The ORIGINS Project

Annual Performance Report

2021 - 2022

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Acknowledgements

We gratefully acknowledge that The ORIGINS Project is funded by the Paul Ramsay Foundation and the Commonwealth Government of Australia through the Channel 7 Telethon Trust.

originsproject.telethonkids.org.au

A HEALTHY START FOR A BETTER FUTURE

The ORIGINS Project acknowledges the 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 Kaurna Elders, their people and their land upon which we are located and seek their wisdom in our work to improve the health and development of all children.

Contents

The ORIGINS Project: NOW WE ARE FIVE

After setting out in 2017 to follow 10,000 children and their families over ten years, from their time in the womb to when they turn five years old, The ORIGINS Project (ORIGINS) has reached the midway point of the project, seeing the first group of five-year-old ORIGINS children 'graduating' from the study.

The ORIGINS Project, a collaboration between **Telethon Kids** and **Joondalup Health Campus (JHC),** and generously funded by the **Commonwealth Government through the Telethon Channel 7 Trust** and the **Paul Ramsay Foundation**, is looking to discover how a child's early environment influences the dramatically rising risk of chronic health conditions such as allergies, obesity, gut health, respiratory and mental health issues and neuro-developmental challenges.

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 **300,000 biological samples linked to 13M+ data points**. We are already learning so much from our families.

A HEALTHY START for a Better Future

The Aim of ORIGINS

The ORIGINS Project's aim is to improve the health of the next generation through a better understanding of how to optimise the early environment. Over a decade we aim to recruit 10,000 children, along with their families, when their mother is 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.

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, plasma and mononuclear cells) will build substantial additional future capacity to address critical questions (including genetic, epigenetic, metagenomic and metabolomic studies) as technologies and new avenues of investigation evolve.

Beyond the Five Years

Now that we are starting to see our first group of five-year-olds coming through the project, ORIGINS has been looking at how to keep in touch with these families to ensure we can embrace the opportunity to build on the rich data we have collected already. Analysis of longitudinal data is how ORIGINS will see the greatest outcomes of our research. We are asking our families to remain in contact with us and are investigating ways to undertake further ORIGINS research with these families.

Return on Investment

The ORIGINS Project 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 costs back into the Project, 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 the ORIGINS Project infrastructure has attracted independent grant funding in excess of $15 million **which represents an outstanding return on original investment in the ORIGINS Project.**

Annual Performance Report 2021-2022

This Annual Performance Report outlines the progress made and deliverables achieved during the reporting period 1st July 2021 to 30th June 2022.

The ORIGINS Project Current Status

Since The ORIGINS Project commenced in July 2017 (as at end of June 2022)

- The ORIGINS Project has welcomed **6,494 families**
- These families include:
  - **6,494** women (3,027 active and 3,467 non-active)
  - **7,206** babies (3,076 active and 4,130 non-active)
  - **2,191** partners (995 active and 1,196 non-active)
- That equates to **15,891 individuals**
- We have completed many valuable assessments with our families, including
  - **1,895** assessments on one-year infants (79% of all eligible 1-year olds)
  - **740** appointments with our three-year children (77% of all eligible 3-year-olds)
  - **30** 'Kids Checks' appointments with our 5-year-olds.
- The ORIGINS recruitment team has enrolled **1,051** mothers for two or more pregnancies
- Our **7,206** ORIGINS children are made up of **6,967** Singletons, **118** sets of Twins, **1** set of Triplets
- We have collected more than **300,000** biological samples
- The ORIGINS Biobank is one of the **largest Australian biological cohort collections**.
- We have collected more than **13 million** data points in the ORIGINS Databank
- **41** sub-projects have been integrated within ORIGINS, looking at multiple aspects of child and family health and development
- We have supported **17** ORIGINS students, including undergraduate Biomedical Science students undertaking placements with the ORIGINS Biobank; Honours students; Masters students; MD students undertaking scholarly research activities; College Projects by graduate doctors; and PhD candidates.
- Connected with over **500** national and international researchers who are actively engaged in ORIGINS.

An overview of ORIGINS Families in numbers

	Cumulative Total to end Jun 22			Financial Year Jul 21 – Jun 22	
MOTHERS	**Pregnancies**	**Unique**		**Pregnancies**	**Unique**
Active consented Mums	3297	3027		609	515
Non-Active consented Mums	4248	3467		1295	908
Withdrawn	177	174		18	6
Lost to follow-up	263	259		2	1
Total consented Mums	7545	**6494**	**Total Families in ORIGINS**	1904	**1423**

PARTNERS	**Pregnancies**	**Unique**	**Pregnancies**
Active consented Partners	1019	995	147
Non-Active consented Partners	1316	1196	223
Withdrawn	55	55	7
Lost to follow-up	16	16	0
Total consented partners	2335	**2191**	**370**

CHILDREN	**Singleton**	**Twins**	**Triplets**	**Total Children**	**Singleton**	**Twins**	**Total Children**
Active consented Children	2972	52	0	3076	692	9	710
Non-Active consented Children	3995	66	1	4130	1070	9	1088
Total Children	**6967**	**236**	**3**	**7206**	**1762**	**36**	**1798**

Highlights for the Year (30 June 2021 - 1 July 2022)

Recruitment

- **1,423 new families** were recruited into ORIGINS
    - **515** active families recruited and **908** non-active families
- **1,798 new children** joined ORIGINS in 2021-2022. 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.
- ORIGINS celebrated the oldest of our cohort children turning **five-year-olds.**
- Though there was a reduction in recruitment this year the team, **the impact of COVID** was unavoidable, and almost 1,500 families were still recruited.

Data Collection

- There was a focus on the ongoing development of our data system, the **DataHub** (**ORCA**), including dashboards to display real-time project data, ORIGINS p360 participant information, Data Dictionaries and Data Extract applications.
- Access was obtained to **Joondalup Health Campus paper medical files** to capture hand-written data regarding colostrum and breastfeeding as recorded by midwives. This allows greater capacity for collecting data on new mothers to enable comprehensive data capture.
- The **first sub-project data was returned** by Early Moves September 2021, followed by a SYMBA stool analysis data in December 2021.

Collaboration & Engagement

- **25** new members have joined one of the **ORIGINS Research Interest Groups**, the goal of which is to facilitate the development of rigorous, competitive, and inclusive applications, including research proposal and funding applications.
- The ORIGINS Project **5,000 Families Report** was created and distributed to over 450 stakeholders, celebrating our families and revealing an extensive cohort profile.
- ORIGINS was awarded a **$30,000 grant from the Telethon Trust Equipment Grant** this year to purchase an additional BOD POD, a piece of equipment that measures body composition, and a Nevisense tool that detects sub-cellular changes in the skin layers.
- ORIGINS took part in the **Telethon Beneficiaries Expo**, enabling engagement with more than 1,000 families.
- Three ORIGINS team members presented as part of the **Telethon Kids Institute Seminar Series: "ORIGINS: A Platform for Research Discovery"** with a focus on ORIGINS data and samples. Feedback was overwhelmingly positive with around 70 people in attendance in person and online.
- **16** research papers were published on ORIGINS and its sub-projects.
- **708** participants enrolled in one or more sub-projects = 9.4% of the whole cohort. **53** families were enrolled in 3 and **7** in 4 sub-projects.
- **Project adaptations and modifications** continued in response to the COVID-19 pandemic with minimal impact on project implementation.

