European Platform on Rare Disease Registration

EU RD Platform

European Rare Disease Registry Infrastructure (ERDRI) Training

15 March 2022 - Online

Joint Research Centre (JRC)

European Commission

JRC's Mission

> *"As the science and knowledge service of the Commission our mission is to support EU policies with independent evidence throughout the whole policy cycle"*

Policy on Rare Diseases

European Commission's Strategy for Rare Diseases

Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions on "Rare Diseases: Europe's challenges" (2008)

- To improve recognition and visibility on rare diseases
- To support policies on rare diseases in the EU Member States
- To develop European cooperation, coordination and regulation for rare diseases

European Commission's Strategy for Rare Diseases

Implementation report on the Commission Communication on Rare Diseases: Europe's challenges (2008) and Council Recommendation on an action in the field of rare diseases (2009) [COM(2014) 548 final]

- **"This is why the European Commission's JRC is currently developing a European Platform on Rare Diseases Registration. The main objectives for this platform are to provide a central access point for information on rare diseases patients' registries for all stakeholders, support new and existing registries in view of their interoperability, provide IT tools to maintain data collection and host activities of the surveillance networks."**

European Platform on Rare Disease Registration (EU RD Platform)

Searchable, findable rare disease registry data

European Rare Disease Registry Infrastructure (ERDRI)

European standards for data collection and data sharing

Trainings, Resources and Latest news

Data repository

European RD Registry Data Warehouse

Surveillance of Congenital Anomalies in Europe

Surveillance of Cerebral Palsy in Europe

https://eu-rd-platform.jrc.ec.europa.eu

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https://eu-rd-platform.jrc.ec.europa.eu

EUROCAT and SCPE

Network of population-based registries for the surveillance of **congenital anomalies** in Europe

- **49 registries** in **23 countries**
- High quality multiple source registries, ascertaining **all types of births** (live birth, still birth, fetal death) and **terminations of pregnancy**.
- Data collected **twice a year**, time delay: 2 years

https://eu-rd-platform.jrc.ec.europa.eu/eurocat_en

Network of population-based registries for the epidemiological surveillance of **cerebral palsy** in Europe

- **19 active registries** in **18 countries**
- Registries using multiple sources of ascertainment
- Data updated annually, time delay: 9 years

https://eu-rd-platform.jrc.ec.europa.eu/scpe_en

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Surveillance of Congenital Anomalies in Europe

Surveillance of Cerebral Palsy in Europe

https://eu-rd-platform.jrc.ec.europa.eu

European Commission

EU RD Platform: Common Data Elements

Tools for semantic interoperability

European standards
for data collection
and data sharing

Set of Common
Data Elements (CDE)

Domain Specific Common
Data Elements (DsCDE)

SET OF COMMON DATA ELEMENTS FOR RARE DISEASES REGISTRATION

GROUP	ELEMENT N°	ELEMENT NAME	ELEMENT DESCRIPTION	CODING	COMMENT
1. Pseudonym	1.1.	Pseudonym	Patient's pseudonym	• String	https://eu-rd-platform.jrc.ec.europa.eu/erdri/eupid-intro
2. Personal information	2.1.	Date of birth	Patient's date of birth	• Date (dd/mm/yyyy)	
	2.2.	Sex	Patient's sex at birth	• Female • Male • Undetermined • Foetus (Unknown)	
3. Patient Status	3.1.	Patient's status	Patient alive or dead	• Alive • Dead • Lost in follow-up • Opted-out	If dead then answer question 3.2
	3.2.	Date of death	Patient's date of death	• Date (dd/mm/yyyy)	
4. Care pathway	4.1.	First contact with specialised centre	Date of first contact with specialised centre	• Date (dd/mm/yyyy)	

5. Disease history	5.1.	Age at onset	Age at which symptoms/signs first appeared	• Antenatal • At birth • Date (dd/mm/yyyy) • Undetermined	
	5.2.	Age at diagnosis	Age at which diagnosis was made	• Antenatal • At birth • Date (dd/mm/yyyy) • Undetermined	
6 Diagnosis	6.1.	Diagnosis of the rare disease	Diagnosis retained by the specialised centre	Orpha code (strongly recommended – see link) / Alpha code/ ICD-9 code/ ICD-9-CM code / ICD-10 code	http://www.orphadata.org/cgi-bin/inc/product1.inc.php
	6.2.	Genetic diagnosis	Genetic diagnosis retained by the specialised centre	International classification of mutations (HGVS) (strongly recommended – see link) / HGNC / OMIM code	http://www.hgvs.org
	6.3	Undiagnosed case	How the undiagnosed case is defined	• Phenotype (HPO) • Genotype (HGVS)	
7. Research	7.1.	Agreement to be contacted for research purposes	Patient's permission exists for being contacted for research purposes	• YES • NO	
	7.2.	Consent to the reuse of data	Patient's consent exists for his/her data to be reused for other research purposes	• YES • NO	
	7.3.	Biological sample	Patient's biological sample available for research	• YES • NO	If YES answer question 7.4
	7.4.	Link to a biobank	Biological sample stored in a biobank	• YES (if appropriate use link) • NO	https://directory.bbmri-eric.eu
8.Disability	8.1.	Classification of functioning/disability	Patient's disability profile according to International Classification of Functioning and Disability (ICF)	• Disability profile / Score	http://www.who.int/classifications/icf/whodasii/en/

EU RD Platform: Common Data Elements

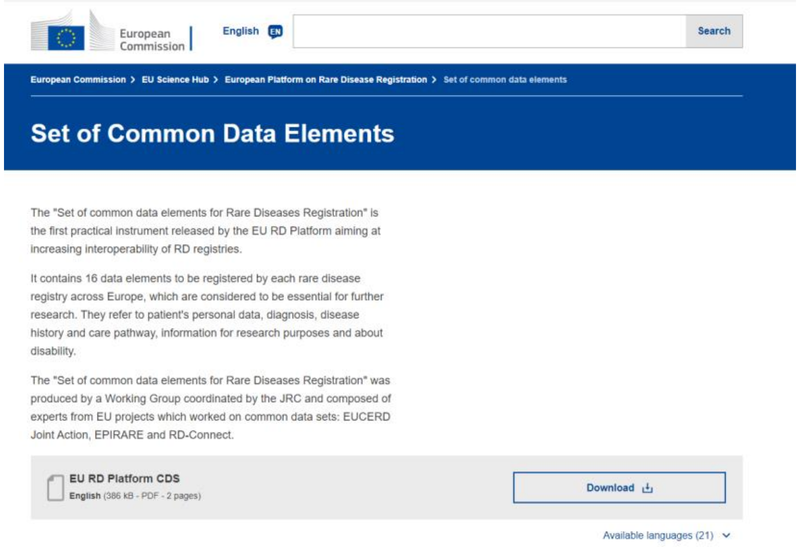
Tools for semantic interoperability

European standards for data collection and data sharing

Set of Common Data Elements (CDE)

Domain Specific Common Data Elements (DsCDE)

Work in progress



European Commission > EU Science Hub > European Platform on Rare Disease Registration > Set of common data elements

Set of Common Data Elements

The "Set of common data elements for Rare Diseases Registration" is the first practical instrument released by the EU RD Platform aiming at increasing interoperability of RD registries.

It contains 16 data elements to be registered by each rare disease registry across Europe, which are considered to be essential for further research. They refer to patient's personal data, diagnosis, disease history and care pathway, information for research purposes and about disability.

The "Set of common data elements for Rare Diseases Registration" was produced by a Working Group coordinated by the JRC and composed of experts from EU projects which worked on common data sets: EUCERD Joint Action, EPIRARE and RD-Connect.

EU RD Platform CDS
English (386 kB - PDF - 2 pages)

- **Extension of the CDE to increase semantic interoperability.**
- **Research needs of the ERNs**
- **Joint initiative of the JRC / EU RD Platform, the ERN Registries Task Force, and the EJP-RD registry interoperability Work Focus Group.**
- **Identification of domains / data element curation teams /standardise feedback (specific questions /scoring systems, prioritisation)**
- **Consultations with wider medical expert community**

"Domain-specific Common Data Elements for Rare Disease Registration: A Conceptual Approach of a European Joint Initiative towards Semantic Interoperability in Rare Disease Research" Accepted, JMIR Journal for Medical Informatics.

