



The Longitudinal Study of Australian Children  
**2011–12 Annual Report**

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*Growing Up in Australia: the Longitudinal Study of Australian Children: 2011–12 Annual Report* has been typeset by Lyn Lalor. The cover drawings are by children taking part in LSAC.

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## **Foreword from Professor Hayes Australian Institute of Family Studies**

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In August 2011 *Growing Up in Australia: the Longitudinal Study of Australian Children* (LSAC) achieved a major milestone with the release of the Wave 4 data. Australia now has large-scale national longitudinal data on children's development in the first decade of their lives. Such surveys offer opportunities to understand the nature and sources of developmental stability and change and how early experiences shape development not only in the middle school years but in late adolescence and adulthood as well.

This type of data can inform policymakers in their design of strategies to improve outcomes for children and in the optimal timing of preventive strategies and interventions. With four waves of data released and the fifth wave collected in 2012, LSAC is now reaching maturity as a longitudinal study of children's development. Subsequent waves will provide even greater insights as the children reach adolescence. The four waves of data that have been collected will afford researchers an opportunity to obtain a 'long view' of development that can enhance policy responses to critical transitions in the life course, such as starting primary or secondary school or parents' separation or divorce.

The Australian Institute of Family Studies (AIFS) continues to use and promote use of LSAC data in a variety of forums. For example, AIFS researchers Killan Mullan and Galina Daraganova used recent analyses to examine literacy in the home, and factors that influence reading in the childhood years, for a chapter on the home and family context in the ABS Year Book 2012. Overall, our research using the LSAC data attracted substantial media interest in the 2011-12 financial year: 380 mentions in newspapers and on the radio and television, and online.

The institute also promotes use of LSAC internationally. For another project it used LSAC data to explore links between family joblessness and child wellbeing. Findings were presented at an Australia-United States conference held in Canberra, Advancing Child and Family Policy through Research. The research subsequently appeared as a chapter in a book published by the US think tank the Brookings Institution.

AIFS has been involved in promoting cross-national comparisons in joint work with the Organisation for Economic Cooperation and Development (OECD). The first of these involved a five-country comparison study of the influence of maternal employment on the first year of a child's life and on children's development (Huerta et al. 2011). Also, Dr Ben Edwards and Dr Galina Daraganova are participating in the OECD's collaborative study 'Education and social progress', which involves comparative analyses of longitudinal data from 10 countries. The project is examining the role of cognitive and non-cognitive skills in fostering wellbeing and social progress in OECD countries. It will identify how such skills can be better developed in the formal and informal learning environments of family, school and the community. Data from LSAC will be one of the key bases for these analyses.

Given the extensive work needed to develop the LSAC survey, several organisations are requesting permission to use LSAC measures in other research projects. A notable example is the evaluation of the national rollout of the Home Interaction Program for Parents and Youngsters, a program to improve children's school readiness by enhancing parents' capacity to read to their children (Liddell, Barnett, Roost & McEachran 2011).

LSAC already has extensive data linkages with other administrative data. These include children's history of usage of Medicare services, the Pharmaceutical Benefit Scheme and the Australian Childhood Immunisation Register; and information about the quality of child care using data from the National Childcare Accreditation Council and, more recently, the National Assessment Program—Literacy and Numeracy (NAPLAN).

In future years, educational information from the My School website will be linked to the study to give an understanding of the school context of children's learning. For the birth cohort of the study, information from the Australian Early Development Index, a nationwide measure of readiness of children entering school in 2009, will also be linked to the data file. Data linkage at the individual level has been, and will be, conducted only with the consent of parents. To date, consent rates are very high.

There is much to be learned about children's development from the analyses of these linked data sets that can translate into policies to enable Australian children to play a productive and fulfilling role in Australian society.

LSAC has already made a significant contribution to public policy in Australia; future waves will create further opportunities to inform the design of effective policies and initiatives to enhance the wellbeing of Australian children.

Professor Alan Hayes AM  
Director  
Australian Institute of Family Studies

## Endnotes

- 1 Mullan, K & Daraganova, D 2012, 'Reading: the home and family context', in Pink, B (ed.) Australian Bureau of Statistics *Year Book, Australia, 2012*, Cat no. 1301.0, ABS, Canberra.
- 2 Gray, M & Baxter, JA 2012, 'Family joblessness and child wellbeing in Australia', in A Kalil, R Haskins & J Chesters (eds), *Investing in children: work, education, and social policy in two rich countries*, Brookings Institution, Washington.
- 3 Huerta, M, Adema, W, Baxter, J, Corak, M, Deding, M, Gray, MC, Han, W & Waldfogel, J 2011, *Early maternal employment and child development in five OECD countries*, OECD Social, Employment And Migration Working Papers No. 118.
- 4 Liddell, M, Barnett, T, Roost, FD & McEachran, J 2011, *Investing in our future: an evaluation of the national rollout of the Home Interaction Program for Parents and Yougsters (HIPPY)*, final report to the Department of Education, Employment and Workplace Relations.

