Introduction of the DARWIN EU® Coordination Centre

Prof. Peter R. Rijnbeek
Executive Director

Chair Department of Medical Informatics Erasmus MC
Disclaimer

This presentation represents the views of the DARWIN EU® Coordination Centre only and cannot be interpreted as reflecting those of the European Medicines Agency or the European Medicines Regulatory Network.
By 2025 the use of Real-World Evidence will have been enabled and the value will have been established across the spectrum of regulatory use cases.

- European Medicines Regulatory Network (EMRN) strategy to 2025 -
Enabling use & establishing the value of RWE

- Facilitating access
- Build business processes
- Set standards
- Validate methods
- Train/share knowledge
- Establish value across use cases
- International collaboration:
  - build on ICMRA → **RWE statement**: 4 collaboration areas
  - **ICH RWE reflection paper** ‘International harmonisation of real-world evidence (RWE) terminology, and convergence of general principles regarding planning and reporting of studies using real-world data, with a focus on effectiveness of medicines’ → public consultation
Towards delivering the 2025 RWE vision

**EMA studies using in-house databases**

- **Primary care** health records from the **France, Germany, UK, Italy, Spain** and **Romania**. Some data sources include data on specialist.

**Studies procured through EMA FWCs**

- New framework contract (FWC) since September 2021: services of **8 research organisations** and academic institutes
- Access to **wide network of data sources**: 59 data sources from 21 EU countries
- Ability to leverage external **scientific expertise**

**DARWIN EU®**

- Coordination Centre launched February 2022
- Onboarded first **10 data partners**
- First studies finalised
- Additional 10 data partners are foreseen to be added each year for 2023-2025
Demand: RWE use across the medicinal product lifecycle

- Pre-authorisation
  - Orphan designation
  - Scientific advice
  - Paediatric investigation plan
  - Marketing authorisation application
  - Post-authorisation

- Evaluation
  - COMP
  - CHMP
  - SAWP
  - CAT
  - PDCO
  - CHMP
  - CAT
  - PRAC
  - CHMP
  - PRAC
  - CAT
  - HMPC
  - CMDh

...and for crisis planning & response

- Monitoring the use of medicines to predict demand and shortages
- Understanding the disease natural history → development of vaccines and therapeutics
- Provide evidence for repurposing existing medicines
- Monitor the safety and effectiveness of vaccines and therapeutics post-authorisation
DARWIN EU® is a federated network of data, expertise and services that supports better decision-making throughout the product lifecycle by generating reliable evidence from real world healthcare data.

FEDERATED NETWORK PRINCIPLES

• Data stays local
• Use of OMOP Common Data Model (where applicable) to perform studies in a timely manner and increase consistency of results
DARWIN EU® Coordination Centre

Executive Director
Prof. Peter Rijnbeek
Head of the Department of Medical Informatics
Erasmus MC

Deputy Director
Prof. Daniel Prieto Alhambra
Erasmus MC, Oxford University

Deputy Director
Associate Prof. Katia Verhamme
Erasmus MC

Contractor
Erasmus MC

Sub-contractors
University of Oxford
SYNAPSE
IQVIA
The Hyve
Odysseus Data Services Inc
DARWIN EU® establishment in 2022 and 2023

- 2nd year of establishment in progress, delivery on target and according to plan
- Focus on selection of further Data Partners and study conduct (various use cases)
- Establishment of standard analytical pipelines and codes

<table>
<thead>
<tr>
<th>Studies</th>
<th>Phase I</th>
<th>Phase II</th>
<th>Phase III</th>
<th>Option I</th>
<th>Option II</th>
</tr>
</thead>
<tbody>
<tr>
<td>Off the shelf</td>
<td>2</td>
<td>6</td>
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<tr>
<td>Routine repeated</td>
<td>1</td>
<td>6</td>
<td>30</td>
<td>60</td>
<td>60</td>
</tr>
<tr>
<td>Complex study</td>
<td>1</td>
<td>4</td>
<td>12</td>
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</tr>
<tr>
<td>Very complex</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Data Partners (total)</td>
<td>10</td>
<td>20</td>
<td>30</td>
<td>40</td>
<td>40</td>
</tr>
</tbody>
</table>
DARWIN EU® Implementing a paradigm shift

- A highly needed paradigm shift for the fast delivery of reliable evidence for regulatory decision-making on the utilisation, safety and effectiveness of medicinal products throughout their lifecycle
- A long-term investment needed to significantly scale up the number of studies on more databases and improve public health.