The main components of ERDRI

European Rare Disease Registry Infrastructure (ERDRI)

European Directory of Registries (ERDRI.dor)

Overview of rare disease registries in Europe including their characteristics

Central Metadata Repository (ERDRI.mdr)

Database containing the data elements used by rare disease registries

Pseudonymisation tool

Service offering registries at local level the solution for patient pseudonymisation

EUCERD-JA Workpackage "Registries"
Univ. Frankfurt/Mainz

In-house development

ERDRI characteristics

Ensures DISCOVERABILITY of DATA from participating RD registries via the ERDRI Search tool

Registries remain owners of their data and decide about use of the data

European Rare Disease Registry Infrastructure (ERDRI)

The European Directory of Registries (ERDRI.dor)

European Directory of Registries (ERDRI.dor)

Overview of rare disease registries in Europe including their characteristics

List of participating RD registries with their main characteristics and description

Descriptive metadata - eight sections with 38 data fields related to a registry of which 23 are obligatory
- **specific rare disease addressed**
- **scope**
- **operating institution**
- **contact information**

Data input is performed by registry owners

List of the data elements collected by the registries according to the ERDRI.mdr:

registry-specific data scheme

Central Metadata Repository ERDRI.mdr

Metadata = Data about data

Key:value pairs

Designation / Definition /Measurement unit + range

Collection of metadata on all data elements collected by participating registries

Semantic Interoperability

common definitions for data elements

Human readability

Machine readability

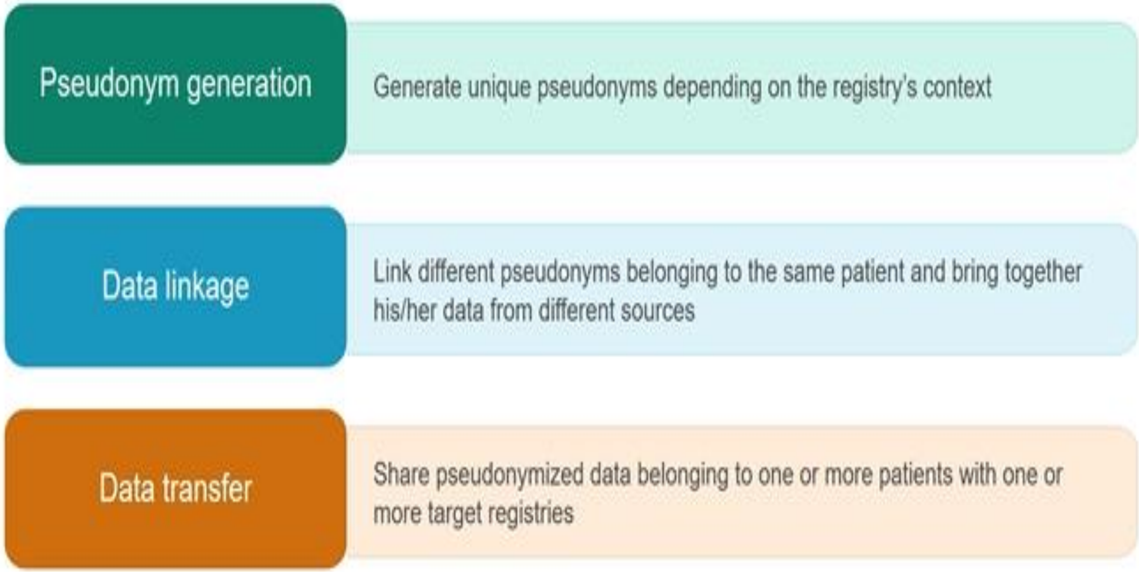
Semantic web technologies

Interoperability through the ERDRI Pseudonymisation tool

- **Offered to all registries joining the EU RD Platform.**
- **Secure Privacy-preserving Identity management in Distributed Environments for Research**

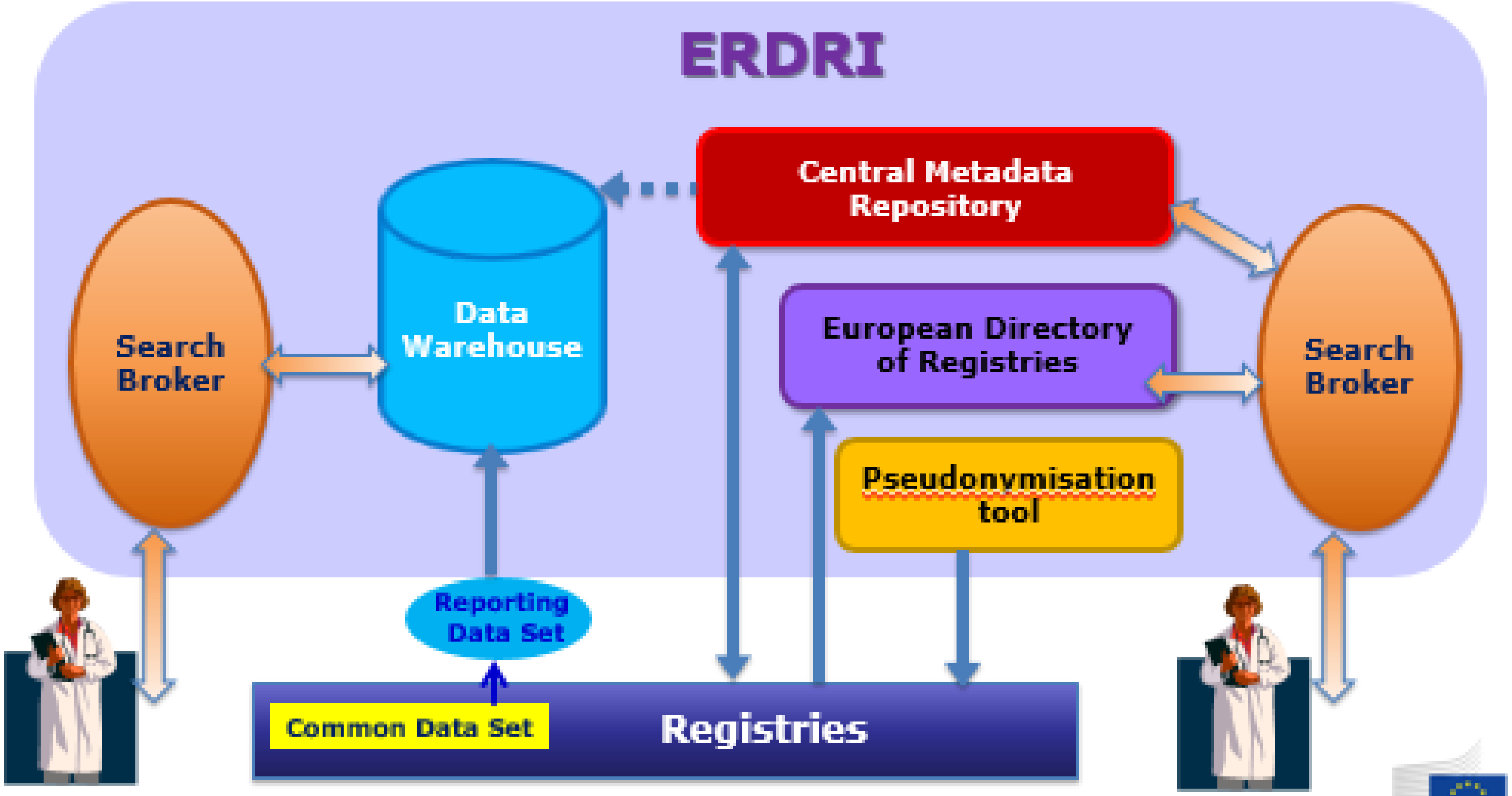
Pseudonymisation tool

Service offering registries at local level the solution for patient pseudonymisation