In 2002, families from around Australia were invited to participate in a nationwide study of Australian children, *Growing Up in Australia: The Longitudinal Study of Australian Children (LSAC)*. A representative sample of 10,000 children took part in the study, which commenced in 2004.

## Sampling methodology

The Health Insurance Commission (HIC) selected the study sample from the Medicare database, one of the most comprehensive data bases of the Australian population. HIC drew the study sample from 300 randomly selected postcodes across Australia, stratified by state and territory, capital city statistical division/balance of state, and size of the target population in the postcode.

## Study design

The LSAC sample comprises two cohorts, each of approximately 5,000 children. During the first wave of data collection the B, or infant, cohort was aged 3-19 months and the K, or child, cohort was aged 4-5 years.

The multiple-cohort design of LSAC means that results are not specific to one cohort but can be generalised to other groups of children. LSAC's cross-sequential design means that there will be data on children of the same age from the two cohorts at different points in time.

## Scope and purpose

LSAC investigates the impact of children's family, social, economic and cultural environments on their development and wellbeing. A major aim of the study is to identify policy opportunities for improving support for children and their families and for intervention and prevention. The study is guided by key research questions that attempt to incorporate all aspects of a child's environment and development. The most important of these is the overarching research question:

What are the childhood experiences and conditions (from pre-natal, infancy, childhood, adolescence and adulthood) that impact on child, adolescent and adult outcomes and on trajectories of development? What are the mechanisms underlying linkages and interactions and how do these change over time? What factors and processes protect children from events or contexts that increase the risk of poor outcomes?

The factors referred to include:

- the prenatal environment
- child characteristics such as temperament, disabilities or illnesses
- childhood health and disabilities, and health service utilisation
- the nature of relationships that children form with parents, teachers and other important adults
- parental behaviour and wellbeing
- parenting behaviours

- the nature of relationships with peers and siblings
- significant environments such as the home, child care, school and neighbourhood
- socioeconomic circumstances.

The overarching research question is accompanied by 11 more specific ones:

1. What factors influence a child's physical health and development over time? What is the effect of physical health on a child's overall wellbeing and on other specific outcomes, and how does this influence change over time?
2. What is the nature and impact of family composition, relationships and dynamics on individual outcomes, and how do these relationships and their effects change over time?
3. What is the influence of parents' labour force participation, education and economic status on individual outcomes and how does this change over time?
4. What are the effects of non-parental childcare on individual outcomes (particularly those relating to social and cognitive competence, attachment, impulse control, and control of attention)? How do these experiences and influences change over time?
5. What experiences influence children's school engagement and achievement and what impact do they have on individual outcomes? How do these patterns and effects change over time?
6. What are the impacts of children's use of time on their individual outcomes in physical fitness and obesity, family relationships, social skills and learning? How does the impact of different patterns of time use change over time?
7. What impacts do child, parental and community beliefs, attitudes and expectations have on outcomes? How do the patterns and effects of these beliefs, attitudes and expectations change over time?
8. What characteristics of children, families and communities help children develop resilience and cope with transitions or adversity? How do these factors influence individual outcomes, and how do these influences change over time?
9. What social connections and support are available to families and children, and what impact do they have on individual outcomes? How do the impacts of these social connections and support change over time?
10. What are the impacts of broad neighbourhood characteristics and community connectedness, engagement, trust and violence on individual outcomes, and how do these impacts change over time?
11. What is the impact of intergenerational characteristics on individual outcomes, and how does this impact change over time?





## Study respondents

Study informants include the child (from the age of six), parents (both resident and non-resident), carers and teachers. Information from these participants is collected every two years using a range of methodologies. These include a face-to face interview and self-report by the child and one parent. The methodologies are reviewed for each collection to ensure that they protect the privacy of participants, respond to improvements in technology and reflect the increased capacity of the children to answer questions themselves. As children do more activities away from their parents, they report more information and the parent reports less; thus, the children are gradually becoming the primary respondents of the study.

## Mid-wave data collection

Following the first three waves of the study, abridged data collection was also conducted in the years between the biennial primary data collections (Wave 1.5, Wave 2.5 and Wave 3.5). These 'mid-wave' collections comprised short paper questionnaires on a limited range of topics.

A key purpose of the LSAC mid-wave activities is to maintain contact and engagement with the study participants. The activities—mail-out questionnaires to the primary parent (P1)—are also an opportunity to collect information on topics relevant to the developmental stage of the study children. However, response rates for these surveys were significantly lower than those of the main wave collections, and their continuing decline necessitated a review of this collection strategy. Table 1 provides details of the number of questionnaires sent and returned for each mid-wave collection and illustrates the decline in mid-wave response rates over time.

