VULCAN
HL7 FHIR

HL7 Working Group Meeting
Europe

HL7 FHIR MARATHON

HOSTED BY
HL7 Hellas

EuroVulcan 2
18th January 2024
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Q4 Panel: Regulators Moving to FHIR with support from the Vulcan Accelerator

Session Chair: Hugh Glover, Vulcan Technical Director

January 18, 2024

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Q4 Panel: Regulators Moving to FHIR with support from the Vulcan Accelerator

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Panelists

1. What's next in CDISC for Vulcan? Focus on Utilizing Digital Protocol: *Peter Van Reusel, Chief Standards Officer, CDISC*
2. What's next in US Policy for Vulcan: *Stephen Konya (online), ONC, United States*
3. What's next in personalized eLabeling for Vulcan?: *João Almeida presenting for Craig Anderson (online), coLead Vulcan ePI/eLabeling*
4. What's next in the HL7 FHIR Connectathon for GIDWG/UNICOM/ePI?: *João Almeida product owner Gravitate Health*
5. Can Clinical Care Data Replace Clinical Research Data?: *W. Ed Hammond, Ph.D., Director, Duke Center for Health Informatics, Clinical and Translational Science Institute*
6. Implications for Joint Action Xt-EHR for Primary & Secondary use of health data in the EHDS: *Christos N. Schizas, Coordinator of Xt-EHR and President of the National eHealth Authority – Cyprus*

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Q4.1 What's next in CDISC for Vulcan?
Focus on Utilizing Digital Protocol

Peter Van Reusel, Chief Standards Officer, CDISC

January 18, 2024

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Agenda

- Transcelerate Digital Data Flow
- CDISC and ICH M11
  - Content model
  - Controlled terminology
  - Define Trial Design mappings
  - Conformance rules for M11 model
  - Partner with Vulcan FHIR: exchange standard for ICH M11

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Transcelerate Digital Data Flow

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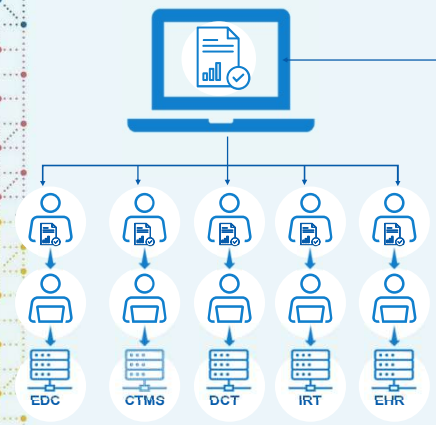
https://www.transceleratebiopharmainc.com/assets/digital-data-flow-solutions/

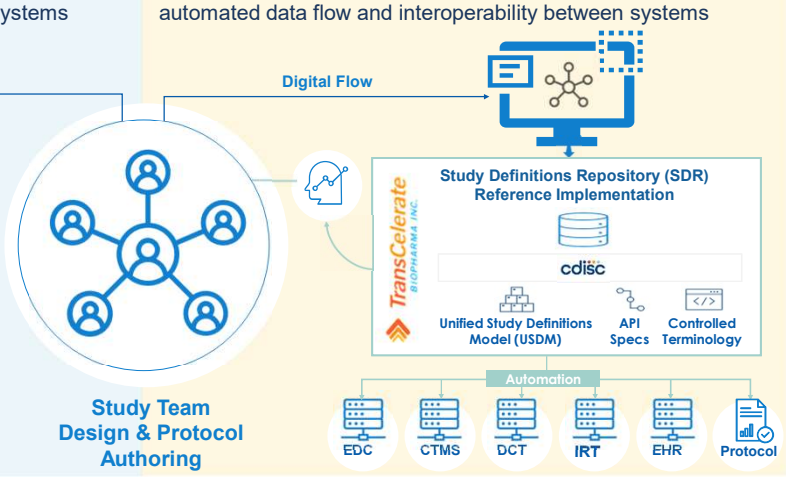
TransCelerate Digital Data Flow (DDF) Ambition

Write Once, Read Many

TODAY: Document-based paradigm for protocol creation, interpretation, and transcription into consuming systems



TOMORROW: Digital paradigm for protocol creation, with fully automated data flow and interoperability between systems



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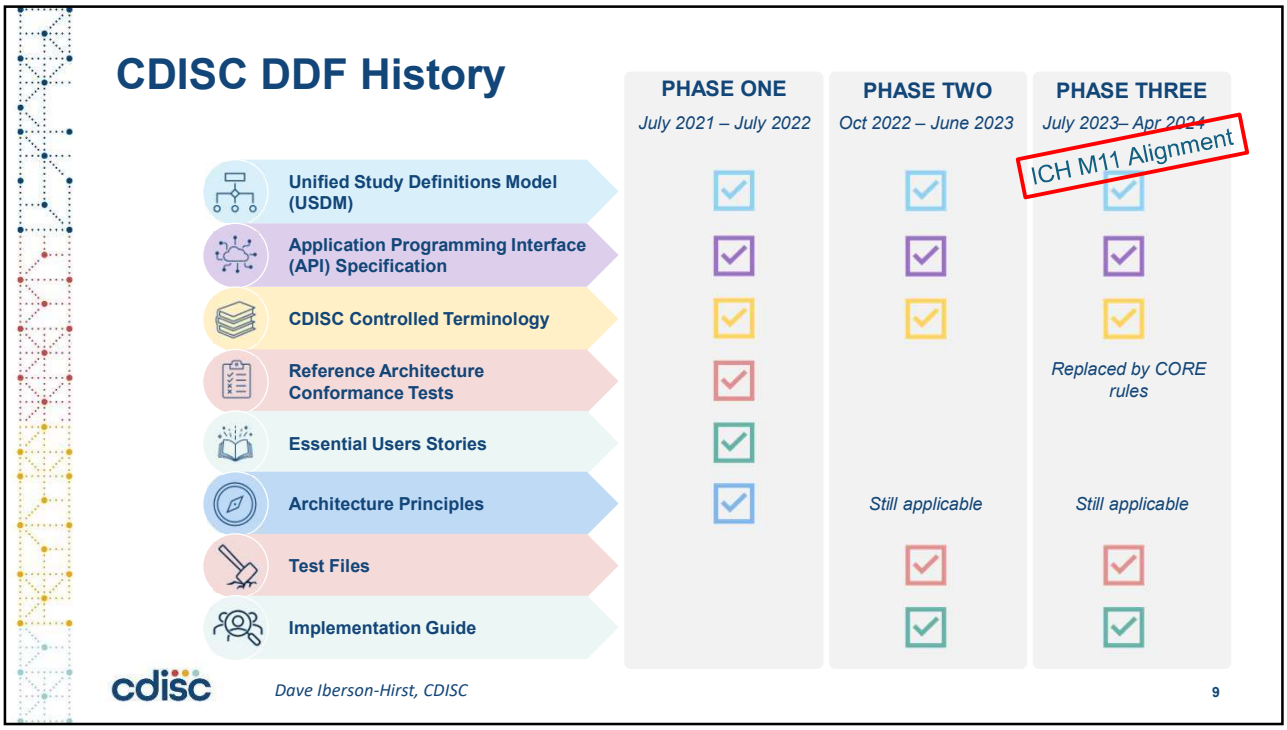
CDISC DDF History
PHASE ONE
July 2021 – July 2022
PHASE TWO
Oct 2022 – June 2023
PHASE THREE
July 2023– Apr 2024
ICH M11 Alignment
Unified Study Definitions Model (USDM)
Application Programming Interface (API) Specification
CDISC Controlled Terminology
Reference Architecture Conformance Tests
Replaced by CORE rules
Essential Users Stories
Architecture Principles
Still applicable
Still applicable
Test Files
Implementation Guide
cdisc
Dave Iberson-Hirst, CDISC
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CDISC ICH M2/M11 Engagement
Controlled terminology, Semantics
Trial Design Datasets
Executable Conformance Rules with CORE
CDISC and FHIR UDP Collaboration

