



InteropEHRate

EHR in people's hands across Europe



INTEROPERABILITY PROFILES FOR HEALTH DATA SHARING

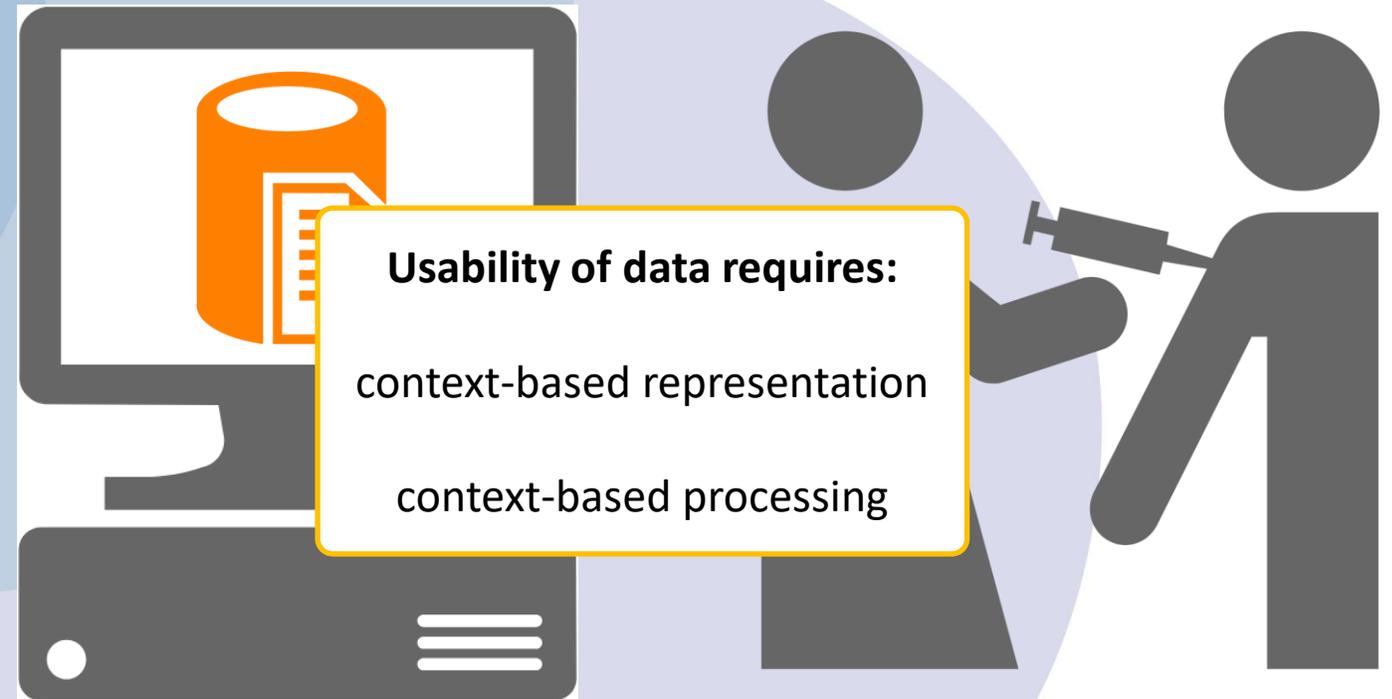
INTEROPEHRATE FINAL CONFERENCE // 27/09/2022 // MARCEL KLÖTGEN

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Union's Horizon 2020 research and innovation
programme under grant agreement No 826106



