

ORIGINS

Annual Performance Report

1 July 2024 – 30 June 2025

Co-Directors: Dr Jacqueline Davis & Professor Desiree Silva

Acknowledgements

ORIGINS acknowledges Aboriginal and Torres Strait Islander people as the Traditional Custodians of the land and waters of Australia. We also acknowledge the Nyoongar Wadjuk, Yawuru, Kariyarra and Kurna Elders, their people and their land upon which the Institute is located and seek their wisdom in our work to improve the health and development of all children.

ORIGINS acknowledges the gift of the participant families who willingly give us their time and spirit in the goal of advancing scientific discovery to help all children.

ORIGINS is funded by the **Commonwealth Government through the Channel 7 Telethon Trust**, the **Paul Ramsay Foundation**, **The Stan Perron Charitable Foundation** and **the Future Health Research & Innovation Fund** in Western Australia. Our work would not be possible without the backing of our funders, collaborators and partners. We are deeply indebted to their generosity.

Contents

ORIGINS: a globally unique interventional platform enabling research discovery 3

The Aim of ORIGINS 3

ORIGINS Current Status.....4

Since commencement in January 2017 (as at end of June 2025):4

Highlights of the Year..... 5

Key challenges and responses..... 5

Project opportunities 2025-2026..... 6

APPENDICES..... 16

 Appendix One: ORIGINS Sub-Projects..... 16

 Appendix Two: ORIGINS Research Dissemination 21

 Publications, Papers and Presentations 21

 Publications 21

 Presentations..... 22

ORIGINS: a globally unique interventional platform enabling research discovery

ORIGINS' goal is to discover how a child's early environment influences the dramatically rising risk of chronic health conditions such as allergies, obesity, gut health, respiratory, mental health issues and neuro-developmental challenges. ORIGINS is a collaboration between **The Kids Research Institute Australia (The Kids)** and **Joondalup Health Campus (JHC)**.

ORIGINS information is being used by researchers around the world to identify and implement ways to reduce risks for children. The samples and information being collected, from complete family units, are creating a rich resource in the ORIGINS Biobank which (at the time of reporting) contains more than **420,000 biological samples linked over 30 million data points**.

Comprehensive analyses have also begun on some participants' biological samples, funded by the Stan Perron Charitable Foundation. This has produced rich longitudinal datasets of microbiome, inflammatory and metabolomic information that is now available to researchers. Additionally, we have embedded multiple studies within the ORIGINS platform (approximately 60+ current studies), further enriching data collections, as well as opportunities for families to be involved in novel research interventions.

The Aim of ORIGINS

ORIGINS aims to improve the health of the next generation through a better understanding of how to optimise the early environment. Over a decade we recruited 10,000 children, along with their families, when their mother was early in pregnancy at Joondalup Health Campus and collect biological samples, routine data and web-based questionnaires on physical and mental health, diet, physical activity patterns and a range of environmental factors, creating an extensive Biobank and Databank in pregnancy, early years, primary school, high school and beyond.

ORIGINS includes:

- **'Active' families** - undertaking multiple data and sample collections at specific time points.
- **'Non-active' families** - access to all routinely collected hospital data, opportunistic samples and linkage to government and non-government databases.

The data from the ORIGINS research platform - **Biobank and Databank** - will assess how early life exposures influence a child's growth, development and health. ORIGINS' significant Biobank (DNA, breast milk, urine, stool, plasma and mononuclear cells) will build substantial additional future capacity to address critical questions (including genetic, epigenetic, metagenomic, proteomic and metabolomic studies) as technologies and new avenues of investigation evolve.



Annual Performance Report 2024-2025

This Annual Performance Report outlines the progress made and deliverables achieved during the reporting period 1st July 2024 to 30th June 2025.

ORIGINS Current Status

Since commencement in January 2017 (as at end of June 2025):

- ORIGINS has welcomed **10,270 families**
- These families include:
 - **10,270** women (4,000 active and 6,270 non-active)
 - **10,007** babies (3,725 active and 6,282 non-active)
 - **2,625** partners (1,151 active and 1,474 non-active)
- That equates to **22,902** individuals
- We have completed many valuable assessments with our families, including
 - **2,837** assessments on one-year infants (88% of all eligible 1-year-olds)
 - **1,876** appointments with our three-year children (69% of all eligible 3-year-olds)
 - **1,001** 'Kids Checks' appointments with our five-year-olds (69% of all eligible 5-year-olds)
- The ORIGINS recruitment team has enrolled **1,616** mothers for two or more pregnancies.
- Our **10,007** ORIGINS children are made up of **9,692** singletons, **156** sets of twins, **1** set of triplets.
- The ORIGINS Biobank is one of the largest Australian biological cohort collections.
- We have collected more than **420,000** biological samples.
- ORIGINS has generated unique and comprehensive datasets of inflammatory and metagenomic information from a pilot set of 2,500 plasma samples, and 900 stool samples. In 2025-2026, 700 of these plasma samples will also undergo metabolomic analyses.
- We have collected more than **30 million** data points in the ORIGINS Databank.
- **60** sub-projects have been integrated within ORIGINS, looking at multiple aspects of child and family health and development.
- ORIGINS has supported **21** PhD students, **11** postgraduate, and 10 Doctor of Medicine and **19** undergraduate students.
- Connected with over **700** national and international researchers who are actively engaged in ORIGINS.

Return on Investments

The ORIGINS infrastructure has been a catalyst for investment in nested sub-projects. The set-up of ORIGINS enables researchers to implement their research projects, leveraging a fully developed platform providing cost savings and economies of scale. ORIGINS recoups cost back to sustain and increase the capacity of ORIGINS' resources. A degree of cost recovery is required from those requesting and granted use and/or access to the cohort.

To date, ORIGINS infrastructure has attracted independent grant funding in excess of **\$42 million** which represents an outstanding return on original investment.

Highlights of the Year

Funding and partnerships

- The Stan Perron Charitable Foundation contributed **\$1,944,519** in 2024-25 to support the ongoing implementation and development of ORIGINS.
- **Funding support** from the Western Australian Future Health Research & Innovation Fund (through the Department of Health) acknowledging the role ORIGINS plays in developing research capacity building in WA.
- ORIGINS has collaborated with GenV to advocate for federal funding in **Generation Australia** – the combination of two of Australia's largest and richest birth cohort studies.
- In May 2025, we strengthened strategic collaboration across Western Australia's Research Enabling Platforms (REPs) through the development and testing of an Impact Methodological Framework. In partnership with **The Raine Study**, **ORIGINS**, and the **Busselton Health Study**, a co-designed workshop brought together diverse expertise to refine a practical, shared approach to impact planning and evaluation. This collaboration not only built capacity within each REP but also laid the groundwork for aligned investment cases and future joint initiatives.