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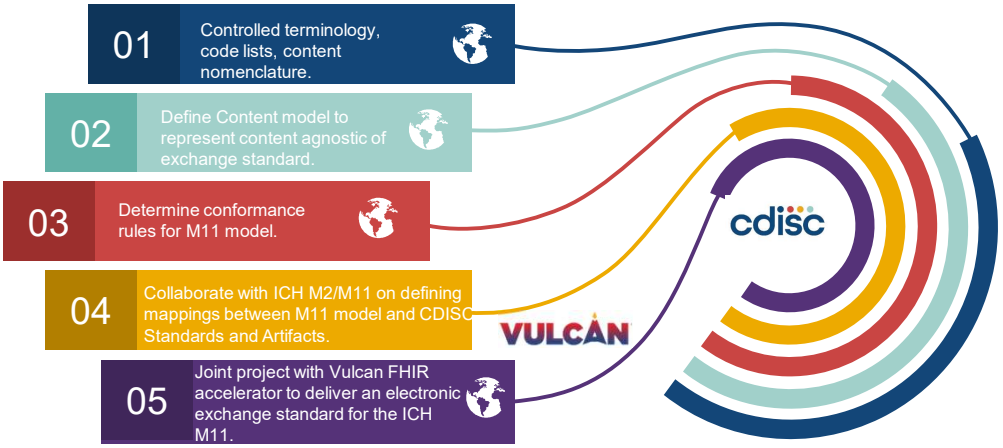
CDISC M2/M11 Engagement



Panagiotis Telonis, CDISC EU Interchange 2023

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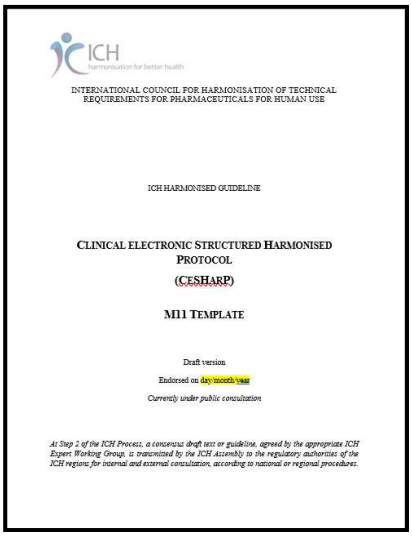
ICH M11 Terminology

- CDISC is working with the ICH M11 working group to create draft semantics for the *ICH M11 Protocol Template*
  - 257 Data Elements
  - 22 Valid Value Sets comprising 112 terms
- Aligns with/harmonizes to CDISC terminology where appropriate
  - SDTM, DDF, Protocol, Glossary
- Will be undergoing CDISC public review and regulatory review in the next couple of months.



ICH
harmonisation for better health

INTERNATIONAL COUNCIL FOR HARMONISATION OF TECHNICAL REQUIREMENTS FOR PHARMACEUTICALS FOR HUMAN USE

ICH HARMONISED GUIDELINE

CLINICAL ELECTRONIC STRUCTURED HARMONISED PROTOCOL

(CESHARP)

M11 TEMPLATE

Draft version

Endorsed on day/month/year

Currently under public consultation

At Step 2 of the ICH Process, a consensus draft text or guideline, agreed by the appropriate ICH Expert Working Group, is transmitted by the ICH Assembly to the regulatory authorities of the ICH regions for internal and external consultation, according to national or regional procedures.

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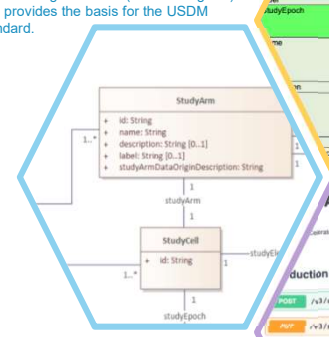
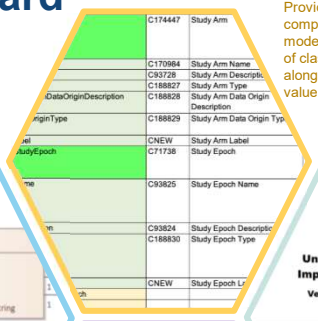
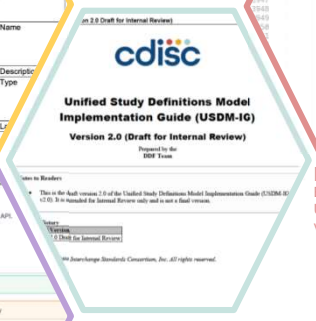
The USDM Standard

Logical Model
The UML logical model (a class diagram) that provides the basis for the USDM standard.

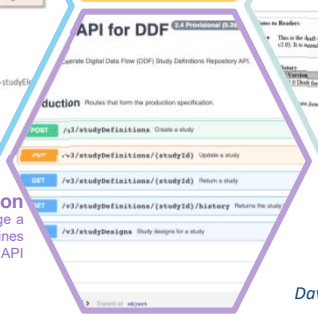


CDISC Controlled Terminology
Provides further semantics, complementing the UML model. Includes the definition of classes and attributes along with the definition of value sets





Examples
Example protocols implemented in the USDM with associated JSON files and visualisations



API Specification
Provides the means to exchange a single study between machines using a JSON API

Implementation Guide
Guidance on using the USDM model and ensuring conformance with the standard

Dave Iberson-Hirst, CDISC

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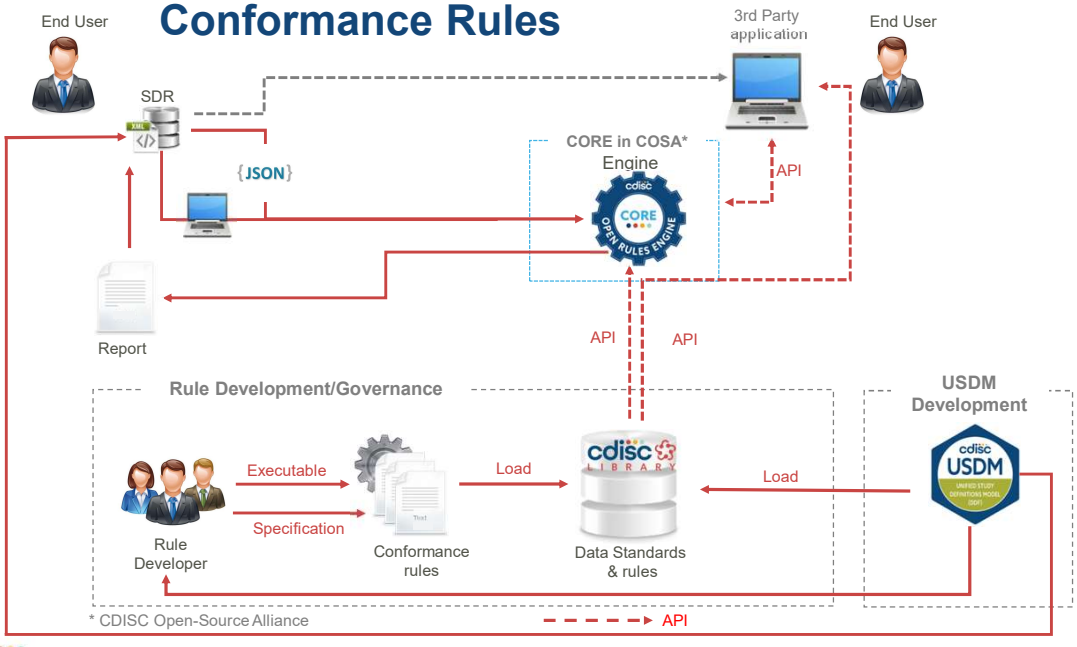
Conformance Rules



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CDISC and HL7 FHIR Vulcan Collaboration

