



DEVELOPING A WORLD CLASS RESEARCH RESOURCE IN WA: THE ORIGINS PROJECT

Desiree Silva, Erika Hagemann, Lisa Gibson,
Jackie Davis, Ravisha Srinivas Jois, Jamie Tan,
Susan Prescott

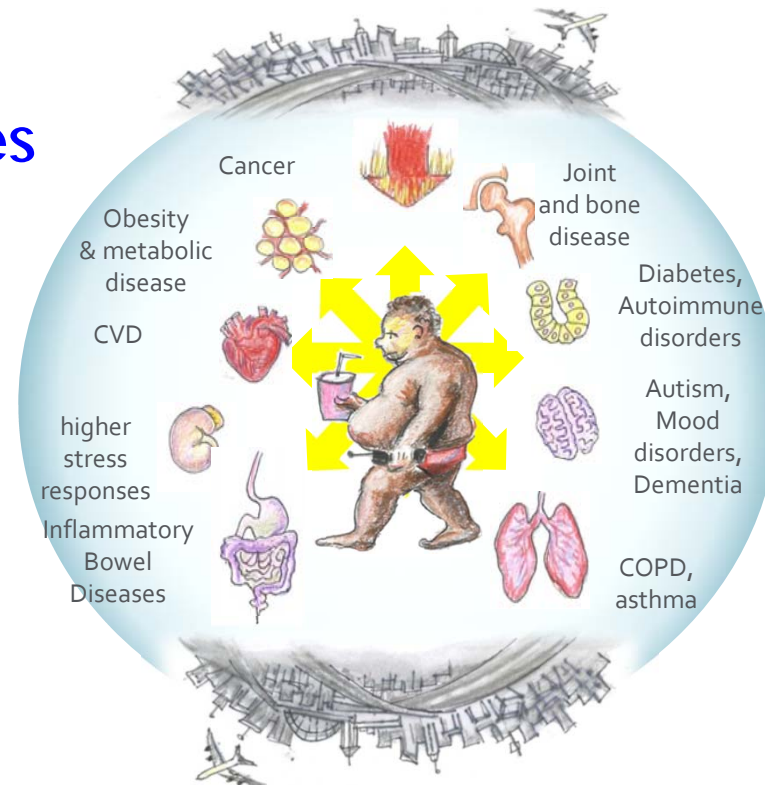


A Global Pandemic of Chronic NCDs

Chronic inflammatory diseases
of virtually all organ systems:

All dramatically increasing in
modern societies

A significant component of
risk for these NCDs is
programmed
early in life



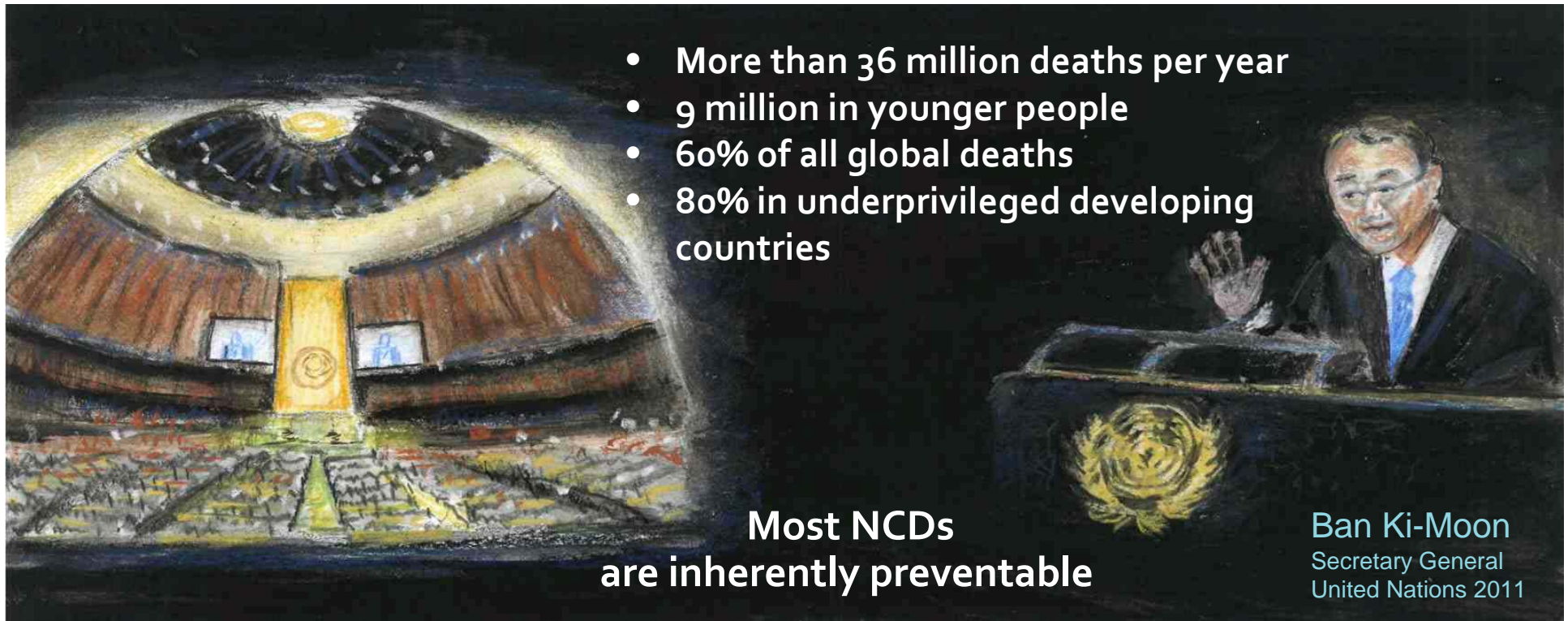
NCDs are a global threat to social and economic stability



