

# TEARDROP: Building a Belgian Pediatric Oncology specific Bioportal

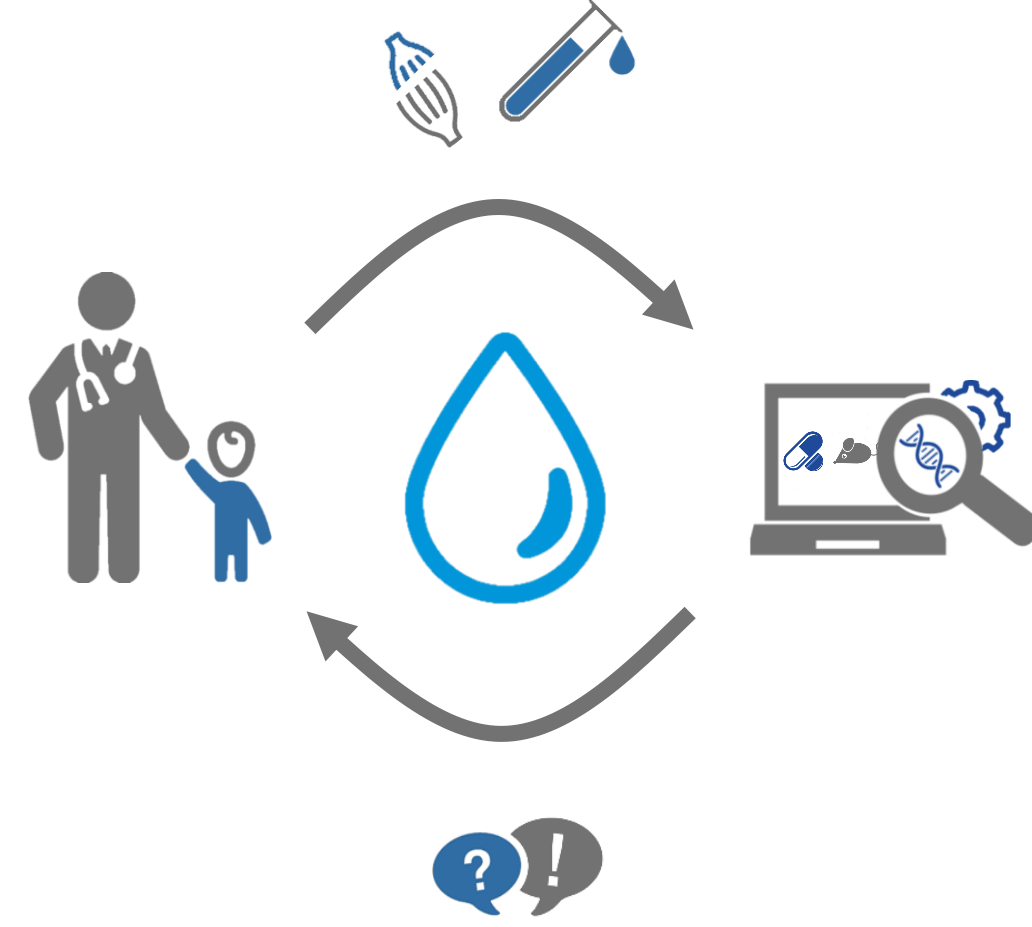
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## Introduction |