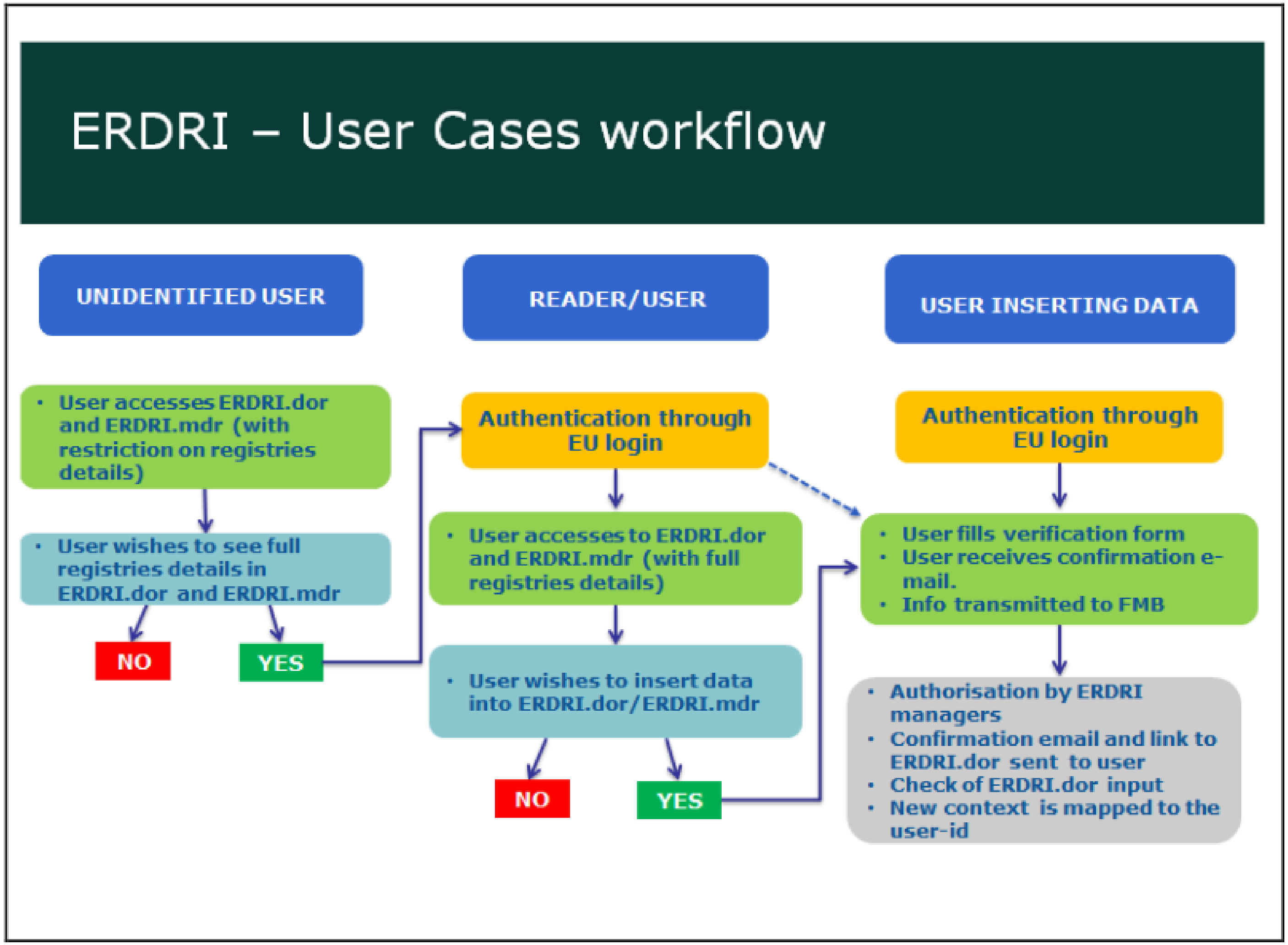


Pseudonym generation	Generate unique pseudonyms depending on the registry's context
Data linkage	Link different pseudonyms belonging to the same patient and bring together his/her data from different sources
Data transfer	Share pseudonymized data belonging to one or more patients with one or more target registries

European Platform on Rare Disease Registration



Accessing ERDRI



ERDRI – User Cases workflow

UNIDENTIFIED USER

- User accesses ERDRI.dor and ERDRI.mdr (with restriction on registries details)

- User wishes to see full registries details in ERDRI.dor and ERDRI.mdr

NO

YES

READER/USER

Authentication through EU login

- User accesses to ERDRI.dor and ERDRI.mdr (with full registries details)

- User wishes to insert data into ERDRI.dor/ERDRI.mdr

NO

YES

USER INSERTING DATA

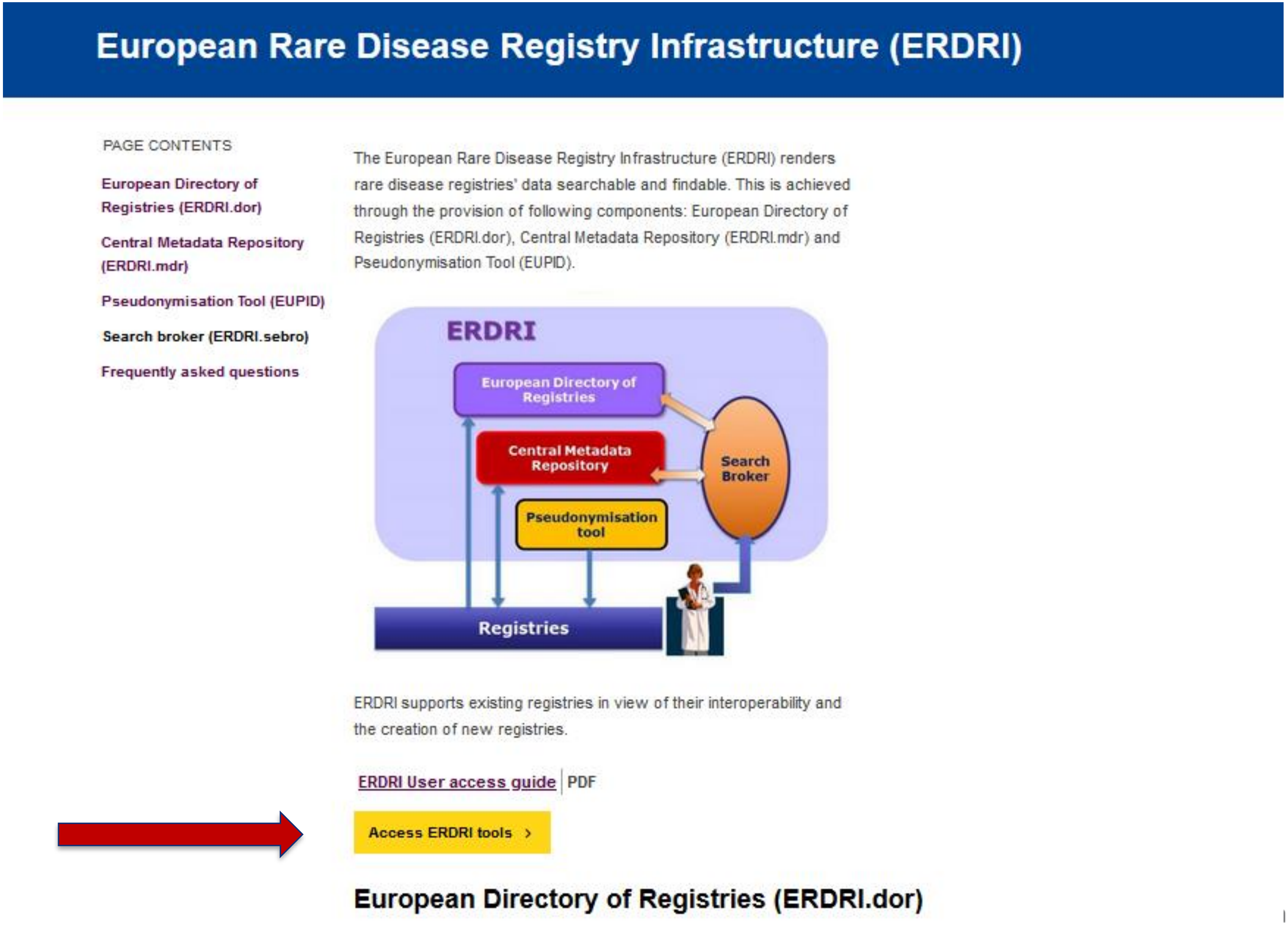
Authentication through EU login

- User fills verification form
- User receives confirmation e-mail.
- Info transmitted to FMB

- Authorisation by ERDRI managers
- Confirmation email and link to ERDRI.dor sent to user
- Check of ERDRI.dor input
- New context is mapped to the user-id

Accessing ERDRI

https://eu-rd-platform.jrc.ec.europa.eu/erdri-description_en



European Rare Disease Registry Infrastructure (ERDRI)

PAGE CONTENTS

- European Directory of Registries (ERDRI.dor)
- Central Metadata Repository (ERDRI.mdr)
- Pseudonymisation Tool (EUPID)
- Search broker (ERDRI.sebro)
- Frequently asked questions

The European Rare Disease Registry Infrastructure (ERDRI) renders rare disease registries' data searchable and findable. This is achieved through the provision of following components: European Directory of Registries (ERDRI.dor), Central Metadata Repository (ERDRI.mdr) and Pseudonymisation Tool (EUPID).

ERDRI supports existing registries in view of their interoperability and the creation of new registries.

ERDRI User access guide | PDF

European Directory of Registries (ERDRI.dor)

Accessing data input –
Verified user in ERDRI.dor

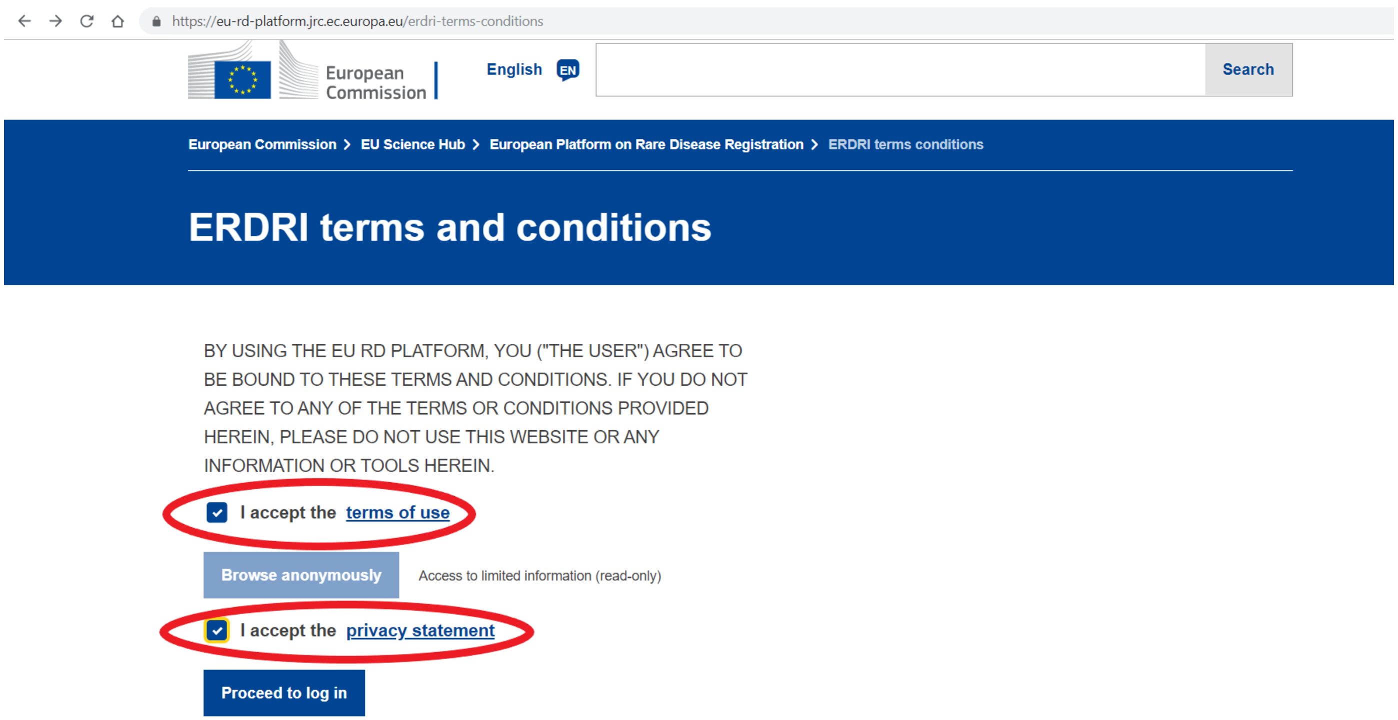
Please take note of the privacy statement. In case the data you provide in ERDRI.dor concern a person other than yourself please make sure that this person has taken note of the privacy statement