Operational

- The **10,000th baby** was born in early October 2024, establishing a comprehensive cohort to support long-term, population-based research.
- Successfully completed all 1-year Kids Checks appointments with **2,837** clinic appointments attended.
- **335 non-active new families** were recruited into ORIGINS
- **1,165 new children** joined ORIGINS in 2024-25 (the difference in number of pregnancies and children is due to mother being pregnant at the time of reporting, loss of pregnancy or withdrawal before birth).
- **12 new sub-projects** have been approved by the ORIGINS Scientific Committee and Project Management Group to be nested within ORIGINS.
- **12** research papers were published on ORIGINS related research.
- **13 PhD students** are currently working on projects in ORIGINS. The number of PhD students has doubled since 2016. Extensive mapping of participant recruitment, retention and attrition has been undertaken, with a new reporting system set up within the power BI live dashboard.
- A **community engagement workshop** held in May 2025 with participants from our cohort reinforced this commitment by providing a space for dialogue, feedback, and shared learning between the ORIGINS team and our research participants.
- In 2025, ORIGINS undertook **strategic and business planning** with the primary focus on research prioritisation and a conceptual strategic framework which will be used to guide ORIGINS and sub-projects.
- With support from the Stan Perron Charitable Foundation, a **pilot analysis of inflammatory, microbiome, and metabolic data** has commenced, converting limited biosamples into high quality digital datasets now being used to study early-life immune and microbiome development.

Key challenges and responses

- **Compliance and retention** of participants continues to be a challenge for ORIGINS, as is for many large-scale research studies. To address this, we have employed a dedicated participant engagement team member who is tracking and assisting families to complete their data and sample collections. This has had a significant impact on the rates of completion over the past two months.

- Managing the scale and complexity of the ORIGINS Biobank (over 420,000 samples) remains a major logistical challenge, requiring ongoing coordination to balance sample preservation with research demands. With support from the Stan Perron Charitable Foundation, a **pilot analysis of inflammatory, microbiome, and metabolic data** has commenced, converting limited biosamples into high quality digital datasets now being used to study early-life immune and microbiome development.
- Ensuring sustainable funding of the ORIGINS platform is an ongoing challenge. ORIGINS continues to advocate to key stakeholders about research discoveries and translation impact to ensure there is continued support for future wave collections. Changes in government and non-government organisational portfolios and policies can make this work challenging.

Project opportunities 2025-2026

- Implementation of the revised ORIGINS Strategic Framework and operational initiative which will guide research prioritisation over the next 10 years.
- Continuation of **operational funding support** from the Western Australian Future Health Research & Innovation Fund (through the Department of Health) will assist with the operational and research costs associated with running a large-scale project.
- **Primary School Years (7-9 years) Kids Check appointments** will commence in 2026, enabling continued follow-up of participants with updated questionnaire content focusing on language, literacy, mental health, peer relationships, social media, and lifestyle behaviours.
- **Cohort expansion** is proposed to include a cross-sectional cohort of Grade 3 children, with plans to harmonise data with Gen V (Victoria) and Born in Bradford's Better Start (UK). This supports future integration and collaborative research into effective, evidence-based interventions for child health and wellbeing.
- **Data linkage** approval is currently being sought to enable integration with government, health, and education systems, supporting genomic and advanced analyses. This will maximise our existing data value, enhancing follow-up capacity, and deepening ORIGINS' impact on child and population health.
- **Consolidation of the biological collection** across ORIGINS' freezers to minimise the footprint and expense of maintenance and upkeep.
- **Targeted interventional sub-projects** that address community and stakeholder priorities within key research domains.
- Completion of metabolomic analyses by August 2025 will finalise the multi-omic dataset (inflammatory microbiome, and metabolomics). The new datasets are already generating interest, with **3 sub-projects approved** by the ORIGINS Scientific Committee to utilise these data.
- A **Senior Biostatistician** has been appointed to lead detailed descriptive analyses of the multi-omic datasets, enhancing internal capability in high-dimensional data analysis.
- These efforts are intended to **attract additional funding** to enable large scale analyses across the full Biobank and potentially expand to other omics areas, such as **genomics**.

Participant Recruitment and Retention

ORIGINS' active participants are pregnant women (and the non-birthing partner, where possible) who are recruited with informed consent early in their pregnancy to collect detailed environmental and psychosocial data through questionnaires, medical records, diagnostic tools, and collection of biological samples.

When the child is born, they are also consented as an individual. ORIGINS families are contacted at multiple touchpoints throughout their ORIGINS journey by the ORIGINS team.

Non-active participants are recruited when the child is born, and their pregnancy data is collected retrospectively.

Non-active pregnant women may also be recruited during pregnancy but may choose to provide the project only with routine data, rather than become a full active participant who is contacted at regular intervals. (See [page 3](#) for a more detailed explanation of active vs non-active ORIGINS participants).



Participant consent recruitment 2024-2025

Participant Recruitment (No. signed consents)	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Total in reporting period	Project Cumulative Total
Active pregnancies consented	0	0	0	0	0	0	0	0	0	0	0	0	0	4,000
Non-active pregnancies consented	109	103	102	21	0	0	0	0	0	0	0	0	316	6,271
Total pregnancies consented:													316	10,271
Active partners consented	0	0	0	0	0	0	0	0	0	0	0	0	0	1,151
Non-active partners consented	4	9	13	0	0	0	0	0	0	0	0	0	26	1,474
Total partners consented:													66	2,590
Active babies consented	0	0	0	0	0	0	0	0	0	0	0	0	0	3,725
Non-active babies consented	110	114	111	24	0	0	0	0	0	0	0	0	359	6,282
Total babies consented													359	10,007

ORIGINS Kids Check appointments: Active participants June 2024–July 2025

Due to participant and appointment availability, participant families often do not attend clinic the corresponding month of their birthday. Therefore, attendance and compliance are measured 6 months out from the appointment due date.

ORIGINS One-Year Appointments	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Total 2024–2025 FY
One-year appointment: expected based on birth date	28	2	2	0	0	0	0	0	0	0	0	0	32
One-year appointment: actuals at one-year	28	2	2	0	0	0	0	0	0	0	0	0	32
Percentage Completion	100%	100%	100%	NA	NA	NA	NA	NA	NA	NA	NA	NA	100%
ORIGINS Three-Year Appointments	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Total 2024–2025 FY
Three-year appointment: expected based on birth date	49	70	52	48	56	40	33	65	52	41	29	44	579
Three-year follow up: actuals at three-year	29	40	34	48	48	27	22	64	60	34	39	30	475
Percentage Completion	59%	57%	65%	100%	86%	68%	66%	98%	120%	83%	97%	68%	82%
ORIGINS Five-Year Appointments	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Total 2024–2025 FY
Five-year appointment: expected based on birth date	30	47	60	42	54	44	60	48	43	41	42	37	548
Five-year follow up: actuals at five-year	49	27	38	43	22	30	52	20	16	41	34	34	406
Percentage Completion	160%	57%	63%	102%	41%	68%	87%	42%	37%	100%	81%	92%	74%

ORIGINS Biobank

The ORIGINS Biobank comprises **one of the largest Australian cohort collections** and we are pleased to report this continues to translate to successful funding applications, analysis and publications. The Biobank houses biological samples from participant families at 10 timepoints across five years, now planning the Primary School wave sampling protocol in 2026.