Table 1 Number of forms despatched and returned and response rate for mid-wave data collections							
No. of forms despatched				No. of forms returned (response rate)			
Wave	B cohort	K cohort	Total	B cohort	K cohort	Total	% of Wave 1 sample
1.5	5,061	4,935	9,996	3,573 (70.6%)	3,594 (72.8%)	7,167 (71.7%)	71.1
2.5	4,859	4,712	9,571	3,246 (66.8%)	3,252 (69.0%)	6,498 (67.9%)	64.5
3.5	4,772	4,641	9,413	3,012 (63.1%)	2,972 (64.0%)	5,984 (63.6%)	59.4

## Wave 4.5 data collection

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The poor collection response rates for Waves 1.5 to 3.5 meant that the data were not well utilised by researchers and prompted a review of the mid-wave collection strategy. This resulted in the Wave 4.5 collection activity changing from a paper-based data collection exercise to internet-based capture of respondent contact details. This was an opportunity to improve LSAC's respondent-tracking capability and trial alternative modes of data collection for possible use in future main waves.

The collection methodology required participants to log on to a secure enclave to check and update their contact details, which included address, email, and fixed and mobile phone numbers.

The online site also invited respondents to provide feedback on the usefulness of various study updates and newsletters that they receive. In response, 48 per cent of parents reported that they found the annual study newsletters useful. Significant numbers of parents also found quarterly study updates (44 per cent) and the annual calendar (39 per cent) useful.

The attitude of the study child to their involvement in the study was also explored: 72 per cent of parents reported that their child either liked or strongly liked participating in the study.

The enumeration period for Wave 4.5 was September to December 2011. There was a response rate of 59 per cent from the starting sample of 8,875.

The collection methodology of Wave 5.5 is expected to be similar to that of Wave 4.5. This will allow the study partners to continue refining their online communication with study families and increase the engagement of all involved in the study.

## Wave 5 data collection

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Wave 5 data collection began in March 2012 and was completed in early 2013. During this wave, the B cohort children are 8 to 9 years of age and K cohort children are 12 to 13 years of age.

The data collection procedures for Wave 5 were the same as those used for Wave 4. Home interviewing comprised separate, concurrent interviews with the study child and the parent identified as the primary caregiver (Parent 1). The interview consists of face-to-face interviews and computer administered self-interviews for both participants. In addition, the other parent/caregiver in the home (Parent 2) answered a paper questionnaire, either during or after the home interview. In the case of separated families, a short telephone interview was conducted with the parent living elsewhere. All children's teachers were sent a paper questionnaire to complete.

In Wave 5, families continued to have the option of completing elements of the interview in a short, computer-assisted telephone interview (CATI) before the home visit. CATI was introduced in Wave 4 to provide greater interview flexibility for busy families. Feedback from study parents indicates that they appreciate this option.



## Study child

Besides the face-to-face interview and the audio computer assisted self-interview (ACASI), the interviewer obtains measurements of the child's height, weight and body fat.

At each wave, questionnaires are reviewed and modified to ensure that they capture information relevant to current and emerging policy and environmental developments and that they remain age appropriate. LSAC therefore attempts to measure the broad range of aspects of adolescent development to understand what affects the longer term outcomes of the individual. In Wave 5 the following new content was included in the ACASI component for study children aged 12 to 13:

- romantic relationships
- drug taking
- alcohol use
- additional questions on bullying and victimisation
- discrimination
- peers.

## Parent living elsewhere

Parents who live in a household separate to the study child, or 'parents living elsewhere (PLE)', are interviewed by phone. Topics in the Wave 5 interview included:

- household information
- child support payments
- custody arrangements
- shared parenting arrangements
- study child behavior when with PLE
- level of PLE's involvement with study child (including decision-making)
- relationship with Parent 1
- level of schooling of PLE
- PLE health and wellbeing
- family of origin of PLE.

## Teacher

Additional information is collected through questionnaires dispatched to the study child's teacher. In Wave 5 the majority of the K cohort has moved from primary to secondary school, in most instances resulting in an increase in the number of teachers involved in the children's schooling. In Wave 5 the child's English teacher is asked to answer the questionnaire for K cohort children. Wave 5 data will be analysed to determine the success of this collection model.

## Wave 6 content development

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Development of questionnaire content for Wave 6 began in early 2012 and continued into 2013. This content will reflect the increasing age of the children, particularly the K cohort, who will be 14 to 15 years old in Wave 6. In Wave 6 the B cohort children will be 10 to 11 years old.

In Wave 6, the B cohort will be introduced to ACASI, as was the K cohort when of the same age. Parents remain the major source of information for the study and answer the majority of the questions. However, as the study children move through adolescence, they will gradually take on an increasing role as study informants.

### Engagement strategies

As in any longitudinal study, minimisation of LSAC attrition is important. To maintain response rates LSAC continually engages with the respondents to keep up their interest and demonstrate the use made of their data and the importance of this nationally representative study. LSAC has a range of approaches to maintain contact with study families and to foster their commitment to the study. Some communication and engagement strategies are as follows:

- The LSAC website gives an overview of the purpose, scope and progress of the study. It is also an access and information portal for data users and has links to LSAC-related publications and research.
- Tailored newsletters are mailed to the parents of B and K cohort children twice a year. The newsletters provide details of development of the study, including information on the structure of the upcoming interview. They also include references to recent research using LSAC data and selected examples of aggregated data.
- Age-tailored biennial newsletters are sent to B and K cohort children. The newsletters include information derived from the study, information about the structure and scope of the upcoming interview, and puzzles and activities.
- Birthday cards are sent to each study child.
- The LSAC calendar, which includes artwork and quotes by study children, is made available to study children.

