

NUM[^]OHDSI^{Connect}: A Transatlantic Collaboration between the German Network University Medicine and the OHDSI Community

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Background

The global Observational Health Data Sciences and Informatics (OHDSI) community provides an established open-science ecosystem for international observational research based on the OMOP Common Data Model (CDM) and standardized analytical methods.¹⁻³

In parallel, Germany is currently building and expanding interoperable and collaborative data infrastructures across university medicine to support multicentric observational research studies, and real-world evidence generation through initiatives such as the Network University Medicine (NUM). Examples include the NUM Study Network (NUM SN), which supports the planning and conducting of multicentric clinical studies, the NUM Data Integration Centers (NUM-DIZ), which provide infrastructures for harmonized integration and analysis of routine clinical data, and NUM4Rare, which focuses on data-driven research for rare diseases.⁴⁻⁵

At the same time, participation in the European OHDSI ecosystem through the OHDSI Germany national node, as well as involvement in initiatives such as the European Health Data & Evidence Network (EHDEN), and the emerging European Health Data Space (EHDS), is steadily increasing.⁶⁻⁸ The EHDS is expected to further accelerate the need for governance-aware, interoperable, and internationally compatible infrastructures and methods for multinational observational research across Europe.

However, many of these activities are still in an early phase of operational consolidation and are not yet established consistently across institutions. Sustainable and scalable transatlantic collaboration between German university medicine infrastructures and the global OHDSI community therefore remains limited. Key challenges include heterogeneous governance structures, varying methodological and technical maturity across sites, organizational coordination barriers, and the integration of emerging European regulatory and interoperability frameworks into globally federated observational research practices.

This work presents a conceptual and operational framework for establishing sustainable transatlantic collaboration between the German NUM community and the international OHDSI community.

Methods

Exploratory discussions and strategic alignment activities were initiated between stakeholders from the German NUM community together with collaborators from the international OHDSI community. The collaboration concept was developed taking into account both the national framework of NUM and the international methodological and community structures of OHDSI. Particular focus was placed on identifying mechanisms for harmonized governance structures, collaborative workflow development,

federated study operationalization, and integration of emerging European frameworks such as the EHDS into international observational research settings.

Exemplar application domains discussed during the planning phase included rare and infectious diseases, where interoperable and federated observational research infrastructures may offer particular advantages for multinational evidence generation and study execution. Rare diseases were further highlighted through NUM4Rare as a concrete NUM-based use-case environment for exploring how clinical, registry-based, and patient-reported data can be connected to OHDSI-oriented analytical approaches. Infectious diseases were considered a complementary domain characterized by the need for multicentric, timely, and methodologically harmonized evidence generation.

Based on these preparatory activities, a formal transatlantic collaboration initiative was successfully established within the German federal funding program “BMFTR INITIATES: Research with North America,” funded by the German Federal Ministry of Research, Technology and Space (BMFTR).⁹

Results

These activities led to the launch of *NUM^{OHDSI} Connect* in April 2026, a transatlantic collaboration initiative aimed at strengthening sustainable cooperation between German university medicine infrastructures and the global OHDSI community.¹⁰ As the project is still in an early phase, the results presented here refer to the established project framework, defined strategic objectives, planned activities, and expected outputs rather than completed observational study results.

The project is coordinated by the TUD Dresden University of Technology and implemented in collaboration with national stakeholders from NUM-related infrastructures and international partners from the global OHDSI community. The initiative is designed as a two-year project for collaborative methodological development, governance alignment, and operational integration of federated observational research activities.

The project is structured into four interconnected phases covering scoping, methodological co-creation, international validation, and long-term sustainability of transatlantic observational research collaboration (Figure 1). These phases correspond to four strategic objectives derived from the project concept: (1) establishing a shared understanding of international requirements and framework conditions, (2) strengthening a common methodological and conceptual foundation, (3) jointly assessing and refining emerging methodological approaches and (4) developing a long-term sustainability perspective for collaboration between NUM and OHDSI. For the wider OHDSI ecosystem, the project aims to create structured pathways for involving German university medicine infrastructures in international network studies, while contributing insights from the German context on governance, interoperability and EHDS-readiness.