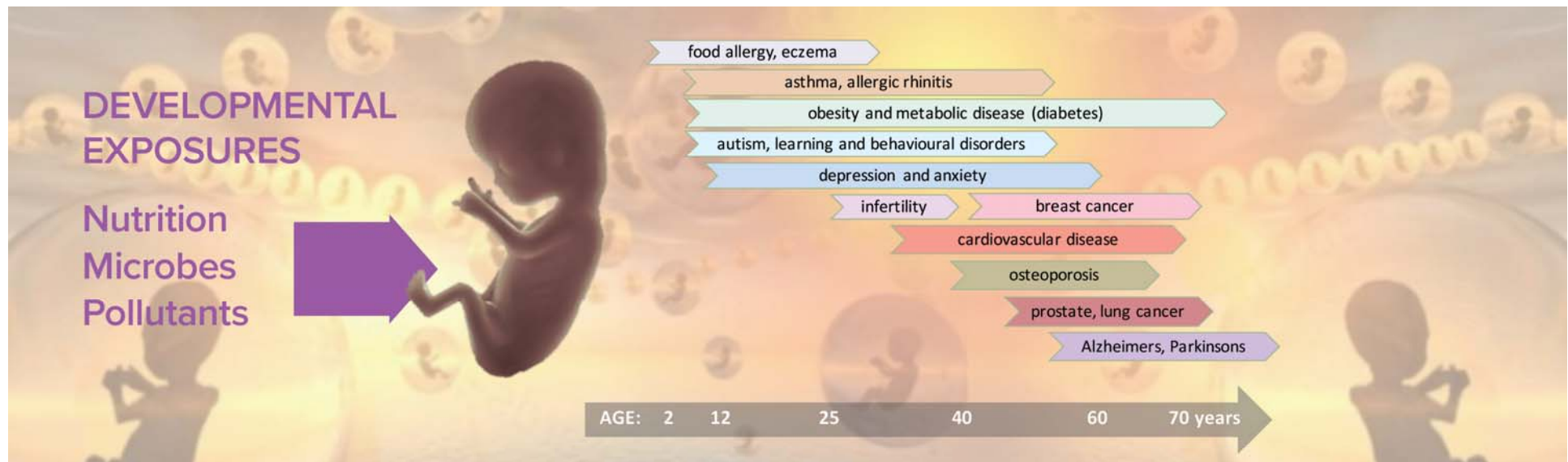
- More than 36 million deaths per year
- 9 million in younger people
- 60% of all global deaths
- 80% in underprivileged developing countries