A **new sample-type** has been introduced to the protocol in 2025: child teeth. The “ORIGINS Tooth Fairy” has been established as part of a communications strategy to engage in a fun and exciting way with families for this new collection.



In response to community and participant feedback, the ORIGINS Biobank is hoping to invite mothers and fathers for blood sample analysis at the Primary School visit to further enrich the collections in a whole-family approach. The Biobank currently contains over **420,000 samples** and this will continue to grow to an estimated 600,000 individual samples by 2027.

A key transition in Biobank operations during 2024–2025 has been the design and initiation of centralised biological sample analyses, aim to generate infinitely accessible digital datasets from the finite physical samples. This addresses a key challenge regarding sample utilisation and longevity, and now presents significant opportunity for expansion, made possible through the generous support of the Stan Perron Charitable Foundation.

Efforts have now begun to consolidate the biological collection across ORIGINS’ 13 freezers to minimise the footprint and expense of maintenance and upkeep. Old freezers past warranty are being replaced to ensure security of the specimens however the goal is to reduce the overall number of freezers in operation. Strategy to achieve this includes the centralised sample analyses and the reformatting (homogenisation) of stool – the most space-inefficient sample in their current format. Plans are underway for a de-fragmentation of the collection in 2026 to consolidate containers from which samples have been utilised, reducing empty space.

Key activities in reporting period

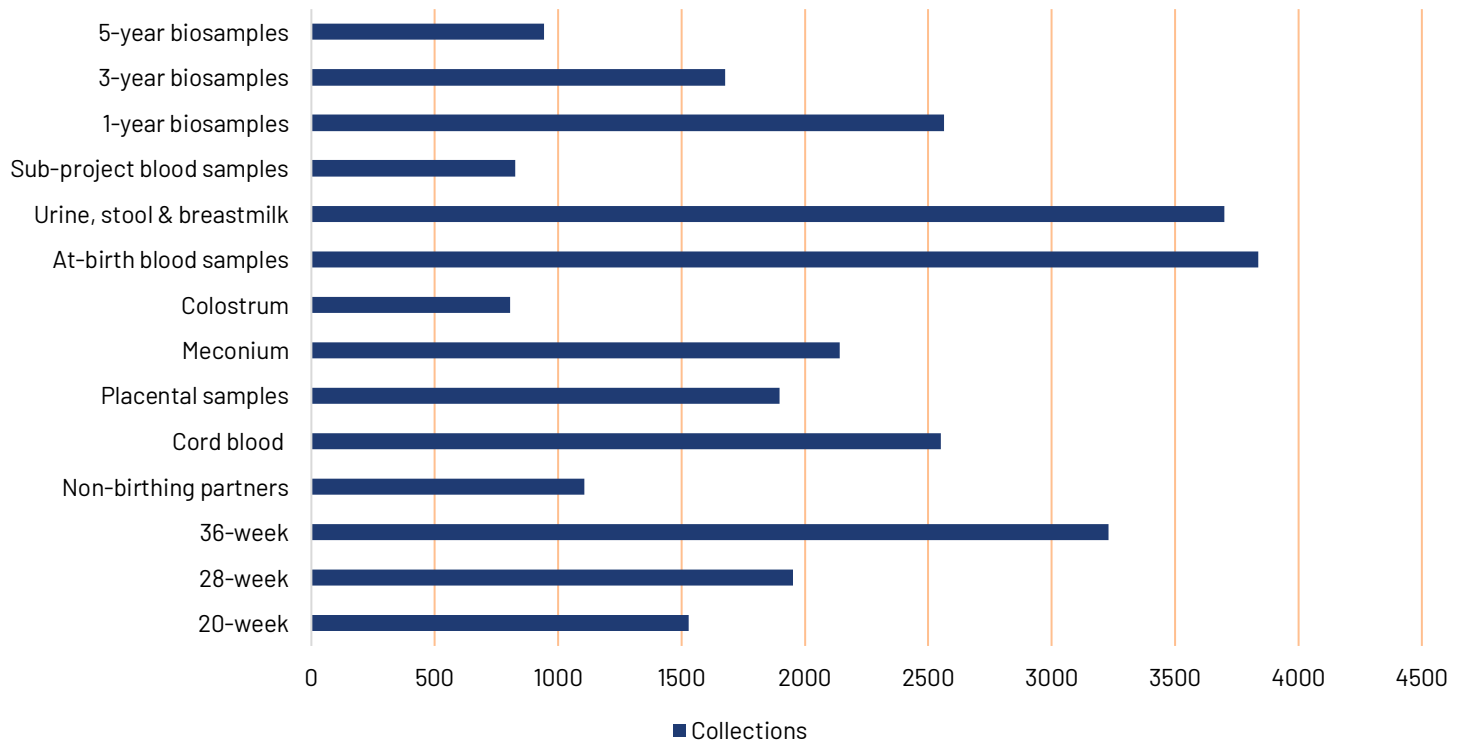
Sample collections, including a comprehensive set of blood, buccal, saliva, urine, and stool are steadily growing, with new child tooth collections initiated.

Collections from our Kids Check timepoints include cheek swabs, saliva, stool and urine, and bloods from some. **5,569** specimens were released between July 2024 and June 2025 to **3 sub-projects and for the centralised ORIGINS sample analyses**. Over the project’s duration, a total of **14,472** specimens have been released to **20 sub-projects**.

The **first publication detailing the ORIGINS Biobank** was published in the *International Journal of Environmental Public Health* in June 2023.

All collections from the antenatal period to age 1 are now completed, and accumulative figures for collections are as follows:

Collections



ORIGINS Databank

ORIGINS is collecting a wealth of administrative, biological, physiological, clinical and assessment data from the ORIGINS families. The data is collected over fifteen timepoints beginning from 20 weeks' gestation through to seven years of age to enable tracking of the child's development. ORIGINS is in a unique position to **link and integrate data from multiple sources** within an Amazon Web Services (AWS) platform to enable development and maintenance of a comprehensive longitudinal databank. Data provided to researchers is de-identified and encrypted.



