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Developing infrastructure for federated data analysis for protected human data

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Datasets of ever increasing size and complexity are being generated in the biomedical field to answer questions about human and animal health. Data on human health have to be managed responsibly to ensure protection of participants in health studies. Additionally, many governments are clamping down on the transfer of datasets out of country borders. In order to respect these concerns while still facilitating ethical and responsible data sharing for analysis, new policies and infrastructure need to be developed. There are several initiatives working in this space, including the Global Alliance for Genomics and Health (GA4GH), which is building standards and tools for sharing of genomic data globally. A new EU funded research project, CINECA (Common Infrastructure for National Cohorts in Europe, Canada, and Africa), is developing infrastructure to implement GA4GH standards to enable the analysis of data across cohorts without the requirement for the transfer of large datasets to third parties. This includes development of security systems for authentication and authorization of researchers, harmonization of data across heterogeneous studies, and development of cloud-based tools for federated data analysis within the confines of participant consent. This presentation will describe some of the standards and tools being developed and implemented in the CINECA project.

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