INTEROPERABILITY PROFILES FOR HEALTH DATA SHARING

SEMANTIC INTEROPERABILITY

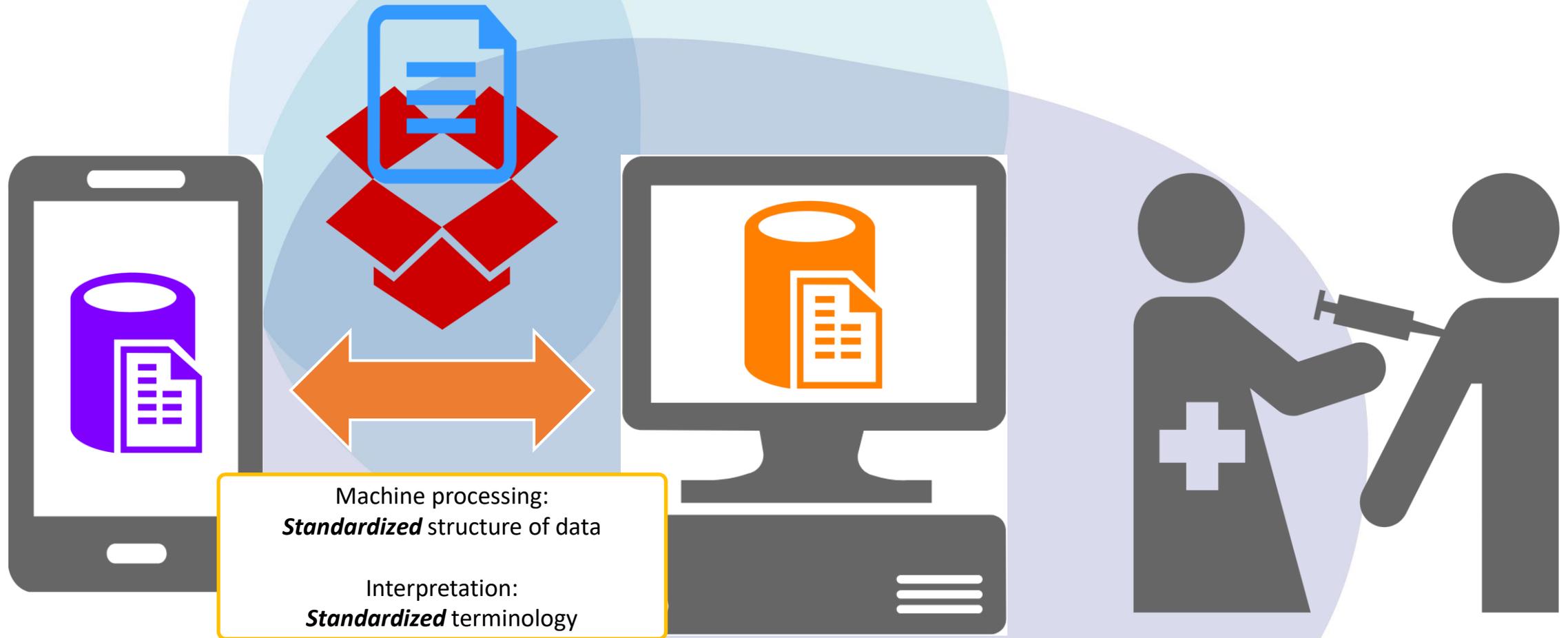


Usability of data requires:
context-based representation
context-based processing



INTEROPERABILITY PROFILES FOR HEALTH DATA SHARING

SEMANTIC INTEROPERABILITY



INTEROPERABILITY PROFILES FOR HEALTH DATA SHARING

HL7 FHIR

1.2 Resource Index

10.1.3 Resource Content

• 4.0.1

Level 1

Level 2

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Level 3

Level 4

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etc.

Level 5

Structure
UML
XML
JSON
Turtle
R3 Diff
All

Structure

Name	Flags	Card.	Type	Description & Constraints
Observation	1 N		DomainResource	Measurements and simple assertions + Rule: dataAbsentReason SHALL only be present if Observation.value[x] is not present + Rule: If Observation.code is the same as an Observation.component.code then the value element associated with the code SHALL NOT be present Elements defined in Ancestors: id, meta, implicitRules, language, text, contained, extension, modifierExtension
identifier	Σ	0..*	Identifier	Business Identifier for observation
basedOn	Σ	0..*	Reference(CarePlan DeviceRequest ImmunizationRecommendation MedicationRequest NutritionOrder ServiceRequest)	Fulfills plan, proposal or order
partOf	Σ	0..*	Reference(MedicationAdministration MedicationDispense MedicationStatement Procedure Immunization ImagingStudy)	Part of referenced event
status	?! Σ	1..1	code	registered preliminary final amended + ObservationStatus (Required)
category		0..*	CodeableConcept	Classification of type of observation Observation Category Codes (Preferred)
code	Σ	1..1	CodeableConcept	Type of observation (code / type) LOINC Codes (Example)
subject	Σ	0..1	Reference(Patient Group Device Location)	Who and/or what the observation is about
focus	Σ TU	0..*	Reference(Any)	What the observation is about, when it is not about the subject of record
encounter	Σ	0..1	Reference(Encounter)	Healthcare event during which this observation is made
effective[x]	Σ	0..1		Clinically relevant time/time-period for observation
effectiveDateTime			dateTime	
effectivePeriod			Period	
effectiveTiming			Timing	
effectiveInstant			instant	
issued	Σ	0..1	instant	Date/Time this version was made available
performer	Σ	0..*	Reference(Practitioner PractitionerRole Organization CareTeam Patient RelatedPerson)	Who is responsible for the observation
value[x]	Σ I	0..1		Actual result