Data derived from samples ('omics data such as metabolomics, transcriptomics, proteomics) and microbiome analyses will be linked using the Amazon Web Services (AWS) platform developed. All data are linked through unique identifiers to track individual participants as well as family units. In 2024-2025 a total of **4,3734 online questionnaires** were completed by ORIGINS participants.

Key activities in reporting period

- Improvements have been made to the ORIGINS data platform, an **integrated AWS research cloud**, to assist with the integration of sub-project returned data and **omics data** with participant data.

- A live Power BI dashboard has been set up to track real time participant recruitment, retention and attrition statistics, including questionnaire and sample compliance longitudinally.
- Extensive cleaning, coding, and scoring of raw data has begun, to ensure that data is 'researcher ready'.
- A total **12 data extracts** were cleaned and provided to ORIGINS sub-projects for their research.
- The ORIGINS data platform received data back from **six ORIGINS sub-projects**.
- The **first publication detailing the ORIGINS Databank** was published in the *International Journal of Population Data Science* in September 2024.

Research Translation and Collaboration

Collaboration and engagement are fundamental elements of ORIGINS at every level. We have **strong links with other birth cohorts** locally, nationally and internationally and are working towards developing a global cohort network to harmonise and enhance research capacity.

ORIGINS information is being used by **researchers all around the world** to identify and implement ways to reduce risks for children and to answer many questions about the development of chronic health conditions. Find out more about how we collaborate with our partners on the [ORIGINS website](#).

For it to be valuable, our research needs to contribute to the global understanding of disease, influence policy and practice, build capacity and collaboration, and must have a direct effect on the lives of children, and we are already seeing this happen through ORIGINS. We are **ensuring our research is translated into real-life outcomes** that make a tangible difference to communities, now and in the future.

As well as enabling strategic long-term research capacity, **ORIGINS is a 'responsive' system with 'real-time' feedback** to parents and their children, and translation to clinical and diagnostic services. This opportunity to intervene early could potentially change the long-term health trajectory of these children.

When needed, ORIGINS provides **referral to appropriate services** for participants – mother, partners and infants. Examples of early identification and referral that we have assisted our families include developmental delay, allergic disease, unhealthy growth trajectory, sleep problems, as well as psychosocial and mental health issues.

Key activities in reporting period

- We have continued to build and support the **research capacity** of the ORIGINS team, and have continued to disseminate ORIGINS research activities, through publications and presentations.
- In the reporting period, **18 research papers** were published on ORIGINS related research.
- Of the **60 current or completed** nested sub-projects, **2,324** have direct contact with ORIGINS participants.
- Sub-projects that **completed all participant recruitment** during this reporting period include ACE Infant Feeding.
- Realtime, responsive feedback has enabled early identification of the following:
 - Positive skin prick test results:
 - 1 Year: 4 out of 40 (10%)
 - 3 Years: 68 out of 417 (16%)
 - 5 Years: 108 out of 369 (29%)
 Overall, **180** positive skin prick tests at the 1-, 3- or 5-year clinic appointments (i.e. approximately **22%** of the cohort seen).
 - Referrals by ORIGINS Paediatric team: 84 (i.e. approximately 9% of the cohort) paediatric referrals on identification of infant abnormalities such as developmental delays, including hearing, vision and speech.

- The IRON Child sub-project identified high rates of iron deficiency in children. One-third of 1-year-olds and two-thirds of 3-year-olds, raising important implications for early intervention and long-term neurodevelopmental outcomes.

Nested Studies: ORIGINS sub-projects

As well as ORIGINS long-term core research, there are multiple **clinical trials, early interventions and shorter-term research studies** that sit within ORIGINS. Known as sub-projects, these studies look at multiple aspects of child and family health and development. See recruitment numbers in tables below.

Study	Recruited	Recruitment Status
5 Year Developmental Follow-Up	284	Ongoing
ACE	98	Completed
ADAPTS	60	Completed
AERIAL/NOSE	466	Completed
BENEFIT	108	Completed
CARE-Dads	503	Completed
CASHEW	196	Completed
CEED	778	Completed
COCOON	419	Completed
CUB	103	Completed
Dental Screening	42	Completed
Early Moves	2301	Completed
ENGAGE	13	Completed
Flourishing Child	511	Completed
Flourishing in Fatherhood	312	Completed
Happy Parenting Program	18	Completed
IRON CHILD	220	Completed
Kindy Readiness	223	Ongoing
LONG COVID	73	Completed
Mast Cell	28	Completed
Mums Minds Matter	76	Completed
Nature Play and Grow	25	Completed
NEVISENSE	622	Completed
PLAN	57	Completed
PLANET	52	Completed
Positive Family Foundations	0	Withdrawn
PrEggNut	188	Completed
Refraction and Axial Length	78	Ongoing
SCREEN ORIGINS	57	Completed
SunPreg	48	Completed
SYMBA	652	Completed

TALK	501	Completed
Time out for Wellbeing	164	Completed
TUMS	197	Completed

Stakeholder and Community Engagement

At the heart of ORIGINS is a strong and engaged community of stakeholders who help shape our research priorities through challenges identified via extensive, ongoing consultation. This close collaboration – between participants, community members, policymakers, funders, researchers, and clinicians – has fostered a united voice that champions research-enabling platforms like ORIGINS. Their continued support has been instrumental in ensuring the program’s sustainability and growth, both nationally and internationally, within the early childhood and family health research landscape.

See key activities undertaken during the reporting period below.

Media Appearances

- **The West Australian**
 - [ORIGINS longitudinal project: Telethon funded health study in WA welcomes 10,000th baby participant](#)
 - [ORIGINS researchers start work on new early childhood tool to identify ‘flourishing’ kids](#)
 - [Why are toddlers anxious?](#)
- **7NEWS**
 - [A third of one-year-olds and up to two thirds of three-year-olds have low iron](#)
 - [A groundbreaking Perth study that follows a child’s health and development from birth will soon be used to create a resource for new parents](#)
- **9News**
 - [Custom mental health app empowers new mums with lifelong wellbeing skills](#)
 - [New evidence confirms that timely introduce of known allergens can significantly reduce an infant’s risk of developing food allergies](#)
- **ABC**
 - [ABC Mornings – Dr Jamie Tan discusses concerning findings on low iron levels in Australian children](#)
 - [ABC Mornings Perth](#) and [ABC Mornings Sydney](#) – Dr Norman Swan on Four Corners’ Generation Cancer episode and the importance of longitudinal cohort studies like ORIGINS
 - [Four Corners – Generation Cancer](#)
- **The Herald Sun**
 - [These Aussies are shaping our future. Here’s what it means to your family](#)
- **Research Australia**
 - [Low iron link to kids’ mental health and behaviour issues](#)
- **Medical Forum**
 - [Low iron among WA children: what doctor’s need to know](#)
- **The Health Report**
 - [Mapping the environmental exposures that impact human health](#)

