THE ORIGINS PROJECT



CREATING A PLATFORM TO INCREASE RESEARCH CAPACITY TO BETTER UNDERSTAND CHILDHOOD NEURODEVELOPMENTAL DISORDERS

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BACKGROUND

The dramatic rise in **neurodevelopmental disorders and the increase mental ill health** in children and youth, reflect the profound early impact of modern environments on developing systems. **The ORIGINS Project** aims to create an extensive research platform which integrates and harmonises **nested clinical studies,** enabling **cutting edge research** into the origins and early biomarkers of neurodevelopmental disorders (NDD) and mental health disorders (MHD) like **ADHD, Autism Spectrum Disorder, Anxiety Disorder, Depression and Oppositional Defiant Behaviour.**

METHOD

The ORIGINS Project is a community intervention birth cohort in Western Australia, intending to follow the progress of **10,000 families**, over the first 5 years of life from their time in the womb, and beyond. The ORIGINS platform enables **randomised controlled trials, interventions, mechanistic and observational studies.** The structure and protocol of ORIGINS supports **'real-time' feedback** for the cohort. Multiple questionnaires including the **Conners Early Childhood Questionnaire** are focused on examining ADHD in parents and their offsprings. Bio samples which include blood, meconium, urine, breast milk, hair, saliva, placenta, and cord blood will enable the development of a comprehensive 'OMICS' platform.

RESULTS

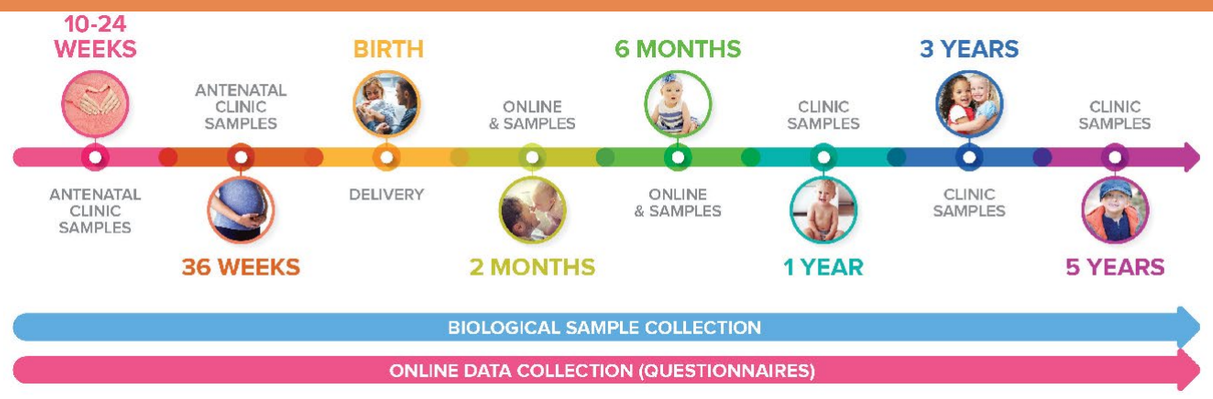
A PLATFORM FOR RESEARCH DISCOVERY (2017-2023)

>16,500 individuals in ORIGINS
4,007 active (deep sampling) participants
4,587 non-active (routine data only) participants
2,506 non-birthing partners
8,087 babies born
43 nested sub-projects
>15M data points
2,079 1-year assessments
859 3-year assessments
106 5 year assessments
1,110 Early Conners questionnaires
8,218 Ages and Stages developmental questionnaires
5,193 Australian Eating Surveys

Total Biobank aliquots	
Maternal Blood	5,880
Maternal Urine	5,694
Maternal Stool	4,355
Maternal Buccal	5,520
Maternal Saliva	5,771
Maternal Breastmilk	2,535
Cord Blood	2,100
Child Blood	1,358
Child Urine	1,685
Child stool	1,914
Child Buccal	2,439
Child Saliva	1,268

NB: Longitudinal study hence some samples and data have multiple time points. Data and bio-samples available as of March 2023.

ORIGINS TIMEPOINTS



EARLY CONNERS AT THREE-YEAR TIMEPOINT

The Conners Early Childhood assessment is validated in preschool 2-6 years and assesses behavioural, emotional, social concerns and developmental milestones by parents and educators. (ORIGINS-Conners Parent Questionnaire completed at the 3- and 5-year timepoints).

N= 919	% T Scores		
Conditions	**Average Scores**	**High Average & Elevated Scores**	**Very Elevated Scores**
Inattention/Hyperactivity	78	15	7
Defiant/aggressive behaviour	64	21	15
Social functioning/atypical behaviours	78	16	6
Anxiety	65	21	14
Mood and affect	63	20	17
Restless and impulsive	72	19	9
Emotional lability	53	32	15
Sleep issues	62	21	17
Pre-academic issues	97	1	2

SUMMARY

Mental health issues are evident from 3 years of age as identified by the Early Conners Assessment where **22%, 47%, 38% and 35%** of 3-year-old children were identified with an issue in **inattention, emotional lability, sleep and anxiety respectively.**

At 3 years of age **53%** were identified as having **very low ferratin levels (<20 micrograms/L),** where the association with early neurodevelopmental vulnerability is being investigated.

CONCLUSION

ORIGINS is an intervention cohort invested in making positive change—not only for children and their families, but for the wider community. It is our goal to demonstrate how the ORIGINS platform not only enables local and international research but provides pathways for prevention, early identification and treatment in developmentally vulnerable children.

ORIGINS provides the opportunity for testing new research ideas and increasing research capacity in order to:

- Identify early markers and causal pathways for NDD & MHD
- Understand the effect of plastic products and other environmental pollutants on NDD & MHD
- Develop models of care that better understand flourishing and languishing pathways in childhood

THE ORIGINS PROJECT · TELETHON KIDS INSTITUTE Discover. Prevent. Cure. · Joondalup Health Campus Part of Ramsay Health Care

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