Parents and study children also receive small gifts of appreciation for participating in the study. In past waves, parents have received fridge magnets, shopping lists, cooler bag, mouse mat and gym bag.

Examples of recent gifts to study children are gel pens, wallet, pedometer, earphones, and store gift card.

# Key personnel

## FaHCSIA Management Team

FaHCSIA has overall responsibility for management of LSAC, on behalf of the Australian Government.

### FaHCSIA Project Owner

Carol Ey (2011)  
Dr Judy Schnieder (2011/12)

### Secretariat Manager

Ms Helen Harkin

### Section Manager

Dr Helen Rogers

### Project Officer

Ms Amanda Knight

### Senior Research Analyst

Dr Helene Shin

### Secretariat

Ms Elaine Teran

### Assistant Section Manager

Mr Leo Bild

### Graduate Project Officers

Ms Sarah Lohoar (2011)  
Ms Emily Dann (2012)

## AIFS Management Team

AIFS manages the development of the study content and design, and the output of study data.

### AIFS Project Owner

Dr Daryl Higgins

### LSAC Data Administrator

Mr Mark Siphthorp

### Executive Manager Longitudinal Studies

Dr Ben Edwards

### Research Fellow / Data Manager

Dr Galina Daraganova

### Design Manager

Dr Jacqueline Harvey

### Senior Research Officer

Ms Brigit Maguire  
Ms Jennifer Renda (2012)

### ABS Management Team

ABS has responsibility for management of the LSAC sample and for data collection.

**ABS Project Owner**  
Mr Bob McColl

**LSAC Content and Survey Instrument Manager**  
Ms Karen Mornement

**Director**  
Ms Michelle Marquardt

**LSAC Field Manager**  
Ms Jennifer Gallagher

**LSAC Field and Development Manager**  
Ms Joanne Corey  
Ms Kym Byars

**Project Officer**  
Ms Leesa McNaughton  
Ms Melieta Bianchi  
Ms Emma McKinnon  
Ms Melinda Trickey  
Mr Christopher Hoitnik

### Consortium Advisory Group

The LSAC Consortium Advisory Group has input into the design and development of the study and provides technical advice on child development, survey methodologies, survey instruments, and data dissemination and analysis.

Professor Stephen Zubrick (Chair)  
Telethon Institute for Child Health Research  
University of Western Australia

Dr Bruce Bradbury  
University of NSW

Professor Ann Sanson  
(Principal Scientific Advisor)  
University of Melbourne

Associate Professor Linda Harrison  
Charles Sturt University

Dr John Ainley  
Australian Council for Educational Research

Professor Jan Nicholson  
Parenting Research Centre

Professor Donna Berthelsen  
Queensland University of Technology

Professor Bryan Rodgers  
Australian National University

Professor Michael Bittman  
University of New England

Professor Michael Sawyer  
University of Adelaide

Associate Professor Lyndall Strazdins  
Australian National University

Professor Graham Vimpani  
University of Newcastle

Professor Melissa Wake  
Murdoch Childrens Research Institute  
Royal Children's Hospital, Melbourne



### Consultants

Dr Peter Azzopardi

Murdoch Childrens Research Institute

Royal Children's Hospital, Melbourne

### Data Expert Group

The group's role is to recommend or review the study's data management processes and to advise on issues relating to data manipulation.

Professor Stephen Zubrick (Chair)  
Telethon Institute for Child Health  
Research

Mr Stephen Horn  
Department of Families, Housing, Community  
Services and Indigenous Affairs

Professor John Carlin  
Murdoch Childrens Research Institute

Mr Mark Siphthorp  
Australian Institute of Family Studies

Dr Ben Edwards  
Australian Institute of Family Studies

Associate Professor Gerry Redmond  
Social Policy Research Centre

Dr Sheldon (Sam) Rothman  
Australian Council for Educational  
Research

Mr Alistair Rogers  
Australian Bureau of Statistics

Academic and government use of LSAC data continued to grow during 2011-12, with over 550 registered LSAC data users across Australia and overseas. In the past year, over 45 LSAC-based journal articles and reports were published and approximately 72 conference presentations delivered. Website visits to the *Growing Up in Australia* site increased from just over 200,000 in 2010-11 to more than 260,000 in 2011-12.

## ***LSAC Annual Statistical Report 2011***

The second LSAC Annual Statistical Report was released in late 2012. The report, compiled by the Australian Institute of Family Studies, illustrates the breadth of LSAC data through a series of articles relevant to government policy. The report focuses on two broad domains—family and education—and covers the impact of parental mental health on children; the characteristics of housing arrangements over time; the experiences of families with a child with a disability; analysis of children’s numeracy skills; and access to pre-school education.

Synopses of a selection of these analyses follow:

### **Access to preschool education in the year before full-time school**

Brigit Maguire and Alan Hayes, Australian Institute of Family Studies

This chapter uses data from 4 to 5 year olds in LSAC to examine rates of access to preschool in the year before full-time school, and how these vary for families from different sociodemographic backgrounds.

