



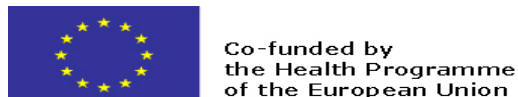
Collaborative research for rare diseases in the EU : the role of Orphanet in its implementation

Ana Rath

ana.rath@inserm.fr

CONFERENCE - Rare diseases and the European reference networks: how to guarantee European solidarity for patients?

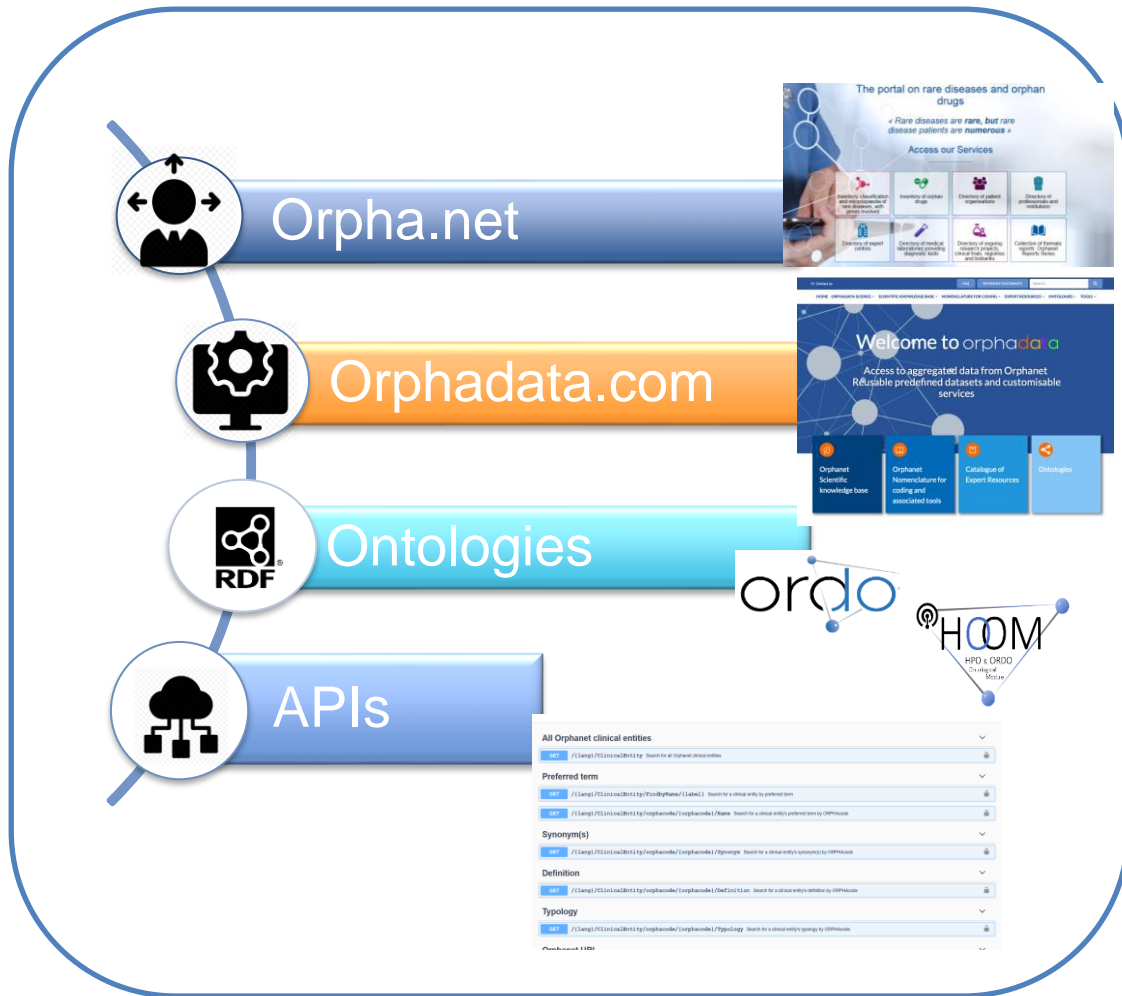
Bilbao, 11 October 2023



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Orphanet data are used to provide services

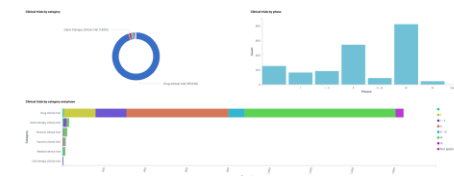
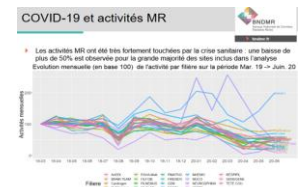
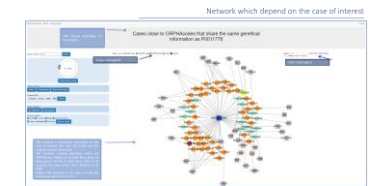