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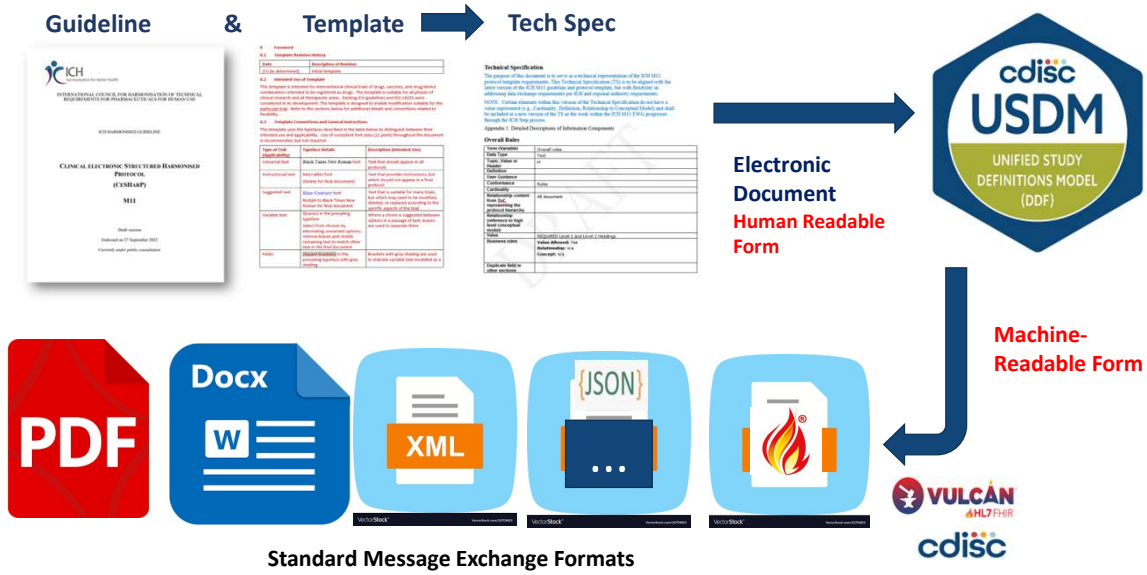
M2/M11 Content and Structure



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Use Cases: Digital Protocol and USDM will enable…

Data Capture	*Automate the setup of data capture systems, incl. RWE, and capture the data.*
SoA	*Use the study design to build the FHIR SoA message.*
Data Import	*Import data from a variety of sources. Can be re-exported thus allowing for conversion across versions.*
Common Protocol Template (CPT)	*Generation of the CPT from a study design.*
Data Decay	*Re-import data using the USDM as a framework to rebuild a study design & data using the SDTM Trial Design Domains.*
Scoring	*The "scoring" of a study for such purposes as site impact, subject impact, environmental impact etc.*
Feasibility	*The use of the design to determine study feasibility including subject recruitment. A study data template.*
CT Registry	*The provision of study information to a CT registry.*
FAIR Data	*The use of the design to aid Findability, Accessibility, Interoperability, and Reusability.*
CTMS, TMF …	*The provision of protocol information to downstream systems needing "study" information.*
Query	*Having multiple studies that have a common structure allows for data export and query across the set of studies.*
SDTM	*Automate the generation of SDTM datasets using the study design and BCs, including the "T" Domains.*

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In scope for DDF Phase 3

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Q4.3 What's next in personalized eLabeling for Vulcan?

João Almeida presenting for Craig Anderson, coLead Vulcan ePI/eLabeling

January 18, 2024

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Implementation Guide defines how to create three Types of FHIR ePI

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Type 1: eLabel only

- SmPC, Package Leaflet, Label
- Semi-structured narrative text (section/sub-section headings, paragraphs, tables, lists, images), document info (language, date), Organization details (Company address and contact information

Type 2: eLabel + product details

- Type 1 + structured product details (full name, class, dose form, strength, packaging, ingredient manufactured form and administrable form)

Type 3: eLabel + product details + clinical details

- Type 1 + Type 2 + structured clinical details (Encoded indication, contraindication, interaction, warnings and precautions)

Simple Search

Intermediate Search

Advanced Search

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FHIR ePI Structure and Content

- Section and subsection headings
- Paragraphs, tables, bulleted lists, images
- Prescribing information (e.g., Indication, interaction contraindication, warnings, dose / administration)

Drug Product Label

- Narrative Content (Semi-structured)
- Product Details (Structured)

- Product full name, drug class, dose form, strength, packaging (Type, size, GTIN), ingredients
- Manufactured form and administrable form
- Clinical use (Indication, contraindications, interactions, warnings and precautions)

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Electronic Product Information (ePI)

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So we have a ePI, what now?

- FHIR Document
- Structured Data
- Unstructured data

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Electronic Product Information (ePI)

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So we have a ePI, what now?

- FHIR Document
- **Structured Data**
- Unstructured data

Easy to deal with!

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Electronic Product Information (ePI)

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So we have a ePI, what now?

- FHIR Document
- Structured Data
- **Unstructured data**

Not so easy ☹

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Electronic Product Information (ePI)

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Unstructured Data (free-text)

Human-readable

Heterogeneous information

Semi - Heterogeneous structure

No semantic layer

And so...

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Processed ePI - P(ePI)

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unstructured data

Pre-processing

Semantic layer

"Adding" information

Drugs | observations | conditions | procedures | quantities | diseases | symptoms | More subsections | tagging specific information

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Processed ePI - P(ePI)

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Do not take
If you are allergic to irbesartan or any ingredients of this medicine

Warning and precautions
Talk to your doctor if any of the following apply to you:
- If you get excessive vomiting or diarrhoea
- If you suffer from kidney problems
- If you suffer from heart problems
- If you are going to have an operation or be given anaesthetics

Children and adolescents
This medicinal product should not be used in children and adolescents because the safety and efficacy have not yet been fully established.

This product contains lactose.
If you have been told by your doctor that you have an intolerance to some sugars (e.g. lactose), contact your doctor before taking this medicinal product.

This product contains sodium.
This medicine contains less than 1 mmol sodium (23 mg) per tablet, that is to say essentially 'sodium-free'.

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Processed ePI - P(ePI)

product
symptom
disease
Product Class
quantity
procedure
subsection

ATC
SNOMED
PubChem
LOINC
RxNorm
New IDs
(sections)
…

Do not take
If you are allergic to irbesartan or any ingredients of this medicine

Warning and precautions
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NLP | Token Identification | Manual work | Other

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Focusing Operations

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- **Highlight:** select certain sections to be highlighted
- **Hiding/Collapsing:** select certain sections to be hidden/collapsed
- **Add hypertext:** annotate information to link with other information (e.g., glossary; based on health literacy – connect with external service (FOSPS component or external services))
- **Multimedia:** annotate to add icons, pictograms, images … additional risk minimization materials – external service
- **Questionnaire**: test your knowledge, validation purposes
- **Explaining** focusing
- Summarize

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Thank You …

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Q4.4 What's next in the HL7 FHIR Connectathon for GIDWG/UNICOM/ePI ?