There was a high level (93 to 97 per cent) of involvement of 4 to 5 year olds in early childhood education and care. However, children from more disadvantaged families were less likely to attend, as were children of mothers working 35 or more hours each week. Children from two-parent families were more likely to attend preschool outside a childcare setting than those from lone-mother households. Children who spoke a language other than English at home were less likely to attend a dedicated preschool (significant K cohort only), as were children of Aboriginal or Torres Strait Islander background (B cohort only).

### **Children’s body mass index: cohort, age and socioeconomic influences**

Melissa Wake, Centre for Community Child Health, Royal Children’s Hospital; Murdoch Children’s Research Institute; and Department of Pediatrics, University of Melbourne

Brigit Maguire, Australian Institute of Family Studies

This analysis uses data from the B cohort at Waves 2 and 3, and the K cohort at Waves 1, 2 and 3 to address the following questions:

- What is the prevalence of underweight, normal weight, overweight and obesity in children at each of the three waves?
- How strongly does body mass index (BMI) correlate between waves in each cohort?
- What proportions of children remain in the same BMI category between waves?





- How many children are consistently overweight/obese or obese across all waves?
- How do family socioeconomic position and neighbourhood disadvantage influence the persistence of overweight and obesity?

The analysis showed a general decline in the percentages of children in the normal weight category, both across waves and between the two cohorts. The population levels of overweight/obesity also increased sharply in the middle childhood years. While the majority of children were in the normal weight category at all waves, a large percentage of those who were overweight/obese remained in that category over waves. Persistent overweight/obesity clustered in the most disadvantaged 25 per cent of children on measures of family socioeconomic position and neighbourhood disadvantage, with the patterns being stronger for obesity.

### **Parental mental health**

Ben Edwards and Brigit Maguire, Australian Institute of Family Studies

This chapter uses LSAC data to determine the extent of mental health problems (as indicated by moderate to high levels of psychological distress) of mothers and fathers of children in Australia. It explores the prevalence and chronicity of these problems in couple families, lone mothers, and parents living in jobless households. It also documents the extent to which parents with moderate/high levels of psychological distress report poorer parenting behaviours.

The analysis found that between 11 and 13 per cent of mothers of preschool children (B cohort) had moderate/high levels of psychological distress at Waves 1, 2 and 3. The incidence for fathers was slightly lower, at between 9 and 10 per cent. A substantial number of parents experienced moderate/high levels of psychological distress in at least one wave (18–26 per cent), but only 4 per cent of children had parents who experienced moderate/high levels of psychological distress at all three waves.

The rate of moderate/high psychological distress in lone mothers was one in four, twice that of parents living in couple households. Similarly, mothers and fathers living in jobless households had twice the rate of psychological distress than parents who were not living in jobless households.

Parental psychological distress is associated with poorer parenting. Rates of hostile/irritable parenting by mothers (33–41 per cent) and fathers (31–41 per cent) who reported moderate/high psychological distress were much higher than for those reporting low levels of distress (mothers 17–19 per cent; fathers 18–19 per cent). Both mothers and fathers with moderate/high levels of psychological distress were also more likely to show lower parental warmth, compared to those without mental health problems.

A full copy of this report can be accessed at  
<http://www.growingupinaustralia.gov.au/pubs/asr/index.html>

## ***Life at* documentary series**

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In 2012, the Australian Broadcasting Commission (ABC) filmed *Life at 7*, the fourth instalment of the *Life at* series, which is produced by Heiress Films. The *Life at* series follows the lives of 11 children and their families and examines the impact of family relationships, finances, work, health and education on children's growth and development. LSAC provides a large portion of the evidence base for the documentary series. The series uses LSAC data and findings to relate the development and lives of the documentary children to other Australian children.

Two members of the LSAC Consortium Advisory Group, Professor Steve Zubrick and Professor Ann Sanson, provide advice to the filmmakers, as well as in-program commentary. Staff from AIFS and FaHCSIA advised on the use and interpretation of the data and research. *Life at 7* focuses on gender, temperament, and peer and family influence. *Life at 7* was screened over two weeks in October 2012.

## **LSAC and LSIC Research Conference 2011**

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November 2011 saw the inauguration of *Growing Up in Australia* and *Footprints in Time*: LSAC and LSIC Research Conference—Findings from the Longitudinal Study of Australian Children and the Longitudinal Study of Indigenous Children. About 50 national and international researchers came to Melbourne to present research based on LSAC or LSIC data at the conference.

The conference promulgated the range of research being conducted using LSAC and LSIC data and showcased the research opportunities these rich datasets provide. It also gave researchers and policymakers the occasion to compare research from both data sources. Professor Stephen Zubrick, from the University of Western Australia and the Telethon Institute for Child Health Research, and Professor Melissa Wake, Director of Research at the Centre for Community Child Health at the Royal Children's Hospital, Melbourne gave the keynote speeches, summarised in the next section. Both speakers are part of the LSAC Consortium Advisory Group, which provides scientific advice on study design and child development.