☐ I accept the privacy statement

(*mandatory entry)

General information

Accessing ERDRI



ERDRI terms and conditions

BY USING THE EU RD PLATFORM, YOU ("THE USER") AGREE TO BE BOUND TO THESE TERMS AND CONDITIONS. IF YOU DO NOT AGREE TO ANY OF THE TERMS OR CONDITIONS PROVIDED HEREIN, PLEASE DO NOT USE THIS WEBSITE OR ANY INFORMATION OR TOOLS HEREIN.

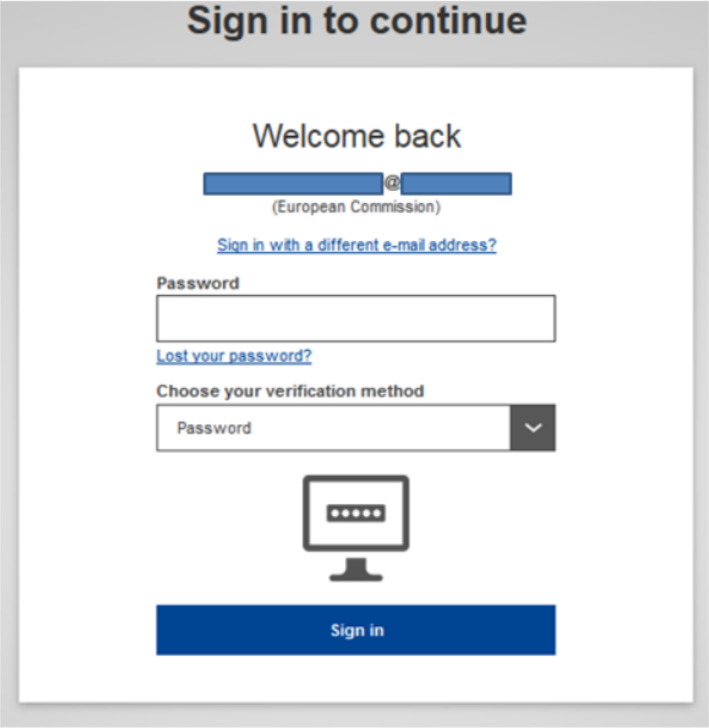
☑ I accept the terms of use

Browse anonymously Access to limited information (read-only)

☑ I accept the privacy statement

Proceed to log in

Identified Users - Authentication



Sign in to continue

Welcome back

[redacted]@[redacted]

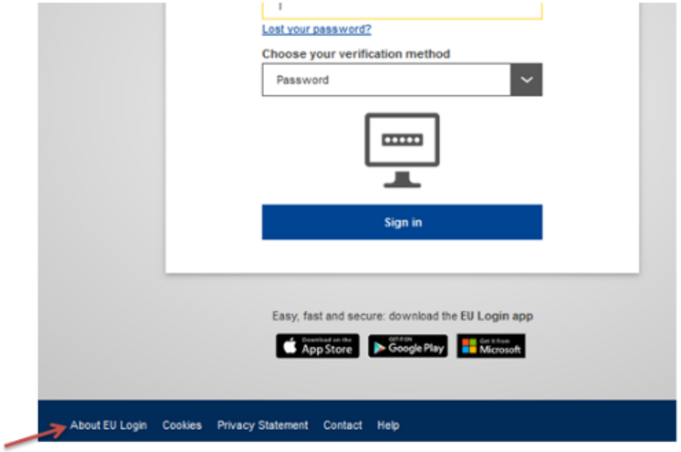
(European Commission)

Sign in with a different e-mail address?

Password

Lost your password?

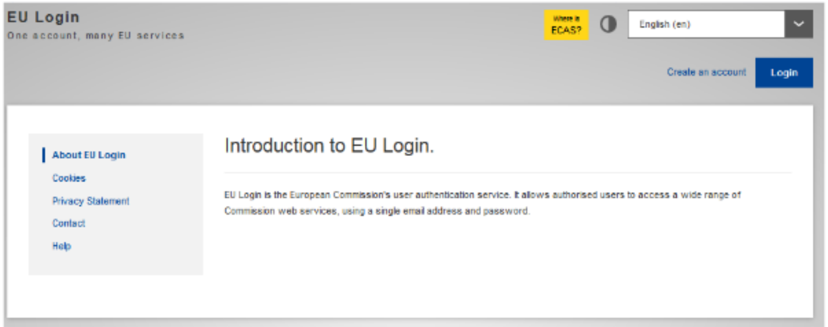
Choose your verification method: Password



Lost your password?

Choose your verification method: Password

Easy, fast and secure: download the EU Login app



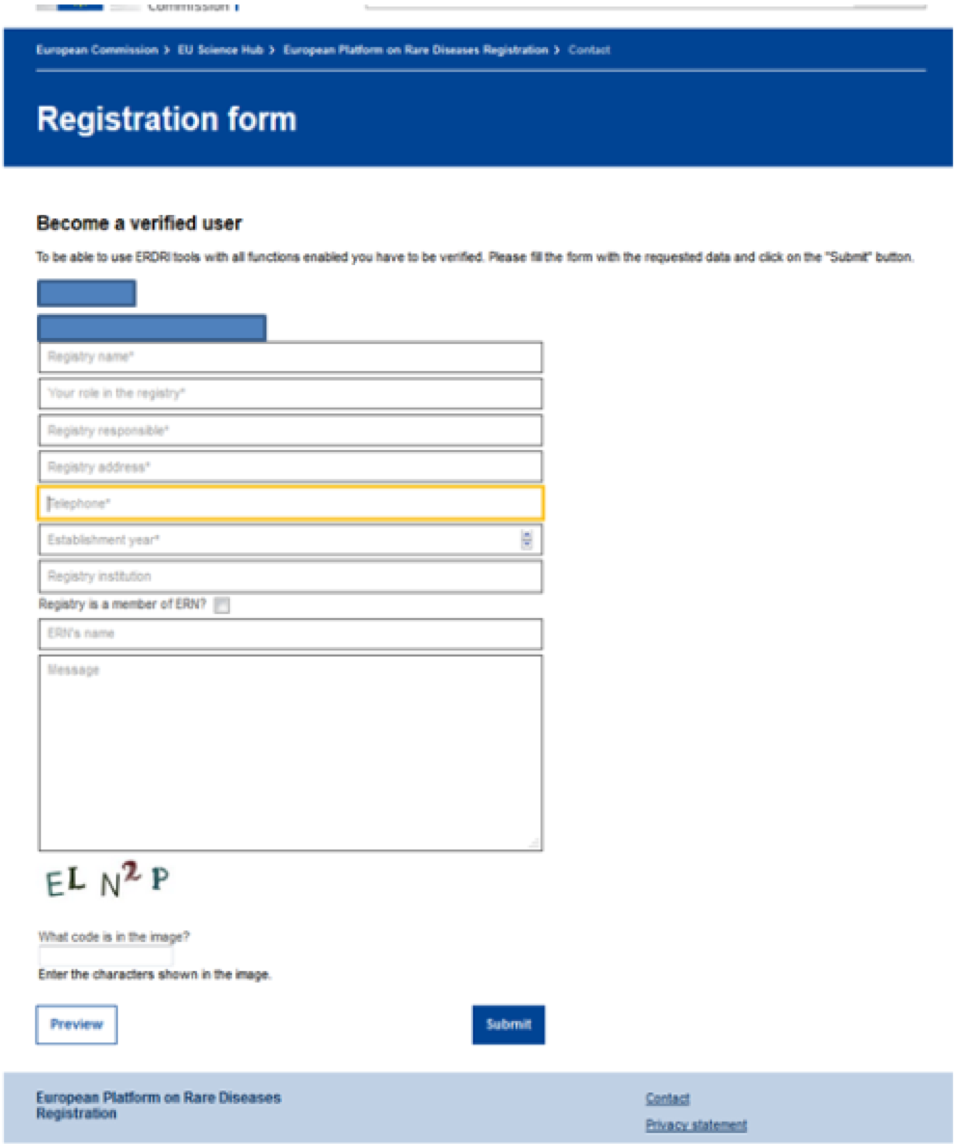
EU Login

One account, many EU services

Introduction to EU Login.

EU Login is the European Commission's user authentication service. It allows authorised users to access a wide range of Commission web services, using a single email address and password.