Not possible by simply scaling up the traditional approaches.
What is needed to facilitate observational studies at scale?

- Data interoperability
- Standardised analytics
- Technical Infrastructure
- Data network

Research Memory.
Generating Reliable Evidence using the OMOP Common Data Model

We need to make studies repeatable, reproducible, replicable, generalisable, and robust.

A Common Data Model enables standardised analytics to generate reliable evidence.
Operating a high-quality Data Network

• Selection of data partners
  1) Prioritisation of already converted data sources
  2) Potentially mapping highly valued data sources

• All data sources will go through an onboarding process approved by EMA including quality control steps


Deadline Open Call for Expression of Interest: 31st October.
ONBOARDING PROCESS (already on OMOP CDM)

DATA PARTNER

- Complete Expression of Interest

COORDINATION CENTRE

- Gathering DP info & EoI Request
  - Meeting with DARWIN EU® CC
  - DARWIN EU® Invitation & Value Proposition
  - Quality Control Meeting
  - Execute Quality Control Packages
  - Fill in Onboarding Template
  - Share Onboarding Document and QC files

EMA

- Initial Selection Process

- Final Selection of Potential Data Partners

- Approve Onboarding Document (D2.1.6)
- Approve Framework Agreement (D2.1.7)

- Contractual Arrangement
  - Training
  - Addition to Catalogue

- Onboarded
Data Partners – Phase I

UK
1. Clinical Practice Research Datalink (CPRD GOLD)

Belgium
2. IQVIA Belgium Longitudinal Patient Data

France
3. Bordeaux University Hospital

Spain
4. IDIAPJGol
5. Parc Salut Mar Barcelona, Hospital del Mar (IMIM)

Finland
6. Auria Clinical Informatics at Hospital District of Southwest Finland (HDSF)

Estonia
7. University of Tartu (Biobank)

Netherlands
8. Integrated Primary Care Information
9. Netherlands Comprehensive Cancer Organisation

Germany
10. IQVIA Germany Disease Analyser

Currently selecting Phase II DPs via open call for expression of interest, then Phase III to follow

~26 million active patients
Standardising the analytics

A catalogue of open source standardised analytics is needed to support “all” regulatory decision-making on the utilisation, safety and effectiveness of medicinal products.

Will require alignment on the priority and choice of the analytical methods, and the standardised output!

https://www.darwin-eu.org/index.php/methods/standardised-analytics
Creating a strong technical infrastructure

Required components:

• Collaboration Space for CC and Study Teams
• Analytics Platform
• Study Execution Platform
• Training Platform
• Service Desk
• Source Control Repository
• Phenotype Library
• DARWIN EU Website:
  
  https://www.darwin-eu.org/
Establishment and Evolution of the Coordination Centre

Advisory Boards:
- Scientific (SAB)
- Ethical (EAB)
- Data Source Prioritisation Committee (DSPC)
- General Assembly (GA)

Executive Board

Director

Development:
- QA/QC Procedures
- Vocabulary Extension
- CDM Development
- Methods Research
- Analytical Tools
- Dashboarding
- Training Material
- Protocol Templates

Operations:
- Study execution
- Network management

Technology:
- Infrastructure
- Security
- Collaboration Environment
- Analytics Platform
- Source Control Repository
- Website
- Service Desk
- Training Platform

Management:
- Secretariat
- Legal / Contracting
- Finance
- COI management
- Risk management
- Reporting
- Recruitment
- Outreach
Development