✓ Access to datasets

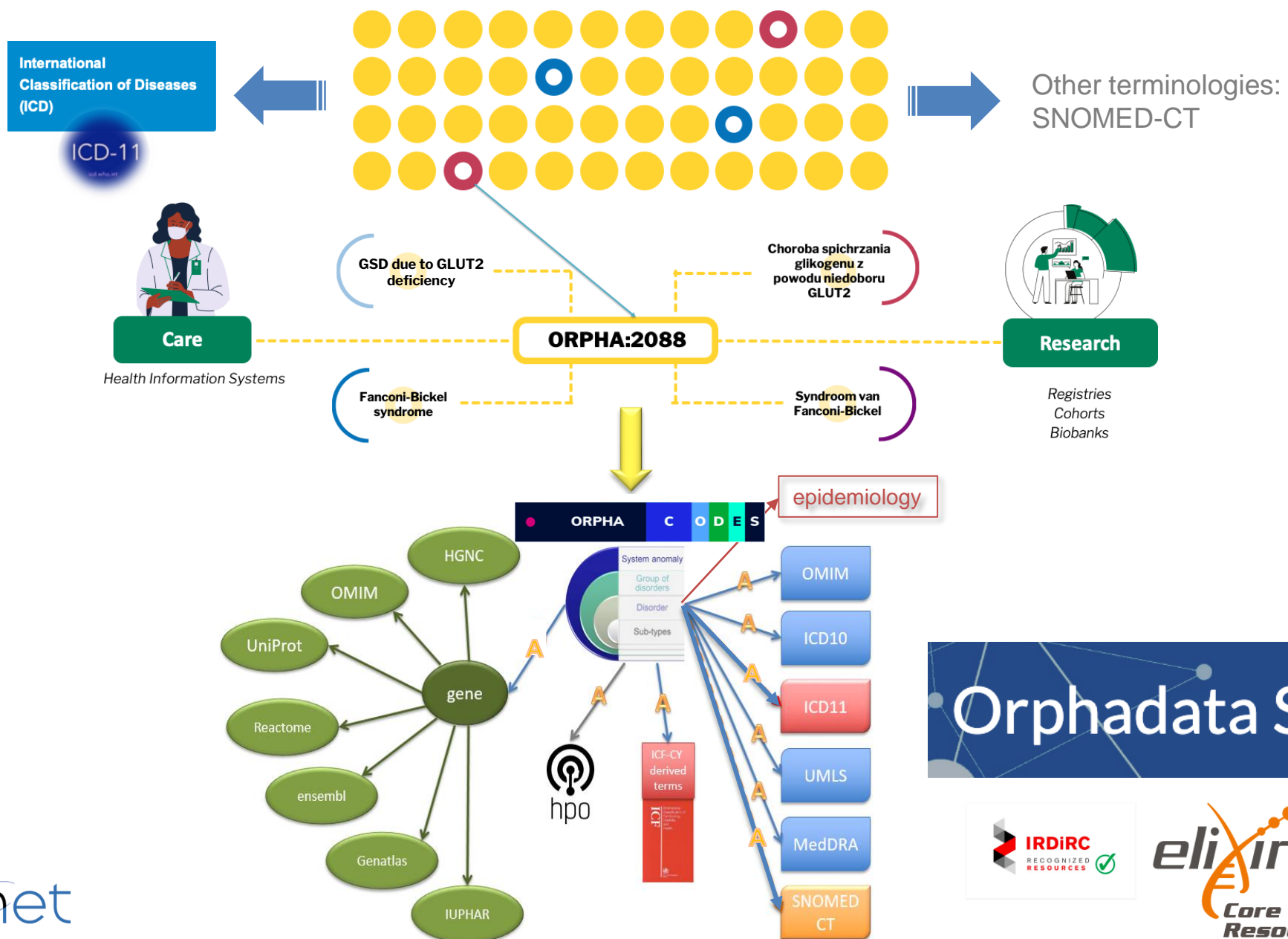
✓ Applications (diagnosis, ...)

✓ Studies (health economics, epidemiology...)