João Almeida, HL7 Europe, Gravitate-Health

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Tracks Scenarios

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- #1 Cross Border ePI (Japan and others)
- #2 Pharmacovigillance
- #3 Shortage of a medicinal product
- #4 Substitution in cross border ePrescription:
- #5 Test the PhPID operation model
- #6 Placing the pharmacy in the loop
- #7 ePIs Pilot and in alignment the Nordic Compedia

USE IDMP identifiers (PhPID, MPID, PCID) to provide better care to patients, provide better and more information to institutions and healthcare practitioners and support regulatory activities

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IDMP

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Pharmaceutical Product Identifier (PhPID level 1) - substance

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IDMP

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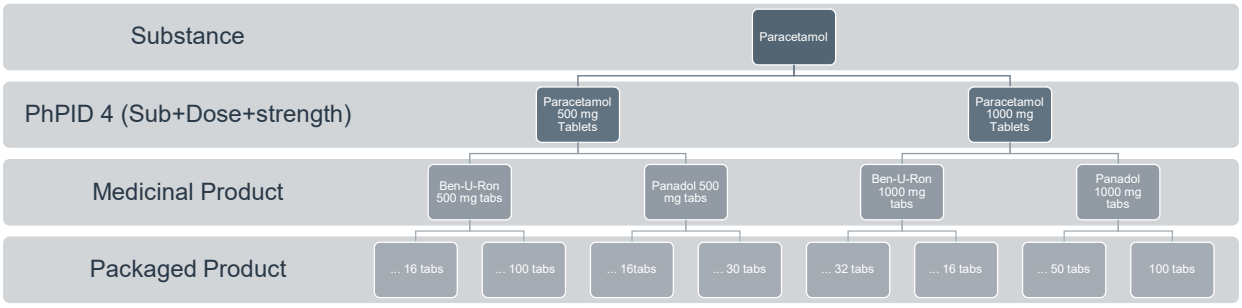
Increase in specificity. Increase in “concreteness”! Tree / graph shaped structures



What this enables???

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Relationship between drugs at global scale

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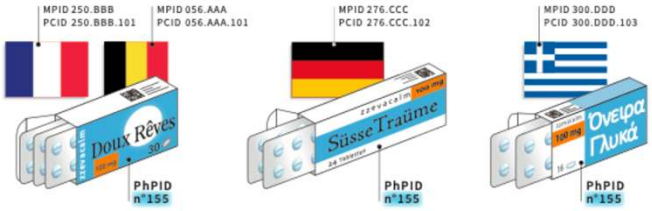
PhPID to aggregate info at national level



- #1,3,6 – I can use the PhPID to check significant drugs to prescribe and dispense in cross-border scenario
- #2 – I can use the PhPID to aggregate info from suspected ADR with MPID to PhPID level
- #3,4 – Use the PhPID to find reasonable substitutions for a certain drug
- #1,4,6 – Use these identifiers to include them in broader ecosystems (like CDSS, ePI, HIS, etc)

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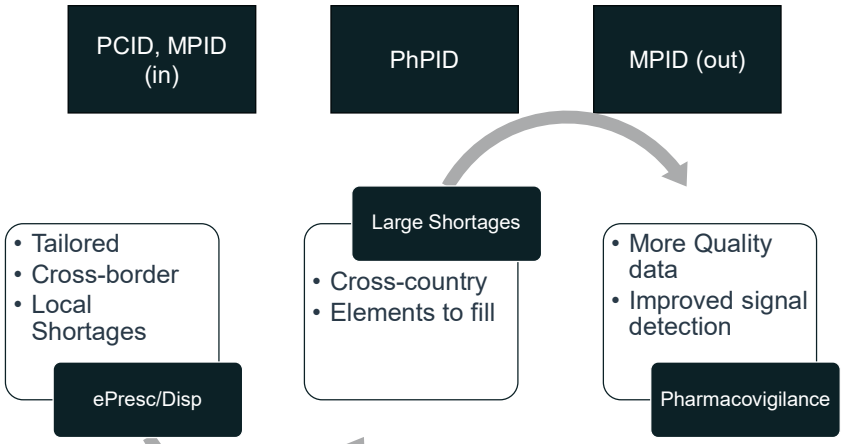

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GTIN | PCID, MPID (in) | PhPID | MPID (out) | ePI

Scenario #6

Placing the pharmacy in the loop: a pharmacy system needs to look up a cross-border medication, either for prescribing or for dispensing - how would that integrate into the workflow provided by the pharmacy system? Explore the use of GTINs in the context of dispensation and plan for future FHIR connectathons. Explore connections to the PhPID Operating model in relation to the Query/Retrieval PhPIDs from different countries.

I have this Information: GTIN 7898919602230

Submit

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Scenario #6

Placing the pharmacy in the loop: a pharmacy system needs to look up a cross-border medication, either for prescribing or for dispensing - how would that integrate into the workflow provided by the pharmacy system? Explore the use of GTINs in the context of dispensation and plan for future FHIR connectathons. Explore connections to the PhPID Operating model in relation to the Query/Retrieval PhPIDs from different countries.

I have this Information: GTIN

Submit

Show 10 entries Search:

Nr°	Name	Identifier	ePI
1	Folitrax [Ipca Laboratories] (India)	http://www.who-umc.org/whodrug/productid#1B93DFBAD671	View ePI
2	Folitrax [Ipca Laboratories] (India)	http://www.who-umc.org/whodrug/productid#1B93D53A1A91	View ePI
3	Methotrexat teva onco [Teva Pharma AG] (Switzerland)	http://www.who-umc.org/whodrug/productid#1B887DB2FEC4	View ePI
4	Methotrexate [Hospira] (Bangladesh)	http://www.who-umc.org/whodrug/productid#1B7E891D1941	View ePI
5	Methotrexate [Pfizer] (Canada)	https://health-products.canada.ca/dpd-bdpp#02182971|http://www.who-umc.org/whodrug/productid#1B7E88754E84	View ePI

Showing 1 to 5 of 5 entries Previous 1 Next

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FHIR resource URL: http://fhir.hl7.pt:8585/fhir/Composition?subject=mp16598f252d07b4784b82ba43cf9e84 Display Data

summary on show codes show debug

Composition
Type: 100000155538 - Text: Package Leaflet
Category: Raw
Identifier: c90d140de2d4ddf3b2a2617fc2fc996c
Language: en
Date: 2022-02-16 Time: 13:28:17Z
Status: final
Title: TEST PURPOSES ONLY - Dovato 50 mg/300 mg film-coated tablets

Author
Organization
Identifier: ORG-100012958
Name: ViiV Healthcare BV
Type: Marketing authorisation holder
Contact
Address: Van Asch van Wijckstraat 55H, Amersfoort, NL (Use: work) (Type: physical)
Text: Van Asch van Wijckstraat 55H Amersfoort NL

Section
Title: B. Package Leaflet
Code: 100000155538 - Text: B. PACKAGE LEAFLET
Text
Status: additional
Package leaflet: Information for the patient Dovato 50 mg/300 mg film-coated tablets dolutegravir/lamivudine Read all of this leaflet carefully before you start taking this medicine because it contains important information for you.

- Keep this leaflet. You may need to read it again.
- If you have any further questions, ask your doctor or pharmacist.
- This medicine has been prescribed for you only. Do not pass it on to others. It may harm them, even if their signs of illness are the same as yours.
- If you get any side effects talk to your doctor or pharmacist. This includes any possible side effects not listed in this leaflet. See section 4.

Section
Title: Package leaflet: Information for the user
Code: 100000155538 - Text: Package leaflet: Information for the user
Text
Status: additional

Dovato 50 mg/300 mg film-coated tablets

dolutegravir/lamivudine

Read all of this leaflet carefully before you start taking this medicine because it contains important information for you.