Key challenges over the last 12 months and how these were addressed

- The team adapted to the continued impact of COVID, as well as the paediatrician shortage, and continued to conduct **virtual appointments**. The '**Kids Check'** model was introduced for many appointments, allowing the research team to continue to collect samples and conduct assessments, despite limited access to doctors.
- Covid restrictions impacted our ability to collect some samples, in particular we experienced a reduction in blood sample collections due to the limitation on face-to-face appointments. We implemented a home courier service in an attempt to increase our collections.
- The challenges of developing the **ORIGINS DataHub** have been ongoing. The team is continuing to work with Telethon Kids to address the significant challenge of integrating multiple sources of data in real time.
- As ORIGINS is a live cohort, **actively collecting participant data** and **releasing valuable health data** to researchers is an ongoing challenge that is being addressed.
- COVID restrictions meant **face-to-face events were not possible** (e.g. Coffee and Connect, Family Event), so alternative methods were used to maintain engagement of participants such as incentives, a thank you reward campaign for 'gold star' participants and an online webinar with Prof Desiree Silva, exclusive to ORIGINS families.
- In response to COVID restrictions, parents were encouraged to collect their own **buccal and saliva samples at home.** Everyone adapted well to this change and sample collection and allergy testing appointments became more efficient**.**
- A reduction in the number of families birthing at JHC and less face-to-face antenatal appointments at JHC has resulted in **lower than anticipated active participants recruited** over the past year.
- Staff working from home has meant **clinical liaison and engagement with the public and private internal staff and clinics hasn't been possible**. This has also impacted on recruitment of active participants this year.

- **Hospital redevelopment, parking and COVID restrictions** at JHC has made it difficult, and sometimes impossible, for ORIGINS participants to attend appointments**. A temporary space** to hold our 1-, 3- and 5-year assessments and biological sample collections was established in collaboration with the Perth Pregnancy Centre in Clarkson. Increased virtual appointments also assisted with this challenge.
- As ORIGINS transitions to the midway point of the project, with multiple participant touchpoints, including our new five-year-old cohort, **staffing capacity continues to be stretched**. This has been addressed through regular staff communications, staff development and team planning sessions.
- There is the ongoing challenge of **resourcing a complex, multi-site project**. General costs have escalated, and we are reforecasting our expenditure but will have to adjust and refine our project plans in line with the remaining funds. We are also seeking additional funding opportunities.

Project Opportunities for the next 12 months

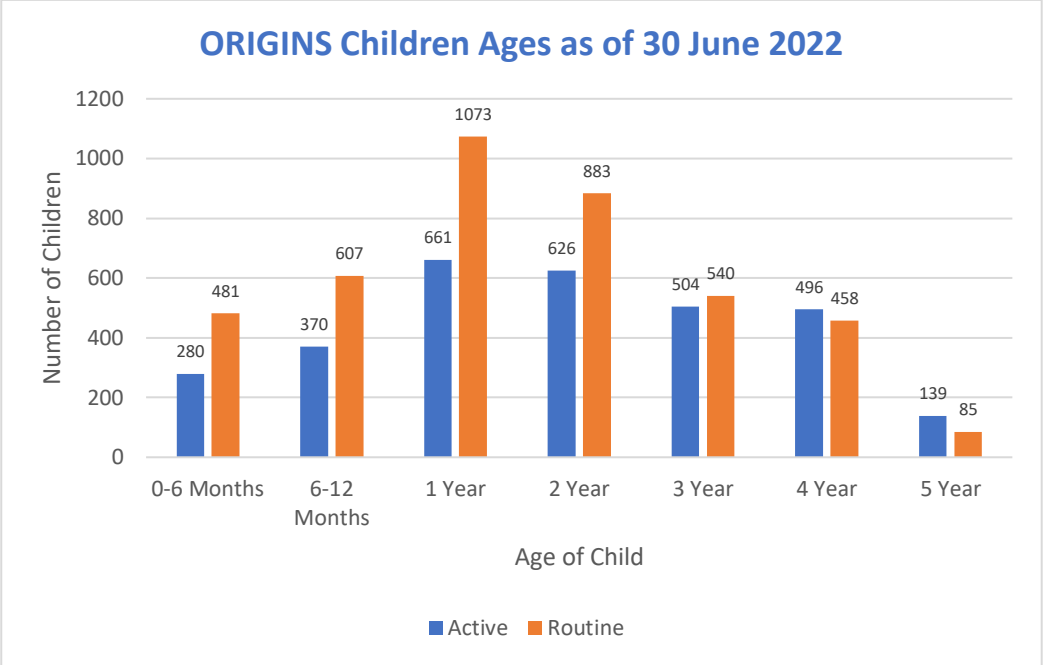
- ORIGINS will be spreading our wings and some of the team will be moving to **a new Telethon Kids Institute premises in Edgewater**. A shared facility with the CliniKids team, paediatric appointments and administration will be conducted from of the new purpose-built centre.
- We will continue to improve the **management and planning of current and future nested sub-projects** to ensure the highest standards of governance and collaboration.
- In the coming year, ORIGINS will be **commencing additional data collections** from:
    - Perth Radiological Clinic ultrasound Images
    - Perth Pregnancy Centre data
    - Department of Health WA
    - Department of Education WA
- As ORIGINS grows there is a requirement to **manage increasing volumes of data,** related to both inputs and outputs. We will increase data analyst capacity, as well as data extract provision.
- Our three- and five-year-olds have body composition measurements taken in a **'BOD POD'** at their three and five-year *Kids Check* appointments. The data taken from these measurements will be made available to other researchers as part of the ORIGINS Databank.
- A process is being introduced to **develop student projects** that align with key ORIGINS activities to facilitate onboarding and interest in student placements within the project.
- As COVID restrictions lift, we are hoping to **recommence our face-to-face events**, such as the Coffee & Connect sessions and the Annual Family Day to assist with ongoing engagement of participants.
- **The ORIGINS Smart App**, that has been in development for some time, will be finalised and rolled out of the to assist with participant engagement and communication.
- If COVID restrictions allow, we will host an **ORIGINS Forum event** to enable further collaboration with researchers, clinicians and community members and to showcase the project's achievements to date. We will also share results from sub-projects and promote the Data and Biobanks.
- An engagement and communication plan will be developed, focusing on **families post the five-year timepoint** to assist with retention of families for future follow-ups
- We will continue to explore and promote various recruitment avenues and strategies in the second half of 2022 to **recruit as many active participants as possible**.
- **Recruitment of active participant will cease** in December 2022.
- **Recruitment of non-active participants** will continue throughout 2023.
- Opportunities to seek additional funding to ensure we **follow up as many three- and five-year-olds** as possible.