Social Media

- **Participant Facebook Group**
 - 52 posts
 - 364 total members
 - 15 new members
 - 108 comments on posts
 - 363 reactions to posts
- **LinkedIn** – established November 2024
 - 440 followers
 - 51 posts
 - 1,610 clicks
 - 29,805 impressions
 - 925 reactions
 - 54 comments
 - 20 reposts
 - 78.3% of followers reside within Australia
 - Top 3 follower industries – Research Services, Higher Education, Hospitals and Health Care



Stakeholder Engagement

- The ORIGINS Participant Reference Group reviewed and provided their input on six new sub-projects.
- In April 2025, active ORIGINS participants took part in a Community Conversation to provide feedback and input into ORIGINS' 10-year strategic planning.
- ORIGINS hosted the Wanneroo & Surrounds Early Year Network meeting at The Kids Research Institute Australia where over 25 members heard updates from ORIGINS sub-projects and participated in discussion regarding future research projects and translation opportunities.
- In May 2025, various funders, clinicians, researcher and policy makers participated in a Stakeholder Workshop to help determine key stakeholder research priorities separate from consumers to influence ORIGINS' 10-year strategic plan

New Partnerships

Several new partnerships have been established over the reporting period, including the Lions Eye Institute, Ishar Multicultural Women's Health Centre, The Fathering Project, Minderoo Foundation, Ngala, Playgroup WA, Murdoch University and the WA Country Health Alliance.

ORIGINS is a community project with global implications; therefore, community collaboration is essential. We have created extensive relationships with a range of stakeholders and community groups and continue to work in **collaboration for mutual long-term benefit**.

We work closely within existing and newly established partnerships that allow us to spread our reach further, to achieve more and to learn from each other.

Staff, Volunteers and Students

Crucial to ORIGINS are the staff, volunteers, and students. They are the drivers of ORIGINS, led by the Project Directors and senior project management team. ORIGINS team members demonstrate passion and commitment generated from a strong belief in ORIGINS' vision and aims.

Staff

There are approximately **38** staff working within ORIGINS, many of whom work in a part-time capacity. This includes clinical, administrative, management, technical and research staff. Staff are employed through either The Kids Research Institute or Joondalup Health Campus via Ramsay Health Care. Meet the Management team on the [ORIGINS website](#). We actively work to **build ORIGINS team members capacity**, offering mentoring programs and professional development opportunities. Staff undertook a range of internal and external training opportunities during the year.

Students and Volunteers

- **35** students are **progressing manuscripts** for publication.
- **7** volunteers assisted data cleaning and research and translation.
- ORIGINS has supported **7** placement and/or internship students from Curtin University, UWA, McCusker Internship, and Princeton University (New York).



APPENDICES

Appendix One: ORIGINS Sub-Projects

Current & Completed ORIGINS Sub-Projects

Sub-Project	Type	Impact/Focus	Status 30 June 2025 (N)	Grant Value
5-Year Developmental Follow-up	Observational	Speech and language outcomes of 5-year-olds	Recruitment ongoing (284/600)	~\$35,000 <i>And in-kind (ORIGINS; ECU)</i>
A family's journey at JHC: Analyses of routinely collected data	Observational	JHC mother and father profiling	Ongoing	<i>ORIGINS internal sub-project</i>
ADAPTS: Antibiotic Dysbiosis and Probiotics Trial in infants	Randomised Controlled Trial	Gut health in infants	Recruitment completed (60)	~\$110,000
AERIAL: Airway Epithelium Respiratory Illnesses and Allergy	Observational	Asthma	Recruitment completed (466)	~\$3,660,000
BEACHES: Built Environments and Child Health in Wales and Australia	Observational	Built environment, physical activity and childhood obesity	Reviewing data	~\$800,000
BENEFIT: Breastfeeding and Eating Nuts and Eggs for Infant Tolerance	Randomised Controlled Trial	Reducing infant egg and peanut allergies	Recruitment Completed (108)	~\$180,000
The BioMood study: A PILOT study assessing the association between Mediterranean diet, microbiome, metabolome, inflammation and mental health during pregnancy	Observational	Diet, microbiome, inflammation and mental health	Commencing sample analysis	~\$40,000
C3H: Analysis of ORIGINS cohort data to detect fine-scale impacts of climate change on child health	Observational	Climate change and child health	Commencing data extraction	\$20,500
CARE-Dads: Cardiovascular Risk Evaluation in Expectant Fathers	Observational	Cardiovascular and mental health of fathers	Project completed (503)	~\$320,000 <i>And in-kind (ORIGINS)</i>
The Cashew Study: Introducing cashew nuts during infancy	Randomised Controlled Trial	Reducing infant cashew allergies	Recruitment completed (196)	~\$50,000 <i>And in-kind (ORIGINS)</i>
Colostrum Exclusivity for Early Development (CEED)	Observational	Allergies, nutrition, growth and development	Data analysis	~\$161,000
CLEAR: Climate-related exposures and hair cortisol concentrations among pregnant women in ORIGINS	Observational	Environment and Lifestyle	Commencing data extraction	~\$5,000

Sub-Project	Type	Impact/Focus	Status 30 June 2025 (N)	Grant Value
COCOON: The COVID Community compassion study: Assessing virus transmission, immunity development and wellbeing of families during COVID-19	Observational	COVID-19	Recruitment completed (419)	~\$150,000 <i>And in-kind (ORIGINS)</i>
ORIGINS Community Wellbeing during the COVID-19 Pandemic	Observational	Mental health during COVID-19	Ongoing	<i>ORIGINS internal sub-project</i>
CUB/Baby AICES - A randomised-controlled trial of a parent-mediated intervention for optimising social and communication development of newborns at increased familial risk of autism spectrum disorders	Randomised Controlled Trial	Parenting education and child development	Recruitment completed (103)	~\$41,000
Deciphering Bifidobacterium	Observational	Allergy, immunity, inflammation, nutrition, metabolism, environment, lifestyle, infections, vaccines and growth and development	Commencing sample extraction	~\$3,500,000
Dental screening: Tele-screening for early childhood caries detection during COVID-19 pandemic	Observational	Oral health	Recruitment completed (42)	~\$50,000
Diabetes during pregnancy and subsequent child development: A 3-year follow-up study	Observational	Diabetes	Commencing data extraction	~\$70,000
DreamStart: Exploring the Role of Infant Sleep in Early Childhood Development	Observational	Behavioural development	Analysis	<i>ORIGINS PhD Student Award</i>
Early Moves	Observational	Neurodevelopmental assessment of general movements in babies	Recruitment completed (2301)	~\$4,200,000
The Engage Study: Discovering and delighting in your baby (pilot)	Single arm intervention trial	Parenting education	Project completed (13)	\$615,000
Fertility: Examining subfertility in a prospective birth cohort	Observational	Fertility in a population pregnancy cohort	Ongoing	<i>ORIGINS internal sub-project</i>
The Flourishing Child (Phase 1)	Observational	Mental health and wellbeing, growth and	Recruitment completed (511)	<i>ORIGINS internal sub-project</i>