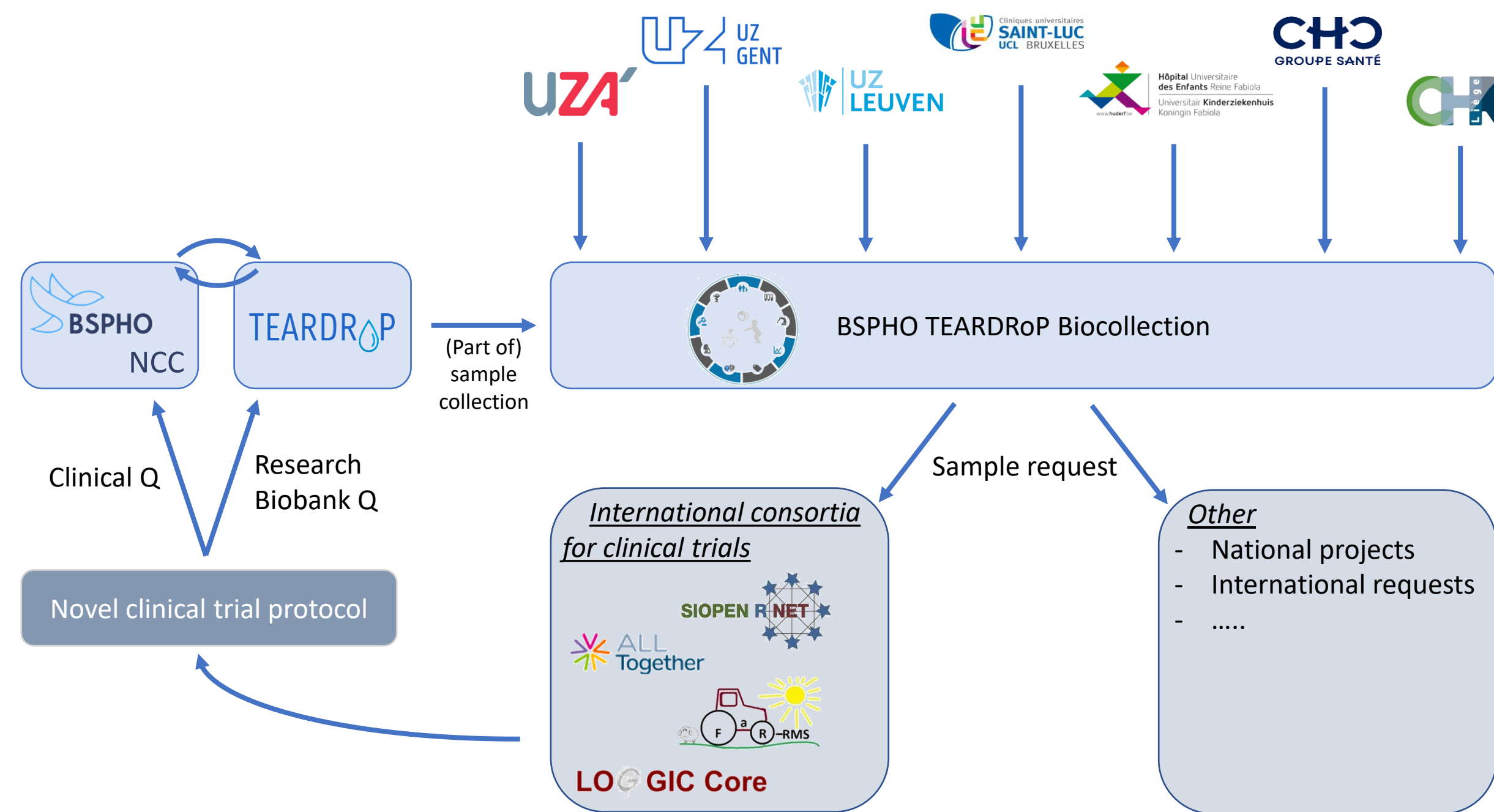
- **Pediatric cancer is rare** and requires specialized care for **developing children**
- **Survival rates have stagnated** in recent decades
- Need for **international clinical trials** and **novel treatment options**
- Increasing trial complexity leads to **high sampling demands**
- State-of-the-art research requires **high quality, well annotated, longitudinal, patient sampling**



TEARDROP Oncology consortium aims to:

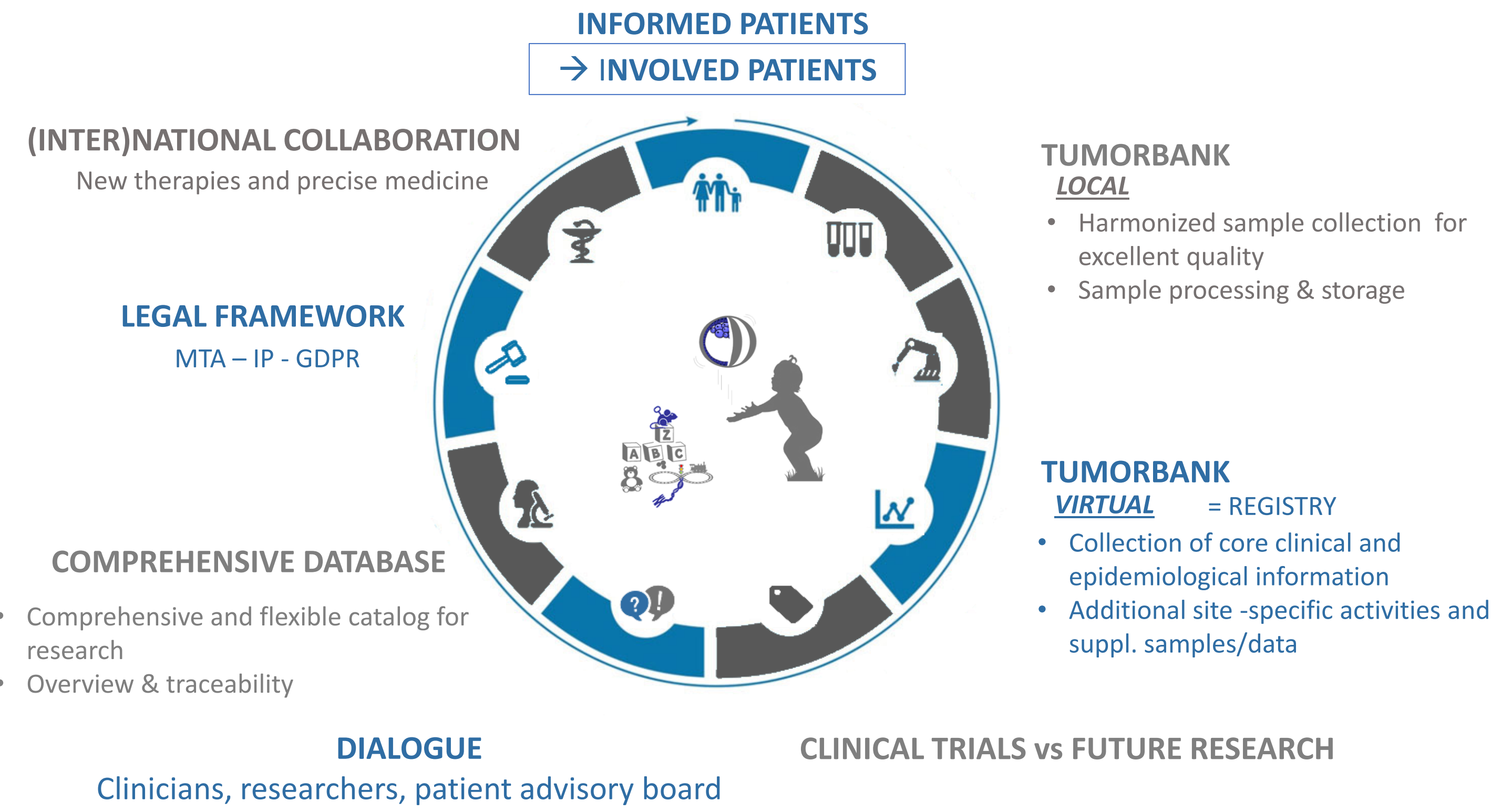
- Facilitate **access to patient material** for researchers and provide clinicians pre-clinical data on new treatment concepts
- Establish a **national pediatric-oncology specific biocollection, integrating patient and sample data** for (inter)national research
- Provide **uniform procedures** for **high quality** sample collection implemented in **routine clinical care** resulting in **more complete sample collections, fit for use** in the next generation of fundamental research efforts

## Power of centralization |



Collaboration with the **BSPHO NCC** enables Belgian pediatric oncology centers to **participate in international research efforts**. Basic clinical annotations and storage information on collected samples is not always easily accessible outside the study objectives of the international clinical trials. Moreover, **off-study patients** are often underrepresented. Setting-up a **national bioportal**, a registry linked to a virtual biobank collection for pediatric oncological patients as an intermediate vehicle ensures better data accessibility and overview, strengthening the Belgian position in international collaborations.

## TEARDROP Hallmarks |



The goal of TEARDROP is to be a **vehicle to assimilate the different (inter)national clinical trials**, projects and studies into a unified infrastructure over time. TEARDROP will result in a national biobanking portal encompassing **fully clinically annotated sample sets** that can be **easily explored and retrieved** thanks to a preset national legal framework. It aims to break existing barriers, and **lower thresholds** for research into pediatric oncology.

## Rise of the infrastructure |

### TEARDROP Pediatric Oncology specific Bioportal



Site-specific flows

- ✓ Efficiency
- ✓ GDPR-compliant
- ✓ Less labour-intensive

National guidelines

- ✓ Clinical trial
- ✓ Prospective research

National Bioportal

- ✓ Overview at sample level
- ✓ Strengthen position @ International consortia

#### Harmonized Sample Collection

- Sample manual 'translation'
  - Prospective collection
  - **Standard set of samples**
  - Common denominator
- Bottom-up approach for sample SOPs to adhere to **clinical routine**
- Quality criteria:
  - Basic samples: high quality SOPs
  - Advanced samples: BSPHO reference labs

#### Sample and clinical annotation resource

- Define a minimal dataset
- Both on sample and clinical annotation
- Incorporating:
  - Legal obligation
  - Cancer registry requirements
  - International clinical trial eCRF standard

#### Bioportal management structure

- TEARDROP board
- Consortium partners
- Project coordinators
- Disease specific working groups