Verified Users - Contributors



Commission

European Commission > EU Science Hub > European Platform on Rare Diseases Registration > Contact

Registration form

Become a verified user

To be able to use ERDRI tools with all functions enabled you have to be verified. Please fill the form with the requested data and click on the "Submit" button.

[redacted]

[redacted]

Registry name*
Your role in the registry*
Registry responsible*
Registry address*
Telephone*
Establishment year*
Registry institution

Registry is a member of ERN? ☐

ERN's name
Message

EL N2 P

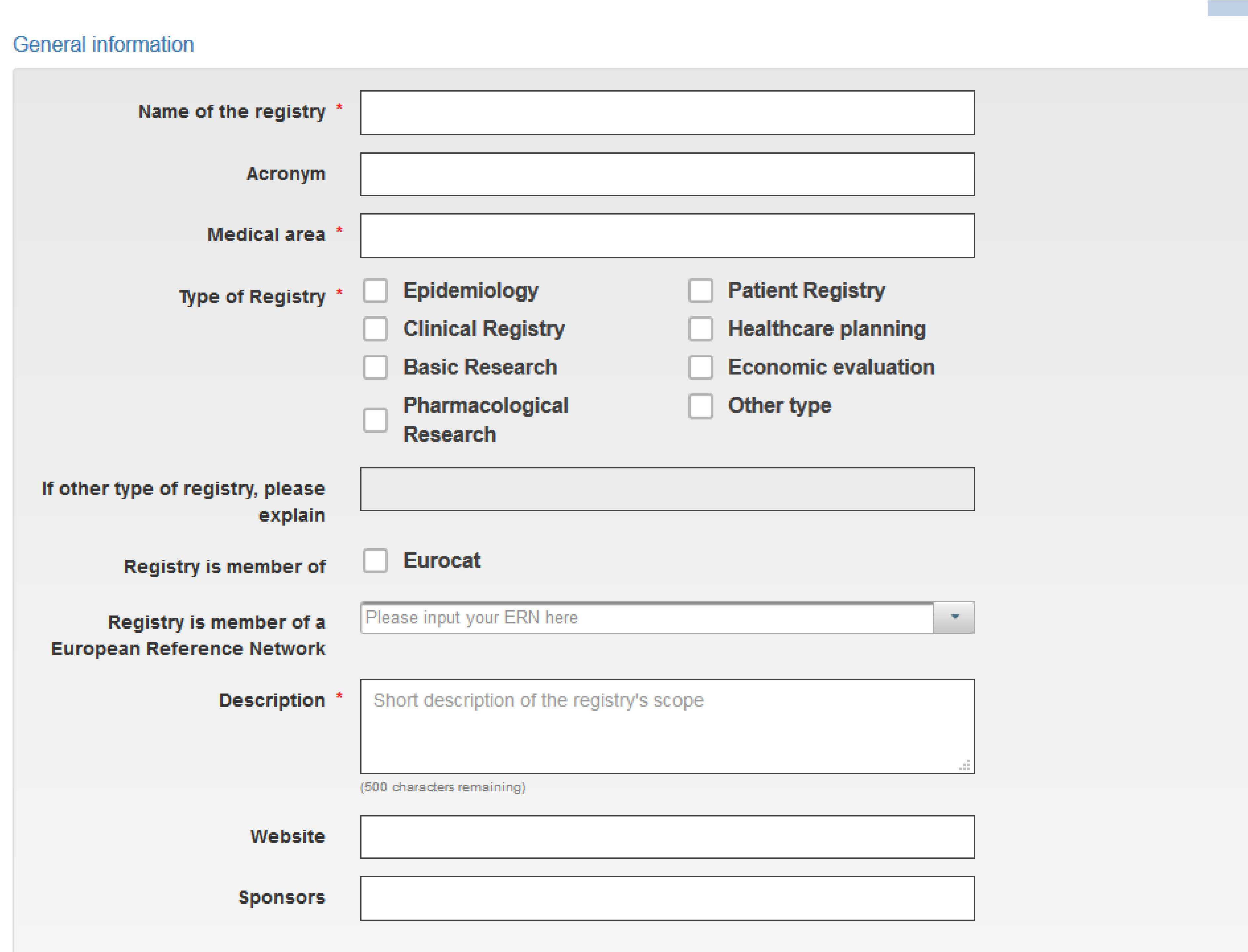
What code is in the image?

Enter the characters shown in the image.

European Platform on Rare Diseases Registration

Contact

Privacy statement



General information

Name of the registry *

Acronym

Medical area *

Type of Registry *
- ☐ Epidemiology
- ☐ Clinical Registry
- ☐ Basic Research
- ☐ Pharmacological Research
- ☐ Patient Registry
- ☐ Healthcare planning
- ☐ Economic evaluation
- ☐ Other type

If other type of registry, please explain

Registry is member of ☐ Eurocat

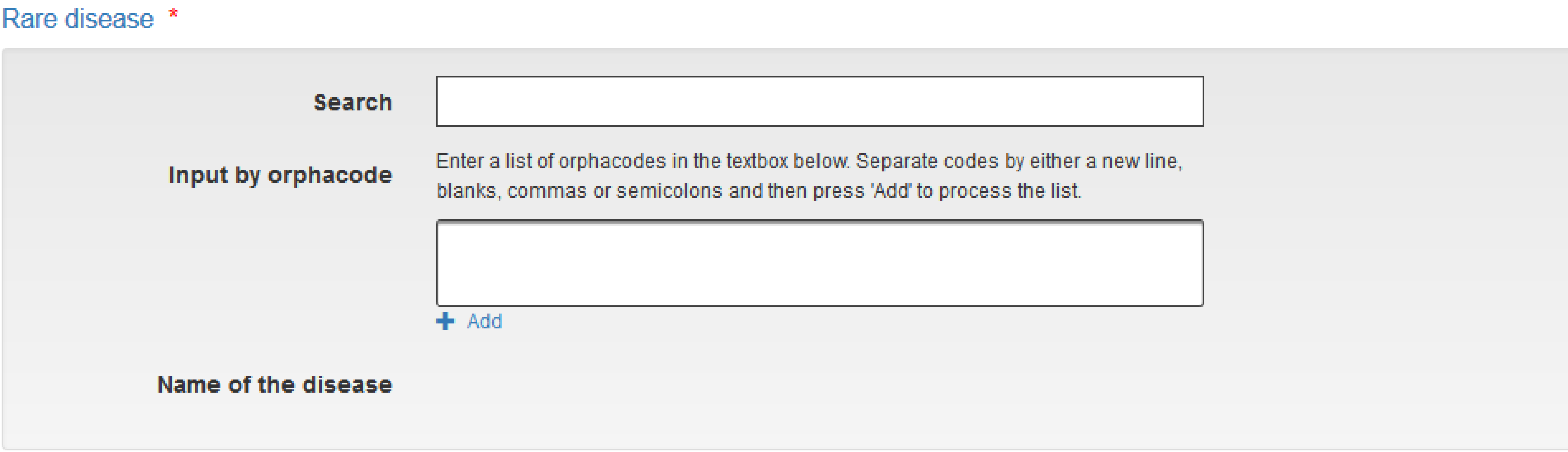
Registry is member of a European Reference Network: Please input your ERN here

Description *: Short description of the registry's scope

(500 characters remaining)