Participant Recruitment & 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 2 for a more detailed explanation of active vs non-active ORIGINS participants)



Key Achievements in Reporting Period

- From July 2021-June 2022, **1,423 new families** were recruited into ORIGINS
  - **515** active families recruited and **908** non-active families
- **370** new partners (non-birthing family member) joined the project.
- **509** one-year-old appointments were completed within the 6 months from the appointment due date
- **387** three-year-old appointments were completed within 6 months from the appointment due date
- **29** five-year-old appointments were completed within 6 months from the appointment due date
- **46** families withdrew from ORIGINS in the 2021-2022 period. Overall, **174** families have withdrawn from the project since its commencement.
- Though there was **a reduction in recruitment** this year, nearly 1,500 new families were still welcomed to the study despite the impact of COVID.
- The team has been exploring **new and novel ways of recruiting participants** this year, such as social media, messaging on the HERACare app promoted through the antenatal clinic at JHC, and broader community promotion.
- In the final month of the financial year (June) recruitment numbers **increased to over 50 families per month** – this is encouraging.

Participant Consent Recruitment 2021-2022

Participant Recruitment (Number of Signed Consents)	July	Aug	Sept	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Total in reporting period	Project Cumulative Total
Active pregnancies consented	63	75	74	67	48	63	47	54	40	37	42	50	660	3526
Non-active pregnancies consented	134	147	138	111	131	113	96	124	85	87	81	77	1324	4035
	Total pregnancies consented:												1984	7561
Active partners consented	10	19	15	21	6	11	13	12	3	1	3	6	120	949
Non-active partners consented	52	57	39	1	1	14	21	17	11	10	14	6	243	1223
	Total partners consented:												363	2172
Active babies consented	56	78	58	52	55	54	54	50	48	40	33	48	631	3076
Non-active babies consented	105	142	106	136	107	70	91	120	85	79	81	79	1220	4130
	Total babies consented												1851	7206

ORIGINS Child Appointments: Active Participant Families Only

ORIGINS One-Year Appointments	July	Aug	Sept	Oct	Nov	Dec	Jan	Feb	March	April	May	June	Total 2021-2022
One-year appointment: expected based on birth date	40	49	40	69	65	38	55	63	65	51	46	64	645
One-year appointment: actuals at one-year	41	33	47	36	66	76	22	33	53	29	50	22	508
Percentage Completion	102.5%	67.3%	117.5%	52.2%	101.5%	200%	40.0%	52.4%	81.5%	56.9%	108.7%	34.4%	78.8%
ORIGINS Three-Year Appointments	**July 2021**	**August 2021**	**Sept 2021**	**Oct 2021**	**Nov 2021**	**Dec 2021**	**Jan 2022**	**Feb 2022**	**March 2022**	**April 2022**	**May 2022**	**June 2022**	**Total 2021-2022 FY**
Three-year appointment: expected based on birth date	35	48	43	45	42	36	48	48	29	46	37	44	501
Three-year follow up: actuals at three-year	32	38	50	55	38	33	23	21	23	31	31	11	386
Percentage Completion	91.4%	79.2%	116.3%	122.2%	90.5%	91.7%	47.9%	43.8%	79.3%	67.4%	83.8%	25.0%	77.0%
ORIGINS Five-Year Appointments	**July 2021**	**August 2021**	**Sept 2021**	**Oct 2021**	**Nov 2021**	**Dec 2021**	**Jan 2022**	**Feb 2022**	**March 2022**	**April 2022**	**May 2022**	**June 2022**	**Total 2021-2022 FY**
Five-year appointment: expected based on birth date										15	22	30	**67**
Five-year follow up: actuals at five-year										6	13	10	**29**
Percentage Completion										40.0%	59.1%	33.3%	43.3%

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

ORIGINS Biobank

The ORIGINS Biobank is collecting biological samples from participant families at 10 timepoints across five years. The Biobank currently contains over 300,000 samples and this will continue to grow to an estimated 700,000 individual samples by 2027.

Key Activities in Reporting Period

- Sample collections, including a comprehensive set of blood, buccal, saliva, urine, stool, hair and dust, are steadily growing. Accumulative figures are as follows;
  - **1,300, 1,600 and 2,400** collections at the 20-week, 28-week and 36-week gestation timepoints respectively.
  - **900** collections from non-birthing partners.
  - **1,800** collections at the time of birth with cord blood, placental samples, meconium and colostrum now being collected from several birthing hospitals across the Perth region
  - **1,000** individual sample collections at two months and six months of age, including urine, stool and breastmilk.
  - We have conducted **1,000** biological collections from our one-year-olds, **400** from our three-year-olds, and **20** from our five-year-old cohort – this includes bloods, stool and urine, and cheek swabs from some.
- While the **COVID pandemic has significantly challenged our biobank operations** with respect to in-person sample collections in particular, we have been working hard to find new ways to interact with our participants to keep the sample collections going. An increased interaction with our valued collaborators of medical couriers and pathology providers has significantly assisted our biobanking capabilities during periods of lockdowns and social restrictions.
- The ORIGINS Biobank comprises **one of the largest Australian cohort collections** and we are pleased to report this is now translating to **successful funding applications, analysis and publications:**
- In mid-2021, the ORIGINS Biobank gratefully **received $170,000 from the WAHTN Future Health fund** to support biobanking activities and longevity.
- In 2022, The Minderoo Foundation is generously supporting the Biobank to undertake a **quality control project,** which will enable large scale research into the effects of plastic exposure during pregnancy and infancy on children's physical and mental health and development
- Several sub-projects have released biological samples during 2021 and 2022 and we are expecting **biological results and publications** in the very near future relating to diet, virus exposure, use of antibiotics, chlorinated water, plastic exposure and burn injuries.

ORIGINS Databank

ORIGINS is collecting a wealth of administrative, biological, physiological, clinical and assessment data from the ORIGINS families. The data is collected over thirteen timepoints beginning from 20 weeks gestation through to five 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 to enable development and maintenance of a comprehensive longitudinal databank. Data provided to researchers is de-identified and encrypted.

ORIGINS Data Sources

The ORIGINS Project collects data from:

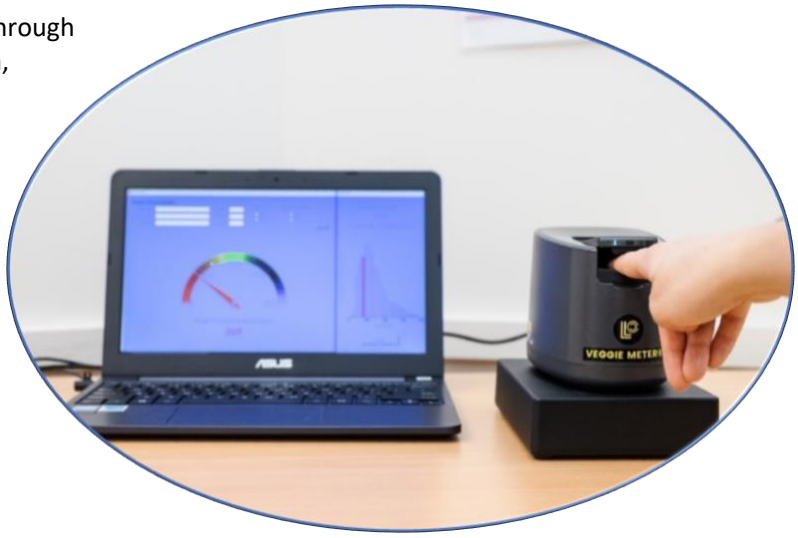
- Administrative sources
- Joondalup Health Campus
- ORIGINS core questionnaires
- Surveys including Australian Eating Survey, Connors Early Childhood Assessments, Ages and Stages Questionnaires, Strengths & Difficulties Questionnaires
- Clinical appointments

Data derived from samples ('omics data such as metabalomics, transcriptomics, proteomics) and microbiome analyses will need external supercomputing storage capabilities. All data are linked through unique identifiers in order to track individual participants as well as family units.