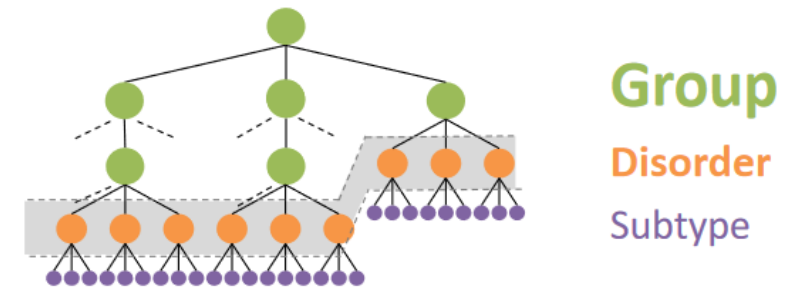
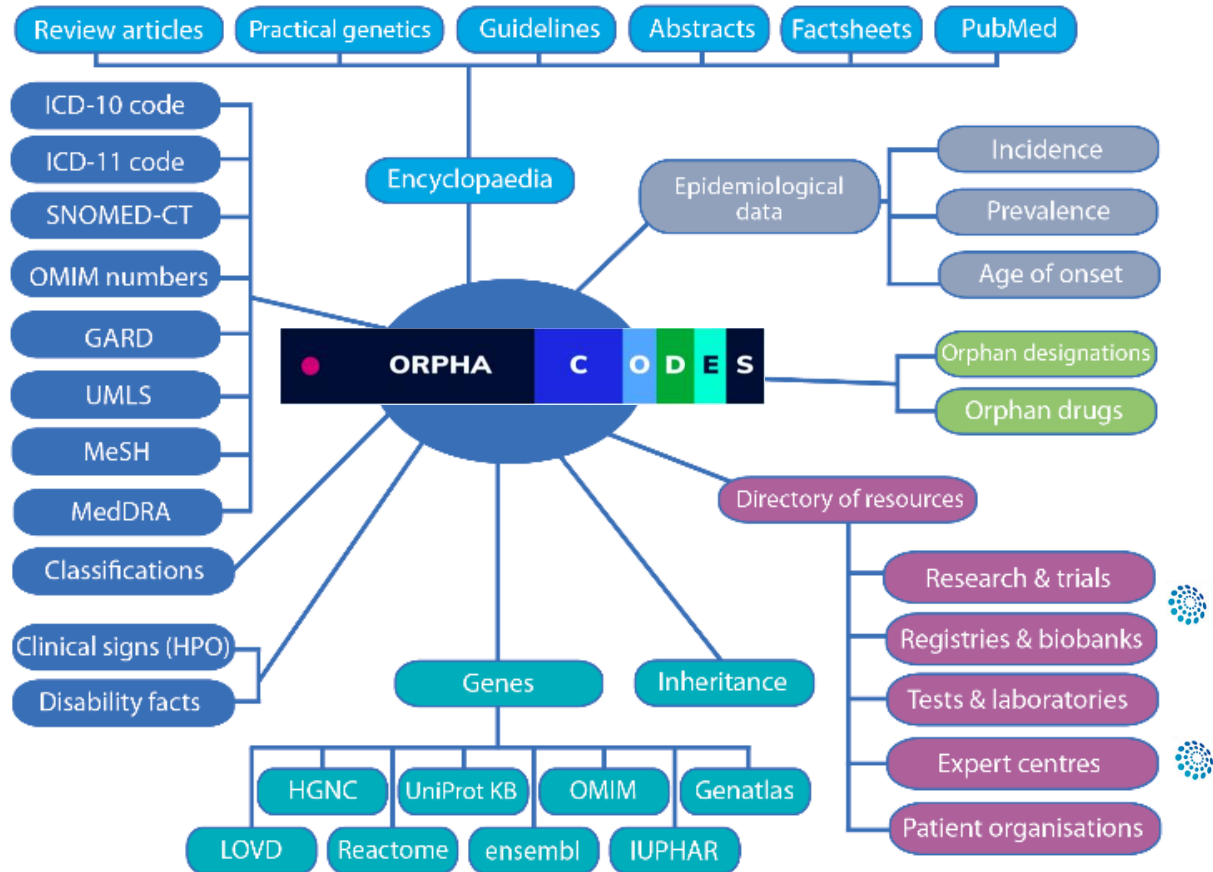
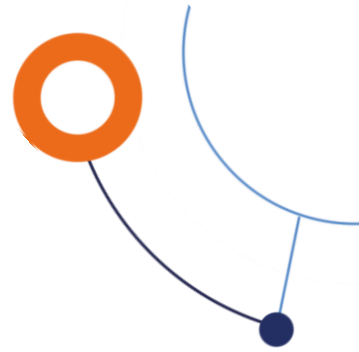
✓ Data analysis tools



Orphadata Science: building interoperability for RD








Systematic, standardized data collection allows for data exploitation



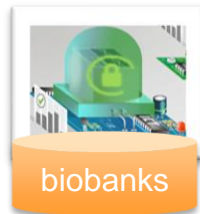
Comprehensive, standardized, evidence-based, interoperable, versioned, computable and free (CC-BY 4.0)

Orphanet in the RD research ecosystem

- To give visibility to RD (and ERN) research
- Provide computable reference data
- Tools for researchers, data sources and funders, within EU funded projects
- Structured catalogue of projects, trials, registries, biobanks, infrastructures, orphan designations and drugs ...
- Orphanet Report Series
- ERN clinical research platform 
- Orphadata: data and tools
- Phenotypic-based variant prioritisation 
- PCOMs repository 
- Funded research analysis platform 
- Semantic mapping services 

RD research ecosystem:

From a heterogeneous, non-interoperable, scattered resources landscape ...



