Cohort platform – 5-year work plan

The implementation of the National Cohort Integration Platform (NCIP) will comprise five work packages that will galvanize the unique availability of large, longitudinal cohorts, broad expertise in deep phenotyping, multimodal data analysis, preclinical modeling as well as the governance of large-scale multisite research programs into an accessible, transparent and interoperable infrastructure to support the translational chain within CHILDhealth and across DZKJ partner institutions. These work packages are: I) cohort integration, IT infrastructure and governance, II) development and roll-out of phenotyping SOPs and IT analysis framework, III) multimodal precision biomarkers of somatic and mental health risk, IV) Preclinical integration and developmental, and V) scientific communication and public relation.

The cohort integration, IT infrastructure and governance work package will implement a cohort communication platform within DZKJ and other German Health Centers and extend this to other national and international partners. It will include harmonization of clinical, laboratory, neuroimaging, ambulatory and omics measures available across the CHILDhealth cohorts with specific focus on the integration of birth, childhood and adolescent data, interoperability of longitudinal measures, as well as harmonization of environmental risk exposure data, and will develop an accessible and transparent IT framework that records data availability, manages consent requirements, and provides the basis for direct data integration, as well as distributed statistical and machine learning analysis. *The platform phenotyping SOPs and IT analysis work package* will establish a service unit and support center and roll-out SOP pipelines that facilitates DZKJ and other partners access to data, assistance with harmonized patient recruitment, patient consent management, and biomarker validation. *The precision biomarker discovery work package* will identify multimodal risk signatures for mental and somatic health, across clinical studies for patient stratification, and for transdiagnostic subgroups and neurobehavioral domains (RDoC), and address comorbidity. *The preclinical integration and developmental inference work package* will identify risk periods for onset of illness-relevant developmental trajectories, prioritize, and cross-validate findings in international NCIP cohorts. *The scientific communication and public relation work package* will focus on publication pipelines like for rationale, method and recommendation papers as well as papers on risk signatures and developmental time window-specific topics.