In 2021-2022 a total of 6,898 online questionnaires were completed by ORIGINS participants.

Key Activities in Reporting Period

- Ongoing development of a bespoke **ORCA Datahub** to integrate all ORIGINS data sources.
- Ongoing collection of data from ORIGINS participants at multiple ORIGINS timepoints, including completion of **3,465** ORIGINS core Questionnaires, **2,339** Ages and Stages Questionnaire; **416** Conners Early Childhood Questionnaires and **678** Australian Eating Surveys.
- Additional data collections via **hospital and healthcare provider interactions**, including antenatal care, ultrasound screening and specialist appointments.
- Provision of ORIGINS research data for **eleven** sub-projects.
- Ongoing development of an **ORIGINS SmartApp** to enable participants to book their own appointments, see where they are on the ORIGINS journey and also enable greater retention of participants by sending follow up reminders. The ORIGINS app will be launched later in 2022.
- The team refined the **length of the ORIGINS questionnaires** and adjusted the content to ensure relevance i.e. technology use questions were quickly outdated.
- With the first of our five-year-olds coming through the project, the Five-Year Kids Checks began, meaning development of **new data capture instruments**.
- The **Data Team expanded** this year to include Data Manager, Data Coordinators x 2, Data Officers x3, reflective of the increase in ORIGINS data collection and data production.



ORIGINS 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 these chronic health conditions.

Find out more about how we collaborate with our partners on the new **ORIGINS Project website – collaborators tab.**

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 it is 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

- Establishment of the Healthy Body Image Working group; with over **30** members including researchers, clinicians and community members.
- Review of **seven** new sub-projects by members of the ORIGINS Participant Reference Group, a further **four** have been approved by the ORIGINS Scientific Committee and Project Management Group and are awaiting commencement
- Of the **41** current or completed nested sub-projects, **28** have direct contact with ORIGINS participants.
- Sub-projects that **completed all participant recruitment** during this reporting period include Time Out for Wellbeing, SYMBA, Mums Minds Matter, Dental Screening, COCOON and ADAPTS.
- **25** new members have joined an ORIGINS Research Interest Group.
- A review took place of ORIGINS' **sub-project credentialing requirements** involving government agency consultation.
- We have continued to build and support the **research capacity** of The ORIGINS Project Team, and have continued to disseminate ORIGINS research activities, through publications and presentations.

Nested Studies – ORIGINS Sub-Projects

As well as ORIGINS long-term core research, there are a number of 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.

Sub-Project Recruitment Numbers Total

Study	Recruited
SYMBA - ORIGINS	471
TALK	501
CARE-Dads	503
CARE-Dads (1YR Check)	101
BENEFIT	108
CASHEW	193
PrEggNut	146
SunPreg	48
Nose	138
ENGAGE Pilot	13
Early Moves (Mothers Consents)	1558
ADAPTS	60
TUMS	192
COCOON	99
AERIAL	351
CUBS	37
Kindy Readiness Project	74
Timeout for Wellbeing	164
Mums Minds Matter	76
ACE	57
Dental Screening	43
Positive Family Foundations	0
Nature Play and Grow	23
PLANET	39

Sub-Project Recruited 2021-2022 FY

Study	Recruited
SYMBA - ORIGINS	12
PrEggNut	37
Early Moves (Mothers Consents)	539
COCOON	10
AERIAL	247
CUBS	19
Kindy Readiness Project	38
Timeout for Wellbeing	37
Mums Minds Matter	31
ACE **Missing June 2022*	57
Dental Screening	43
Nature Play and Grow	23
PLANET	39

Stakeholder & Community Engagement

ORIGINS is a community project with global implications; therefore, community collaboration is essential for the project. 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 continue to 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.

Key Activities during the reporting period

- ORIGINS Twitter page created **" @ORIGINSProject_"**
- ORIGINS Facebook group grew to **269 members**
- **Webinar**, exclusively for ORIGINS participants - **"ORIGINS Explore"** - was held, featuring Professor Desiree Silva; attended by 49 participants
- ORIGINS took part in a Telethon Kids Institute **Q & A Community Series** presentation at Joondalup Library, featuring Dr Jamie Tan; attended by 50 community members
- **Social media advertising campaign** was conducted to recruit participants. The campaign reached a total of 14,004 people, with a total of 46,953 impressions. 197 people clicked on the link to find out more, and the campaign generated 24 leads, 60% of which led to new recruitment.
- In a bid to replace the Coffee & Connect events that were not possible this year, we ran a campaign to thank ORIGINS participants offering a FREE Muffin Break e-voucher. This was very well received.
- **Re-engagement social media advertising** campaign launched – through **Facebook and Instagram,** aiming to re-engage participants who have missed timepoints.
- Monthly **Coffee & Connect** sessions were still held (between July 2021 and April 2022)
- Two team members hosted an ORIGINS booth and activities at the **Wandjoo Place Mental Health Week event in Merriwa** which resulted in engagement with approximately 30 families, and solidified relationships with other community groups in the northern suburbs, such as Playgroup WA and Ngala.
- An '**Art of ORIGINS' competition** was run with ORIGINS families, asking for children to submit artwork representing a choice of three health-related questions or depicting their favourite thing about being part of ORIGINS.
- **Five-year "graduation" certificate** was introduced for children attending their 5 year Kids Check
- **Posters encouraging families to have their child's blood taken** were created and displayed in clinic, which have assisted in increasing blood collection rates at paediatric appointments.

- ORIGINS team members participated in a **collaborative traditional indigenous art workshop** led by Djurandi Dreaming.
- The website was further developed with the addition of a comprehensive **"For Collaborators"** tab providing information for researchers, students and volunteers. Team profiles were also added, amongst other updates.
- **Media**: ORIGINS featured in The West Australian, Joondalup, Wanneroo and Stirling Times, Perth Now, CH9 news, CH7 News, Telethon CH7 coverage, ABC Radio, B&T magazine, Campaign Brief, The Stable, National Tribune, The Sector, SBS Insight program, as well as the social media channels of Telethon Kids, JHC, Ch 9, SBS, City of Wanneroo, WAHTN, Starlight Foundation, Minderoo Foundation, PCH Foundation, along with posts shared by many other collaborators.