Ed Burn
### Studies

<table>
<thead>
<tr>
<th>Category</th>
<th>Phase I</th>
<th>Phase II</th>
<th>Phase III</th>
<th>Option I</th>
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</tr>
</thead>
<tbody>
<tr>
<td>Off the shelf</td>
<td>2</td>
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</tr>
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</tr>
<tr>
<td>Very complex</td>
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</table>

<table>
<thead>
<tr>
<th>Data Partners (total)</th>
<th>Option I</th>
<th>Option II</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>10</td>
<td>20</td>
</tr>
</tbody>
</table>

145 studies in 2025
Network studies are hard......
Catalogue of Standard Data Analyses

**Off-the-shelf studies**

These are mainly characterisation questions that can be executed with a generic protocol. This includes disease epidemiology, for example the estimation of the prevalence, incidence of health outcomes in defined time periods and population groups, or drug utilization studies at the population or patient level.

- Patient-level characterisation
- Patient-level DUS analyses
- Population-level DUS analyses
- Population-level descriptive epidemiology

**Complex**

These are studies requiring development or customisation of specific study designs, protocols, analytics, phenotypes. This includes studies on the safety and effectiveness of medicines and vaccines.

- Prevalent user active comparator cohort studies
- New user active comparator cohort
- Self-controlled case risk interval
- Self-controlled case series
- Time series analyses and Difference-in-difference studies
- RMM effectiveness
Building tools

Primary focus of the development pillar is providing tools (mostly R packages) to help users to perform standard data analyses
User profiles

• Epidemiologists and data scientists
• Interact with our R packages directly, preparing analysis scripts that use them
Background rates of five thrombosis with thrombocytopenia syndromes of special interest for COVID-19 vaccine safety surveillance: Incidence between 2017 and 2019 and patient profiles from 38.6 million people in six European countries

Edward Burn, Xintong Li, Krstin Koska, Henry Morgan Stewart, Christian Reich, Sarah Seager, Tallta Duarte-Salles, Sergio Fernandez-Bertolin, Maria Aragón, Carlen Reyes... See all authors

Introduction of the DARWIN EU® Coordination Centre
CDMConnector

Are you using the tidyverse with an OMOP Common Data Model?

Interact with your CDM in a pipe-friendly way with CDMConnector.

- Quickly connect to your CDM and start exploring.
- Build data analysis pipelines using familiar dplyr verbs.
- Easily extract subsets of CDM data from a database.

```r
estimateIncidence(
  cdm,
  denominatorTable, 
  outcomeTable, 
  denominatorCohortId = NULL, 
  outcomeCohortId = NULL, 
  interval = "years", 
  completeDatabaseIntervals = TRUE, 
  outcomeWashout = Inf, 
  repeatedEvents = FALSE, 
  minCellCount = 5, 
  temporary = TRUE, 
  returnParticipants = FALSE
)
```

Function reference

Add individual patient characteristics

Add patient characteristics to a table in the OMOP Common Data Model

```r
addAge(self) 
# Compute the age of the individuals at a certain date

addNumberOfObservationDays(self) 
# Compute the number of days till the end of the observation period at a certain date

addNumberOfObservationDaysWithin(self) 
# Indicate if a certain record is within the observation period

addNumberOfPriorHistories(self) 
# Compute the number of days of prior history in the current observation period at a certain date

addSex(self) 
# Compute the sex of the individuals
```
Introduction of the DARWIN EU® Coordination Centre
IncidencePrevalence

- Population-level DUS analyses
- Population-level descriptive epidemiology
- Time series analyses and Difference-in-difference studies
- RMM effectiveness

Collect population incidence estimates

Usage

```r
estimateIncidence(
  cdm,
  denominatorTable,
  outcomeTable,
  denominatorCohortId = NULL,
  outcomeCohortId = NULL,
  interval = "years",
  completeDatabaseIntervals = TRUE,
  outcomeWashout = Inf,
  repeatedEvents = FALSE,
  minCellCount = 5,
  temporary = TRUE,
  returnParticipants = FALSE
)
```
Software validation: unit testing

