

Research Project

The Swiss Transplant Cohort Study (STCS)

Third-party funded project

Project title The Swiss Transplant Cohort Study (STCS)

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Bereich Medizinische Fächer (Klinik) / Transplantationsimmunologie und Nephrologie (Steiger)
sciCORE

Department

Departement Klinische Forschung

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Status Active

The STCS was operationally as successful in the current funding period as in previous periods. Between May 2008 and June 2020, 6141 transplantations have been performed in 5879 patients of which 290 were pediatric patients. By end of June 2020, the size of the active cohort was 4839 patients. This important figure corresponds size of the cohort actively followed by the centers on an everyday basis. A total of 149 scientific project are completed or currently run on the data. More than 30 national or international collaborations are in place. Seventy peer-reviewed papers were published or are accepted in total. Representatives of the Swiss Personalized Health Network (SPHN) have become members of the STCS and a close collaboration with the Swiss Biobanking Platform (SBP) is established. During the current funding period, the different working groups achieved 22 of 33 previously stated milestones. The reminder could not be pursued or are yet ongoing. The Data Center is the responsible provider of the STCS data infrastructure. The main tasks include the management of the complex data structure of the STCS, to provide comprehensive public outcome reporting and to support researchers in data management and statistical analysis. In 2020, the data center took moreover the responsibility to act as the scientific IT provider after our current provider had decided to gradually discontinue its activities. Professional data services are essential for the STCS since transplantation is a highly complex medical intervention. Complex processes range from donor recruitment, organ allocation, and organ procurement, to the process of transplantation and post-transplant care. Distinct systems are interrelated and making demanding data integration processes necessary. The STCS is operating a decentralized, center-based Biobank of recipient samples. Since its creation, the STCS harvested 14'448 plasma, 14'297 viable cell samples and 5791 DNA samples in consenting patients. Fifteen percent of all nested projects (NP) used the Biobank over the past years. The genetic dataset of the STCS has been enlarged to 3000 patients with genome-wide data, making the STCS one of the largest cohorts of SOT recipients with long-term follow-up, accurate clinical-, psychosocial-, and genome-wide data. STCS data are available "open access" for research within the framework of the Scientific Committee guidelines and upon EC approval. Next funding period: The current application involves a research-oriented Data Infrastructure and Service (DIS). The described scientific aims only represent a crude summary of the working groups' aims and of the aims of the DIS. In the next period, the scientific strategy of the STCS will mainly consist on consolidating

its current scientific groups and study domains, and to build upon and expand on new and timely issues that have become important in transplantation. Moreover, new research initiatives in the personalized medicine area will represent a key aim in future research. The STCS is well positioned to contribute significantly in this regard due to important structure work and networking that took place during the last years. Hence the focus of our research will be on traditional and deep learning methods. A further aim will be to assess the role of Covid-19 in immunosuppressed SOT recipients. A successfully launched SNF-supported platform trials project in collaboration with SHCS is in the set-up phase. A large update of the immunology datasets and the implementation of a new, integrated phenotyping system will add to the clinical interpretation of our transplant immunology research and the use of genetic data to predict immunologic phenotypes is planned. This shall be achieved through candidate gene studies or GWAS. The interdisciplinary Psychosocial Interest Group (PSIG) will analyze psychosocial and behavioral outcomes over the transplant continuum and invest in innovative e-health supported care models allowing personalized health approaches. The Oncology group plans association studies across various types of transplantations and evaluates the progression frequency of patients with previously known monoclonal gammopathy. In collaboration with the STCS Psychosocial Interest Group (PSIG) the oncology group plans to collect information on SOT patients subsequently developing cancer and their risk of poor quality of life and psychosocial status. The Data Center will mainly be in charge of further developing the data infrastructure and services. This includes the following core tasks and challenges: -Development of a structure for the sharing of sensitive patient data between transplant hospitals and the STCS. The SPHN/BioMedIT supported IDEAL project plays a key role in this process. -Implementation of semantic interoperability standards and FAIR principles.

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