- Visit the ORIGINS website for a comprehensive outline of the news throughout the year https://originsproject.telethonkids.org.au/news/

ORIGINS Staff, Volunteers & Students

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

Staff

- There are approximately **40** staff working within The ORIGINS Project, many of whom work in a part-time capacity. This includes clinical, administrative, management, technical and research staff. Staff are employed through either Telethon Kids Institute or Joondalup Health Campus via Ramsay Health Care. Meet the Management team on The ORIGINS Project website
- We actively work to **build ORIGINS Project Team members capacity,** offering mentoring programs and professional development opportunities. Staff undertook a range of internal and external training opportunities during the year.

Students & Volunteers

- **4** students are **progressing manuscripts** for publication.
- **5** students have **presented their research project and/or results at conferences** and other events and forums to report and share knowledge.

APPENDICES

Appendix One: ORIGINS Sub-Projects

Current & Completed ORIGINS Sub-Projects

Sub-Project	Type	Impact/Focus	Status 30 June 2202 (N)	Grant Value
A family's journey at JHC: Analyses of routinely collected data	Observational	JHC mother and father profiling	Ongoing	In-kind (JHC and TKI)
ACE Infant Feeding: Helping new mums to be better breastfeeders	Randomised Controlled Trial	Breastfeeding	Recruitment ongoing (57/100)	$75,000 (WA Department of Health)
ADAPTS: Antibiotic Dysbiosis and Probiotics Trial in infants	Randomised Controlled Trial	Gut health	Recruitment completed (60)	$111,700 (2019-2020)
AERIAL: Airway Epithelium Respiratory Illnesses and Allergy	Observational	Asthma	Recruitment ongoing (345/400)	$1,942,731 (NHMRC) $827,235 (NHMRC) $95,000 (Dept of Health WA Merit Award for NHMRC near-misses) $74,000 (WA Near-Miss Award (WANMA) $50,000 (Millennium Science and 10x Genomics)
BEACHES: Built Environments and Child Health in Wales and Australia	Observational	Built environment, physical activity and childhood obesity	Commencing data extraction	$797,256 (NHMRC)
BENEFIT: Breastfeeding and Eating Nuts and Eggs For Infant Tolerance	Randomised Controlled Trial	Reducing infant egg and peanut allergies	Recruitment Completed (108)	$68,616 (2017-2019) (The Financial Markets Foundation for Children) $110,290 (2018-2019) (Telethon Perth Children's Hospital Research Fund)
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	$38,000 (Science Sceptics of WA)
CARE-Dads: Cardiovascular Risk Evaluation in Expectant Fathers	Observational	Cardiovascular and mental health of fathers	Completed (503)	In-kind (JHC and TKI) $10,000 (CI contribution)
The Cashew Study: Introducing cashew nuts during infancy	Randomised Controlled Trial	Reducing infant cashew allergies	Recruitment completed (196)	$50,000 (2018-2019) (Australian Food Allergy Foundation)
COCOON: The COVID Community compassion study: Assessing virus transmission, immunity development and wellbeing of families during COVID-19	Observational	COVID-19	Recruitment ongoing (99/250 families)	$38,000 (RACGP) $113,594 (Wal-yan Respiratory Centre Funding Scheme)
ORIGINS Community Wellbeing during the COVID-19 Pandemic	Observational	Mental health during COVID-19	Ongoing	In kind (JHC and TKI)

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 ongoing (37150)	$1.1million (NHMRC Investigator Grant)
Dental screening: Tele-screening for early childhood caries detection during COVID-19 pandemic	Observational	Oral health	Recruitment completed (42)	$50,000 (FHRI Focus Grant)
Diabetes during pregnancy and subsequent child development: A 3-year follow-up study	Observational	Diabetes	Commencing data extraction	$69,033 (ECU strategic fund/ The SNM researcher support scheme)
Early Moves	Observational	Neurodevelopmental assessment of general movements in babies	Recruitment ongoing (1558/2000)	$2,256,750.20 (2019-2024) $446,773 (2019-2020) (Perth Children's Hospital Foundation) $242,919 (WA Child Research Fund 2018) $250,000 (CP Alliance) $1,000,000 (Mineral Resources)
The Engage Study: Discovering and delighting in your baby (pilot)	Single arm intervention trial	Parenting education	Completed (13)	$615,000 (2019-2022)
Fertility: Examining subfertility in a prospective birth cohort	Observational		On hold	
Gateway to Allergy Prevention	Observational	Food allergies, prebiotics	Commencing sample analysis and data extraction	$247,597 (WA Child Research Fund 2018)
Importance of Early Breastfeeding	Observational	Allergies, nutrition, growth and development	Commencing data extraction	$369,000 (NHMRC Idea Grant 2021) $161,290 (Channel 7 Telethon Trust)
Kindy Readiness: Preschool readiness in the ORIGINS cohort	Observational		Recruitment ongoing (66/5000)	In kind (JHC and TKI)
Machine Learning: Personalised, machine learning based prediction of asthma and allergies in Western Australia	Observational	Asthma and allergy	Ongoing	$134,192 (WA Child Health Research Fund)
Mast Cell: Contribution of a novel mast cell subset to development of atopic disease	Observational	Allergies	Recruitment ongoing (18/60)	$100,000 (Telethon Kids BHP BlueSky)
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	Observational	Diet and body composition	Completed	$10,000 (2019-2021) (Sceptics WA)

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	Interventional	Maternal mental health	Recruitment completed (76)	$23,510 (Telethon Kids Institute Think Big)
Nature Play & Grow: A pilot study of a family-based intervention to improve child health and well-being	Interventional	Nature relatedness	Recruitment completed (25)	In kind (JHC and TKI)
NDD: ORIGINS of Neurodevelopmental Risk and Resilience Project Amendments	Observational	Neurodevelopment	Commencing data extraction	$230,842 (WA Child Research Fund)
Newborn Nasal Sampling Evaluation (NOSE) Study (Pilot study of AERIAL)	Observational	Asthma risk	Recruitment completed (141)	Under AERIAL funding
PEAPOD: Maternal and neonatal factors affecting neonatal body fat percentage	Observational	Overweight & obesity	Commencing data analysis	In kind (JHC and TKI)
Paediatric Burns: Understanding the long-term immune and metabolic impacts of paediatric burn trauma	Observational	Burns, infection & immunity	Commencing data extraction	$117,450 (Fiona Wood Foundation)
The PLAN Project (pilot study): Pregnancy Lifestyle Activity and Nutrition	Randomised Controlled Trial	Overweight & obesity (mother and child)	Completed (57)	$24,821 (TKI Research Focus Area Seed Grant 2014) $250,000 (WAHTN MRFF)
PLANET Project: Plastics in Pregnancy	Observational	Plastic	Recruitment ongoing (25/50)	$379,000 (Minderoo Foundation)
Positive Family Foundations: Developing and assessing the efficacy of an intervention to enhance psychological wellbeing in families from pregnancy to infancy	Interventional	Parenting education	On hold	$2,000 (student project; Curtin University internal funds)
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 ongoing (141/200-300)	$100,000 (2019-2023) (part of a larger multi-site NHMRC Project Grant)
Raine Comparison Study: Environmental and lifestyle changes in the antenatal population over past three decades: A comparative study utilising Raine study and Joondalup Health Campus birth cohort data	Observational		Commencing data extraction	In kind (JHC and TKI)
A Respectful Approach to Early Parenting	Interventional	Parenting education	Recruitment to commence	$15,000 (ECU internal funds)
Screen ORIGINS: Longitudinal study of the multidimensional influences and impacts of contemporary screen technology use over the	Observational	Technology use (family)	Quantitative study completed (as many as possible) Qualitative recruitment completed (57)	$6,100 (Curtin School of Physiotherapy and Exercise Science Early research Grant; Curtin PhD Candidate Research Support Fund)