Registries/
biobanks
catalogues

Cell lines
Animal
models

Knowledge
bases

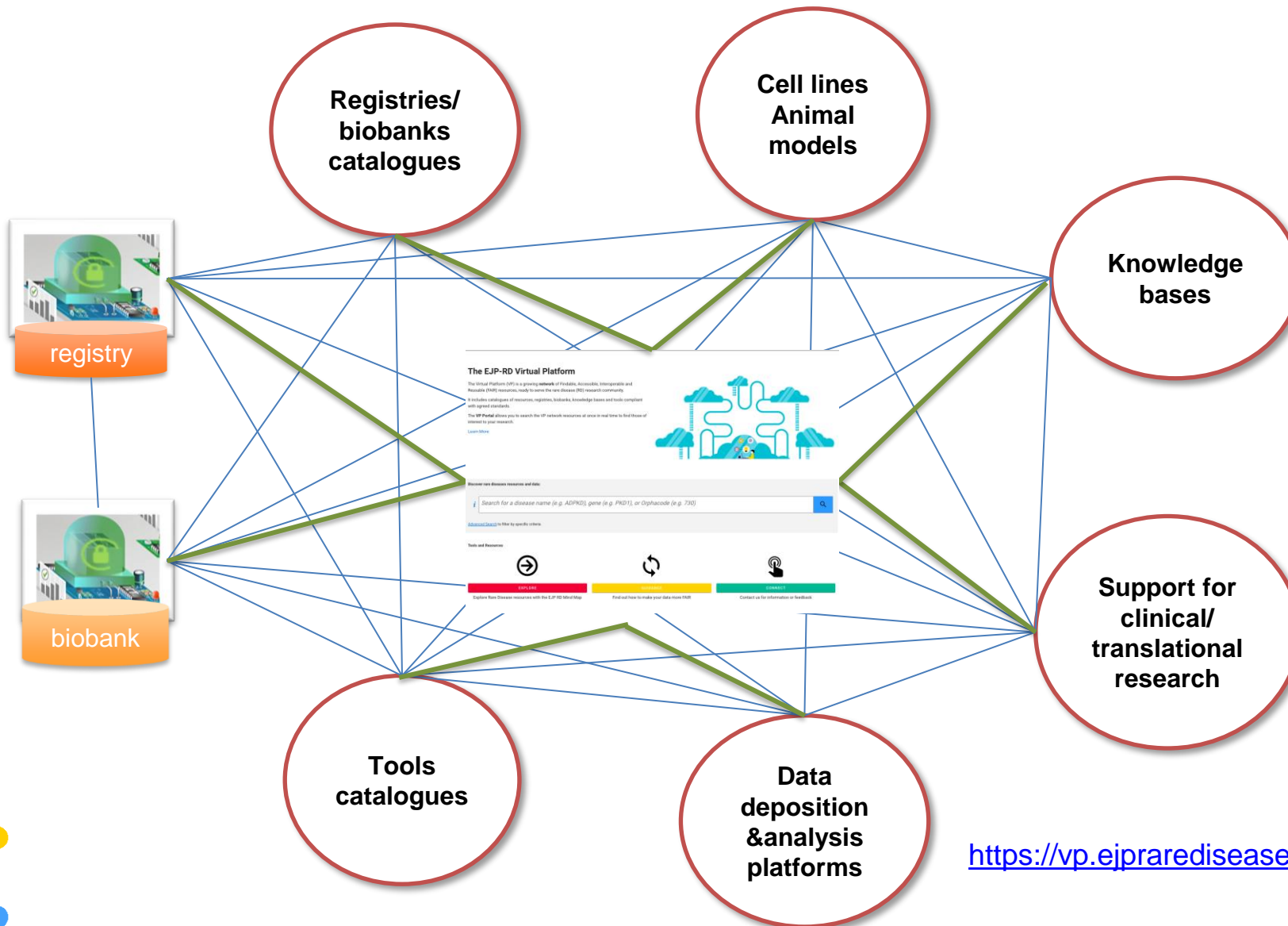


Support for
clinical/
translational
research

Tools
catalogues

Data
deposition
& analysis
platforms

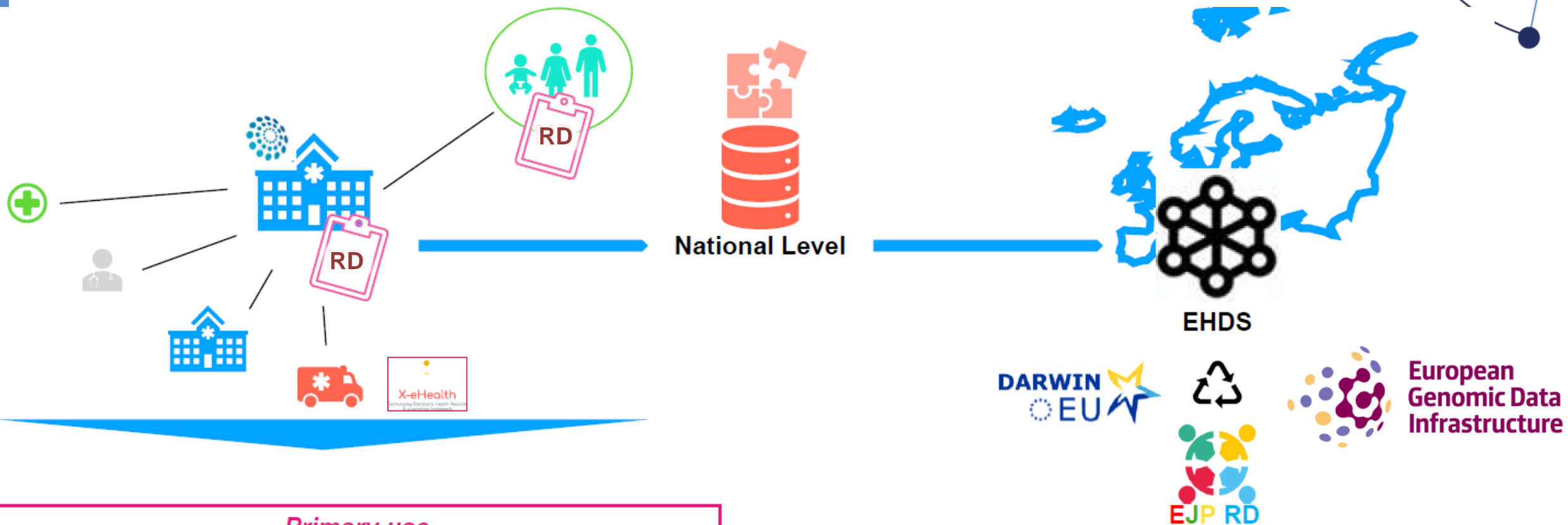
...to the RD Virtual Platform: a network of federated resources



Decreasing fragmentation
Increasing interoperability
Increasing RD-readiness
through
Harmonisation
Standardisation
in a flexible way:
Common methodologies
Multiple technical solutions

<https://vp.ejprarediseases.org>

The future: RD in the data ecosystem



