelines. To protect data integrity these SHOULD include encryption of the transport layer and the use of an appropriate mutual authentication mechanism which meets these guidelines.

Content Consumers should also take adequate account of security considerations related to the generic processing of RPC documents.

3.Y.6.1 Security Audit Considerations

480 There is no specific ATNA security audit event that is associated with this transaction.

3.Y2 Retrieve Concordance Report Definition [LAB-91]

This section corresponds to transaction [LAB-91] of the IHE PALM Technical Framework. Transaction [LAB-91] is used by Content Data Structure Consumer and Content Data Structure Creator to retrieve a definition of a concordance report so that a concordance report can be 485 created and/or validated.

3.Y2.1 Scope

This transaction is used to obtain the FHIR Measure to structure and validate a given FHIR MeasureReport.

3.Y2.2 Actor Roles
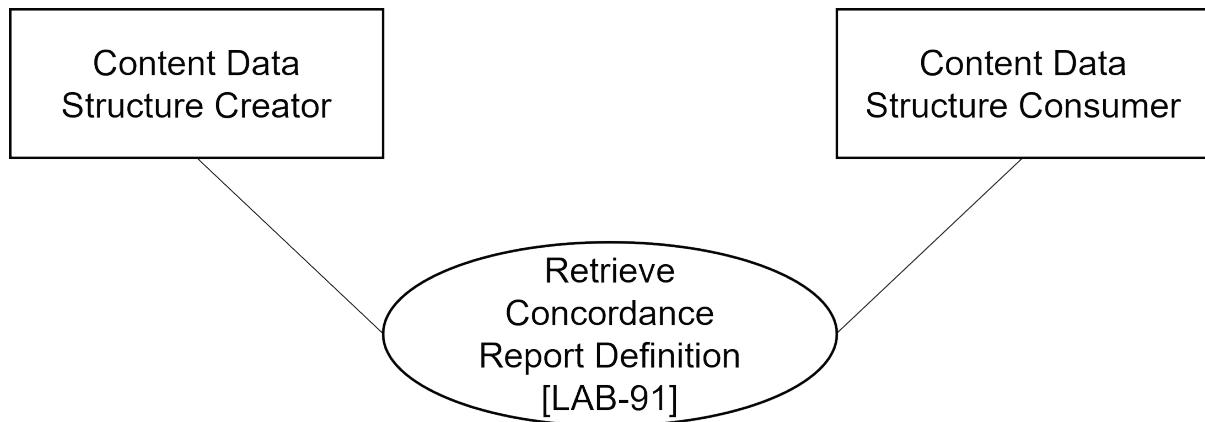
490

Figure 3.Y2.2-1: Use Case Diagram

Table 3.Y2.2-1: Actor Roles

Actor:	Content Data Structure Consumer
Role:	The Content Data Structure Creator is responsible for the creation of a Measure Resource, which specifies the structure of a given MeasureReport
Actor:	Content Data Structure Creator
Role:	A Content Consumer is responsible for receiving the Measure Resource and validating its messages.

3.Y2.3 Referenced Standards

- HL7 FHIR Measure

495 ## 3.Y2.4 Messages

Retrieve Concordance Report Definition [LAB-91]
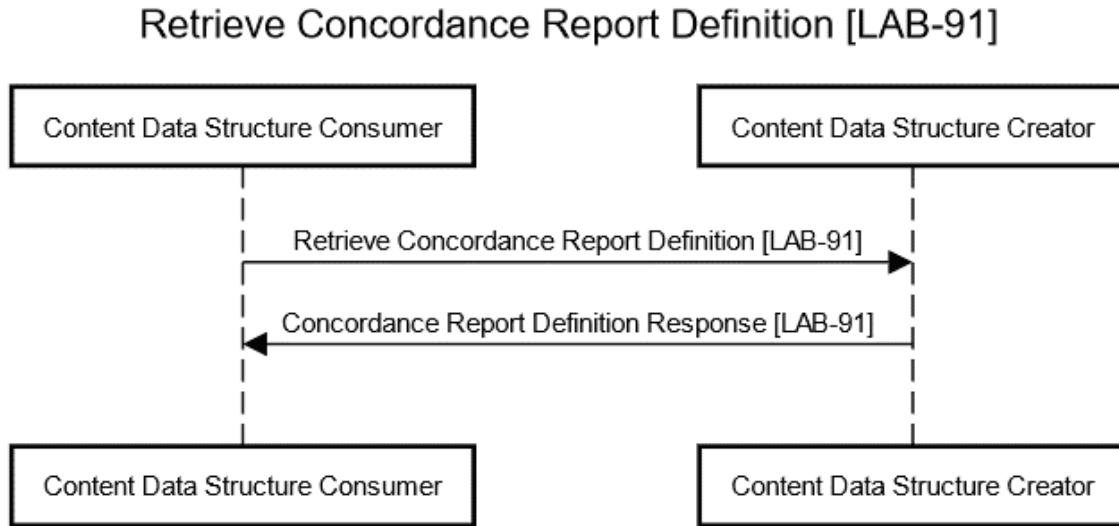
Figure 3.Y2.4-1: Interaction Diagram

3.Y2.4.1 Retrieve Concordance Report Definition

500 This transaction details the Content Data Structure Consumer requesting an RPC Measure from a Content Data Structure Creator. The Measure MAY be used by the Content Consumer to validate their RPC messages upon receipt. As such, it is expected that the Content Consumer and Content Data Structure Consumer MAY be bundled in most use cases.