IncidencePrevalence coverage - 98.10%

<table>
<thead>
<tr>
<th>File</th>
<th>Relevant</th>
<th>Covered</th>
<th>Mismatches</th>
<th>Hits / Line</th>
<th>Coverage</th>
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</thead>
<tbody>
<tr>
<td>RutaR</td>
<td>207</td>
<td>47</td>
<td>41</td>
<td>6 10</td>
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<tr>
<td>RiquelTestR</td>
<td>249</td>
<td>108</td>
<td>106</td>
<td>5</td>
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<tr>
<td>RigetDerivatorCohortSetR</td>
<td>501</td>
<td>301</td>
<td>268</td>
<td>11 111</td>
<td>94.74%</td>
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<tr>
<td>RiquelIncidenceR</td>
<td>103</td>
<td>41</td>
<td>39</td>
<td>2 3</td>
<td>95.12%</td>
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<tr>
<td>RiquelPrevalenceR</td>
<td>374</td>
<td>223</td>
<td>221</td>
<td>8 235</td>
<td>96.51%</td>
</tr>
<tr>
<td>RiskRevalidationR</td>
<td>363</td>
<td>230</td>
<td>222</td>
<td>8 102</td>
<td>96.52%</td>
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<tr>
<td>RigetDerivatorCohortSetR</td>
<td>501</td>
<td>313</td>
<td>313</td>
<td>0 160</td>
<td>95.00%</td>
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<tr>
<td>RiquelIncidenceR</td>
<td>530</td>
<td>294</td>
<td>294</td>
<td>0 82</td>
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<tr>
<td>RiskIncidencePrevalenceRefR</td>
<td>482</td>
<td>279</td>
<td>279</td>
<td>0 76</td>
<td>100.00%</td>
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<tr>
<td>RiquelIncidenceR</td>
<td>596</td>
<td>259</td>
<td>259</td>
<td>0 63</td>
<td>100.00%</td>
</tr>
<tr>
<td>RiquelPrevalenceR</td>
<td>363</td>
<td>222</td>
<td>222</td>
<td>0 498</td>
<td>100.00%</td>
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<tr>
<td>RiquelIncidencePrevalenceR</td>
<td>321</td>
<td>185</td>
<td>185</td>
<td>0 4</td>
<td>100.00%</td>
</tr>
<tr>
<td>RiquelIncidenceR</td>
<td>141</td>
<td>84</td>
<td>84</td>
<td>0 207</td>
<td>100.00%</td>
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<tr>
<td>RiquelIncidenceR</td>
<td>73</td>
<td>36</td>
<td>36</td>
<td>0 110</td>
<td>100.00%</td>
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<tr>
<td>RiquelIncidenceR</td>
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<td>38</td>
<td>38</td>
<td>0 7</td>
<td>100.00%</td>
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<tr>
<td>RiquelPrevalenceR</td>
<td>65</td>
<td>33</td>
<td>33</td>
<td>0 2071</td>
<td>100.00%</td>
</tr>
</tbody>
</table>

Usage
- `incidencePrevalencePrevalenceRefR`
- `incidencePrevalenceRefR`
- `incidencePrevalencePrevalenceR`
- `incidencePrevalencePrevalenceRefR`
- `incidencePrevalencePrevalenceR`
- `incidencePrevalencePrevalenceRefR`

Arguments
- `cdm`
- `cdmDatabase`

Options
- `temporal`
- `temporalAnalysis`
Software validation: face validity
## Software performance

<table>
<thead>
<tr>
<th>Task</th>
<th>CPRD AURUM (n=39,999,011)</th>
<th>CPRD GOLD (n=15,662,217)</th>
<th>SIDIAP (n=8,265,343)</th>
<th>IPCI (n=2,612,850)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Generating denominator (8 cohorts)</td>
<td>19 mins</td>
<td>8 mins</td>
<td>3 mins</td>
<td>1 min</td>
</tr>
<tr>
<td>Yearly period prevalence</td>
<td>11 mins</td>
<td>5 mins</td>
<td>5 mins</td>
<td>1 min</td>
</tr>
<tr>
<td>Monthly period prevalence</td>
<td>17 mins</td>
<td>6 mins</td>
<td>8 mins</td>
<td>2 mins</td>
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<tr>
<td>Yearly incidence</td>
<td>8 mins</td>
<td>3 mins</td>
<td>4 mins</td>
<td>1 min</td>
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<td>Monthly incidence</td>
<td>13 mins</td>
<td>5 mins</td>
<td>7 mins</td>
<td>1 min</td>
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</table>
Software review
Software review