**Most NCDs
are inherently preventable**

Ban Ki-Moon
Secretary General
United Nations 2011

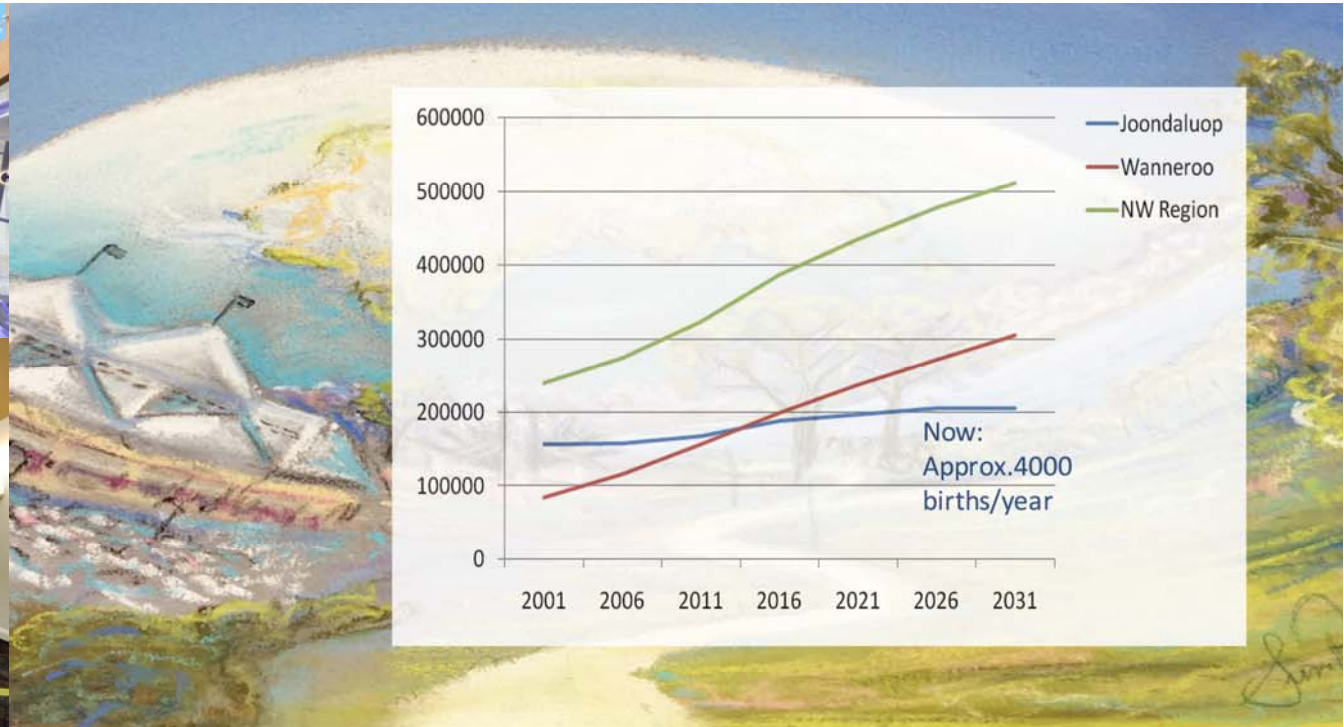


Examples of diseases that are developmentally programmed



The basis of 'DOHaD' a new health discipline (Developmental Origins of Health and Disease)

Joondalup-Wanneroo one of the **fastest growing** regions in Australia Increase in Child NCD's



ORIGINS PROJECT: Collaboration between Joondalup Health Campus & Telethon Kids Institute



A local Project with a Global Vision

Change begins in our community. We cannot underestimate the power or the importance of this



AIMS



1. To improve the health of the next generation through a better understanding of how to optimise the early environment, early identification to enable timely interventions.
2. Developing a robust biobank and databank including a data management system.
3. To initiate and integrate harmonised nested clinical trials within this framework.