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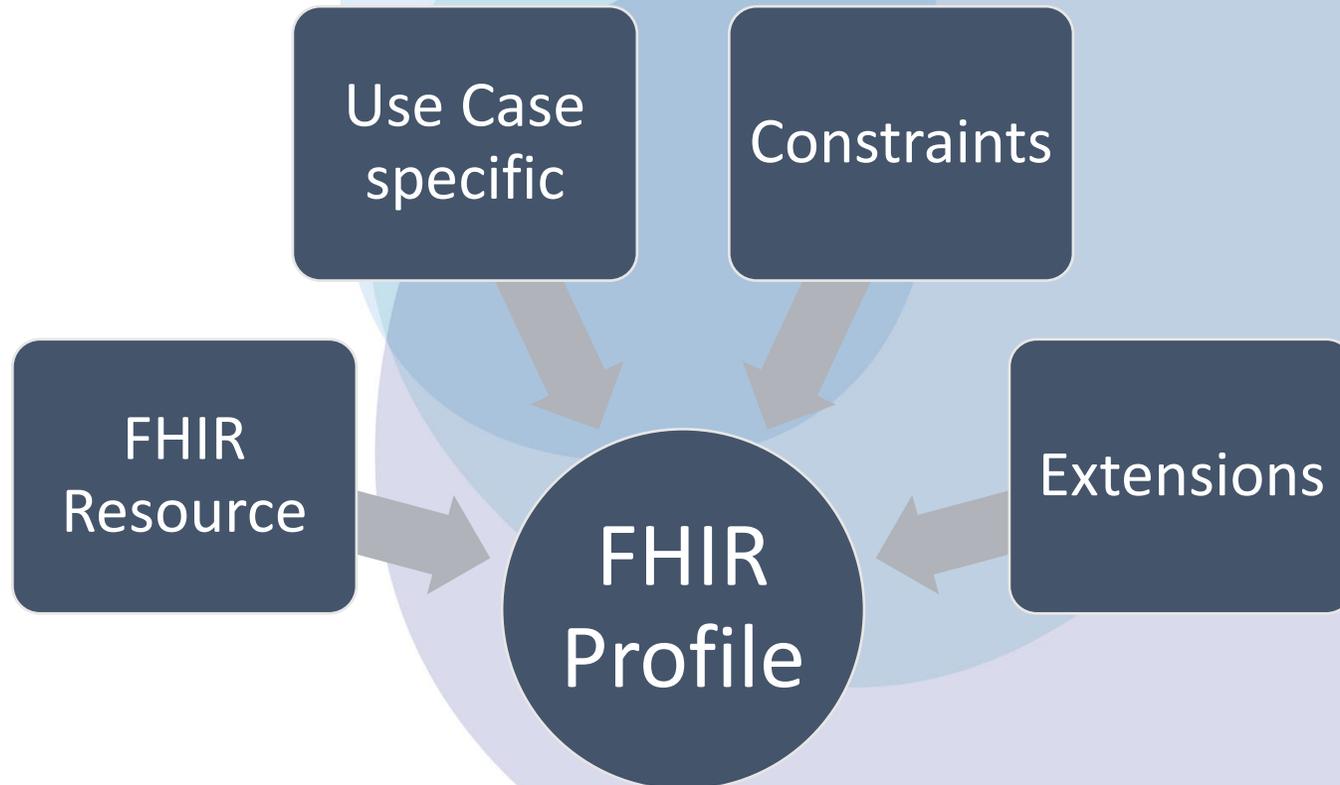
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INTEROPERABILITY PROFILES FOR HEALTH DATA SHARING

FHIR PROFILES



InteropEHRate facts:

- **43 profiles** with corresponding examples have been specified and validated
- **15 extensions** have been specified
- **20 value sets** have been specified
- data categories covered by InteropEHRate profiles:
 - Emergency / summary data
 - Prescription / dispensation
 - Laboratory results
 - Medical images & reports
 - Hospital discharge reports
 - Demographic data
 - Consent & provenance data



INTEROPERABILITY PROFILES FOR HEALTH DATA SHARING

FHIR PROFILES

Example: Research Study Profile (snapshot view)

12.6.1 Resource Profile: ResearchStudy - IEHR

Defining URI: <http://interopehrate.eu/fhir/StructureDefinition/ResearchStudy-IEHR>

Version: 12.6.5 Resource Profile: ResearchStudyIEHR - Detailed Descriptions

Name: Definitions for the ResearchStudy-IEHR resource profile.