Sub-Project	Type	Impact/Focus	Status 30 June 2025 (N)	Grant Value
		development, and environment & lifestyle		
The Flourishing Child (Phase 2)	Interventional	Mental health and wellbeing, growth and development, and environment & lifestyle	Recruitment completed (511)	~\$750,000
Flourishing in Fatherhood	Observational	Cardiovascular and mental health of fathers	Recruitment ongoing (216/300)	~\$270,000
Gateway to Allergy Prevention	Observational	Food allergies, prebiotics	Commencing sample analysis and data extraction	~\$250,000
Generative AI	Observational	Artificial intelligence in disease recognition	Completed	~\$50,000
IRON Child	Interventional	Nutrition and health outcomes	Completed	<i>ORIGINS internal sub-project</i>
Kindy Readiness: Preschool readiness in the ORIGINS cohort	Observational	Development, wellbeing and readiness for kindergarten	Recruitment ongoing (223/5000)	<i>ORIGINS internal sub-project</i>
Mast Cell: Contribution of a novel mast cell subset to development of atopic disease	Observational	Allergies	Recruitment completed (28)	~\$100,000
Maternal and Child Mental Health: Examining the Pathways of Perinatal Maternal Mental Health that Influence Child Mental Health Outcomes	Observational	Maternal and child mental health	Commencing data analysis	<i>ORIGINS internal sub-project</i>
Maternal Diet Quality	Observational	Nutrition and metabolism	Commencing data analysis	~\$12,500
<u>Mediterranean Diet: The impact of a Mediterranean diet and physical activity in pregnancy on gestational weight gain and neonatal body composition at birth and weight at 1 year of age</u>	Observational	Diet and body composition	Completed	~\$10,000
<u>Mums Minds Matter: A three-arm pilot study of mindfulness vs self-compassion vs relaxation training for reducing stress and promoting wellbeing among pregnant women</u>	Interventional	Maternal mental health	Recruitment completed (76)	~\$23,000
Nature Play & Grow: A pilot study of a family-based intervention to	Interventional	Nature relatedness	Recruitment completed (25)	~\$75,000

Sub-Project	Type	Impact/Focus	Status 30 June 2025 (N)	Grant Value
improve child health and well-being				
NDD: ORIGINS of Neurodevelopmental Risk and Resilience Project Amendments	Observational	Neurodevelopment	Commencing data extraction	~\$230,000
Newborn Nasal Sampling Evaluation (NOSE) Study (Pilot study of AERIAL)	Observational	Asthma risk	Recruitment completed (141)	<i>Under AERIAL funding</i>
Parenting in Digital Age	Observational	Child screen use	WACHS Advanced Trainee project	~\$8,000
PEAPOD: Maternal and neonatal factors affecting neonatal body fat percentage	Observational	Overweight & obesity	Commencing data analysis	<i>ORIGINS internal sub-project</i>
Paediatric Burns: Understanding the long-term immune and metabolic impacts of paediatric burn trauma	Observational	Burns, infection & immunity	Data extraction & analysis	~\$120,000
The PLAN Project (pilot study): Pregnancy Lifestyle Activity and Nutrition	Randomised Controlled Trial	Overweight & obesity (mother and child)	Completed (57)	~\$275,000
PLANET Project: Plastics in Pregnancy	Observational	Plastic contamination in samples	Recruitment completed (52)	~\$380,000
Playgroup WA: Benefits beyond play: Investigating the Impact of Playgroups on Mental Health and Socio-Emotional outcomes in Parents and Children in The ORIGINS Project	Observational	Health and developmental benefits of attending playgroups	Commencing data analysis	~\$26,000
The PrEggNut Study: A Maternal diet rich in eggs and peanuts to reduce food allergies	Randomised Controlled Trial	Reducing infant egg and peanut allergies	Recruitment completed (188)	~\$124,000
Preschool ASD and Nutrition	Observational	Nutrition in Preschool Children with Autistic Behaviours	Commencing data analysis	~\$14,500
RAINE Comparison Study	Observational	Environmental and lifestyle changes in the antenatal population	Pending on MNS data for ORIGINS representativeness paper	<i>In-kind support and collaboration between 2 WA cohorts</i>
Refraction and Axial Length Trajectory	Observational and Interventional	Document eye growth patterns in children	Recruitment ongoing (78/500)	~\$150,000
A Respectful Approach to Early Parenting	Interventional	Developing the parent-child relationship	Recruitment ongoing (18/144)	~\$120,000
RHINO (Respiratory Outcomes)	Observational	Respiratory and Allergic Health Outcomes	Commencing data extraction	<i>In-kind support from ORIGINS</i>
Sleep and Iron Study	Observational	Iron deficiency and quality of sleep	WACHS Advanced Trainee project	~\$8,000

Sub-Project	Type	Impact/Focus	Status 30 June 2025 (N)	Grant Value
STARS	Intervention	Neurodevelopment	Recruitment to start	~\$2,000,000
Screen ORIGINS: Longitudinal study of the multidimension influences and impacts of contemporary screen technology use over the first 5 years of life (quantitative & qualitative)	Observational	Family screen technology use	Quantitative study: Completed Qualitative study: Recruitment completed (57)	~\$13,000
STORK: A pilot retrospective observational study to assess biomarkers of stress and serotonin pathways in pregnant women in ORIGINS	Observational	Maternal mental health	Commencing sample extraction	<i>In-kind support from Australian National Phenome Centre and ORIGINS</i>
The SunPreg Study: Measuring sun exposure in pregnancy and its association with the development of early childhood allergies	Observational	Benefits of sunlight exposure in pregnancy on maternal skin	Recruitment completed (48)	<i>Student project</i>
The SYMBA Study: Improving gut health (symbiosis) for allergy prevention	Randomised Controlled Trial	Reducing infant allergies	Recruitment completed (652)	~\$2,300,000
SYMBA-3	Observational	Reducing infant allergies	Awaiting data extract	~\$125,000
Testosterone and Language in Kids (TALK) Study	Observational	Cerebral lateralisation and early language development	Recruitment completed (501)	~\$700,000
Time Out for Wellbeing: an experimental study linked to the Mums Minds Matter Project	Observational	Maternal mental health	Recruitment completed (164)	~\$1,500
TUMS: Water quality and the microbiome study	Randomised Controlled Trial	Microbiome in infants	Recruitment completed (197)	~\$520,000
Ultrasound Image Measurement	Observational	Machine learning	Commencing image analysis	<i>In-kind support from ORIGINS</i>
Urinary Ferritin	Observational	Alternative biomarker in estimating iron in children	Commencing pilot study	<i>ORIGINS internal sub-project</i>
TOTAL FUNDING				~\$22,803,000

Additional indirect funding is incorporated within ORIGINS from PhD and other students. In total there are 17 students, including **13 PhD students** currently working on projects in ORIGINS.

