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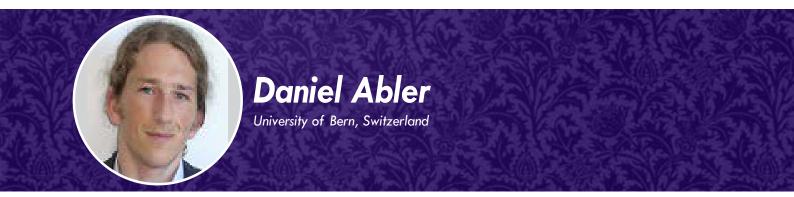
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CHIC-CDR: A repository for managing multi-modality clinical data and its application to *in-silico* oncology

Access to high-quality clinical data is a prerequisite for medical data analysis and *in-silico* medicine. Data drives the development of research questions, feeds computational algorithms and provides the evidence base for validating complex disease models which form the basis for personalized simulations in the future. However, provision of uniform access to and secondary use of clinical treatment or study data is hampered by the data's intrinsic characteristics: Its confidential nature, and its heterogeneity in terms of sources, quality and information. The clinical data repository (CDR) has been designed to address these critical issues by providing a unique access-point to clinical data in compliance with the European medico-legal framework. CDR has been initiated as an exchange platform for medical images, but was quickly extended to other health-related data, in particular clinical treatment & follow-up, histological and genetic information. Data access is granted based on a role-based policy within a single-sign-on security framework. CDR also supports the (pseudo-) anonymization process and provides facilities for semantic annotation of data during and after the upload process, enabling semantically mediated queries for improved data discovery. This presentation will outline the principal requirements and the main challenges related to the sharing of heterogeneous clinical data for research purposes, discuss properties of a generic solution and detail implementation and application in the CHIC context.

Biography

Daniel Abler is currently a Post-doctoral researcher at the Institute for Surgical Technology and Biomechanics at the University of Bern. He has been Marie Curie Fellow working for the European Centre for Nuclear Research and at the Particle Therapy Cancer Research Institute in Oxford. He received his PhD degree from the University of Oxford in 2014, a Diploma in Physics from the Friedrich-Alexander University, Germany and followed studies at Imperial College London, UK. He has contributed to feasibility studies and research prototypes in physics and information technologies for medical applications in particular related to cancer research.

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Page 49