Summary of package functions

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<th>min</th>
<th>median</th>
<th>max</th>
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<tbody>
<tr>
<td>Number of arguments</td>
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<td>3</td>
<td>20</td>
</tr>
<tr>
<td>Lines of code</td>
<td>3</td>
<td>25</td>
<td>483</td>
</tr>
<tr>
<td>Cyclomatic complexity</td>
<td>1</td>
<td>2</td>
<td>33</td>
</tr>
</tbody>
</table>
Software dissemination

IncidencePrevalence: An R package to calculate population-level incidence and prevalence rates using the OMOP Common Data Model.

Berta Raventós²,³, Martí Catalá³, Mike Dv⁴, Yuchen Guo⁵, Adam Black⁶, Gauri Inberg⁷, Xinlong Li⁸, Kim Lopez-Gisell⁹, Danielle Newby⁵, Maria de Ribot⁵, Cesar Barboza⁵, Tatiana Duarte-Silva⁵,덯 Vanhamme⁵, Peter Rippe⁵, Dafne Pfeo· Anhalt⁵, Edward Blum²

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3. Centre for Statistics in Medicine (CSIM), National Institute of Orthopaedics, Rheumatology and Musculoskeletal Sciences (NIRMS), University of Oxford, UK
4. Odyssey Data Services, Cambridge, MA, USA
5. Department of Medical Informatics, Erasmus University Medical Centre, Rotterdam, The Netherlands

*joint first authors

Corresponding author: Edward Blum, Biostat Research Centre, Windmill Road, OX37LD, Oxford, UK, edward.bum@notnms.ox.ac.uk

Submitted for publication
Software development in DARWIN EU® to support high throughput network studies

- Designed to deliver catalogue of standard data analyses
- Testing to ensure validity and usability
- Flexibility in design to account for expected updates in the catalogue over time
- Extensibility to allow complex analyses to build on top of off-the-shelf tools
- R packages published on CRAN with thorough documentation
Study operations

Katia Verhamme, Department of Medical Informatics, EMC Rotterdam, The Netherlands
What analyses and studies will DARWIN EU® deliver?

<table>
<thead>
<tr>
<th>Category of observational analyses and studies</th>
<th>Description</th>
</tr>
</thead>
</table>
| Routine repeated analyses                     | **Routine analyses** based on a **generic study protocol**  
  • Periodical estimation of drug utilisation  
  • Safety monitoring of a medicinal product  
  • Estimation of the incidence of a series of adverse events |
| Off-the-shelf studies                          | Studies for which a **generic protocol** is adapted to a research question  
  • Estimate the prevalence, incidence or characteristics of exposures  
  • Health outcomes  
  • Describe population characteristics |
| Complex Studies                                | Studies **requiring development or customisation** of specific study designs, protocols and Statistical Analysis Plans (SAPs), with extensive collection or extraction of data  
  • Etiological study measuring the strength and determinants of an association between an exposure and the occurrence of a health outcome considering sources of bias, potential confounding factors and effect modifiers |
| Very Complex Studies                           | Studies which **cannot rely only on electronic health care databases**, or which would require **complex methodological work**  
  • Studies where it may be necessary to combine a diagnosis code with other data such as results of laboratory investigations, or studies requiring additional data collection |
### Expected number of studies