During the reporting period, a total of **12 new sub-projects** were approved by the ORIGINS Scientific Committee and Project Management Group to be nested within ORIGINS. **8** have been successfully initiated, while **6** are pending funding, ethics and/or governance approval. An additional **10** sub-projects are currently under review and awaiting final approval from the Scientific Committee and Project Management Group.

For a detailed description of each of the current ORIGINS sub-projects visit [our website](#).

Appendix Two: ORIGINS Research Dissemination

Publications, Papers and Presentations

Publications

1. Beynon, A.M., Straker, L.M., Rasmussen, C.L., Hendry, D., Stearne, S.M., Zubrick, S.R...Zabatiero, J. (2024). Influence of maternal and infant technology use and other family factors on infant development. BMC Pediatrics, 24(690). <https://doi.org/10.1186/s12887-024-05165-4>
2. Davey, B., Billingham, W., Davis, J., Gibson, L., D'Vaz, N., Prescott, S., Silva, D. & Whalan, S. (2024) "Data resource profile: the ORIGINS project databank: a collaborative data resource for investigating the developmental origins of health and disease", International Journal of Population Data Science, 8(6). <https://doi.org/10.23889/pds.v8i6.2388>
3. Davis, J., Talati, Z., Whalan, S., Billingham, W., D'Vaz, N., Gibson, L., Prescott, S., & Silva, D. (2024). Cohort Profile: The ORIGINS Project pregnancy and birth cohort. International Journal of Epidemiology, 53(6). <https://doi.org/10.1093/e/dyae146>
4. Davis, J.A., Davey, B., Segers, Talati, Z., Silva, D., Prescott, S.L., & Gibson, L. (2025). The Flourishing Child: Understanding how Adults and Children Perceive Flourishing from the Start of Life. International Journal of Applied Positive Psychology 10(18). <https://doi.org/10.1007/s41042-024-00213-x>
5. Davis, J.A., Ohan, J.L., Bear, N., Gibson, L., Silva, D., Prescott, S. & Finlay-Jones, A. (2024). "Stop, pause and take a break": a mixed methods study of the longer-term outcomes of digital emotional wellbeing training for perinatal women. BMC Pregnancy Childbirth 24(811). <https://doi.org/10.1186/s12884-024-07002-z>
6. Divakara, N. (2024). Editorial comment "Effect of maternal prebiotic supplementation on human milk immunological composition: Insights from the SYMBA study" Pediatric Allergy Immunology, 35. <https://doi.org/10.1111/pai.70000>
7. D'Vaz, N., Bear, N., Tan, J., Whalan, S., Kidd, C. & Silva, D.T. (2025). Iron deficiency in young Australian children: A hidden health crisis demanding urgent action. Journal of Paediatrics and Child Health, 61. <https://doi.org/10.1111/jpc.70068>
8. Hancock, D.G., Kicic-Starcevic, E., Sondag, T., Rivers, R., McGee, K, Karpievitch, Y.V... Stick, S.M. (2024). Real time monitoring of respiratory viral infections in cohort studies using a smartphone app. iScience, 27(10)110912. <https://doi.org/10.1101/2024.04.03.24304240>
9. Kidd, C.D.A., Moumin, N.A., MacRae, A., Green, T.J., Silva, D.T., Prescott, S.L. & D'Vaz, N. (2025). Feasibility of home-based urine collection in children under 5 years in the ORIGINS birth cohort study: mixed method protocol and sample completion results. BMC Nutrition 11(11). <https://doi.org/10.1186/s40795-025-00993-8>
10. Divakara, N., Dempsey, Z., Saraswati, C., Garssen, J., Silva, D. T., Keelan, J.A., Christophersen, C.T., Cooper, M.N., Prescott, S.L., Palmer, D.J., Verhasselt, V. & Macchiaverni, P. (2024). Effect of maternal prebiotic supplementation on human milk immunological composition: Insights from the SYMBA study. Pediatric Allergy and Immunology, 35(e14226) <https://doi.org/10.1111/pai.14226>
11. Morais R., Tran, T., Alexander, C., Amery, N., Morgan, C., Spittle, A., Le, V., Badawi, N., Salt, A., Valentine, J., Elliot, C., Hurron, E.M., Dawson, P.A. & Venkatesh, S. (2025). Fine-grained fidgety movement classification using active learning. IEEE Journal of Biomedical and Health Informatics, 279(1). <https://doi.org/10.1109/JBHI.2024.3473947>

12. Moumin, N.A., D'Vaz, N., Kidd, C., MacRae, A., Zhou, S.J., Richards, T., Palmer, D., Grzeskowiak, L.E., Sullivan, T.R. & Green, T.J. (2024). Urinary Ferritin as a noninvasive means of assessing iron status in young children. *The Journal of Nutrition*, 154(9), <https://doi.org/10.1016/j.tjnut.2024.04.040>
13. Ooi, K.J., Fenton, S., Taylor, R., Hutchesson, M. K., Hinwood, M. & Collins, C. (2025). The relationship between potential *Listeria monocytogenes* exposure and diet quality and dietary intake during pregnancy: A cross-sectional analysis in Australian women. *Journal of Human Nutrition and Dietetics*, 38, e70032. <https://doi.org/10.1111/jhn.70032>
14. Palmer, D.J., Cuthbert, A.R., Sullivan, T.R., Pretorius, R.A., Garssen, J., Rueter, K., Jenmalm, M.C., Keelan, J.A., Silva, D., & Prescott, S.L. (2025). Effects of pregnancy and lactation prebiotics supplementation on infant allergic disease: A randomized controlled trial. *Journal of Clinical Allergy and Immunology*, 155(1), <https://doi.org/10.1016/j.jaci.2024.08.009>
15. Pannu, P. K., Scherini, A.J.J., Silva, D., & Whalan, S. (2024). The ORIGINS Project: A cross-sectional analysis of the nutrition profile of pregnant women in a longitudinal birth cohort. *Nutrients*, 16(15). <https://doi.org/10.3390/nu16152571>
16. Renouf, B., Sutanto, E.N., Kidd, C., Lim, J., Amin, M., Berry, L., Hoyne, G.F., D'Vaz, N., Kicic-Starceovich, E., Stick, S.M., Iosifidis, T. & the AERIAL study team. (2024). Profiling epithelial viral receptor expression in amniotic membrane and nasal epithelial cells at birth. *Placenta*, 160. <https://doi.org/10.1016/j.placenta.2024.12.029>
17. Stevens, R., Gorman, S., Arabiat, D., Christophersen, C. T., & Palmer, D. J. (2024). Associations between sun exposure, skin pH, and epidermal permeability in pregnancy: A longitudinal observational study. *Photochemistry and Photobiology*, 100(5). <https://doi.org/10.1111/php.13920>
18. Whalan, S., Pannu, P.K., Pretorius, R.A., Scherini, A.J.J., Gregory, S., Prescott, S.L. & Silva, D. (2025). ORIGINS: Nutritional profile of children aged one year in a longitudinal birth cohort. *Nutrients* 17(9). <https://doi.org/10.3390/nu17091566>