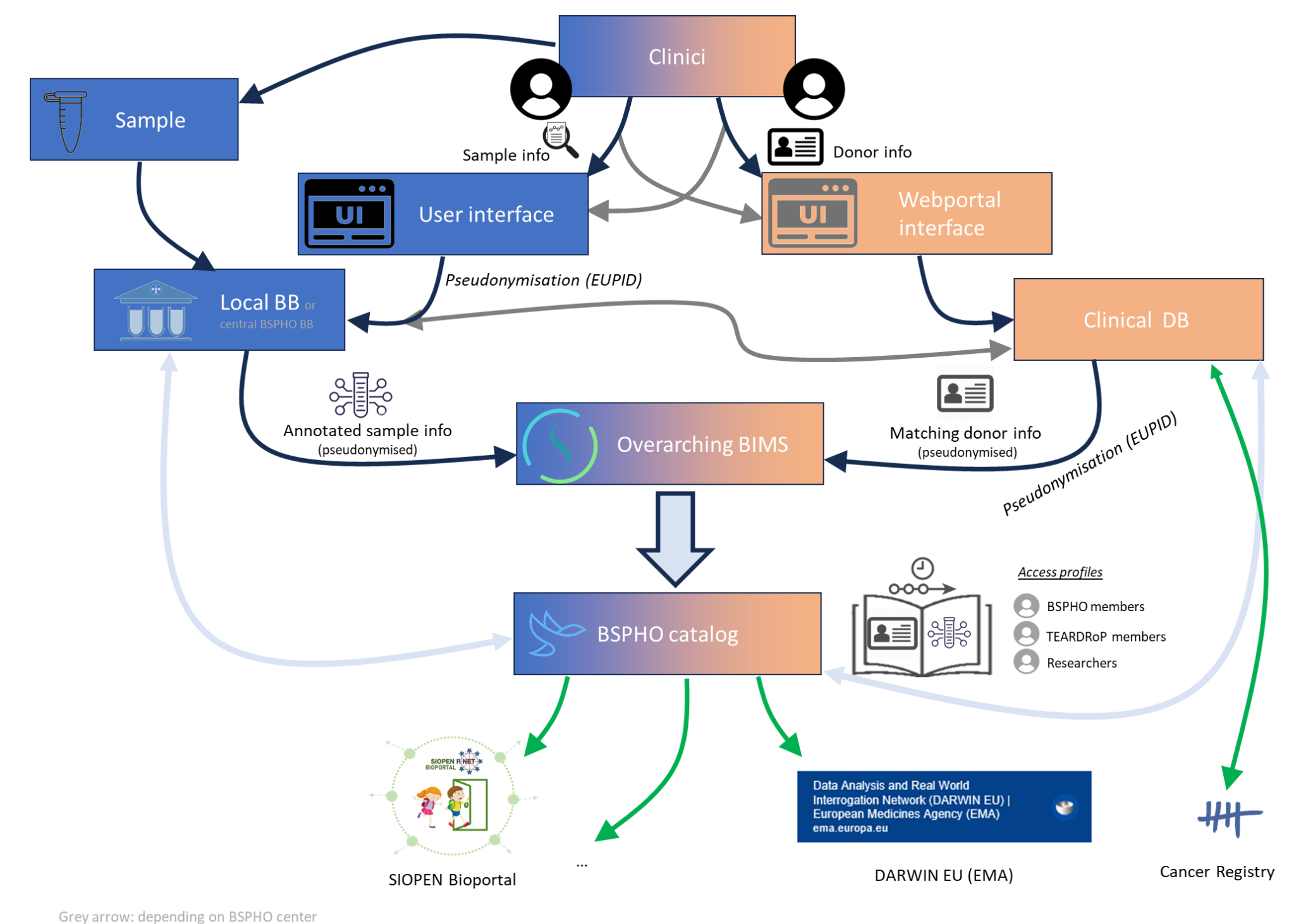
## National biobank embedment |



There are general Belgian registries while a pediatric oncology-specific sample collection is a growing need. Many neighbouring countries have successfully implemented a similar structure. Therefore, we collaborate with existing initiatives to ensure (inter)national biobank embedment.

## Roadmap to success |

The **value of any biospecimen** collection is largely determined by the **quality of the accompanying sample annotation**. The data will be merged by means of a **Datwarehouse in an overarching BIMS** to be able to offer a **comprehensive searchable catalog** through the BSPHO website.