first 5 years of life (quantitative & qualitative)				
STORK: A pilot retrospective observational study to assess biomarkers of stress and serotonin pathways in pregnant women in The ORIGINS Project	Observational	Maternal mental health	Commencing sample extraction	Part funded by Science Sceptics of WA
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)	Student project
The SYMBA Study: Improving gut health (symbiosis) for allergy prevention	Randomised Controlled Trial	Reducing infant allergies	Recruitment completed (652)	$1,681,512.40 for 2016-2020 (NHMRC Project grant 2015) $200,000 (Telethon Perth Children's Hospital Research Fund 2014)
Testosterone and Language in Kids (TALK) Study	Observational	Cerebral lateralisation and early language development	Recruitment completed (501)	$415,000 (ARC 2015)
Time Out for Wellbeing: an experimental study linked to the Mums Minds Matter Project	Observational	Maternal mental health	Recruitment completed (164)	$1,500 (UWA Faculty of Health & Medicine; TKI student support)
TUMS: Water quality and the microbiome study	Randomised Controlled Trial	Microbiome	Recruitment completed (197)	$100,000 (BHP Blue Sky Awards)
Philanthropic donation towards ORIGINS research				$50,000 (Gavin Argyle - philanthropist)
TOTAL FUNDING				**$15,098,711.60**

Additional indirect funding is incorporated within The ORIGNS Project from PhD and other students. In total there are **14 PhD students** currently working on projects in ORIGINS with a combined current and projected funding of **$2,328,412.40.**

A further **nine new sub-projects** have been approved by the ORIGINS Scientific Committee and Project Management Group to be nested within ORIGINS. Five of these sub-projects have commenced, and four are awaiting funding, ethics and/or governance approval. A further **six sub-projects are 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: https://originsproject.telethonkids.org.au/sub-projects/

Appendix Two: ORIGINS Research Dissemination: Publications, Papers and Presentations

Publications

1. Andrew, L., Wallace, R., Wickens, N., & Patel, J. (2021). Early childhood caries and primary caregiver oral health literacy in Western Australia: A systematic scoping review. BMC Oral Health, 21(1). DOI: 10.1186/s12903-021-01887-4
2. Ashwin, D., Gibson, L., Hagemann, E., D'Vaz, N., Bear, N., & Silva, D. (2021). The impact a Mediterranean Diet in the third trimester of pregnancy has on neonatal body fat percentage. Journal of Developmental Origins of Health and Disease, 40, 3-9. DOI: 10.1017/S2040174421000556
3. Bell, L., Jongeling, B., & Silva, D. (2021). Western Australian private paediatric waiting lists survey. Journal of Paediatrics and Child Health, 57(8), 1346-1347. DOI: 10.1111/jpc.15614
4. Davis, J. A., Gibson, L. Y., Bear, N. L., Finlay-Jones, A. L., Ohan, J. L., Silva D. T., & Prescott, S. L. (2021). Can positive mindsets be protective against stress and isolation experienced during the COVID-19 pandemic? A mixed methods approach to understanding emotional health and wellbeing needs of perinatal women. International Journal of Environmental Research and Public Health, 18(13), 6958. DOI: 10.3390/ijerph18136958
5. Gibson, L. Y., Lockyer, B., Dickerson, J., Endacott, C., Bridges, S., McEachan, R. R. C., Pickett, K. E., Whalan, S., Bear, N. L., Silva, D. T., Prescott, S. L., & Davis, J. A. (2021). Comparison of experiences in two birth cohorts comprising young families with children under four years during the initial COVID-19 Lockdown in Australia and the UK: A qualitative study. International Journal of Environmental Research and Public Health, 18(1), 9119. DOI: 10.3390/ijerph18179119
6. Hadlow, N. C., Brown, S. J., Lim, E. M., Prentice, D., Pettigrew, S., Cronin, S. L., Prescott, S. L., Silva, D., & Yeap, B. B. (2022). Anti-Müllerian hormone concentration is associated with central adiposity and reproductive hormones in expectant fathers. Clinical Endocrinology, 1-9. DOI: 10.1111/cen.14725
7. Hood, R., Zabatiero, J., Silva, D., Zubrick, S., & Straker, L. (2021). "Coronavirus changed the rules on everything": Parent perspectives on how the COVID-19 pandemic influenced family routines, relationships and technology use in families with infants. International Journal of Environmental Research and Public Health, 18(23). DOI: 10.3390/ijerph182312865
8. Hood, R., Zabatiero, J., Zubrick, S. R., Silva, D., & Straker, L. (2021). The association of mobile touch screen device use with parent-child attachment: A systematic review. Ergonomics, 64(12), 1606-1622. DOI: 10.1080/00140139.2021.1948617
9. Hood, R., Zabatiero, J., Silva, D., Zubrick, S. R., & Straker, L. "There's good and bad". Parent perspectives on the influence of mobile touch screen device use on prenatal attachment. Applied Ergonomics, 28, 1-16. DOI: 10.1080/00140139.2022.2041734
10. Logan, A. C., Berman, B. M., & Prescott, S. L. (2021). Earth dreams: Reimagining ARPA for health of people, places and planet. International Journal of Environmental Research and Public Health, 18(23), 12788. DOI: 10.3390/ijerph182312788
11. Logan, A. C., Berman, S. H., Berman, B. M., & Prescott, S. L. (2021). Healing anthropocene syndrome: Planetary health requires remediation of the toxic post-truth environment. Challenges, 12(1), 1. DOI: 10.3390/challe12010001
12. Logan, I. C., Berman, S. H., Scott, R. B., Berman, B. M., & Prescott, S. L. (2021). Catalyst twenty-twenty: Post-traumatic growth at scales of person, place and planet. Challenges, 12(9), 9. DOI: 10.3390/challe12010009
13. Logan, A. C., Berman, S. H., Scott, R. B., Berman, B. M., & Prescott, S. L. (2021). Wise ancestors, good ancestors: Why mindfulness matters in the promotion of planetary health. Challenges, 12(2), 26. DOI: 10.3390/challe12020026
14. Perveen, K., Quach, A., Stark, M. J., Prescott, S. L., Barry, S. C., Hii C. S., & Ferrante, A. (2021). Characterization of the transient deficiency of PKC isozyme levels in immature cord blood T cells and its connection to anti-allergic cytokine profiles of the matured cells. International Journal of Molecular Sciences, 22(23), 12650. DOI: 10.3390/ijms222312650
15. Perveen, K., Quach, A., McPhee, A., Prescott, S. L., Barry, S. C., Hii, C. S., & Ferrante, A. (2021). Cord blood T Cells expressing high and low PKCzeta levels develop into cells with a propensity to display Th1 and Th9 cytokine profiles, respectively. International Journal of Molecular Sciences, 22(9), 4907. DOI: 10.3390/ijms22094907.