<table>
<thead>
<tr>
<th>Year 1</th>
<th>Year 2</th>
<th>Year 3</th>
<th>Year 4</th>
<th>Year 5</th>
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<tbody>
<tr>
<td>Phases</td>
<td>Phase I</td>
<td>Phase II</td>
<td>Phase III</td>
<td>Option 1</td>
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<tr>
<td>Routine Repeated analysis</td>
<td>At least 1 study</td>
<td>-</td>
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<td>60</td>
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<tr>
<td>Off the shelf studies</td>
<td>At least 2 studies</td>
<td>6 + 8</td>
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<tr>
<td>Complex Studies</td>
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<td>4</td>
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<td>24</td>
</tr>
<tr>
<td>Very Complex Studies</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Phase</td>
<td>Details</td>
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<tr>
<td>-----------------------</td>
<td>-------------------------------------------------------------------------</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. Study Exploration</td>
<td>Study Feasibility - Study request by EMA:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>- Do we have the data? - Darwin Portal</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>- Do we have the analytical pipelines? (OTS)</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>2. Study Initiation</td>
<td>- Work Order Form Data Partners</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>- Creation of Study Team: PI/data analyst</td>
<td></td>
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<td></td>
</tr>
<tr>
<td></td>
<td>- Declaration of Interest</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>3. Study Implementation</td>
<td>- Study outline/Protocol – Upload to EUPAS register</td>
<td></td>
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<tr>
<td></td>
<td>- IRB approval - Kick-off meeting</td>
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<tr>
<td></td>
<td>- Phenotyping – Cohort Diagnostics</td>
<td></td>
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<tr>
<td></td>
<td>- Study Package – Test Run</td>
<td></td>
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<tr>
<td>4. Study Execution</td>
<td>- Data Partners run Study Package</td>
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<tr>
<td></td>
<td>- Data QC by Data Partners</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td></td>
<td>- Results uploaded to DRE</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td></td>
<td>- Results reviewed by PI</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. Study Dissemination</td>
<td>- Generation of Study Report (ENCePP template)</td>
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<tr>
<td></td>
<td>- Upload to EUPAS register</td>
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<tr>
<td></td>
<td>- Manuscript generation</td>
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<tr>
<td></td>
<td>- Study archiving</td>
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</tbody>
</table>

**EMA**

**Database Partners**

Darwin CC:
- Network Pillar
- Development Pillar
- Technology Pillar
- Management Pillar
<table>
<thead>
<tr>
<th>Study Title</th>
<th>Committees</th>
<th>Study Type</th>
<th>Type of analysis</th>
<th>Data bases</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>DARWIN EU® - Prevalence of rare blood cancers in Europe (ICPE P1180)</td>
<td>COMP</td>
<td>OTS</td>
<td>Disease Epidemiology</td>
<td>IPCI (NI) SIDIAP (Spain) CPRD Gold (UK) IQVIA LPD (Be) IQVIA DA (Ge)</td>
<td>Completed</td>
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<tr>
<td>DARWIN EU® - Drug utilisation of valproate-containing medicinal products in women of childbearing potential (ICPE P42)</td>
<td>Following safety referral</td>
<td>OTS</td>
<td>Drug Utilisation Study</td>
<td>IPCI (NI) SIDIAP (Spain) CPRD Gold (UK) IQVIA LPD (Be) IQVIA DA (Ge) HDSF (Fi)</td>
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<td>DARWIN EU® - DUS of Antibiotics in the ‘Watch’ category of the WHO AWaRe classification of antibiotics for evaluation and monitoring of use (ICPE P331)</td>
<td>PRAC/CHMP</td>
<td>OTS</td>
<td>Drug Utilisation Study</td>
<td>IPCI (NI) CHUBX (France) SIDIAP (Spain) IMASIS (Spain) IQVIA DA (Ge) CPRD Gold (UK)</td>
<td>Completed</td>
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<tr>
<td>DARWIN EU® - Background rates of serious adverse events to contextualise safety assessments in clinical trials and non-interventional studies in adolescent and adult patients with severe asthma.</td>
<td>CHMP</td>
<td>Complex (complex phenotype)</td>
<td>Disease Epidemiology</td>
<td>IPCI (NI) SIDIAP (Spain) IMASIS (Spain) CPRD Gold (UK) Estonian Biobank</td>
<td>Ongoing</td>
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</tbody>
</table>
### Study Title