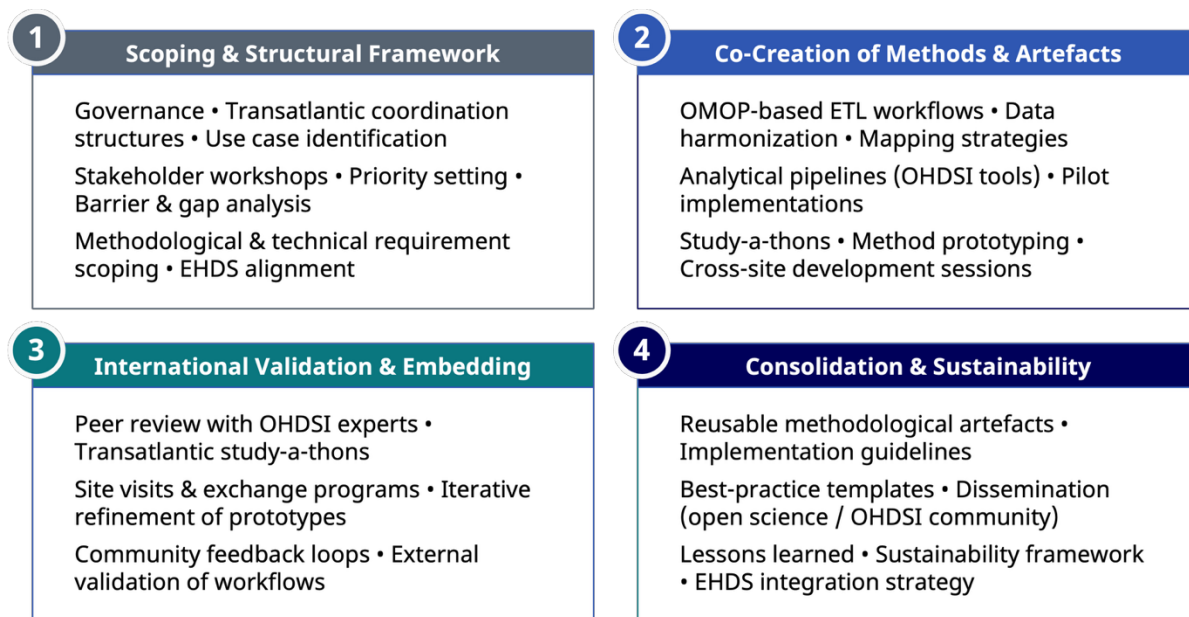


Figure 1. Four work phases of NUM^OHDSI ^{Connect} enabling structured transatlantic methodological collaboration between German university medicine and the OHDSI community.

To operationalize these objectives, the project includes co-creative exchange formats such as Study-a-thons, Site Visits, Community Calls, and Blue-Sky Thinking Workshops. Planned outcomes include reusable methodological artefacts, harmonized collaboration workflows, implementation concepts for federated observational studies, training and exchange structures, and sustainable integration pathways connecting German, European, and global observational research ecosystems. Concrete examples may include workflow templates, governance-oriented checklists, methodological prototypes and a sustainability concept for continued collaboration beyond the initial project period.

Conclusion

NUM^OHDSI ^{Connect} provides a structured foundation for sustainable transatlantic collaboration between German university medicine and the global OHDSI community. By combining governance development, methodological co-creation, OMOP-based analytical harmonization, and collaborative implementation activities, the initiative aims to address current organizational and methodological barriers limiting sustainable multinational observational research collaboration. Beyond individual study activities, the project contributes to the strategic internationalization of German health data infrastructures and supports stronger integration of German university medicine into globally coordinated real-world evidence generation and emerging European data space initiatives.

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