The Retrieve Concordance Report Definition [LAB-91] is implemented as a FHIR Read
505 transaction defined in the RESTful API implementation guide: https://www.hl7.org/fhir/http.html#read.

The format for this transaction is as follows:
```
GET [base]/Measure/[id]
```

3.Y2.4.1.1 Trigger Events

510 A Content Data Structure Consumer sends a Retrieve Concordance Report Definition [LAB-91] as a request for a given Measure from a Content Data Structure Creator.

3.Y2.4.1.2 Message Semantics

The following table describes the messaging semantics for a Concordance Report Definition.

Table 3.Y2.4.1.2-1: Message Semantics for Concordance Report Definition

	Description
URL	The RPC Profile does not prescribe the form of the URL to be advertised by a Content Consumer except that the scheme of the URL SHALL be "https".
Headers	The Read request SHALL contain a Content-type header identifying the payload Type:Content-type: application/ fhir+xml Type:Content-type: application/fhir+json The request MAY contain any additional headers. For example, a Content Creator may require an Authorization header.
BODY	The body of an RPC Retrieve Data Structure request SHALL contain the ID of the requested Measure resource.

515

3.Y2.4.1.3 Expected Actions

The Content Data Structure Consumer SHALL send a request for a given Measure from the Content Data Structure Creator.

3.Y2.4.2 Retrieve Concordance Report Definition Response

520 This transaction defines the response given by a Content Data Structure Creator to a Content Data Structure Consumer.

The Retrieve Concordance Report Definition [PALM-Y2] Response is implemented as a FHIR Read transaction defined in the RESTful API implementation guide: https://www.hl7.org/fhir/http.html#read.

525 An example Measure is provided in PaLM TF-3: Appendix A.1.

3.Y2.4.2.1 Trigger Events

A Content Data Structure Creator SHALL return a Report Concordance Definition Response if a Content Consumer has sent a Retrieve Concordance Report Definition Request.

3.Y2.4.2.2 Message Semantics

530 The Content Data Structure Creator SHALL conform to HTTPS standards and respond to the Retrieve Concordance Report Definition Request with the appropriate status code outlined in the table below.

Table 3.Y2.4.2.2-1: Retrieve Concordance Report Definition Result Status Codes

HTTP Status Code	Interpretation
200	Retrieve Concordance Report Definition Request was successfully processed
202	Retrieve Concordance Report Definition Request has been accepted for processing, but the processing has not been completed. The request might or might not be eventually acted upon, and may be disallowed when processing occurs.
303	The response to the Retrieve Concordance Report Definition Request when the task is complete can be retrieved from another URL. When received in response to a Retrieve Concordance Report Definition, the client should presume that the server has received the data and should issue a redirect with a separate GET message.
400	Bad Request - message content is badly formed or invalid.
401	Not authorized - authorization is required for the interaction that was attempted.
404	Not found - The referenced Measure resource was not found.
405	Method not allowed - the resource did not exist prior to the update, and the server does not allow client defined ids.
409/412	Conflict - invalid identifier in the message content.
415	Unsupported content-type or media
422	Unprocessable entity - The referenced Measure resource does not adhere to the message semantics.
501	The request method is not implemented.

535 The HL7 FHIR Measure SHALL contain the following elements:

`title`

> The name for this concordance report.

`status`

> The publication status of this Measure.

540 `group.code`

> The meaning of the group.

`group.stratifier`

> The criteria for the measure.

`group.straifier.code`

545   The meaning of the stratifier.

`group.component`

A separator for multiple stratifiers part of a single group.

`group.component.criteria`

The criteria for the group including the language and expression for where to find the data in a
550   given patient record in order to build the MeasureReport.

3.Y2.4.2.3 Expected Actions

The Content Data Structure Creator SHALL return the requested Measure in the Concordance
Report Definition Response to the Content Data Structure Consumer.

3.Y2.5 Protocol Requirements

555   See ITI TF-2: Appendix Z

3.Y2.6 Security Considerations

There are no specific security considerations for FHIR Measures, as they should not contain PHI.

Appendices to Volume 2

Not applicable.