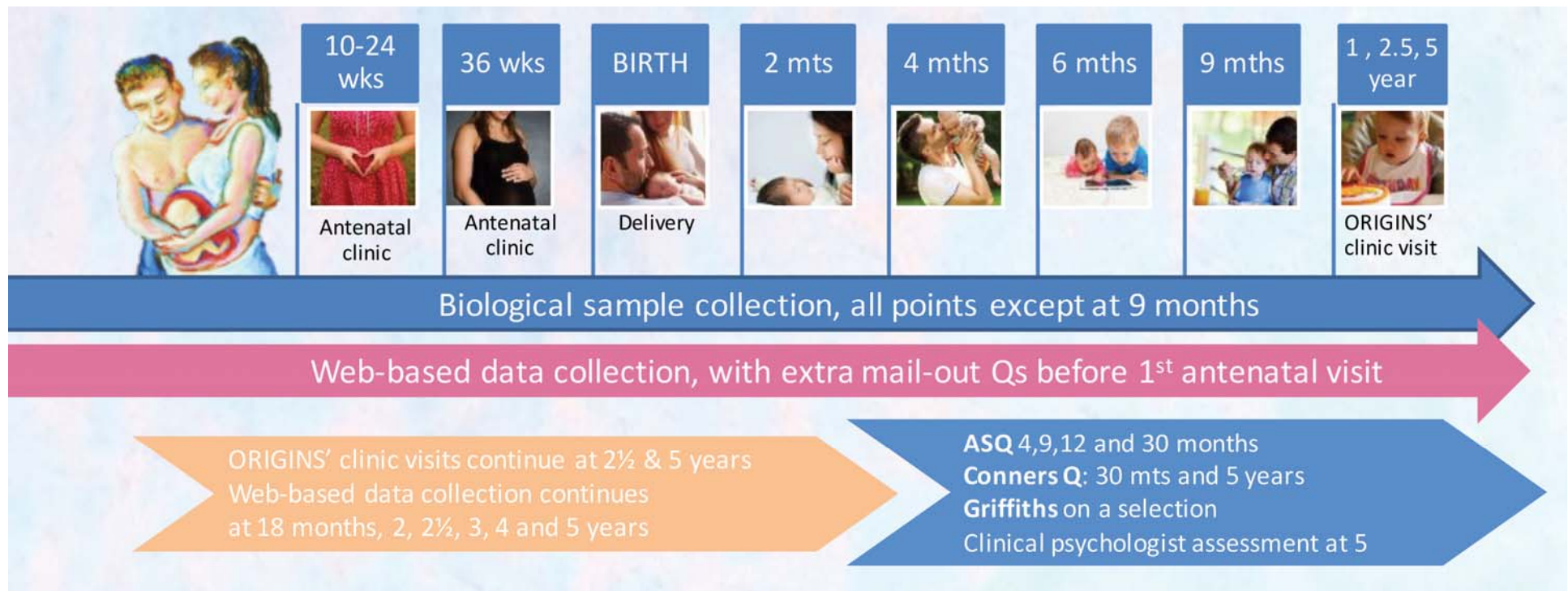
AIMS cont..

- 4 To understand the interaction of newly recognised exposures, such as the gut microbiome and utilise new technologies (such as epigenetics, metagenomics, metabolomics, proteomics) to further this field of research.
- 5 To integrate medical education, research and clinical care at Joondalup Health campus.



ORIGINS Data & sample capture points:

10,000 consent (5,000 deep sampling) follow for 5 years



Detailed Prospective Data Collections



Detailed early environmental data

- Maternal health and pregnancy data
- Diet and nutrition, breastfeeding
- Environmental pollutants, smoking
- Infections, vaccines, medications, IVF
- Nature Relatedness
Physical activity
- Work and sleep patterns, technology use
- Stress, social and economic circumstances

Biobank for biological measurements

- Genomics
- Epigenetics
- Metagenomics
- Metabolomics
- Stress Responses
- Immune Programming

Detailed clinical outcome measures

- Growth and adiposity
- Brain, behaviour, learning and development
- Metabolic and cardiovascular
- Sleep
- Asthma
- Dental health
- Eczema & food allergy
- Musculoskeletal health

Summary of Specimen Collections



Summary of Biological Sample Collection Events

	18 -24wks GA	32-36 wks GA	Birth	2 mths	4 mths	6 mths	1 yr	2.5 yrs	5 yrs
blood	M,F	M					C	C	C
saliva	M,F	M	F,C		M,C	C	M,C	C	C
buccal swab	M,F	M	F			M,C	M,C	C	C
stool	M	M	C	M,C	M,C	M,C	C	C	C
urine	M	M			M,C	M,C	C	C	C
house dust							M	M	M
hair							M,F		
cord blood			C						
placenta sample			C						
meconium			C						
colostrum			M						
breast milk				M	M	M	M		



ORIGINS Project Platform: 1/10 YEARS



20,000+
(‘no’ participant burden)

ORIGINS
COHORT
10,000

2,500



ROUTINE HEALTH CARE
biological and clinical data
collected from all pregnant
women

OBSERVATIONAL COHORT
Participate in ‘active’ follow-up:
with more intensive data
collection on early exposures,
clinical and biological outcomes
(e.g. questionnaires, blood, stools)

**INTERVENTIONS
(CLINICAL TRIALS)**
targeting specific high risk groups
(e.g. allergic women, obese
women, smoking women) with
separate consent. Women will be
given information for clinical trials
and screened for eligibility if they
are interested.