Conference presentations covered the following topics relating to child development:

- Language and learning
- Temperament
- Education (including early childhood)
- Mental health
- Physical health
- Fathering/parenting
- Time use and media
- Community.



Keynote speech: Professor Stephen Zubrick, Winthrop Professor, University of Western Australia, Centre for Child Health Research; Telethon Institute for Child Health Research

**Language development and change: Growth, patterns and processes in the Australian Longitudinal Studies**

Commencing early in a relentless pursuit of the adult model of language, the language system, once developed, will be used and extended for the rest of life. Its neurobiological, cognitive and social underpinnings produce, for most children, a developmental capacity that allows the achievement of onward self-productivity and dynamic complementarity. To focus on language development is to study one of the major pathways that supports the expansion of human capital and, most importantly, enables human capability.

The Longitudinal Study of Australian Children affords a rare opportunity to examine changes in vocabulary over time, directly measured on over 3,000 children, in a well characterised, large national sample. We want to know more about the typical pattern of growth and change in vocabulary development in these children as they age from 4 years to 8 years. What are the typical and atypical patterns of change, and what of the child's wider developmental ecology predicts this? We used multilevel growth curve modelling to estimate the effect of a range of influences in the child's social and environmental ecology on vocabulary development.

Our work using LSAC shows that, at the early stage of language development, parent reports, independent of direct assessment of the child, provide strong measures of growth in gathering and using sounds, understanding words and saying words and phrases. There are some reassuring indications that the data we do have behave in expected ways. As the children grow a little older we are able to observe prodigious growth in receptive vocabulary. From infancy to 51-67 months it shows rapid growth, with slowing and greater onward stability in the receptive vocabulary growth function in the 75-94 month and 95-119 month period. Some children appear to start their vocabulary growth at lower levels than others, but the low starters have a relatively steep initial gradient in their receptive vocabulary growth that for most of them produces a significant catch-up. In other words, the low starters have considerable instability in their onward performance position. Children with a high initial receptive vocabulary show a steady, shallower growth gradient as they grow older. Importantly, there is no overshooting in their performance. These kids start high, they stay high, and they show stability in their vocabulary ability with scant downward shift to average and with very few moving into low.

The emerging picture in these early growth models of vocabulary is one of remarkable robustness in language development: out of every 100 who start with a low receptive vocabulary at age four, 80 per cent will go on to have average-to-high levels of vocabulary at eight years. This represents an onward burden of about 3 per cent of all children remaining persistently low in their vocabulary performance.

Keynote speech: Professor Melissa Wake, Director of Research, Centre for Community Child Health, Royal Women's Hospital

### **The Health of Australia's Children**

The right of every child to enjoy the highest attainable standards of health is enshrined in the United Nations Convention on the Rights of the Child. Despite the remarkable gains of the last century, children's physical health still presents many challenges. More children are living with chronic conditions. Social disparities in health are widening. Links between physical and psychological wellbeing are becoming more evident and their biologic bases more clearly delineated. The costs of early health issues arise not only from special health care needs during childhood but also from the adult diseases inherent in already measurable, but asymptomatic, childhood precursors. Thus, important challenges for health care systems are to understand the overall impact of health conditions on children's life experiences and to improve outcomes through prevention and appropriate intervention at the earliest possible stage.

This presentation explores how LSAC, with its 10,000 participants, is already contributing to all these areas and how it is growing in power as these children become adolescents and, ultimately, sick or healthy adults. Over 80 per cent of the parents of children aged between 0 and 11 reported their child's health to be excellent or good. The number with special health care needs rises from 6 per cent of infants to just over 16 per cent of 10 to 11-year-olds.

The paper presents longitudinal data on the prevalence of asthma, eczema, food allergy, vision and hearing problems, oral health, headaches and stomach pains. LSAC data shows hospitalisations at around 0.5 per cent for infants, rising to peak at just over 1.5 per cent at age 4-5, before a small decline at later ages. Non-injury hospitalisation is highest in infants at 10 per cent, gradually decreasing to around 3 per cent by 10-11 years. The BMI data shows that 24 per cent of 2 to 3-year-olds are overweight or obese, rising to 28 per cent of 10 to 11-year-olds. Many of these health indicators demonstrate clear and measurable gradients by socioeconomic status by mid-childhood. LSAC has the growing power to investigate these further.

### **LSAC data users**

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At the end of the 2011-12 financial year there were over 600 registered users of LSAC data: 31 per cent were from the Australian Capital Territory, 25 per cent from Victoria, 17 per cent from New South Wales and 10 per cent from Queensland. A small number (fewer than 10 per cent) were from South Australia, Western Australia and overseas. No data users were registered from the Northern Territory or Tasmania.



## LSAC research highlights

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Sawyer, MG, Harchak, T, Wake, M & Lynch, J 2011, 'Four-year prospective study of BMI and mental health problems in young children', *Pediatrics*, vol. 128, no. 4.