Status:

Publisher: 1. ResearchStudy

Source Res: Definition A process where a researcher or organization plans and then executes a series of steps intended to increase the field of healthcare-related knowledge. This includes studies of

The official I: <http://interopehrate.eu/fhir/StructureDefinition/ResearchStudy-IEHR>

12.6.1.1 Description: Invariants

Text Su:

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- 3. Resear
- 4. Resear

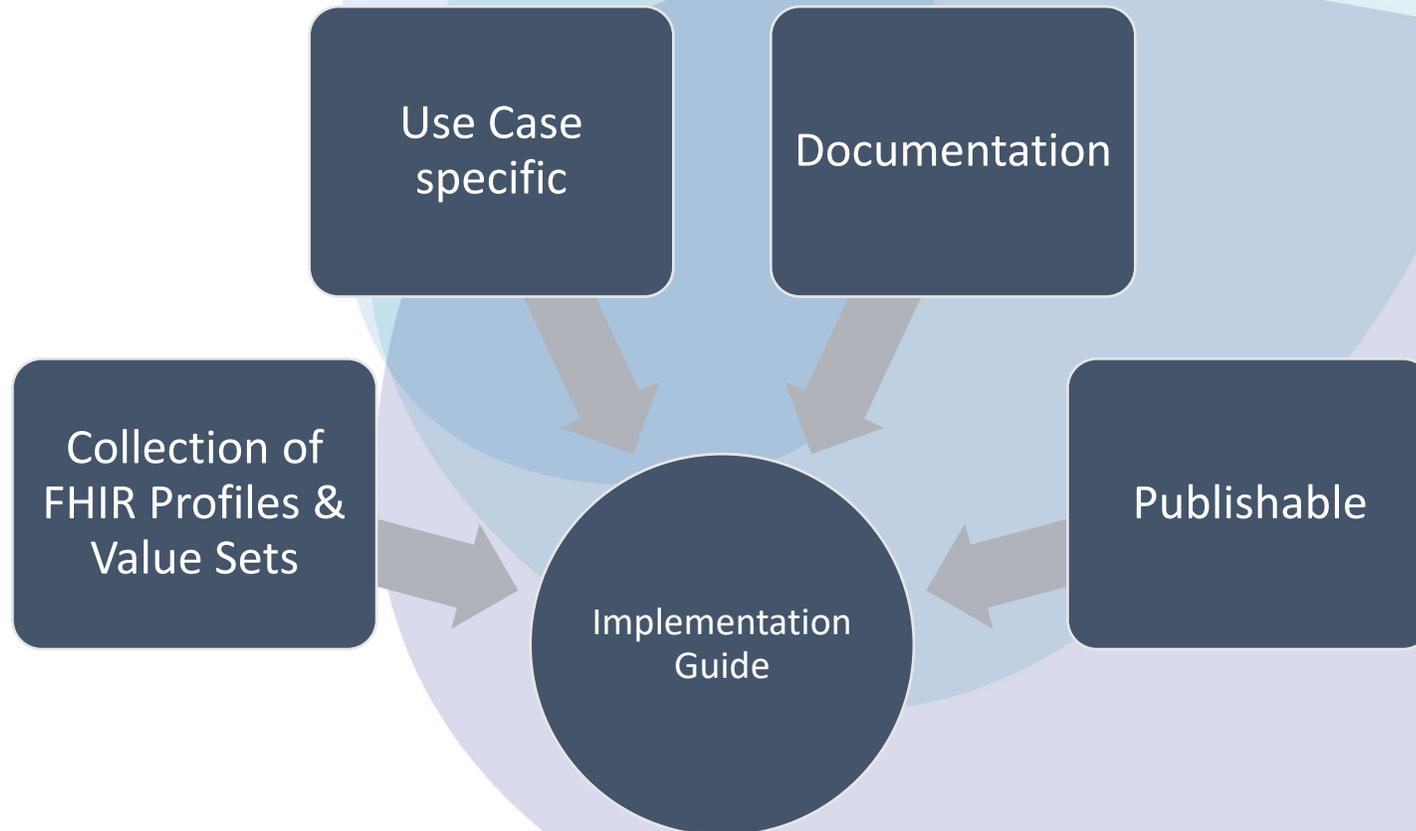
```
</text>
<url
  value="http://interopehrate.eu/fhir/StructureDefinition/ResearchStudy-IEHR"/>
<version value="1.0.0"/>
<name value="ResearchStudyIEHR"/>
<status value="draft"/>
<date value="2022-06-22T09:06:03+02:00"/>
<publisher value="IEHR-Workgroup"/>
<contact>
  <telecom>
    <system value="url"/>
    <value value="http://hl7.org/Special/committees/IEHR-Workgroup"/>
  </telecom>
</contact>
<jurisdiction>
  <coding>
    <system value="http://unstats.un.org/unsd/methods/m49/m49.htm"/>
    <code value="001"/>
  </coding>
</jurisdiction>
<fhirVersion value="4.0.1"/>
<mapping>
  <identity value="BRIDG5.1"/>
  <uri value="https://bridgmodel.nci.nih.gov"/>
  <name value="BRIDG 5.1 Mapping"/>
</mapping>
<mapping>
  <identity value="v2"/>
</mapping>
```