16. Pettigrew, S., Jingenelis, M. I., Cronin, S., Liyuwork, D. M., Silva, D., Prescott, S., & Yeap, B. (2022). Health-related behaviours and weight status of expectant fathers. Australian New Zealand Journal of Public Health, 46(3), 276-280. DOI: 10.1111/1753-6405.13216

17. Porter, P., Muirhead, F., Brisbane, J., Schneider, B., Choveaux, J., Bear, N., Carson, J., Jones, K., Silva, D., & Neppe, C. (2021). Accuracy, clinical utility, and usability of a wireless self-guided fetal heart rate monitor. Obstetrics & Gynecology, 137(4), 673-681. DOI: 10.1097/AOG.0000000000004322

18. Prescott, S. L. (2021). A world of inflammation: The need for ecological solutions that co-benefit people, place and planet. Veterinrary Dermatology, 32(6), 539-e149. DOI: 10.1111/vde.13013

19. Prescott, S. L., Wegienka, G., Kort, R., Nelson, D. H., Gabrysch, S., Hancock, T... Berman, B. (2021). Project Earthrise: Proceedings of the Ninth Annual Conference of in VIVO Planetary Health. International Journal of Environmental Research and Public Health, 18(20), 10654. DOI: 10.3390/ijerph182010654

20. Rueter, K., Jones, A. P., Siafarikas, A., Chivers, P., Prescott, S. L., & Palmer, D. J. (2021). The influence of sunlight exposure and sun protecting behaviours on allergic outcomes in early childhood. International Journal of Environmental Research and Public Health, 18(10), 5429. DOI: 10.3390/ijerph18105429

21. Srinivasjois, R., Tan, J., Silva, D., & Pereira, G. (2021). Gut microbiota modification in neonatal age group on the risk of respiratory tract infections in infancy: A systematic review and meta-analysis of randomized controlled trials. Journal of Evidence-Based Medicine, 14(4), 291-294. DOI: 10.1111/jebm.12459

22. Wang, A., Koleva, P., du Toit, E., Geddes, D. T., Munblit, D., Prescott, S. L., Eggesbø, M., Johnson, C. C., Wegienka, G., Shimojo, N., Campbell, D., Kozyrskyj, A. L., & Slupsky, C. M. (2021). The milk metabolome of non-secretor and lewis negative mothers. Frontiers in Nutrition, 7, 576966. DOI: 10.3389/fnut.2020.576966

Conference presentations

1. Azimi, S. (2022, February). Application of teledentistry in early detection of dental caries in young children [Poster presentation]. 5th Congress of the Iranian Association of Community Oral Health (CIACOH), Tehran, Iran.

2. D'Vaz, N. (2021, December). The PLANET Project: Plastic in Pregnancy Project [Oral presentation]. 2021 inVIVO Planetary Health, USA, Online presentation.

3. Davis, J. (2021, September). The ORIGINS Project: Creating an early life research platform for public health [Oral presentation]. Australian Public Health Conference 2021, Online presentation.

4. Davis, J. (2021, November). The ORIGINS Project: Profile of the first 5,000 families [Oral presentation]. Child and Adolescent Health Service Symposium, Perth, Western Australia.

5. Davis, J. (2021, November). The ORIGINS Project: Profile of the first 5,000 families [Oral presentation]. Joondalup Health Campus Research Week, Perth, Western Australia.

6. Davis, J. (2021, December). The ORIGINS Project: Profile of the first 5,000 Families [Oral presentation]. 2021 inVIVO Planetary Health, USA, Online presentation.

7. Davis, J. (2021, December). Can positive mindsets be protective against stress and isolation experienced during the COVID-19 Pandemic? Understanding emotional health and wellbeing needs of perinatal women in The ORIGINS Project [Oral presentation]. 2021 inVIVO Planetary Health, USA, Online presentation.

8. Divakara, N. (2022, March). Quantifying bioactive compounds in human milk that may have a role in allergy prevention [Oral presentation]. ASI Annual Scientific Meeting, Melbourne, Victoria.

9. Divakara, N. (2022, March). Quantifying bioactive compounds in human milk that may have a role in allergy prevention [Oral presentation]. AIMS Sepsis Meeting.

10. Divakara, N. (2021, October). Quantifying bioactive compounds in human milk that may have a role in allergy prevention [Oral presentation]. Joondalup Health Campus Research Week, Perth, Western Australia.

11. Divakara, N. (2021, November). Quantifying bioactive compounds in human milk that may have a role in allergy prevention [Oral presentation]. TKI Student Symposium, Perth, Western Australia.

12. Gibson, L. (2021, September). Comparing family experience in Australia and UK birth cohorts during COVID-19 lockdown [Oral presentation]. Australian Public Health Conference 2021, Online presentation.

13. Gibson, L. (2021, October). The ORIGINS Project: COVID-19 vaccine perception and intention in Western Australian families [Oral presentation]. Joondalup Health Campus Research Week, Perth, Western Australia.