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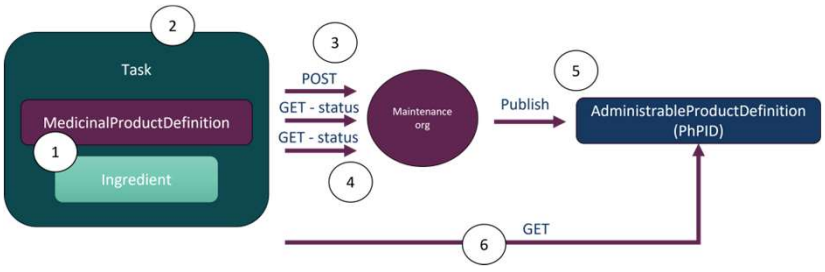

Merge IG and system

FHIR supporting validation

Different tests througout the week

real data breaks stuff

notes for improvements and discussions

bugs, discussion, new elements and architecture

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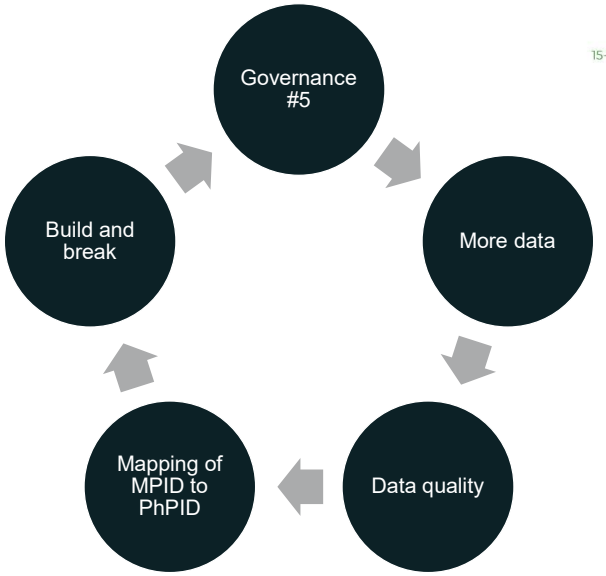
What's next



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Thank You …

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Q4.5 Can Clinical Care Data Replace Clinical Research Data?

W. Ed Hammond, Ph.D., Director, Duke Center for Health Informatics, Clinical and Translational Science Institute

January 18, 2024

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What is Real World Data?

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- **Real-world data are data relating to patient health status and/or the delivery of health care routinely collected from a variety of sources from a heterogeneous patient population.**
- **The most common sources of real-world data are:**
  - Electronic Health Records
  - Claims Data
  - Synthetic Data
- **Each of these sources has major problems associated with them.**
- **Real World Evidence derived from Real-World Data is very important.**

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Challenges in using RWD for Research

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- **EHR Concerns**
  - Lack of Quality including missing data, inconsistency in what data is recorded, missing data, no common standard in data coding and representation, data entry errors, wrong patient, inconsistent units that get confused, little aggregation across institutes or even in different units of the same institute, and multiple records for the same patient.
  - New types of data are slow to be included in the EHR (SDoH).
- **Claims Data**
  - Organized to maximize reimbursement, only contains data required to get reimbursement, order of data reported influenced by reimbursement, not in clinical importance, often interpreted by encoders to maximize reimbursement.
  - On the positive side, it is the best source for tracking encounters.
- **Synthetic Data**
  - Relationships among multiple diseases are often not reflected.
  - Patients are more complicated than synthetic data can represent.
  - Can be useful for testing programs.

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Research Data – Randomized Clinical Trials

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- **Research data is a defined set of data for a specific purpose. It is collected by a trained staff whose focus is on the data that is being collected. Usually, it is curated by trained staff, so missing data is negligible. Errors are much less, although they can exist.**
- **If research includes multiple sites, the same problems of missing data, errors, and patient duplication in the same institution and across institutions.**
- **The lack of a common set of data elements requires mapping among multiple terminologies with a loss of information.**

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Challenges to Bridging Clinical Data and Research Data

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- **Patient care providers are interested in recording the data that they think are important for the care of the patient for which they are responsible. Any additional data recording is labor-intensive work that is not part of their focus.**
- **Researchers are similarly focused on the data in which they are interested, and they want to use their representations and timing.**
- **New data types such as genetic data, social determinants of health, wearable sensor data, and patient-reported data are intrusions to both clinical care providers and researchers.**

Three examples of RWD research

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- **Patient Centric Outcome Research Network (PCORNet)**
- A network of networks consisting of 8 Clinical Research Networks, each comprising two or more healthcare centers. More than 40 health systems participate in Cornet through the CRNs.
- The CRNs transform their data gathered from routine patient care into a consistent format, the Cornet Common Data Model (CDM) to enable rapid response to research-related questions.
- **NIH Pragmatic Trials Collaboratory**
- Currently consists of 27 embedded pragmatic clinical trials, many of which collect patient-reported outcomes as primary or secondary outcomes.
- Challenges include competing healthcare system priorities, clinician buy-in, low adoption and lack of suitable technology in low resource settings, and lack of consensus and standards.
- **National Covid Cohort Collaborative (N3C)**
- N3C provides one of the largest collections of secure and deidentified clinical data if the US for COVID-19 research. More than 70 institutes submit data to develop a centralized national data resource. Data is submitted using one of OMOP, i2b2 (ACT), PCORNet, or TriNetX CDM. Data is converted to OMOP for the Data Enclave and is available for research.

What the Future Might Bring

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- Increased automation of data collection and documentation.
- Creation of a global master set of data elements with embedded computable knowledge.
- Creation of complex phenotypes and expanded definition of multiple data elements to be collected.
- Real-time quality checks on data entry.
- Focus on the patient as the center point of an encounter, and clinicians have the responsibility for collecting all data required.
- AI will solve the problem.

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Thank You …

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Implications for Joint Action *Xt-EHR* for Primary & Secondary use of health data in the EHDS

NATIONAL eHEALTH AUTHORITY

Christos N. Schizas, Coordinator of Xt-EHR
President of the National eHealth Authority – Cyprus

January 18, 2024

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European Health Data Space (EHDS)

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OBJECTIVES

Effective use of health data

NeHA is Coordinating

SCOPE & EXPECTED IMPACT

Use of health data (primary, MyHealth@EU)	• Empower individuals to control their data • Standardization and mandatory certification of EHR systems • Voluntary labelling of wellness apps • European Electronic Health Record Exchange Format	Single market for health data, data protection, free movement of people, digital goods and services
Re-use of health data (secondary, HealthData@EU)	• Health data access bodies • Purposes for use and forbidden use • Data permits, secure environments, no identification	Facilitated Research & Innovation Better Policy Making

MEANS

Legal / Governance | Quality of data | Infrastructure | Capacity building/digitalisation (MFF)