Sample routing is kept as close to **clinical routine** as possible, to improve efficiency and relieve the burden on both the clinical teams and teams involved in routine patient care. Sample types are defined:

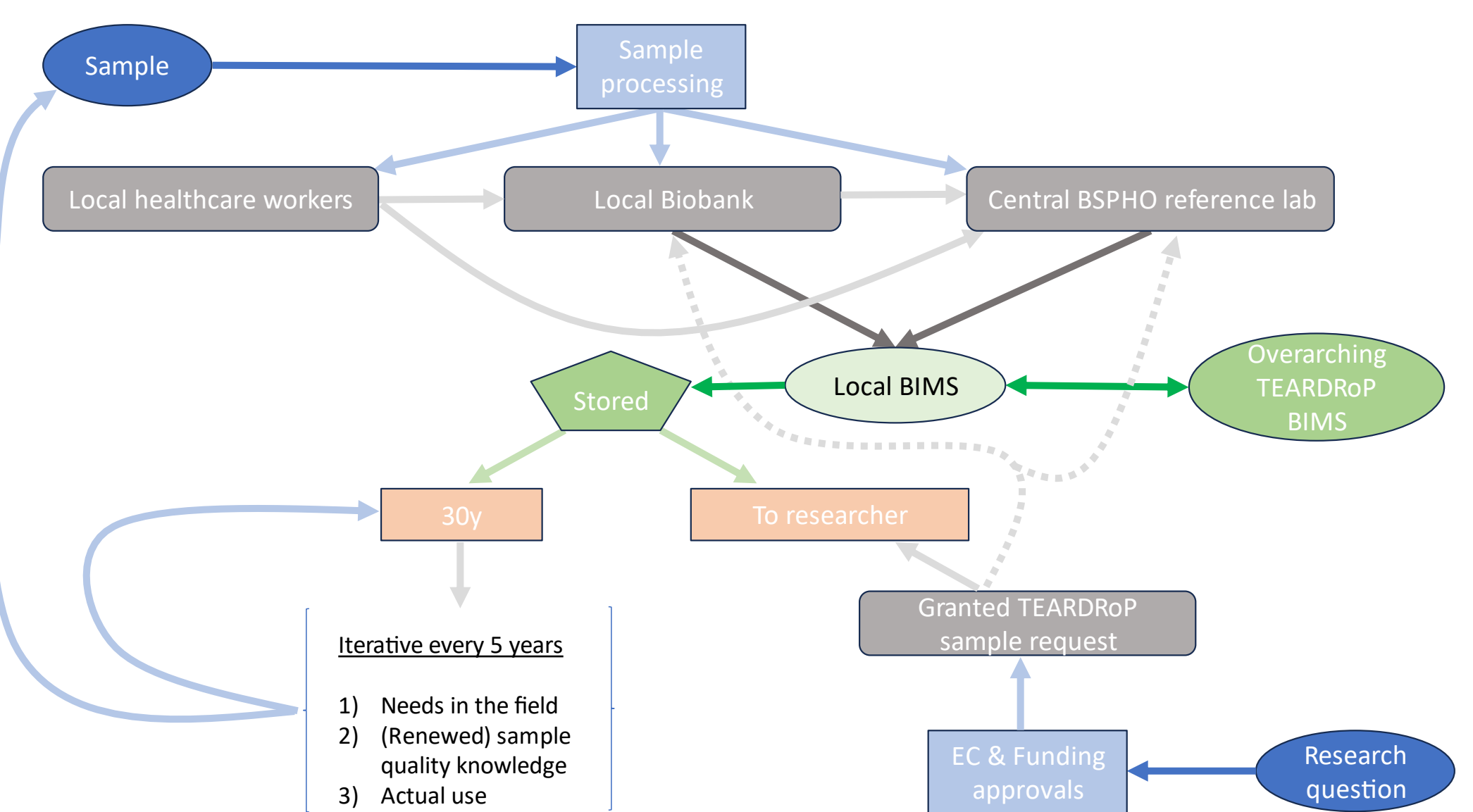
- **Basic sample** types will be collected and processed in local biobanks.
- **Advanced sample** type processing will be organised by BSPHO reference labs

## Key takeaways |

TEARDROP as a vehicle to set-up a high-quality, harmonized national PedOnco sample collection

TEARDROP in a research-inspired nation-wide supportive role through clinical embedment

TEARDROP infrastructure to tackle patient sampling challenges to allow elevated BSPHO (inter)national clinical trial support.



The procedure for **sample requests** within the BSPHO community is structured to reflect **collective decision-making**. A brief project application template will allow users to provide a scientific rationale which will be reviewed by the TEARDROP disease specific working group on adherence to the overarching goals of the BSPHO and the embedment into the (inter)national pediatric oncology research community.