**DARWIN EU® - Multiple myeloma:** patient characterisation, treatments and survival in the period 2012-2022

**DARWIN EU® - Drug Utilisation Study of prescription opioids.**

**DARWIN EU® - Co-prescribing of endothelin receptor antagonists (ERAs) and phosphodiesterase-5 inhibitors (PDE-5is) in pulmonary arterial hypertension (PAH)**

### Committees

- HTA/Payers
- PRAC
- CHMP

### Study Type

- OTS

### Type of analysis

- Disease Epidemiology and Treatment Pattern analysis
- Drug Utilisation Study
- Disease Epidemiology and Treatment Pattern analysis

### Data bases

- IQVIA DA (Ge)
- SIDIAP (Spain)
- IMASIS (Spain)
- Estonian Biobank
- ACI Varha (Fi)
- CHUBX (France)
- IKNL (NI)
- Estonian Biobank
- IPCI (NL)
- SIDIAP (Spain)
- IQVIA DA (Ge)

### Status

- Ongoing

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**Study Feasibility:**

As of to date: **22 feasibility requests** in year 2:

- 10 studies received green light
- 3 studies suggested to put on hold ➔ different reasons: lack of data or need of more recent data
- 7 Feasibility assessments either just received or under review by EMA
<table>
<thead>
<tr>
<th>Study Title</th>
<th>Committees</th>
<th>Study Type</th>
<th>Type of analysis</th>
<th>Data bases</th>
<th>Status</th>
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<tbody>
<tr>
<td>DARWIN EU® - <em>Use of take-home naloxone</em> for opioid overdose treatment</td>
<td>CHMP</td>
<td>OTS</td>
<td>Drug Utilisation Study</td>
<td>IQVIA DA (Ge) IQVIA DA (Be) CPRD Gold (UK) SIDIAP</td>
<td>Ongoing</td>
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<tr>
<td>DARWIN EU® <em>DUS of medicines with prokinetic properties</em> in children and adults diagnosed with gastroparesis</td>
<td>NCA</td>
<td>OTS</td>
<td>Drug Utilisation Study</td>
<td>IPCI (NI) CHUBX (France) SIDIAP (Spain) IMASIS (Spain) IQVIA DA (Ge) IQVIA LPD (Be) CPRD Gold (UK)</td>
<td>Ongoing</td>
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<tr>
<td>DARWIN EU® - <em>Effectiveness of COVID-19 vaccines</em> against severe COVID-19 and post-acute outcomes of SARS-CoV-2 infection</td>
<td>ECDC/ Vaccine monitoring platform</td>
<td>Complex</td>
<td>Comparative Effectiveness</td>
<td>CPRD Gold IPCI SIDIAP</td>
<td>Ongoing</td>
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</table>
**Expected number of studies**

<table>
<thead>
<tr>
<th>Year 1</th>
<th>Year 2</th>
<th>Year 3</th>
<th>Year 4</th>
<th>Year 5</th>
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<tbody>
<tr>
<td>Phases</td>
<td>Phase I</td>
<td>Phase II</td>
<td>Phase III</td>
<td>Option 1</td>
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<tr>
<td>Routine Repeated analysis</td>
<td>At least 1 study</td>
<td>-</td>
<td>30</td>
<td>60</td>
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<tr>
<td>Off the shelf studies</td>
<td>At least 2 studies</td>
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<td>30</td>
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<tr>
<td>Complex Studies</td>
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<td>4</td>
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<tr>
<td>Very Complex Studies</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>1</td>
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</tbody>
</table>
EMA Colleagues: RWE group
More Information

Data Analysis and Real World Interrogation Network (DARWIN EU) | European Medicines Agency (europa.eu)

www.darwin-eu.org

For questions to the Coordination Centre, please contact: enquiries@darwin-eu.org

For regular updates on DARWIN EU® Subscribe to the Big Data Highlights newsletter by sending an email to: bigdata@ema.europa.eu