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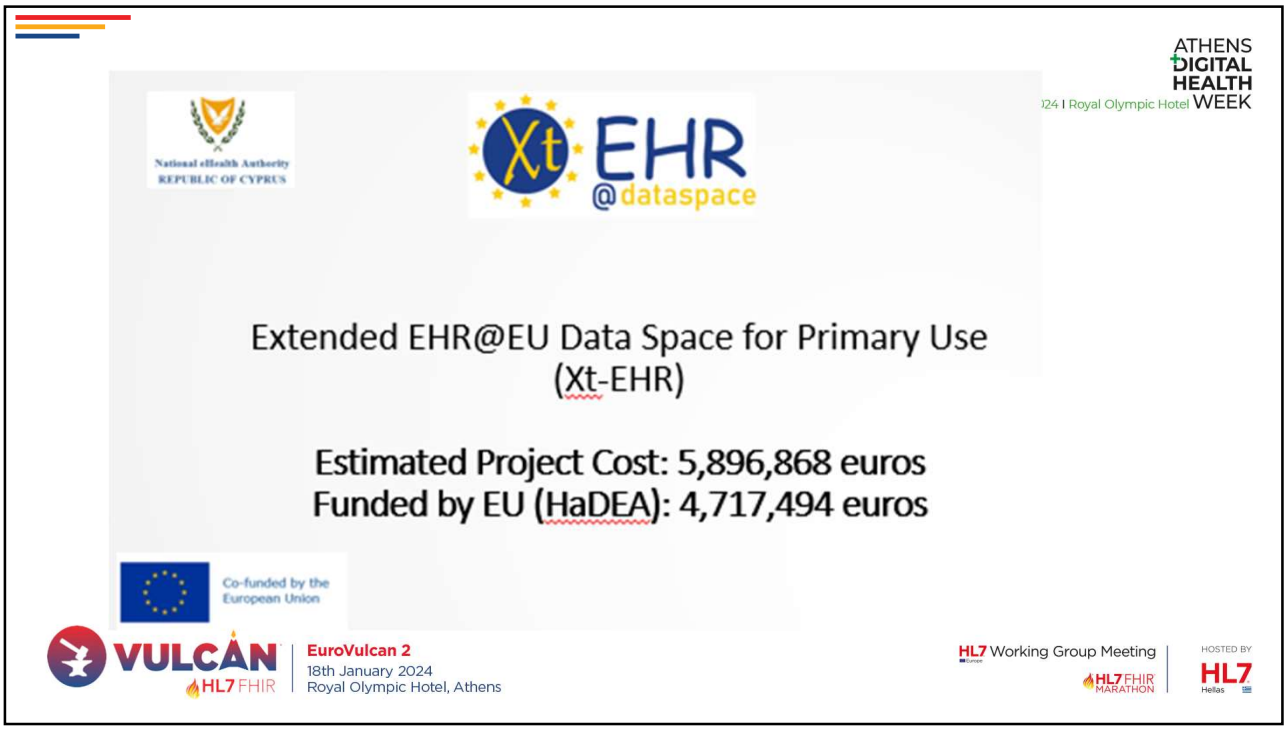
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National eHealth Authority
REPUBLIC OF CYPRUS
Xt EHR @dataspace
Extended EHR@EU Data Space for Primary Use
(Xt-EHR)
Estimated Project Cost: 5,896,868 euros
Funded by EU (HaDEA): 4,717,494 euros
Co-funded by the European Union
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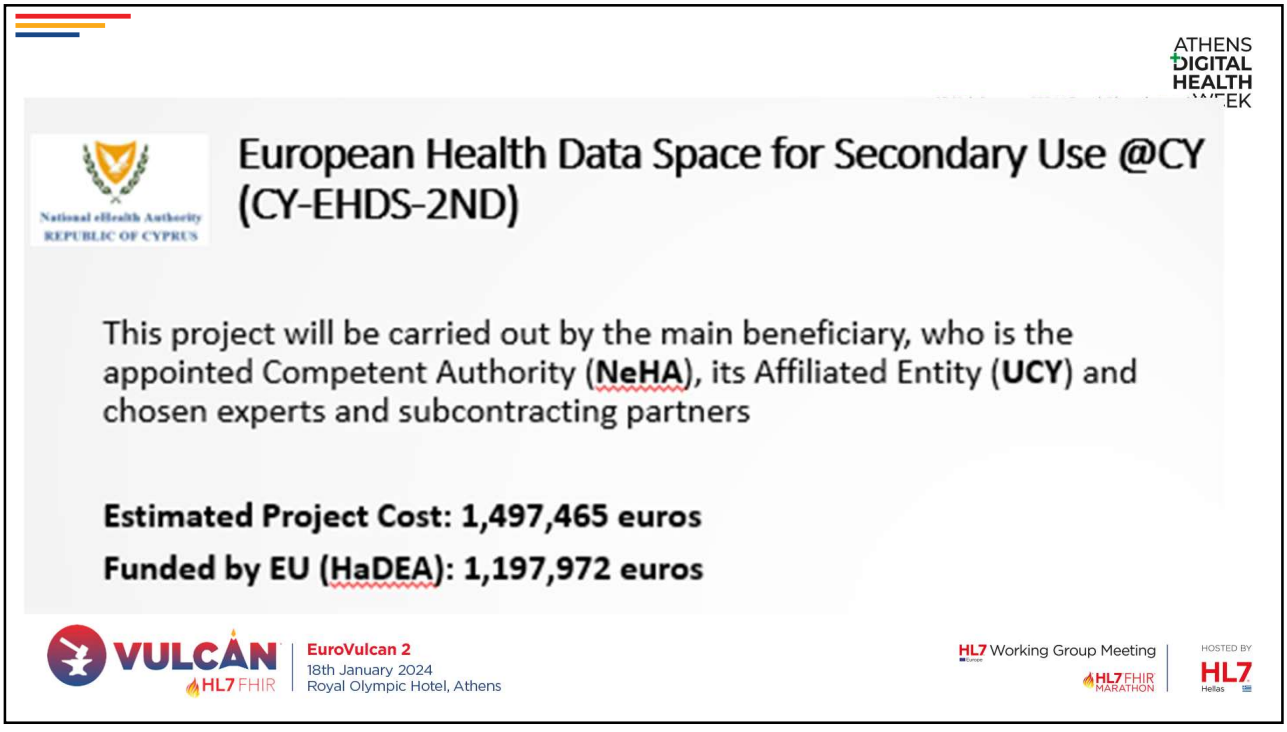
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National eHealth Authority
REPUBLIC OF CYPRUS
European Health Data Space for Secondary Use @CY
(CY-EHDS-2ND)
This project will be carried out by the main beneficiary, who is the appointed Competent Authority (NeHA), its Affiliated Entity (UCY) and chosen experts and subcontracting partners
Estimated Project Cost: 1,497,465 euros
Funded by EU (HaDEA): 1,197,972 euros
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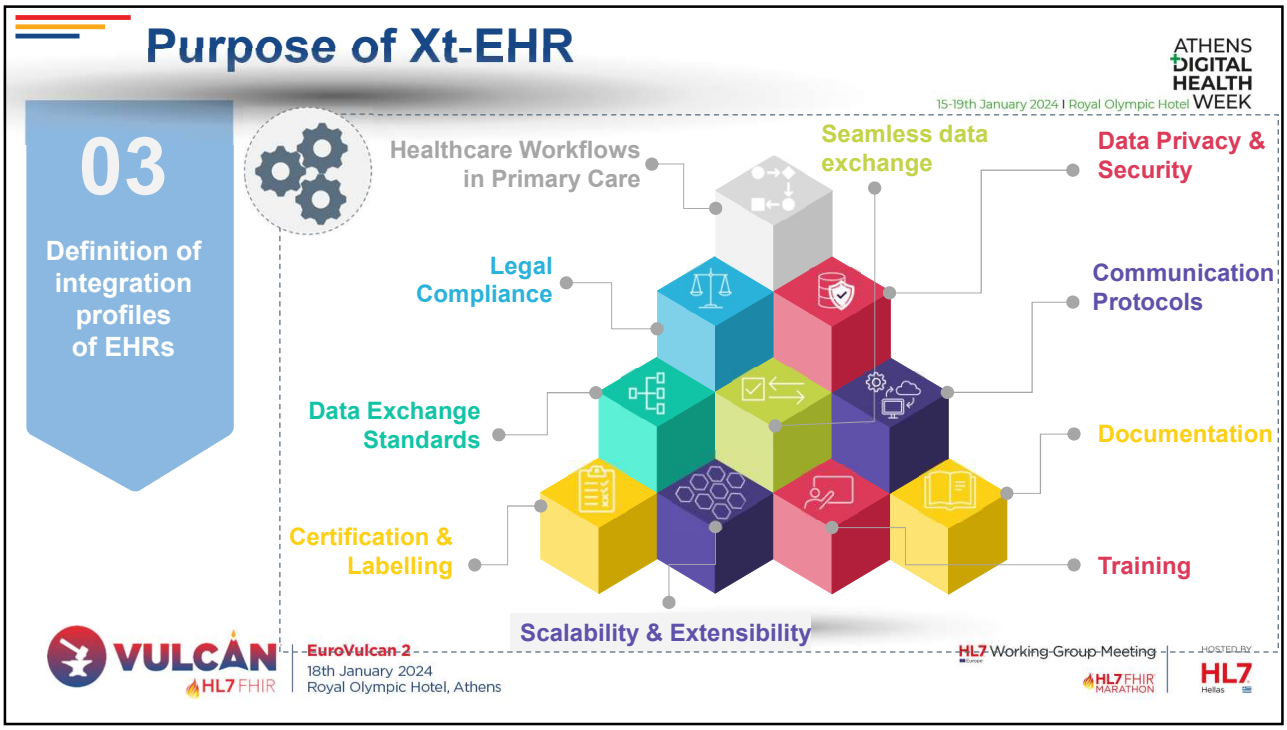
Purpose of Xt-EHR
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03
Definition of integration profiles of EHRs
Healthcare Workflows in Primary Care
Seamless data exchange
Data Privacy & Security
Legal Compliance
Communication Protocols
Data Exchange Standards
Documentation
Certification & Labelling
Training
Scalability & Extensibility
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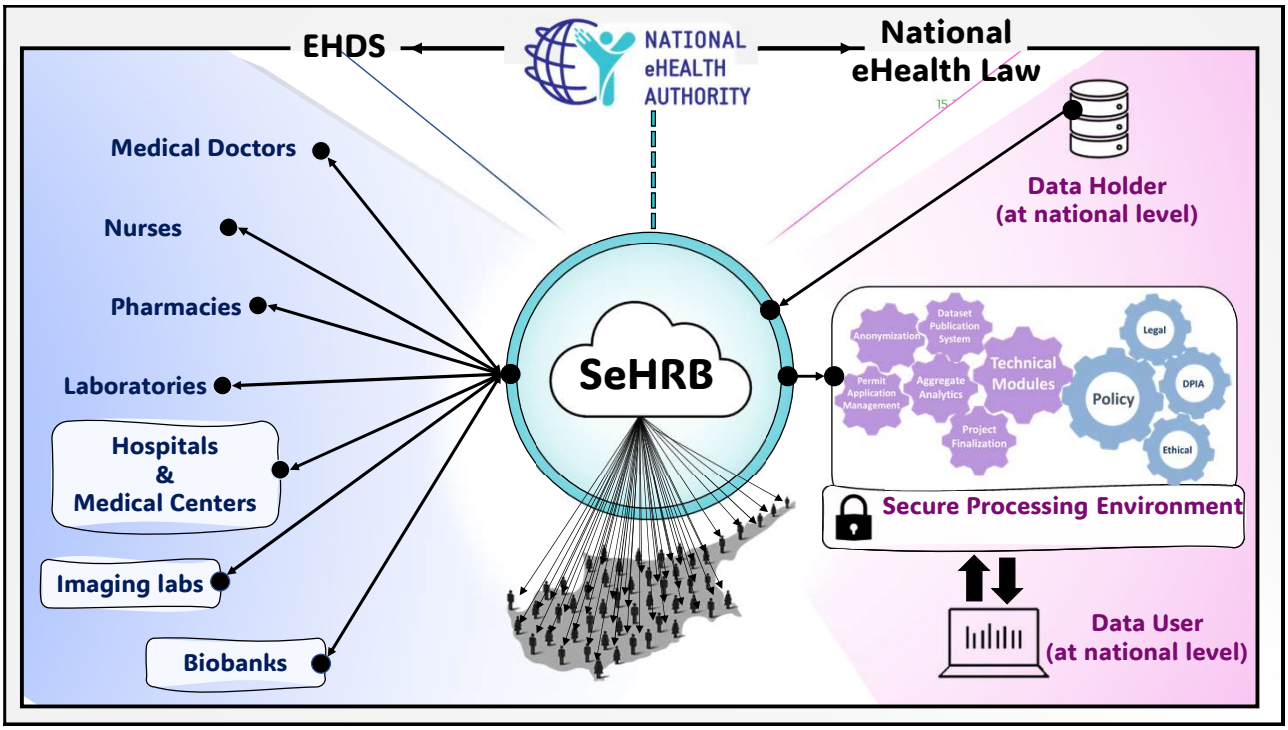
EHDS
NATIONAL eHEALTH AUTHORITY
National eHealth Law
Medical Doctors
Nurses
Pharmacies
Laboratories
Hospitals & Medical Centers
Imaging labs
Biobanks
SeHRB
Data Holder (at national level)
Dataset Publication System
Anonymization
Technical Modules
Legal
Policy
DPIA
Ethical
Permit Application Management
Aggregate Analytics
Project Finalization
Secure Processing Environment
Data User (at national level)