This study investigates the relationship between BMI and the mental health and health-related quality of life (HRQoL) of young children. It used data from LSAC obtained when children were 4-5 and 8-9 years old. BMI was available for 3,363 children at both waves. Mental health problems were assessed by using the Strengths and Difficulties Questionnaire (SDQ), which was completed by parents and teachers. HRQoL was assessed by using the Paediatric Quality of Life Inventory, which was completed by the parents.

The authors concluded that higher BMI in children aged 4 to 5 was positively related to poorer peer relationships and teacher-reported emotional problems—but not to other childhood mental health problems—in the same children at 8 to 9 years of age. They note the need for prospective studies to determine whether peer problems experienced by children with higher BMI predict subsequent mental health problems in other areas.

Knight, A & Bild, L 2011, 'Social inclusion and participation in community activities for children with disability', paper presented to *Growing Up in Australia and Footprints in Time: LSAC and LSIC Research Conference*, Melbourne.

There is a breadth of research on children's disabilities and engagement with the education environment but much less on the social community context, especially for children with severe disability. For these children social engagement can help increase psychological and physical wellbeing, which contributes to positive relationships and social interactions. Social engagement is also an important protective factor for families because it develops social competence and self-esteem. A further protective factor is the ability to access government support services. The social connectedness of children at this early age gives them a base on which to build interaction skills that they develop as they enter the education system and begin to interact with peers.

This study investigates the relationship between children with disability and those without using B and K cohort multiple waves. To investigate this area we identified indicators of disability, school attendance, service access and unmet needs—along with community activity engagement. This paper highlights differences between the experiences of children with disability and the experiences of those without.

Lucas, N, Westrupp, E, Quach, J, Sciberras, E, Wake, M, Mensah, F, Gold, L & Nicholson, JM 2011, 'Economic cost of common childhood disorders', paper presented to *Growing Up in Australia and Footprints in Time*: LSAC and LSIC Research Conference, Melbourne.

Policymakers are increasingly being asked to prioritise spending on child health interventions. To plan services efficiently they need information on the economic costs of common childhood disorders and on how these costs vary according to the severity and stability of these disorders over time. This symposium of linked papers examined the costs associated with four common childhood disorders: perinatal risk, mental health problems, sleep problems and attention deficits.

These projects used linked Medicare data to estimate the economic costs to government associated with common childhood disorders in the LSAC cohorts. Costs estimated are those spent on the Medicare Benefit Schedule and Pharmaceutical Benefit Scheme for LSAC children from birth to age 4, and from ages 4 to 8.

Yu, M, Ziviani, J & Haynes, M 2011, 'Sleep, structured and social time use and young Australian children's physical activity', *Health Promotion Journal of Australia* (official journal of Australian association of health promotion professionals), vol. 22, no. 3.

Physical inactivity has a growing potential to undermine children's health and wellbeing. While a range of factors have been associated with physical inactivity, the contribution of time spent in sleep and structured activities, and children's social contexts has received limited attention.

This cross-sectional study used data from Wave 1 of LSAC to examine the association between participation in physical activity and time spent by 4 to 5-year-old-children in sleep and structured activity, and the social contexts of 4-5 year old children.

The analysis concluded that young children who are highly scheduled in structured activities on weekdays and those with limited adult involvement, especially on weekends, tend to be less physically active. Therefore, interventions that promote physical activity in young children need to be family focused and encourage the engagement of parents.

Mensah, FK, Nicholson, JM, Carlin, J, Headley, E, Berthelsen, D & Wake, M 2011, 'Analysis of the breadth, severity and stability of child health inequalities', paper presented to *Growing Up in Australia and Footprints in Time*, LSAC and LSIC research conference, Melbourne.

The impact of socioeconomic inequalities on health and development is most marked when multiple outcomes are considered. This paper looks at an analysis of latent class as a method of integrating multiple outcomes to examine a breadth of health inequalities.

The objectives of the study were to investigate which groups of children can be identified and whether similar groupings are replicable at different ages. It also aimed to examine how far individual children maintain group membership over time and to then examine inequalities on the basis of these profiles.



Data for the study came from LSAC's Birth cohort at age 4-5 and the Kindergarten cohort at 4-5, 6-7 and 8-9 years (~5,000 children each). Measures included global health, special health care needs, asthma, sleep difficulties, injuries, body mass index, quality of life, behaviour, vocabulary, school readiness and academic competence. Subgroups of children within each cohort at each age were identified by analysing latent class. Reproducibility of the groups was examined by comparing the Birth and Kindergarten cohorts. Continuities in group membership from ages 4 to 9, and socioeconomic inequalities, were examined over the repeated follow-up of the Kindergarten cohort.

Results showed that similar groupings were identified within each of the cohorts at each age. In the Kindergarten cohort at 4-5 years, 59.5 per cent of the children were classified as the healthiest group, 33.4 per cent had a moderate level of difficulties and 7.2 per cent had the most severe level of difficulties. Continuity of children's group membership through ages 4 to 9 was strongly evident. Socioeconomically disadvantaged children experienced severe difficulties most frequently. In the Kindergarten cohort at 4-5 years, 2.8 per cent of girls in the most advantaged families had a severe level of difficulties, compared to 17.2 per cent of boys in the most disadvantaged families.