14. Gibson, L. (2021, October). The ORIGINS Project: Consumer views on priority areas for research [Poster presentation]. Joondalup Health Campus Research Week, Perth, Western Australia.
15. Gibson, L. (2021, December). Listening to family views on priority areas for research: Lessons from the ORIGINS Project [Oral presentation]. 2021 inVIVO Planetary Health, USA, Online presentation.
16. Gibson, L. (2021, December). COVID-19 vaccine perception and intention in Western Australian families in The ORIGINS Project [Oral Presentation]. 2021 inVIVO Planetary Health, USA, Online presentation.
17. Hall, S. (2021, October). Early Moves Study: Early detection of developmental difficulties [Oral presentation]. Joondalup Health Campus Research Week, Perth, Western Australia.
18. Hood, R. (2021, December). Influence of the COVID-19 pandemic on family relationships and technology use [Oral presentation]. DOHaD World Congress 2022, Vancouver, Canada.
19. Parkin, K. (2021, August). The effect of domestic water quality on the development of the infant gut microbiome [Oral presentation]. Global Microbiome Conference, Perth, Western Australia.
20. Prescott, S. (2021, May). Promoting symbiosis and mutualism on all scales: From personal to planetary ecology [Oral presentation]. Nutricia Global Virtual Conference, Online presentation.
21. Prescott, S. (2021, July). Presentation at the East-West Integrative Medical Symposium for Immunology & Wellness [Oral presentation]. East-West Integrative Medical Symposium for Immunology & Wellness, New York, USA.
22. Prescott, S. (2021, July). Beyond exploitation – Reimagining life and health [Oral presentation]. Planetary Health Academy, Germany, Online presentation.
23. Prescott, S. (2021, July). Presentation at the 12th Greek National Pediatric Allergy Congress [Oral presentation]. 12th Greek National Pediatric Allergy Congress, Greece.
24. Prescott, S. (2021, August). Leadership in the new world: Planetary pediatrics and one health [Oral presentation]. International Society for Social Paediatrics and Child Health (ISSOP), Online presentation.
25. Prescott, S. (2021, October). Presentation at the St George and Sutherland Medical Research Symposium [Oral presentation]. St George and Sutherland Medical Research Symposium, Sydney, Australia.
26. Prescott, S. (2021, October). Presentation at the National Outdoor Health Online Symposium [Oral presentation]. National Outdoor Health Symposium, USA, Online presentation.
27. Prescott, S. (2021, October). Integrated ecological approaches to health of people, place and planet [Oral presentation]. Centric Health General Practice Conference, Dublin, Ireland.
28. Prescott, S. (2021, December). Thrive by five: For lifelong learning, behavior and well-being [Oral presentation]. inViVO Planetary Health 2021, Baltimore, USA, Online presentation.
29. Prescott, S. (2021, December). Introduction to the conference: Foundations for flourishing [Oral presentation]. 2021 inVIVO Planetary Health, USA, Online presentation.
30. Renouf, B. (2021, July). Profiling viral receptor expression in nasal epithelial and amniotic samples birth [Oral presentation]. Thoracic Society of Australia and New Zealand WA Annual Scientific Meeting, Perth, Western Australia.
31. Renouf, B. (2021, July). Profiling viral receptor expression in nasal epithelial and amniotic samples birth [Oral presentation]. Thoracic Society of Australia and New Zealand WA Annual Scientific Meeting, Perth, Western Australia.
32. Renouf, B. (2021, November). Profiling viral receptor expression in nasal epithelial and amniotic samples at birth [Poster presentation]. TKI Student Symposium, Perth, Western Australia.
33. Renouf, B. (2021, November). Profiling viral receptor expression in nasal epithelial and amniotic samples at birth [Poster presentation]. Child and Adolescent Health Services Symposium, Perth, Western Australia.
34. Renouf, B. (2021, November). Profiling viral receptor expression in nasal epithelial and amniotic samples at birth [Poster presentation]. Wal-yan Rottnest Scientific Retreat, Rottnest, Western Australia.
35. Renouf, B. (2021, November). Profiling viral receptor expression in nasal epithelial and amniotic samples at birth [Poster presentation]. SMHRC Conference, Perth, Western Australia.
36. Silva, D. (2021, August). The ORIGINS Project: Creating a research platform to increase research capacity to better understand Neurodevelopmental Disorders [Oral presentation]. NBPSA Annual Conference 2021: Children Developing Safely, Online presentation.

37. Starcevich, L. (2021, October). The AERIAL Study: Airway Epithelium Respiratory Illness and Allergy Study: Are babies born with a vulnerable airway epithelium? [Oral presentation]. JHC Research Week, Perth, Western Australia.
38. Starcevich, L. (2021, October). Airway epithelium and respiratory illnesses [Oral presentation]. JHC Research Week, Perth, Western Australia.
39. Starcevich, L., D'Vaz, N., Leslie, J., & Stick, S. (2021, November). Respiratory viruses in Western Australian families during the COVID-19 pandemic 2020-2021: Real time monitoring of viral infections using a smartphone application [Poster presentation]. Child Health Research Symposium, Perth, Western Australia.
40. Starcevich, L., D'Vaz, N., Leslie, J., & Stick, S. (2021, November). Respiratory viruses in Western Australian families during the COVID-19 pandemic 2020-2021: Real time monitoring of viral infections using a smartphone application [Oral presentation]. Wal-yan Rottnest Retreat, Rottnest, Western Australia.

Presentations - other

1. Davis, J. (2021, December). ORIGINS Community Wellbeing [Oral Presentation]. TKI Research Seminar, Western Australia.
2. Divakara, N. (2021, October). Quantifying bioactive compounds in human milk that may have a role in allergy prevention [Oral presentation]. PIG Meeting.
3. Fuller, E., D'Vaz, D., & Aniba, R. (2021, November). The ORIGINS Project & big data [Oral presentation]. TKI Seminar Series, Perth, Western Australia.
4. Fuller, E. (2021, November). The ORIGINS Project: A platform for research discovery [Oral presentation]. GenV Data Linkage Working Group, Perth, Western Australia.
5. Gibson, L. (2021, July). The ORIGINS Project: Community Wellbeing Project [Oral presentation]. TKI Connect, Perth, Western Australia.
6. Gibson, L. (2021, July). The ORIGINS Project: Community Wellbeing Project [Oral presentation]. WASEY Network Meeting, Perth, Western Australia.
7. Hendy, L., & Reynolds, J. (2021, December). The CUB Study [Oral presentation]. Community Health Nurses presentation, Perth, Western Australia.
8. Parkin, K. (2021, November). Investigating the effect of domestic water quality on the development and assembly of the infant gut microbiome [Oral presentation]. TKI Student Symposium, Perth, Western Australia.
9. Prescott, S (2021, July). Symbiosis on all scales – Integrating health of people, places and planet [Oral presentation]. IEM Seminar, Germany, Online presentation.
10. Prescott, S. (2021, September). Presentation at the Planetary Health Grand Rounds [Oral Presentation]. University of Alberta, Canada.
11. Reynolds, J. (2021, August). The Communicating and Understanding your Baby (CUB) Study and early support programs for kids on the autism spectrum [Oral presentation]. CHNWA Community Health Nurses of WA Let's Celebrate Seminar, Perth, Western Australia.
12. Silva, D. (2021, July). Thrive by five. Launch of Ted Talk [Oral presentation]. Perth, Western Australia.
13. Silva, D. (2021, July). Developing research at JHC [Oral presentation]. JHC, Perth, Western Australia.
14. Silva, D. (2021, July). The ORIGINS Project update and sustainability [Oral presentation]. Western Diagnostics, Perth, Western Australia.
15. Silva, D. (2021, July). ORIGINS sustainability and improving equity in the Northern suburbs [Oral presentation]. Joondalup Health Campus, Perth, WA.
16. Silva, D. (2021, August). Update on The ORIGINS Project [Oral presentation]. UWA Planning Day, Perth, Western Australia.
17. Silva, D. (2021, September). The ORIGINS project: Understanding, preventing and treating neurodevelopmental disorders [Oral presentation]. School Psychology Association, Perth, Western Australia.
18. Silva, D. (2021, October). The ORIGINS Project: Improving child wellness through 'a healthy start to life' [Oral presentation]. ADORE education evening, Perth, Western Australia.
19. Silva, D. (2021, December). The ORIGINS Project: A community interventional birth cohort to restore global health [Oral presentation]. PERKINS institute seminar series, Perth, Western Australia.
20. Verhasselt, V. (2022, February). A milky way to happy healthy kids: Would colostrum be the missing star [Oral presentation]. TKI Research Seminars, Perth, Western Australia.