560

Volume 3 – Content Modules

565

5 IHE Namespaces, Concept Domains and Vocabularies

Add to Section 5 IHE Namespaces, Concept Domains and Vocabularies

5.1 IHE Pathology and Laboratory Medicine Namespaces

570 The Pathology and Laboratory Medicine registry of OIDs is located at
https://drive.google.com/drive/folders/1YQ9IghX9I5HTIV0dw8A6b2rCkyhu61Yl

Additions to the Pathology and Laboratory Medicine OID Registry are:

None

5.2 IHE Pathology and Laboratory Medicine Concept Domains

575 For a listing of the Pathology and Laboratory Medicine Concept Domains see:

Not applicable

5.3 IHE Pathology and Laboratory Medicine Format Codes and Vocabularies

5.3.1 IHE Format Codes

580

*List in the table below any **new** format codes to be added to the IHE Format Codes wiki page at http://wiki.ihe.net/index.php/IHE_Format_Codes. For public comment, the additions must be listed in the table below. The domain technical committee must ensure any new codes are also added to the wiki page prior to publication for trial implementation.*

585

Profile	Format Code	Media Type	Template ID
<Profile Name> (<Profile Acronym>)	<urn:ihe: >		<oids>
No new			

5.3.2 IHEActCode Vocabulary

590   *List in the table below, any **new** additions to the IHEActCode Vocabulary wiki page at
http://wiki.ihe.net/index.php/IHEActCode_Vocabulary. For public comment, the additions must
be listed in the table below. The domain technical committee must ensure any new codes are also
added to the wiki page prior to publication for trial implementation.*

Code	Description
<Code name>	<short one sentence description or reference to longer description (not preferred)>
No new	

595

5.3.3 IHERoleCode Vocabulary

   *List in the table below any **new** additions to the IHERoleCode Vocabulary wiki page at
http://wiki.ihe.net/index.php/IHERoleCode_Vocabulary. For public comment, the additions must*
600   *be listed in the table below. The domain technical committee must ensure any new codes are also
added to the wiki page prior to publication for trial implementation.*

Code	Description
<name of role>	<Short, one sentence description of role or reference to more info.>
No new	

6 Pathology and Laboratory HL7 V3 CDA Content Modules

605   Not applicable.

7 Pathology and Laboratory Medicine DICOM Content Definitions

Not applicable.

8 RPC Content Modules

This section defines Content Modules for the Radiation Pathology Concordance (RPC) Profile

8.1 Overview of the RPC Process

A Content Data Structure Creator creates RPC conformant Measures.

Typically, the RPC Content Data Structure Creator will be implemented as some kind of library of potential Measures, which is based on the HL7 FHIR Measure, as described in Section 8.2.

- RPC Content data messages can be validated using ValueSets from the HL7 FHIR Terminology Service.

Content Creators and Content Consumers exchange a data payload that conforms to the RPC compliant resources. A sample RPC compliant data payload is provided in the informative Appendices A.1 and A.2

8.2 FHIR MeasureReport

An RPC FHIR MeasureReport shall be compliant with the constraints defined in Section 3.Y.1 of this profile.

The Measure should provide guidance as to which data should be present in the MeasureReport for compliance.

Appendices to Volume 3

625 ## Appendix A – Sample Measure and Message for RPC Profile

Appendix A text.

A.1 Sample RPC Measure

```
{
  "resourceType": "Measure",
630  "id": "RadObs",
  "status": "draft",
  "experimental": true,
  "group": [
    {
635      "stratifier": [
        {
          "code": {
            "coding": [
              {
640                "code": "measure-observation"
              }
            ]
          },
          "component": [
645            {
              "criteria": {
                "language": "text/fhir-x-query",
                "expression": "/Observation?subject:Patient/{id}/&amp;value-
concept=http://radlex.org|RID49502"
650              }
            }
          ]
```

```
        }
      ]
655   },
      {
        "stratifier": [
          {
            "component": [
660           {
                "code": {
                  "coding": [
                    {
                      "code": "measure-observation"
665                 }
                  ]
                },
                "criteria": {
                  "language": "text/fhir-x-query",
670               "expression": "/Observation?subject:Patient/{id}/&amp;value-
concept=http://cap.org/eCC|16811"
                }
              }
          ]
675     }
      ]
    }
  ]
}
680
```

A.2 Sample RPC Message

```
      {
685     "resourceType": "MeasureReport",
        "id": "RadObsMeasureReport",
        "status": "complete",
        "type": "individual",
        "measure": "http://cap.org/radpath",
690     "period": {
          "start": "2021-02-07",
          "end": "2021-02-07"
        },
        "group": [
695       {
            "stratifier": [
              {
                "code": [
                  {
700                 "coding": [
                      {
                        "code": "372278000",
                        "system": "http://snomed.info/sct",
                        "display": "Gleason score"
705                   }
                    ]
                  }
                ],
                "stratum": [
710               {
                    "value": {
```

```
            "coding": [
              {
                "code": "372278000",
715             "system": "http://snomed.info/sct",
                "display": "Gleason score"
              }
            ]
          },
720     "component": [
          {
            "code": {
              "coding": [
                {
725               "code": "372278000",
                  "system": "http://snomed.info/sct",
                  "display": "Gleason score"
                }
              ]
730       },
          "value": {
            "coding": [
              {
                "code": "RID49502",
735             "system": "http://radlex.org",
                "display": "clinically significant prostate cancer"
              }
            ]
          }
740     }
      ]
```

```
            }
         ]
        }
745     ]
      }
    ]
  }

750
```

Volume 4 – National Extensions

Not applicable.