# Rare Disease Registries (RDRs)

for drug development

asterix

## What is a registry?

In general, a registry is a database containing a specific kind of information, collected in a standardized way. A registry for clinical studies could for example contain information on patients' diagnosis, or type of treatment. Rare disease registries (RDRs) are commonly set up when we know little about the disease and treatments might not be available yet. Such a RDR can provide information about the variability and course of the disease. It can also be useful at a later stage when treatments are developed.

## What is a RDR for drug development?

We define a RDR useful for drug development as an organized system that collects uniform data (clinical and other) to evaluate specified outcomes* for a population defined by a particular disease or condition, that serves one or more predetermined scientific, clinical, and/or policy purposes.

* An outcome is a measure or result regarding important disease aspects or symptoms, such as survival, fatigue, pulmonary function, motor function, number of episodes in a certain time frame, or activities of daily living (ADL).

## Types of RDRs

Several kinds of RDRs exist. The data collected in the RDR are depending on its goal(s).

- **A RDR to ease recruitment** and/or to investigate feasibility of clinical studies contains contact information and e.g. genetic information for retrieval and selection of patients.
- **A public health or national RDR** often collects information on more than one disease to retrieve the number of persons (prevalence)/the number of new persons (incidence) with a particular rare disease per year.
- **A RDR for the post-marketing phase** often contains information of patients receiving the treatment to assess safety after the treatment has been accepted on the market.
- **A natural history RDR** incorporates various information about a specific rare disease or condition to get more insight in disease course and relevant disease outcomes.

***Example*** **Cystic Fibrosis registry**

**Disease** progressive, genetic disease affecting the lungs and intestines. Buildup of mucus in the lungs limits breathing and causes lung infections. Life expectancy is between 42 and 50 years.

**Goal of registry** to measure aspects of CF and its treatment, to provide data for epidemiological research and drug development, and identification of specific groups for clinical trials (feasibility).

**Examples of variables included** gender, age (demographic), first/second mutation (diagnosis), antibiotics, pancreatic enzymes (treatment), 1 minute forced expiratory volume (FEV1), survival (outcomes)

## What to do we need to take into account in a RDR for drug development?

For a RDR to be useful for drug development at a later stage i**t needs to collect information on changes in important disease aspects**. For example, if the lung function worsens during the course of the disease, this should be measured regularly to detect changes over time. To determine the most important aspects it is recommended to give patients an active role. Also, **the information in a RDR** needs to be collected **in an uniform way** to enable appropriate comparisons between groups. Not only patients on a certain treatment should be included in a RDR but also patients on other or no treatments. This is called a patient registry (in contrast to a drug registry).

## Asterix methods

The Asterix consortium has developed a checklist of variables to include in a RDR useful for drug development, based on models in literature and expert opinions within Asterix.

### *List of recommended variables*

**Basic characterization**

- Patient characteristics (id)
- Demographic characteristics (gender, age, country of birth)

**Disease aspects**

- Diagnosis (symptoms, type/staging of disease)
- Co-morbidities (concurrent diagnoses)
- Treatment (off-label, dosage)

**Outcome variables**

- Mortality (survival time)
- Life impact (symptom status, quality of life, cognitive functioning)
- Pathophysiological manifestations (organ function, biomarkers)

## Possible benefits for patients

- Patients contribute to the development of knowledge about the disease and boost research by participating in a RDR.
- With information from the RDR research can be conducted more efficiently:
  - For sample size calculation of a trial. This saves time, as the information does not still have to be collected. In some cases the sample size needed for the trial could be reduced.
  - In specific circumstances as a (historical ) control group compared to a single arm trial. Patients in the trial can receive the active treatment.
  - After a drug has been granted market authorization. A RDR could give extra information about the value of the drug in a different patient group. No new trial might be needed and other patient groups might have access to the drug earlier.

## Possible downsides

- In very rare disease registries privacy may be difficult to achieve.
- Patients might be asked to fill in questionnaires for a RDR. This can be very time-consuming.
- Patients might not be informed about all research results.

## Possible downsides for registry set-up

- The set-up and maintenance of a good RDR can be very time-consuming and costly.
- While running a RDR new insights might require additions to the data set. Flexibility of the data collection tool is important.
- Data needs to be collected in a uniform way, meaning that different stakeholders need to agree on definitions and procedures. In an international setting this harmonization process might be very challenging.

## More information

www.eupati.eu – toolbox
European Cystic Fibrosis Society Patient Registry: www.ecfs.eu/ecfspr
http://www.biomedinvo4all.com/en/publications/faq-on-patient-registries/

SEVENTH FRAMEWORK PROGRAMME

**ASTERIX -** Advances in Small Trials dEsign for Regulatory Innovation and eXcellence *This leaflet is developed together with the Patient Think Tank and is part of the Asterix project, funded by the EU FP-7 program. For more information, see our website: www.asterix-fp7.eu*

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