Website

Sponsors



Rare disease *

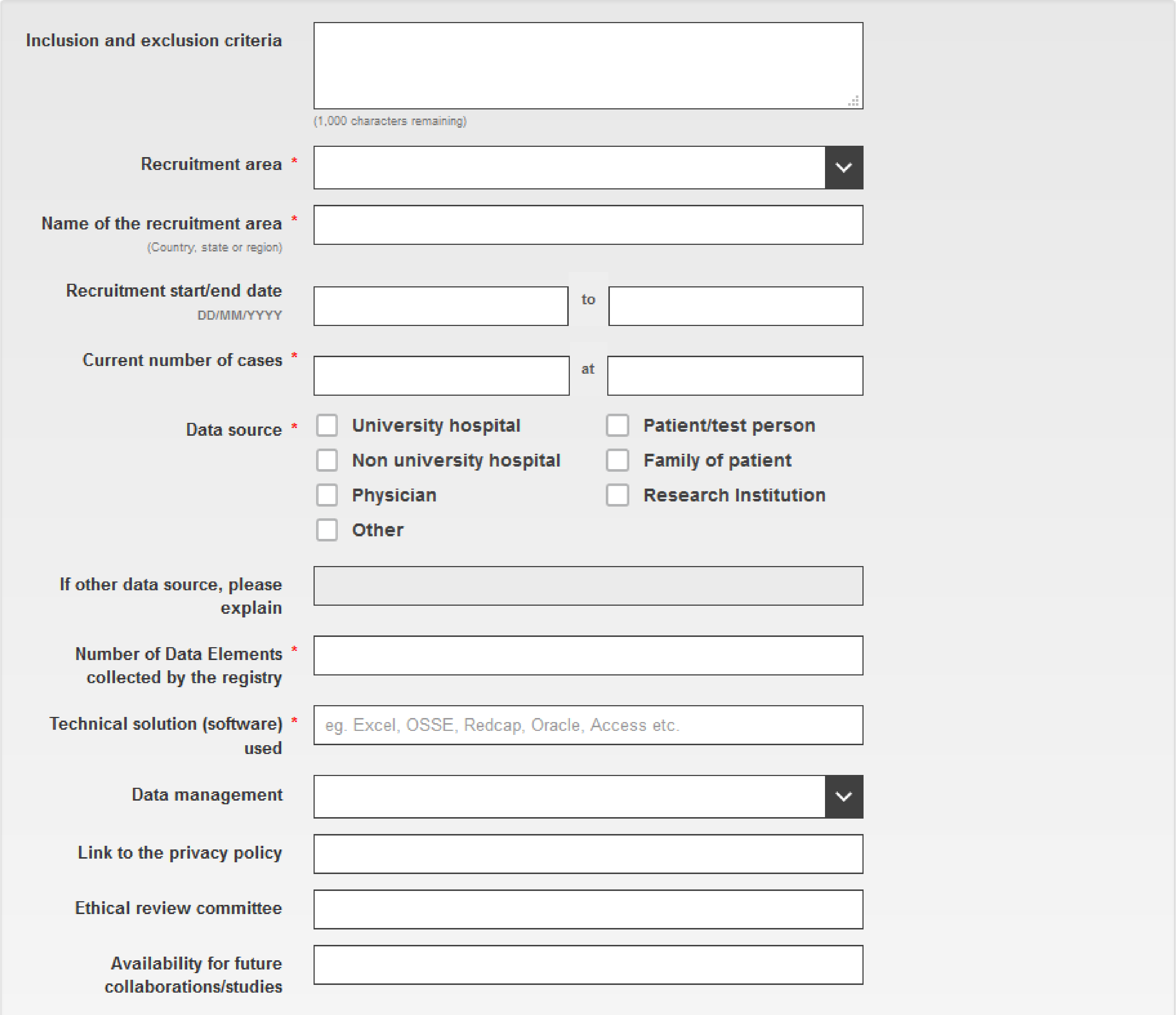
Search

Input by orphacode

Enter a list of orphacodes in the textbox below. Separate codes by either a new line, blanks, commas or semicolons and then press 'Add' to process the list.

Name of the disease

Structure



Inclusion and exclusion criteria

(1,000 characters remaining)

Recruitment area *

Name of the recruitment area *
(Country, state or region)

Recruitment start/end date
DD/MM/YYYY
to

Current number of cases *
at

Data source *
☐ University hospital
☐ Non university hospital
☐ Physician
☐ Other
☐ Patient/test person
☐ Family of patient
☐ Research Institution

If other data source, please explain

Number of Data Elements collected by the registry *

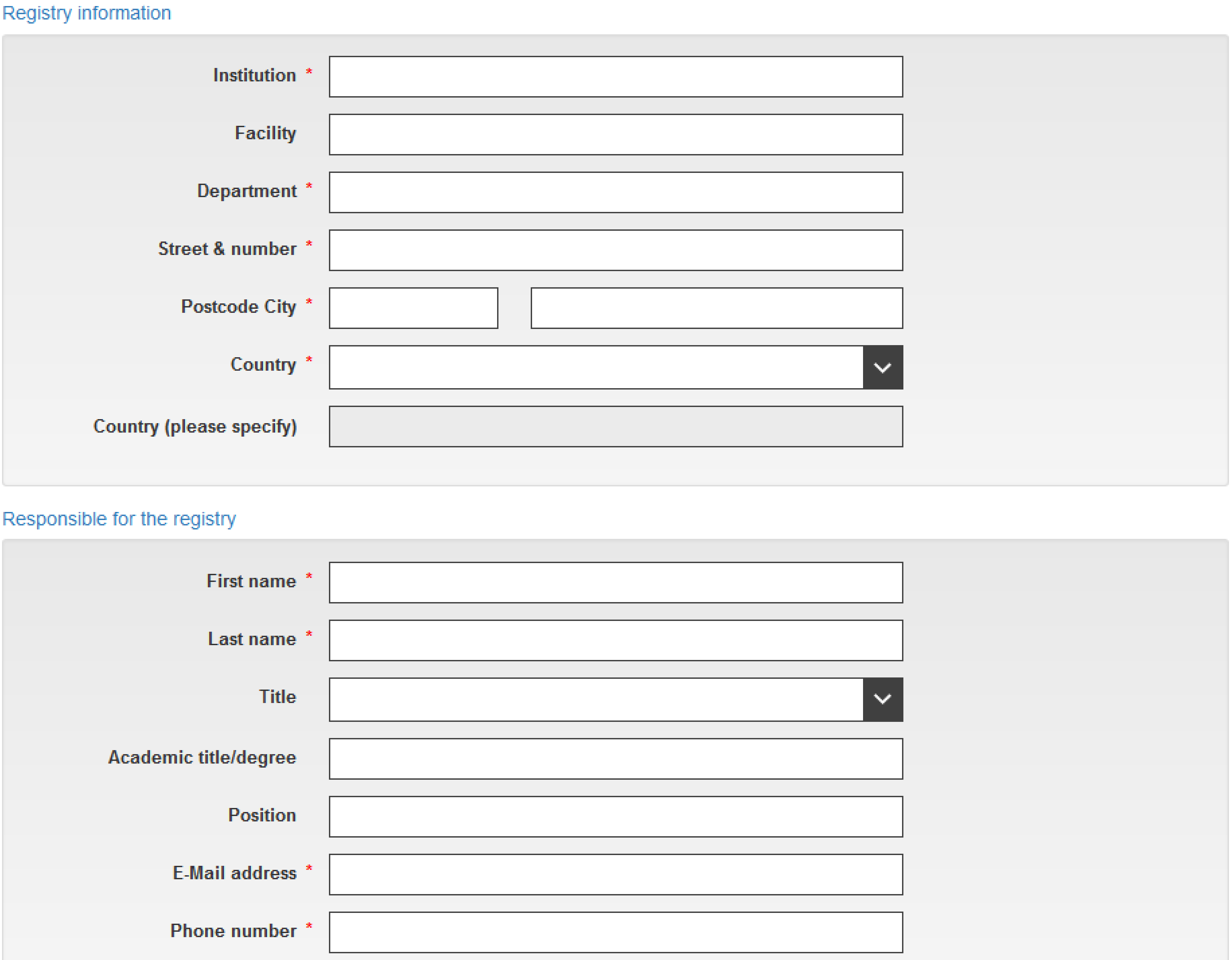
Technical solution (software) used *
eg. Excel, OSSE, Redcap, Oracle, Access etc.

Data management

Link to the privacy policy

Ethical review committee

Availability for future collaborations/studies



Registry information

Institution *

Facility

Department *

Street & number *

Postcode City *

Country *

Country (please specify)