Presentations

1. Courtney Kidd (2024). Exploring health and disease trajectories from pregnancy through early childhood with the origins project. A collaborative research platform with centralised biobank-scale 'omic analyses in the pipeline [Poster presentation] Genemappers Conference, New Zealand
2. Desiree Silva (2024). ORIGINS cutting edge research opportunities at JHC [Oral presentation] Annual Research Symposium JHC, Perth
3. Desiree Silva (2024). ORIGINS: Research enabling platform in WA Clare Firth [Oral presentation] Minister Mark Butlers Office, Adelaide
4. Desiree Silva (2024). Early environmental exposures and childhood mental health: Cutting edge research opportunities in WA [Oral presentation] Western Australia ADHD Conference, Perth
5. Desiree Silva (2024). Discussion with Federal Ministers in Canberra on an Australian Child Research Platform: Gen A [Oral presentation] Canberra
6. Desiree Silva (2024). Cutting edge research in child health [Oral presentation] OMEP Australia
7. Desiree Silva (2024). The ORIGINS project update [Oral presentation] The Australian Society for Clinical Immunology and Allergy, Western Australian Immunology Day
8. Desiree Silva and Jackie Davis (2024). Development of the Thrive by Five alliance Action Plan [Oral presentation] Thrive by Five WA Alliance
9. Desiree Silva (2025). ORIGINS [Oral presentation] Child & Adolescent Community Health Research Seminar, Perth

10. Desiree Silva (2025). Research enabling platform for neurodevelopmental disorders [Oral presentation] 16th International Conference of the Pacific Basin Conference, Vietnam
11. Desiree Silva (2025). ORIGINS: Plastic Research Opportunities in Pregnancy & Child Health [Oral presentation] 16th International Conference of the Pacific Basin Conference, Vietnam
12. Desiree Silva (2025). Invited Speaker: International Women's Day [Oral presentation] Joondalup Health Campus, Perth
13. Desiree Silva (2025). Invited speaker: ORIGINS: Research Platform for doctors in training [Oral presentation] Obstetric and Gyn training WA, Perth
14. Emily Segers (2024). Flourishing in Fatherhood [Oral presentation] Ramsay Research Month, Perth
15. Jackie Davis (2024). The Flourishing Child: understanding the determinants of flourishing in the early years [Oral presentation] DOHaD ANZPac
16. Jackie Davis (2024). ORIGINS: A platform for research discovery [Webinar with Marie Rickert Hong] Documenting Hope: <https://documentinghope.com/about-us/>
17. Jackie Davis (2024). ORIGINS: A platform for research discovery [Oral presentation] Paediatrics and Population Health at New York University, United States
18. Jackie Davis (2025). ORIGINS and understanding engagement in digital wellbeing programs in the perinatal period [Oral presentation] Evidence Finders, UWA, Women's Reproductive Health, Perth
19. Jackie Davis (2025). STARS for kids: Strengths-based, Tiered, Accessible, Resources and Supports [Poster presentation] INRICH Workshop, United Kingdom
20. Lisa Gibson (2024). A pilot study to promote engagement in nature in pre-school children [Oral presentation] Public Health Association of Australia, Perth
21. Nina D'Vaz (2024). The ORIGINS Project: Analyses of inflammation, microbiome and metabolome in a West Australian longitudinal birth cohort [Poster presentation] International Congress of Mucosal Immunology, Denmark
22. Poonam Pannu (2024). The ORIGINS Project: Strengthening partnerships through nested research projects [Oral presentation] Public Health Association of Australia, Perth
23. Poonam Pannu (2024). ORIGINS study: Nutrition profile of pregnant women in a longitudinal birth cohort in Western Australia [Oral presentation] Nutrition Society of Australia, Sydney
24. Poonam Pannu (2024). The ORIGINS Project: A cross-sectional analysis of the nutrition profile of pregnant women in a longitudinal birth cohort [Oral presentation] Ramsay Research Month, Perth
25. Sarah Whalan (2024). The ORIGINS project: Nutrition profile of pregnant women in a longitudinal birth cohort in Western Australia [Oral and poster presentation] DOHaD ANZPac
26. Sarah Whalan (2024). The ORIGINS project: Nutrition profile of pregnant women in a longitudinal birth cohort in Western Australia [Oral presentation] CAHS Symposium, Perth
27. Sarah Whalan (2025). ORIGINS as an opportunity for research [Oral presentation] Acute & Disease Prevention in Children Research Group, ECU, Perth
28. Sasha Fenton (2024). Change in diet quality and dietary intakes from pregnancy to one year after birth: A longitudinal analysis in Australian women [Oral presentation] Health in Preconception, Pregnancy and Postpartum Early and Mid Career Researcher Collective (HiPPP EMR-C)
29. Sini Lambiase, Jo Cole, Bec Young and Jackie Davis (2025). STARS for kids & The Flourishing Child [Oral presentation] JHC Social Work Team, Perth
30. Sini Lambiase (2025). STARS CRE Event [Oral presentation] Sydney Children's Hospital Randwick, Sydney
31. Zenobia Talati (2024). The ORIGINS Project: Pregnancy and Birth Cohort Profile [Oral presentation] DOHaD ANZPac
32. Zenobia Talati (2024). Low iron among children within the ORIGINS birth cohort [Oral presentation] Public Health Association of Australia

33. Zenobia Talati (2024). Benefits beyond play: Investigating the impact of playgroups on mental health outcomes in parents from the ORIGINS cohort [Oral presentation] WA Psychological Science Conference, Perth
34. Zenobia Talati (2024). Low iron among children within the ORIGINS birth cohort [Oral presentation] Ramsay Research Month, Perth