Primary use

- Better knowledge, best practices
- Continuity of care
- Better disability evaluation and compensation
- Adequate cross-border and primary care

Secondary use

- Research
- Evidence-base decision-making

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**KNOW
THE
RARE** FOR
BETTER
CARE

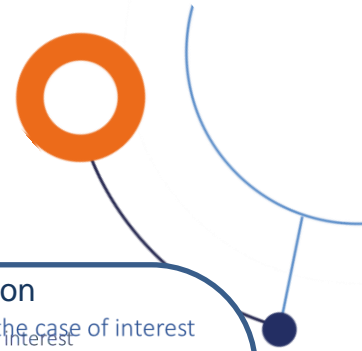
**THANK YOU
FOR YOUR ATTENTION**

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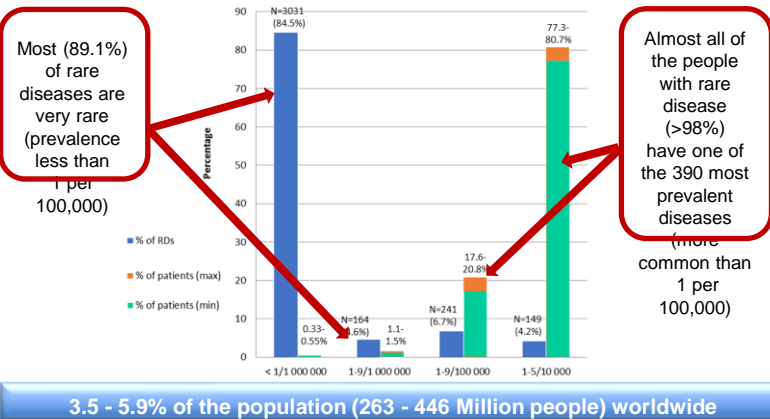
 **Inserm**

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Orphadata science facilitates new knowledge