Responsible for the registry

First name *

Last name *

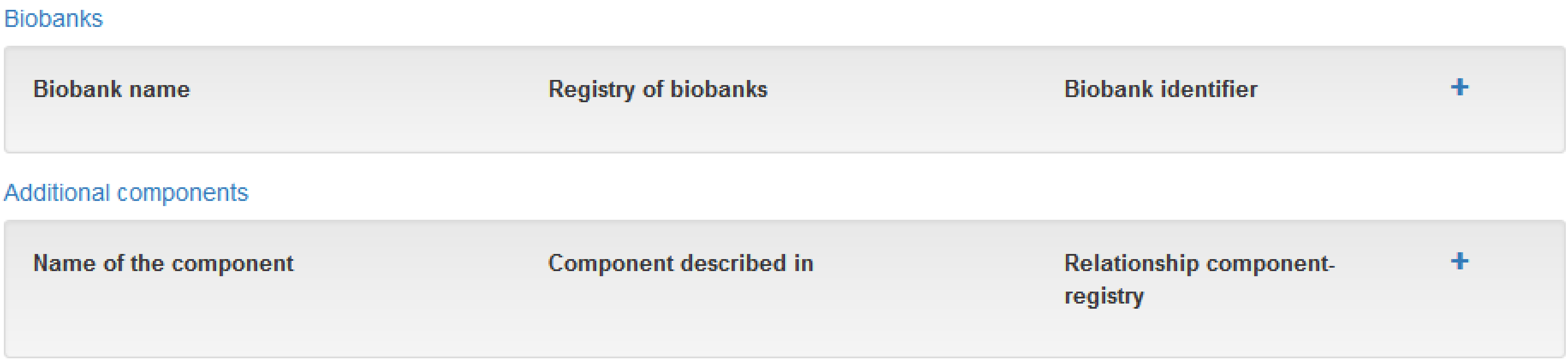
Title

Academic title/degree

Position

E-Mail address *

Phone number *



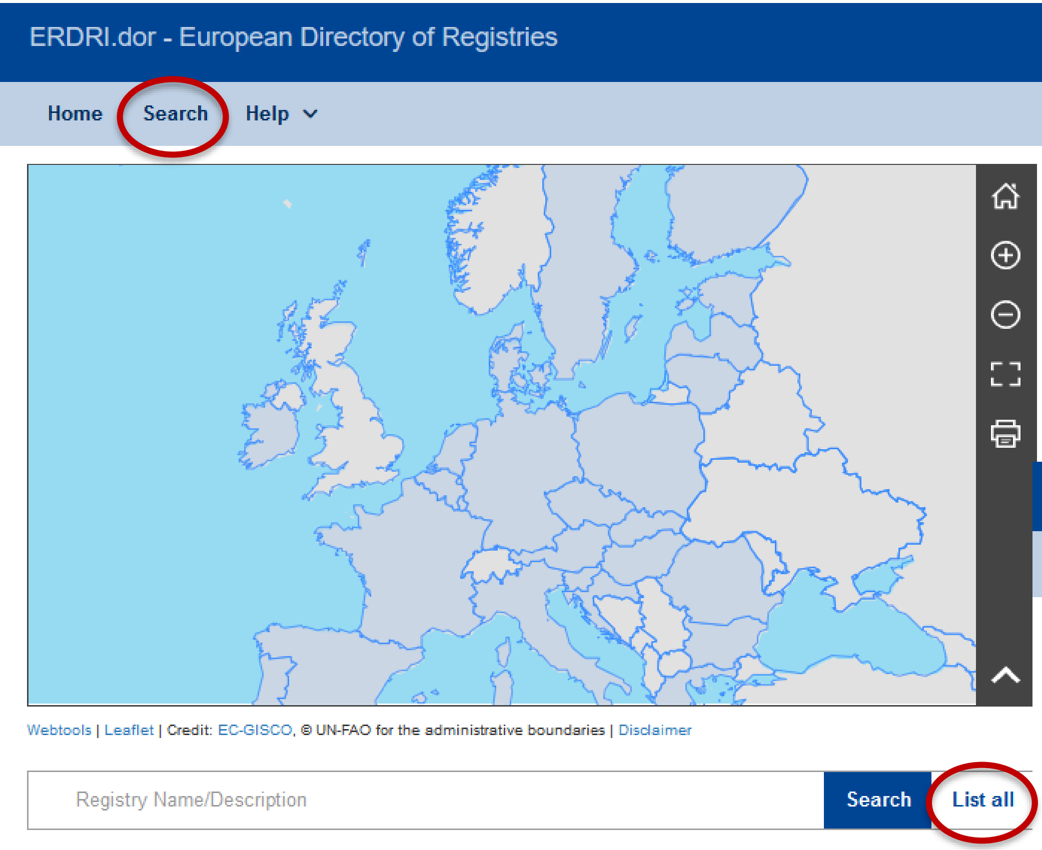
Biobanks

Biobank name	Registry of biobanks	Biobank identifier

Additional components

Name of the component	Component described in	Relationship component-registry

The European Directory of RD registries - ERDRI.dor



- ➤ Clickable map
- ➤ "List all" function
- ➤ Search function

- Ongoing campaign in recruiting new registries
- ERN network registries

European Commission

ERDRI.mdr - Central Metadata Repository

ERDRI.mdr serves to ease the integration of heterogeneous data from different rare disease registries. For this purpose, it contains a collection of metadata which specifies the used data elements of a registry including the designation of the used data elements, their definition and units of measurement. The more registries define their data elements in a comprehensible way and use identical data definitions, the easier it is to use these data for overarching studies and research questions.

In the long term the harmonisation of used data elements and data structures in existing and upcoming registries is aimed at. The use of the "Set of common data elements for rare diseases registration" by each registry is a first step towards this objective and the interoperability of rare disease registries.

Before entering data you are strongly advised to make yourself familiar with the ERDRI.mdr environment. You can do so at the ERDRI.mdr demo instance, which can be accessed with the same credentials as the production ERDRI.mdr.

ERDRI.mdr - Central Metadata Repository

● All registries ○ Hide empty registries

Registry | *empty*

AIDA BD

AutoInflammatory Disease Alliance Registry of Behçet's Disease

Registry | *empty*

AIDA mAIDs

AutoInflammatory Disease Alliance Registry of Monogenic Autoinflammatory Diseases

Registry | *empty*

AIDA PFAPA

AutoInflammatory Disease Alliance Registry of Periodic Fever, Aphthous stomatitis, Pharyngitis, Adenopathy (PFAPA) syndrome

Registry | *empty*

AIDA STILL

AutoInflammatory Disease Alliance Registry of Still Disease

Registry | *last updated at 13/1/2022*

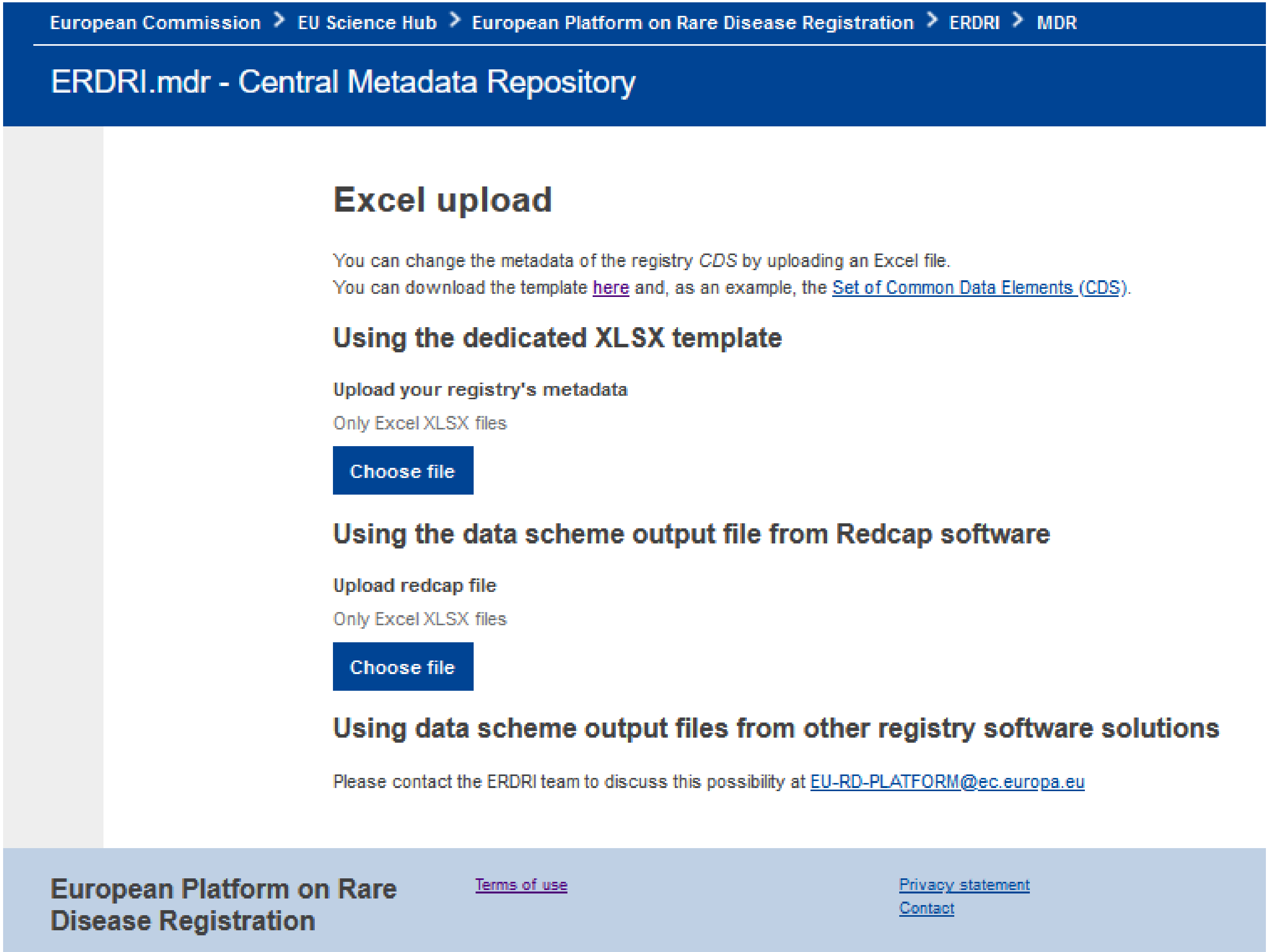
BNDMR

Banque Nationale de Donnees Maladies Rares

Registry | *last updated at 13/1/2022*

CDS

Set of Common Data Elements for Rare Diseases Registration



ERDRI.mdr - Central Metadata Repository

Excel upload

You can change the metadata of the registry *CDS* by uploading an Excel file.
You can download the template here and, as an example, the Set of Common Data Elements (CDS).