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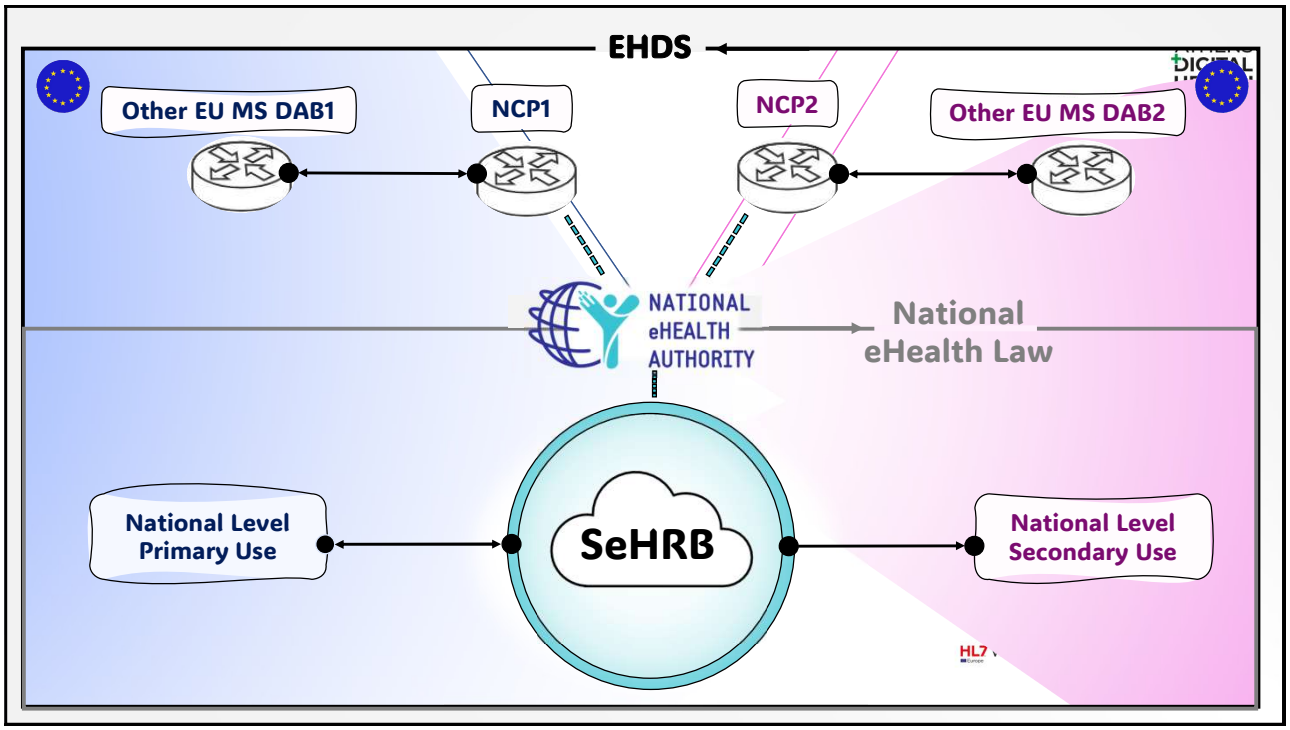

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Proposed Cyprus implementation

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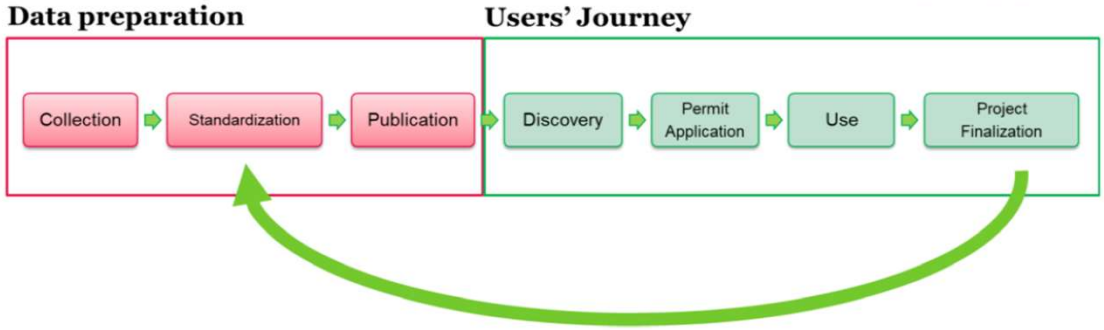