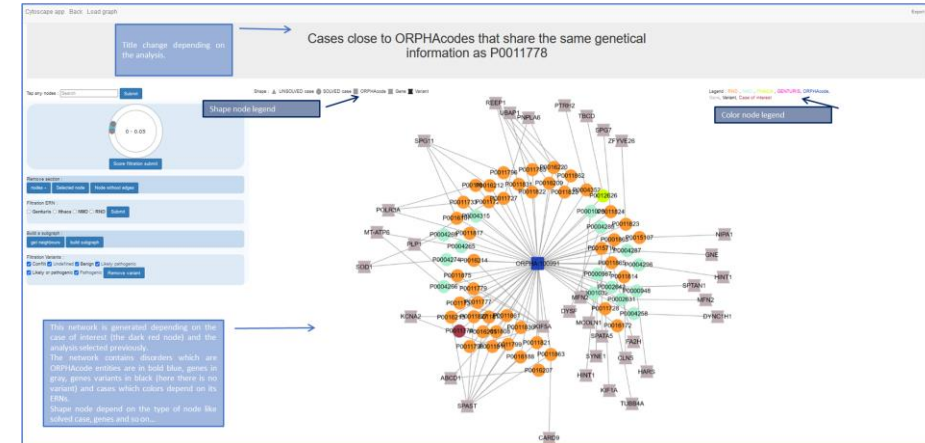
Global epidemiology



3.5 - 5.9% of the population (263 - 446 Million people) worldwide

OrphaScape: Phenotype-based pipeline for variant prioritisation

Network which depend on the case of interest



<https://www.nature.com/articles/s41431-019-0508-0>

Semantic mapping services

orphanet_hierarchies_service (Public)
Service dedicated to support implementation and usage of Orphanet's classifications

☆ 0 Apache-2.0 0 0 0 Updated last week

Orphanet-GenesDisease-Mapper-API (Public)

Orphanet Genes Diseases Mapper API

Java ☆ 0 Apache-2.0 0 0 0 Updated last week

Orphanet-Endpoint-API (Public)

Orphanet mapping web services source code

Java ☆ 0 MIT 0 0 0 Updated on Jan 5, 2022

Orphanet-Mapping-API (Public)

This project focusses on the Orphanet mapping API.

Java ☆ 0 Apache-2.0 0 0 0 Updated on Jan 5, 2022

<https://github.com/ejp-rd-vp>

orphanet

Solve RD
Solving the Unsolved Rare Diseases

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Orphanet Report Series



Rare Disease Registries April 2023



Research Infrastructures useful to Rare Diseases April 2023

Orphan Drugs



Medicinal products for rare diseases in Europe February 2023

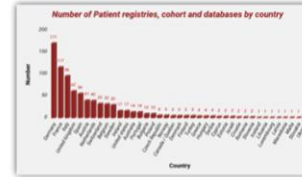


Figure 18. Number of registries, cohorts and databases collected by Orphanet by Country.

Active versus non-active patient registries, cohorts and databases

A patient registry, cohort or database is considered as non-active/terminated when:

- It is known to be terminated and the termination date could be retrieved.
- Its website has not been longer updated for longtime and/or their contacts cannot be contacted anymore.

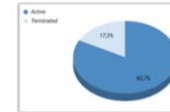


Figure 2. Distribution of active versus non-active patient registries, cohorts and databases.

5 Orphanet Report Series - Rare Disease Registries, cohorts and databases - April 2023
https://www.orpha.net/infrastructure/registries-cohorts-databases/Rare_Disease_Registries_2023.pdf

Number of medicinal products

Total number of orphan medicinal products, i.e. drugs with a MA with orphan designation at the end of February 2023: 187 (Figure 1). Figure 1 below shows the evolution of the granting of MA with orphan designation over time (in years).

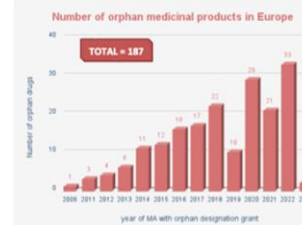
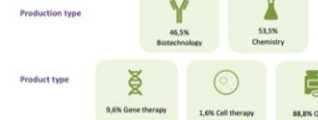


Figure 3. Number of orphan medicinal products in Europe

Description of medicinal products



Orphanet Report Series - Medicinal products for rare diseases in Europe - February 2023
https://www.orpha.net/infrastructure/registries-cohorts-databases/GDR_Medicinal_products_for_rare_diseases_in_Europe_2023.pdf

6

Genomics deposition and analysis platform



- Coordinating country: United Kingdom
- Data: web-based phenotypic and genotypic patient database which incorporates a suite of tools
- Mission: aid the interpretation of genomic variants and enhance clinical diagnosis
- RD specific: No
- Link: <https://www.deciphergenomics.org/>
- Funded by IRDiRC member



- Coordinating Country: Netherlands
- Data: gene-centered collection and display of DNA variants
- Mission: provide a flexible, freely available tool for genomic variant and phenotype collection, display and curation
- RD specific: No
- Link: <https://www.lovd.nl/3.0/home>