Using the dedicated XLSX template

Upload your registry's metadata

Only Excel XLSX files

Using the data scheme output file from Redcap software

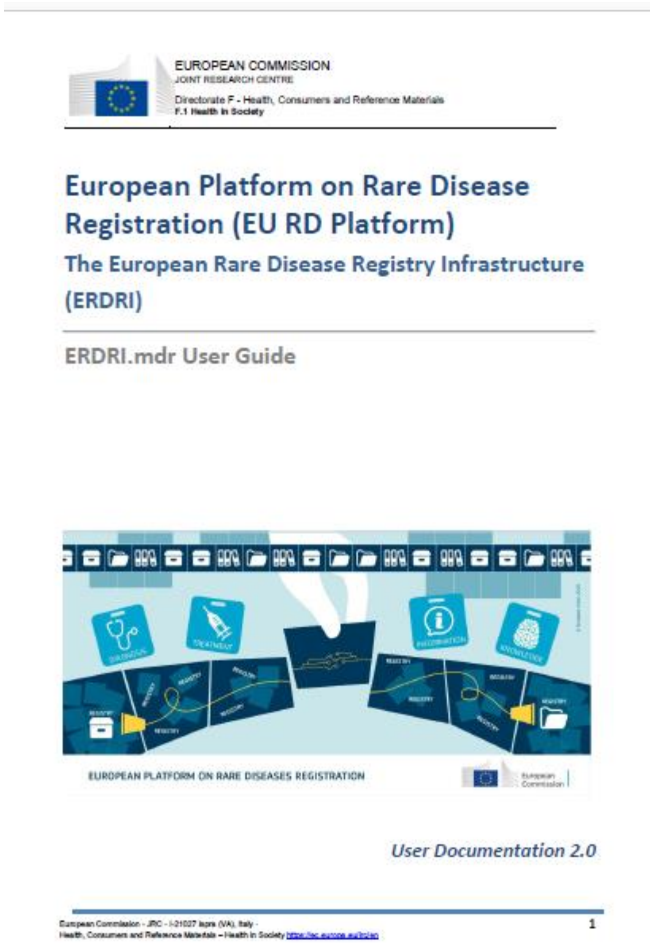
Upload redcap file

Only Excel XLSX files

Using data scheme output files from other registry software solutions

Please contact the ERDRI team to discuss this possibility at EU-RD-PLATFORM@ec.europa.eu

European Platform on Rare Disease Registration



EUROPEAN COMMISSION
JOINT RESEARCH CENTRE
Directorate F - Health, Consumers and Reference Materials
F.1 Health in Society

European Platform on Rare Disease Registration (EU RD Platform)

The European Rare Disease Registry Infrastructure (ERDRI)

ERDRI.mdr User Guide

EUROPEAN PLATFORM ON RARE DISEASES REGISTRATION

User Documentation 2.0

European Commission - JRC - I-21027 Ispra (VA), Italy -
Health, Consumers and Reference Materials – Health in Society https://ec.europa.eu/jrc/en

1

EUROPEAN COMMISSION
JOINT RESEARCH CENTRE
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The European Rare Disease Registry Infrastructure

ERDRI User Access Guide

EUROPEAN PLATFORM ON RARE DISEASES REGISTRATION

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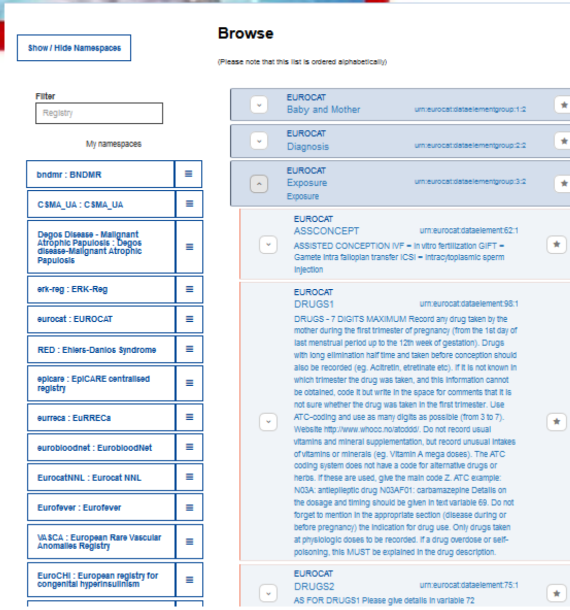
European Commission - JRC - I-21027 Ispra (VA), Italy -
Health, Consumers and Reference Materials – Health in Society
https://ec.europa.eu/jrc/en

1

European Commission

Role of ERDRI.mdr in building a registry

Import of metadata into ERDRI.mdr (software)



Browse

(Please note that this list is ordered alphabetically)

Filter

Registry

My namespaces

- bndmr : BNDMR
- CSMA_UA : CSMA_UA
- Degos Disease - Malignant Atrophic Papulosis : Degos disease-Malignant Atrophic Papulosis
- erk-reg : ERK-Reg
- eurocat : EUROCAT
- RED : Ehlers-Danlos Syndrome
- epicare : EpiCARE centralised registry
- eurreca : EuRRECa
- eurobloodnet : EurobloodNet
- EurocatNNL : Eurocat NNL
- Eurofever : Eurofever
- VASCA : European Rare Vascular Anomalies Registry
- EuroCHI : European registry for congenital hyperinsulinism

EUROCAT
Baby and Mother
urn:eurocat:dataelementgroup:1:2

EUROCAT
Diagnosis
urn:eurocat:dataelementgroup:2:2

EUROCAT
Exposure
urn:eurocat:dataelementgroup:3:2
Exposure

EUROCAT
ASSCONCEPT
urn:eurocat:dataelement:62:1
ASSISTED CONCEPTION IVF = In vitro fertilization GIFT = Gamete intra fallopian transfer ICSI = Intracytoplasmic sperm injection

EUROCAT
DRUGS1
urn:eurocat:dataelement:98:1
DRUGS - 7 DIGITS MAXIMUM Record any drug taken by the mother during the first trimester of pregnancy (from the 1st day of last menstrual period up to the 12th week of gestation). Drugs with long elimination half time and taken before conception should also be recorded (eg. Acitretin, etretinate etc). If it is not known in which trimester the drug was taken, and this information cannot be obtained, code it but write in the space for comments that it is not sure whether the drug was taken in the first trimester. Use ATC-coding and use as many digits as possible (from 3 to 7). Website http://www.whocc.no/atcddd/. Do not record usual vitamins and mineral supplementation, but record unusual intakes of vitamins or minerals (eg. Vitamin A mega doses). The ATC coding system does not have a code for alternative drugs or herbs. If these are used, give the main code Z. ATC example: N03A: antiepileptic drug N03AF01: carbamazepine Details on the dosage and timing should be given in text variable 69. Do not forget to mention in the appropriate section (disease during or before pregnancy) the indication for drug use. Only drugs taken at physiologic doses to be recorded. If a drug overdose or self-poisoning, this MUST be explained in the drug description.

EUROCAT
DRUGS2
urn:eurocat:dataelement:75:1
AS FOR DRUGS1 Please give details in variable 72

- **Implementation of the Set of CDE by each registry**
- **Domain Specific CDEs (work in progress) will also be included in ERDRI.mdr for registries to use**

The main components of ERDRI

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European Directory of Registries (ERDRI.dor)

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EU RD Platform
Central Metadata Repository
ERDRI.mdr

Tutorial session

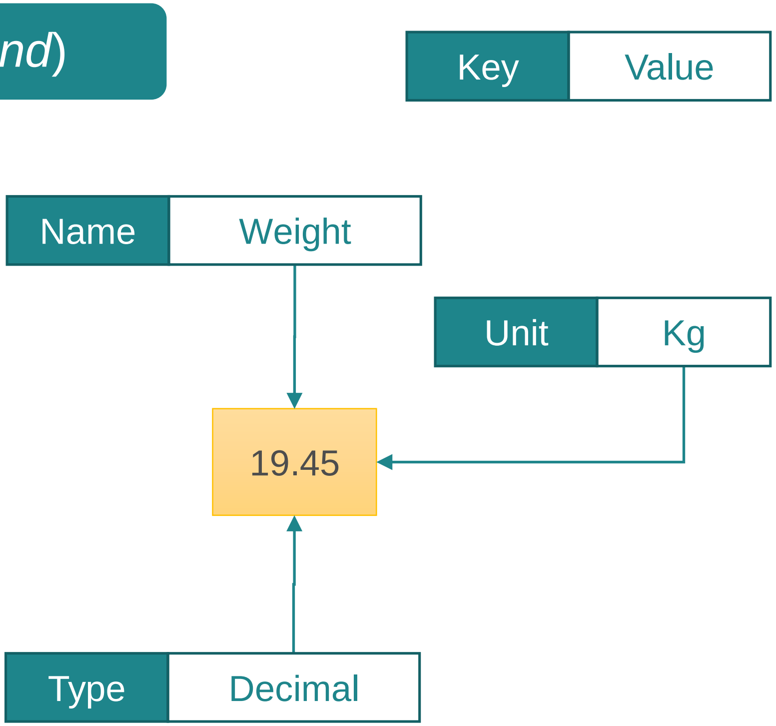
JRC.F.1

What is Metadata?

Metadata = Data about data (μετα = *beyond*)

- Data that describes data
  - Not the raw data itself

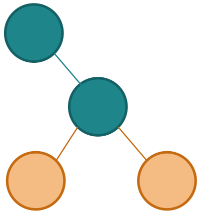
- Set of key:value pairs



Why do we need a Metadata Repository?

Describe

- Which data do we have?



Search/Retrieve

- Who has this data?
- What data does this center collect?

Know

- Encrypted pseudonymized data transfer

SPIDER

European Commission

How can we upload data to the MDR?

1

- Fill the MS Excel template

2

- Upload directly in your registry’s space or send the file to the functional mailbox EU-RD-PLATFORM@ec.europa.eu

3

- If needed, update the Excel file and send it again

European Commission

(Meta) Data to insert in the Excel file

Human Readable variable group name

Personal information

Human Readable variable group description

My Variable Group Description

Measurement rate

One time

Variable name as in your information system

`dateOfBirth`

prerequisites

`If otherVar = 1`

Human Readable Variable name

Date of Birth

Variable type

Date

Other key:value pairs

ELEMENT_NO = 2.1

Human Readable Variable description

Patient’s date of birth

Type constraints

dd/mm/yyyy

Thank you

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