Linked to government (PBS)
and non government data sets

RESULTS

Current ORIGINS
1000 mums
400 babies
9 nested studies

2,114,991 data-points

37,626 aliquots



We are not going to just observe **NESTED STUDIES**



Testing early interventions for disease prevention with a series of integrated harmonised clinical trials



SYMBA
Allergic
disease

240/652



TALK
Brain
development

150/500



PLAN
Childhood
obesity

57/57



CARE-Dads
Paternal
health

100/1000

**Raine
comparison**

**Examining
sub fertility**

**Screen use
Technology**

**NOSE
Respiratory**

**Cashew nut
Allergies**

**BENEFIT
Breastfeeding**

Developing Creative interventions that positively change the 'exposome'

THE
ORIGINS
PROJECT



TELETHON
KIDS
INSTITUTE
Discover. Prevent. Cure.

Joondalup
Health Campus
Part of Ramsay Health Care

Nature
relatedness,
mindfulness
and positive
emotions.



Watch this space Personalised medicine Developing an OMICS platform



ORIGINS Research Interest Groups



•10 members

Fathering



•32 members

Mental Health and Well-Being



•22 members

Allergy, Immunity and Inflammation



•12 members

Physical Environment



•32 members

Nutrition and Metabolism



•10 members

P4 'Omics and Systems Biology



•6 members

Growth and Physical Development



To be formed

Child development, nature relatedness



To be formed

Fertility, Health Economics, Physical Activity/Lifestyle, Sleep, Respiratory

Engagement and Collaborations

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KIDS
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Discover. Prevent. Cure.

Western
Diagnostic
PATHOLOGY

Perkins
HARRY PERKINS INSTITUTE
OF MEDICAL RESEARCH

AUSTRALIA
ECU
EDITH COWAN
UNIVERSITY



Curtin University

PERTH
RADIOLOGICAL
CLINIC

City of
Joondalup

City of
Wanneroo

Playgroup
WA (Inc)

Cell Care
Storing stem cells for the future

FertilityNorth
Fertility & Endometriosis Treatment Centre
GynaeNorth

THE UNIVERSITY OF
WESTERN
AUSTRALIA

Perth
Children's
Hospital

MeerilingaTM
promoting positive childhoods

Government of Western Australia
Department of Health

Ability
Centre

Roche

Involving People In Research

WAPHA
WA Primary Health Alliance

earbus
foundation of WA
Hear Today, Shine Tomorrow

FIONA
STANLEY
hospital



Murdoch
UNIVERSITY

Ngala
Parenting with Confidence

Child and Parent Centre
Banksia Grove

Lions Eye Institute

WANNEROO & SURROUNDS EARLY YEARS
SUPPORTED BY THE
CITY OF WANNEROO

Consumer and Community Engagement and Collaboration

- Community reference group
- Participant reference group
- Community and consumer representation in the governance structure
- **'Coffee and Connect' sessions**
- Family fun day
- Newsletters





'Coffee and Connect' ORIGINS families

 Quinns-Mindarie Community Centre
2 Quinns Road, Mindarie

 9:30 – 11am
(staffed from 9am)

Term 1 dates:

-  Wednesday 14th February
-  Wednesday 7th March
-  Wednesday 11th April

 Venue sponsored by:  Tea, coffee and morning tea provided

 An opportunity to drop in and have a cuppa and chat with ORIGINS staff, professionals and parents

 Fun activities will be available for children to enhance their development through play



SUMMARY

A Major Showcase Project

With a community focus on preventing
Non-communicable diseases



“Developing Joondalup Health Campus/ Ramsay Heath Care as a globally recognised centre of teaching and research excellence”



WA News

Telethon 2017 Perth: \$26 million pledge by Prime Minister, foundation for children's health

Regina Titelius, PerthNow
October 22, 2017 12:00am

PERTH will host one of the nation's most comprehensive studies into chronic child health problems thanks to a combined \$26 million pledge last night to the Telethon Kids Institute and Joondalup Health Campus.



Thanks to the TEAM & FAMILIES