- Coordinating country: Spain
- Data: sequencing data from pseudogenized rare disease patients and family members
- Mission: Identification of disease-causing mutations in rare disease patients and confirmation of diagnosis by finding matching cases submitted by other researchers around the world
- RD specific: Yes
- Link: <https://platform.rd-connect.eu>
- Funded by IRDiRC member

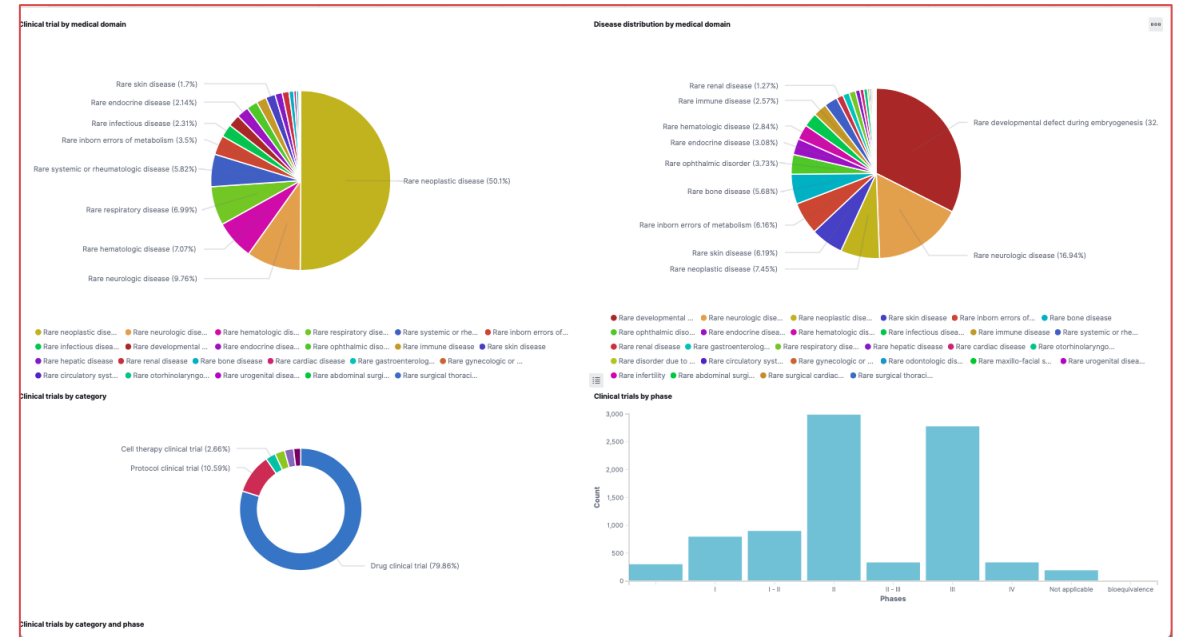
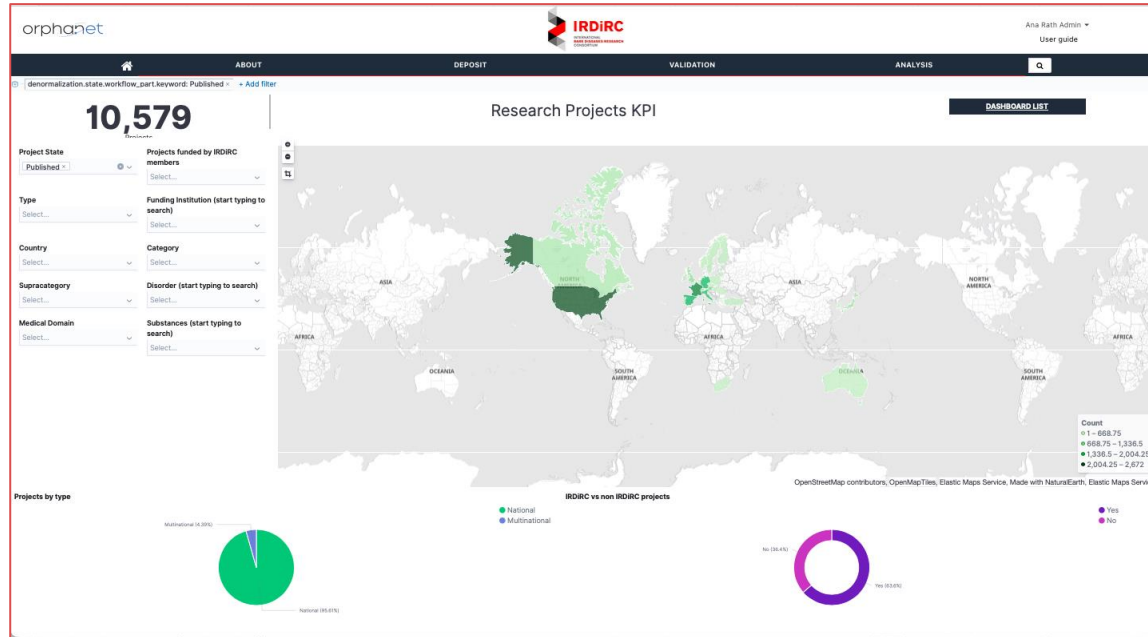