The workflow of the proposed Cyprus implementation is divided in two main sections following the TEHDAS proposed data lifecyle:

A. **The data preparation**

B. **The user's journey**

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Proposed Cyprus implementation

Data Lifecycle Section	Phase	Implementation Outline
Data Preparation	Collection	• Data will be collected from data banks of the healthcare providers in Cyprus (i.e. doctors, hospitals, diagnostic centers, laboratories, pharmacies, biobanks, research institutions). • The data will be stored in the Single EHR Data Bank managed and maintained by the NeHA (HDAB).
Data Preparation	Standardization	• The collected data will be stored and exchanged in a standardized form using the HL7 FHIR interoperability standard. • The terminology describing each data element will be defined by the NeHA and shall be aligned with the EU healthcare cross-border services requirements (i.e. eHDSI MVC). • The data will also address the syntactic requirements of the International Patient Summary as specified by the ISO 27269:2021 - International patient summary.
Data Preparation	Publication	• NeHA will set up a publication system which will publish all collected data for secondary use in the form of national dataset catalogues. • The dataset catalogues will be searchable and accessible to potential data consumers (users) using particular metadata descriptors.

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Proposed Cyprus implementation

Data Lifecycle Section	Phase	Implementation Outline
Users' Journey	Discovery	• The user will be able to look for the data he or she needs to perform their work. • The search will be executed on the published national dataset catalogues with the use of metadata descriptors in order to limit the resulting dataset catalogues to suit the needs of the work needed to be done.
Users' Journey	Permit Application	• NeHa will establish a Permit Application Management System. • The users will use this system to apply their request for permission to access certain data. • The permit application request will be examined by the NeHA as the HDAB and either be approved or rejected. • With the approval of the permit application the user can access the requested data.
Users' Journey	Use	• The requested dataset is constructed by integrating the data included in the requested dataset catalogues (national and EU). • NeHa (as the HDAB) provides the user with access to the integrated dataset via a secure processing environment. • The user can either view or analyze the provided data to perform the work he or she desires.
Users' Journey	Project Finalization	• When the work is done with the requested data, the user shall signal NeHA, as the HDAB, about the project finalization • In this case, the project finalization process will be initiated asking the users for a proper disclosure of their findings following the FAIR principles for the results.

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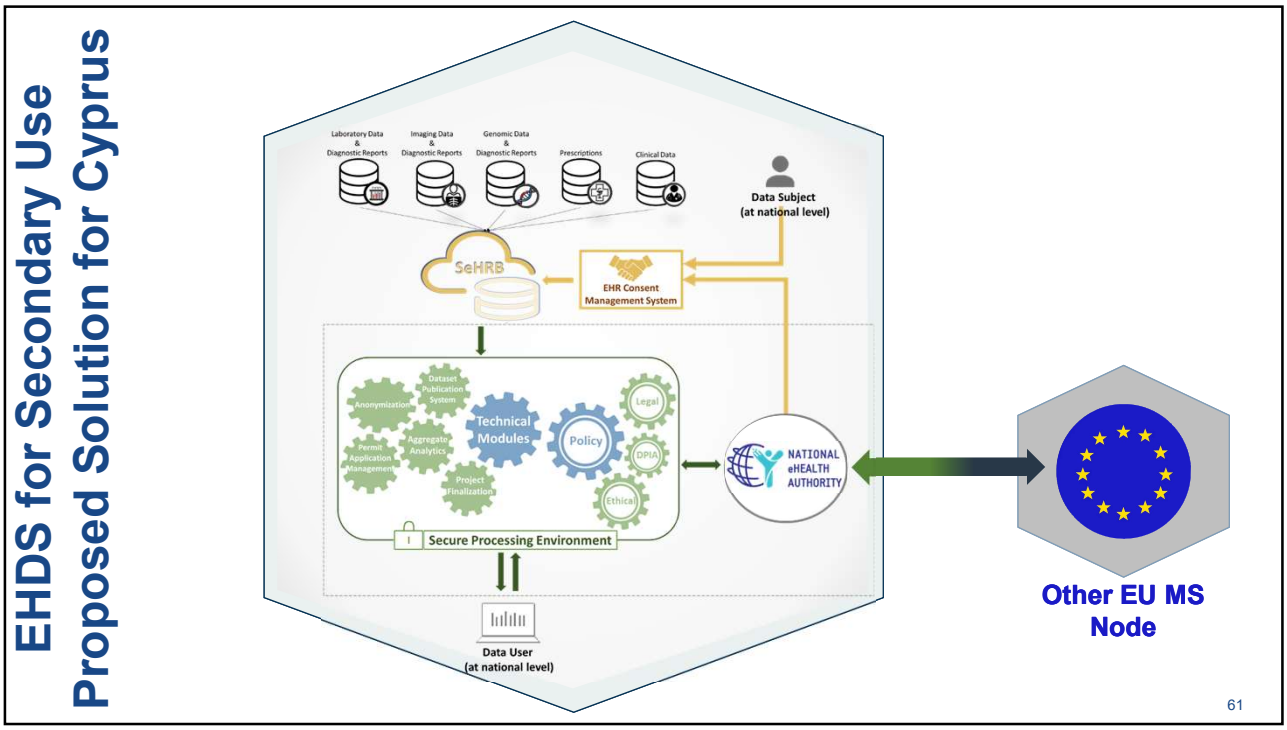
EHDS for Secondary Use
Proposed Solution for Cyprus
Laboratory Data & Diagnostic Reports
Imaging Data & Diagnostic Reports
Genomic Data & Diagnostic Reports
Prescriptions
Clinical Data
Data Subject (at national level)
SeHRB
EHR Consent Management System
Dataset Publication System
Anonymization
Technical Modules
Policy
Legal
DPIA
Ethics
Project Finalization
Aggregate Analytics
Permit Application Management
Secure Processing Environment
NATIONAL eHEALTH AUTHORITY
Other EU MS Node
Data User (at national level)
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European Health Data Space for Secondary Use @CY
Thank you!
Contact Details name
Role
National eHealth Authority
Contact email
https://www.neha.gov.cy/
NATIONAL eHEALTH AUTHORITY
eHealth Lab
Πανεπιστήμιο Κύπρου
Ερευνητικό Κέντρο Βιοϊατρικής Μηχανικής - ΕΚΒΜ

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Q4 Panel: Regulators Moving to FHIR with support from the Vulcan Accelerator

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Panelists

1. What's next in CDISC for Vulcan? Focus on Utilizing Digital Protocol: *Peter Van Reusel, Chief Standards Officer, CDISC*
2. What's next in US Policy for Vulcan: *Stephen Konya (online), ONC, United States*
3. What's next in personalized eLabeling for Vulcan?: *João Almeida presenting for Craig Anderson (online), coLead Vulcan ePI/eLabeling*
4. What's next in the HL7 FHIR Connectathon for GIDWG/UNICOM/ePI?: *João Almeida product owner Gravitate Health*
5. Can Clinical Care Data Replace Clinical Research Data?: *W. Ed Hammond, Ph.D., Director, Duke Center for Health Informatics, Clinical and Translational Science Institute*
6. Implications for Joint Action Xt-EHR for Primary & Secondary use of health data in the EHDS: *Christos N. Schizas, Coordinator of Xt-EHR and President of the National eHealth Authority – Cyprus*

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Closing Remarks

Michael van Campen
Vulcan Program Director

Amy Cramer
Vulcan co-Chair

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Before We Go…
Coming in the Days Ahead

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Survey
EuroVulcan 2

hl7-vulcan

Conference Presentations

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How to Contact Vulcan

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http://www.HL7Vulcan.org

https://confluence.hl7.org/display/VA/Vulcan+Accelerator+Home

Vulcan@HL7.org

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