Invariants Defined on this element
ele-1: All FHIR elements must have a @value or children (: hasValue() or (children().count() > id.count()))

5. ResearchStudy.language
Definition The base language in which the resource is written.



INTEROPERABILITY PROFILES FOR HEALTH DATA SHARING IMPLEMENTATION GUIDES



InteropEHRRate facts:

- **2 Implementation Guides** have been developed for **standardized data exchange** across the scenarios
 - Cross-border data exchange (scenarios 0, 1 & 2) [**33 profiles**]
 - Research data sharing (scenario 3) [**10 profiles**]



INTEROPERABILITY PROFILES FOR HEALTH DATA SHARING IMPLEMENTATION GUIDE

Example: RDS IG

The screenshot displays the 'Research Data Sharing IG' website, version 1.0.0 - CI Build. The navigation menu includes: RDS Introduction, Table of Contents, Research Data Sharing Background, Usage Instructions, Specification, Artifact Index, and Support. The main content area is titled 'Research Data Sharing IG' and shows the 'Table of Contents > Profiles' section. A yellow banner indicates the current build: 'Research Data Sharing IG - Local Development build (v1.0.0). See the Directory of published versions.' The '7 Profiles' section is active, with '7.1 List of profiles' selected. The text states: 'This page contains a list with the name and a short description for all the profiles, that are defined in this IG. To see a list of all FHIR artifacts defined as part of this IG go to [Artifact Index](#).' A list of profiles follows, each with a description:

- CodeableConcept-IEHR**: This profile represents the constraint applied to the CodeableConcept datatype, that it should use the Coding-IEHR datatype for the coding attribute.
- Coding-IEHR**: This profile represents the constraint applied to the Coding datatype, that allows the use of the OperatorExtension in the datatype.
- Cohort-IEHR**: This profile represents the constraints applied to the Group resource, that is used to define entry and exit conditions for the study. The profile constrains the characteristic codes to those known and interpretable by the system.
- DataRequirement-IEHR**: This profile represents the constraints applied to the DataRequirement resource, that is used to represent a data point that the patient should provide as part of the study. The profile also contains an extension that defines how often this data point should be transmitted.
- Narrative-IEHR**: This profile allows the Narrative to be extended with versions in different languages using the NarrativeExtension-IEHR.
- ReferenceResearchCenter-IEHR**: This profile represents the constraints applied to the Location resource, that is used to represent a locations that takes part in the study. The profile makes the attributes required, that are used by the queries and are necessary to clearly identify a location.
- ResearchStudy-IEHR**: This profile represents the constraints applied to the ResearchStudy resource, that is used as the entry resource for the study bundle. The profile makes the attributes required, that are used by the queries and contains extensions that represent additional information.
- Questionnaire-IEHR**: This profile represents the constraints applied to the Questionnaire resource, that is used to represent a questionnaire that the participant is expected to complete. The profile contains a mandatory extension that refers to the CodeSystem that contains the codes used for the questions.
- QuestionnaireResponse-IEHR**: This profile represents the constraints applied to the QuestionnaireResponse resource, that is used to represent the response a patient gave to a questionnaire. The profile makes the attributes required, that are used to reference the corresponding Questionnaire, the lifecycle status of the questionnaire response as well as the language of the response.

At the bottom, a footer contains: 'IG © 2019+ IEHR-Workgroup. Package fhir.uv.researchdatasharing#1.0.0 based on FHIR 4.0.1. Generated 2022-06-22. Links: [Table of Contents](#) | [QA Report](#)'.



INTEROPERABILITY PROFILES FOR HEALTH DATA SHARING *STANDARDIZATION*

- **InteropEHRate strives to standardize its Implementation Guides through a balloting process orchestrated by HL7 Europe**



Thank you
Happy to answer your questions.



www.interopehrate.eu

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