- Coordinating Country: United Kingdom
- Data: permanent archiving and sharing of all types of personally identifiable genetic and phenotypic data resulting from biomedical research projects
- Mission: foster hosted data reuse, enable reproducibility, and accelerate biomedical and translational research
- RD specific: No
- Link: <https://www.archive.org/about>

4 Orphanet Report Series - Use of research infrastructures useful to rare diseases - April 2023
https://www.orpha.net/infrastructure/registries-cohorts-databases/Research_infrastructures_for_rare_diseases_2023.pdf

https://www.orpha.net/consor/www/cgi-bin/Education_Home.php?lng=EN

Visualisation & analysis of funded research



<https://rare-research.orphanet.org>

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News

Work Packages
WP3 Patient-Centred Research
PROMs Repository

PROMs Repository

The ERICA Patient Reported Outcome Measures (PROMs) Repository is the first attempt to identify and centralize Clinical Assessment Outcomes questionnaires of relevance for rare diseases and constitutes a milestone in the Europe-wide standardization of Patient-Centered Outcome Measures (PCOMs) and PROMs for rare diseases. It has been made possible through the joint collaboration between Orphanet, Mapi Research Trust/ICON and ERN EuroBloodNet (VHIR, APHP), and the active contribution of ERNs and ePAGs. The methodology for the constitution and future evolution of the repository can be found in [deliverable 3.1](#) (849 KB) and [deliverable 3.2](#) (661 KB).

The central repository is a dynamic and evolutive service and should be regarded as a centralized and standardized access gate to more in depth information contained in PROQOLID™.

Filters list of PCOMs/PROMs

PCOM/PROM Name ¹⁾

Target Age ⁴⁾

Disease (OrphaName) ⁶⁾

Group of Diseases ⁸⁾

PCOM/PROM Type ²⁾

Domains ⁵⁾

OrphaCode ⁷⁾

ERNs ⁹⁾

Legend

Search Reset

Column Visibility ▼

Column Reset

Showing 811 PCOMs/PROMs

PCOM/PROM Name	Type	PROQOLID™	Age	Domains	Disease (OrphaName)	OrphaCode	Group of Diseases	ERNs	PROQOLID™ Link
Adult Sickle Cell Quality of Life Measurement Information System® (ASCQ-Me®)	PRO	✓ Full	Adult	<ul style="list-style-type: none"> - Emotional Impact (12 domains) - Social functioning (12 domains) - Pain (12 domains) - Stiffness (12 domains) - Sleep functioning (12 domains) 	Sickle cell anemia	ORPHA:232	Rare anemia	ERN EuroBloodNet	Link
EORTC - Chronic Myeloid Leukaemia (EORTC QLQ-CML24)	PRO	✓ Basic	Adult	<ul style="list-style-type: none"> - Symptom Burden - Impact on Daily Life - Impact on Worry/Mood - Body Image Problems - Satisfaction with Care and 	Non-Hodgkin lymphoma	ORPHA:547	Tumor of hematopoietic and lymphoid tissues	ERN EuroBloodNet ERN PaedCan ERN EURACAN	Link

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Phenylketonuria

Suggest an update

Disease definition

A rare inborn error of amino acid metabolism characterized by elevated blood phenylalanine and low levels or absence of phenylalanine hydroxylase enzyme. If not detected early or left untreated, the disorder manifests with mild to severe mental disability.

Detailed information

General public

> Article for general public
[Français \(2012, pdf\)](#) - Orphanet
[English \(2014\)](#) - Socialstyrelsen
[Svenska \(2020\)](#) - Socialstyrelsen

Guidelines

> Emergency guidelines
[Français \(2014, pdf\)](#) - Orphanet Urgences
[Español \(2019, pdf\)](#) - Orphanet Urgences

> Clinical practice guidelines
[English \(2017\)](#) - Orphanet J Rare Dis
[Français \(2018\)](#) - PNDS

: produced/endorsed by ERN(s)
 : produced/endorsed by FSMR(s)

Disease review articles

> Clinical genetics review
[English \(2017\)](#) - GeneReviews

Clinical Outcome Assessment (COA)

> Patient-Centered Outcome Measures (PCOMs)
[English \(2023\)](#) - PROQOLID™

Genetic Testing

> Guidance for genetic testing
[English \(2011\)](#) - Eur J Hum Genet

ERICA PROMs repository
<https://erica-rd.eu/work-packages/patient-centred-research/proms-repository/>



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