#### Baxter, J 2010, Occasional Paper no. 37—Fathering in Australia among couple families with young children

This paper uses LSAC to explore fathers' involvement with children, in particular with their social and educational activities. For the purposes of the study, involvement means eating an evening meal with their children, talking with them about their day and helping them with homework. Fathers' involvement is measured with respect to one child in the family—the LSAC study child. These children were aged 2-3 through to 8-9 years at LSAC Waves 2 and 3, when these items were introduced. The focus of this paper is on the characteristics of fathers that explain a greater degree of such involvement. This research finds that more paid work hours by fathers reduces involvement, whereas more paid work hours by mothers increases fathers' involvement. Fathers are also more likely to be involved in these activities if they have better mental health and if the child has a less reactive temperament. Fathers with higher levels of education spend more time talking with their children and helping them with homework. Fathers who have children living in another household, or with more resident children, spend less time on these activities. Other results about fathering in Australia are also discussed.

#### Brown, J, Skouteris, H, Bittman, M & Rutherford, L 2011, 'Parenting practices, children's media use and childhood obesity', paper presented to the Australian Social Policy Conference, Sydney

Children's individual lifestyle behaviours are well known factors in obesity. As the family is the primary social force shaping children's lives, many of the risk factors for overweight and obesity in early childhood are likely to have their roots there. Based on their own attitudes and beliefs, parents set and enforce rules and create a home environment that necessarily influences their children's participation in sedentary behaviours like television viewing or computer use, and exercise and eating behaviours.

Data from the first three waves of the K cohort were used to investigate whether proximal and distal parental practices at Waves 1 and 2 (children aged 4-5 and 6-7) were associated with children's media use, and whether these lifestyle behaviours at Wave 2 (child aged 6-7) were associated with child weight status at Wave 3 (child aged 8-9). Results from the path model revealed that consistent parenting at Wave 1 was associated with other parenting practices and some of the children's media use and lifestyle behaviours at Wave 2.

Further, the model revealed that, although children's television watching was associated with more snacking and less moderate to vigorous activity, only at ages 8 to 9 was the time spent watching television significantly associated with child weight status. The analyses revealed a clear pathway linking consistent parenting practices regarding television with the time children spent watching television and child weight status.

Hancock, KJ, Lawrence, D, Mitrou, F, Zarb, D, Berthelsen, D, Nicholson, JM & Zubrick, SR 2011, 'Playgroups as sources of social support for mothers', paper presented to the Australian Social Policy Conference, Sydney, 6-8 July.

While recent research has demonstrated that children from disadvantaged families tend to perform better on measures of learning and social outcomes when they persistently attend playgroup (Hancock et al. 2011), there is still very little research demonstrating any association between playgroup attendance and parental outcomes. The purpose of this study was to examine the friendship networks and social support outcomes of mothers of young children according to patterns of playgroup attendance over time.

This study used LSAC data from the B cohort across three waves to examine the level of support that mothers received from friends over time. Multinomial logistic regression modelling indicated that mothers of 4 to 5-year-olds who had participated in playgroups when their child was 0-1 and 2-3 years old were more likely to have consistently good support from friends, or to have improved support from friends, than mothers who had not earlier participated in playgroups with their study child. These results provide some evidence to associate playgroups with improved social networks over time and that socially isolated parents may find playgroups a useful resource to build their social networks.

Farrant, B & Zubrick, S 2012, 'Early vocabulary development: the importance of joint attention and parent-child book reading', *First Language*, vol. 32, no. 3.

A large body of work has investigated the individual and environmental factors associated with children's language development. However, there is a dearth of research assessing the relations among these factors and the ongoing reciprocal social interactions (proximal processes) that facilitate development. The current study brings a bioecological approach to children's early vocabulary development, using LSAC data from the B cohort. Relevant data were available for 2,188 children (1,119 male) who had a median age of nine months ( $M = 9.3$  months,  $SD = 2.1$  months) at Wave 1 and a median age of 34 months ( $M = 34.2$  months,  $SD = 2.5$  months) at Wave 2. Results indicate that the proximal processes of joint attention and parent-child book reading facilitate vocabulary development and mediate the effects of maternal education, warm parenting and having siblings in the home.





Furthermore, combining the current results with the findings of training studies provides convergent support for the causal roles of joint attention and parent-child book reading in children's vocabulary development. Thus, parents and professionals interested in promoting children's early language development would do well to target proximal processes like joint attention and parent-child book reading, especially when working with disadvantaged children.

Rogers, H, Shin, H & Ghooti, R 2011, 'Why some children thrive despite the odds being stacked against them: investigating the characteristics of young mothers and their children who have good outcomes', paper presented at *Growing Up in Australia and Footprints in Time: LSAC and LSIC Research Conference*, Melbourne, 15–16 November.

The study examines characteristics of young mothers (sociodemographic attributes, employment status, mental-emotional wellbeing) and the environment in which the child is growing up (family structure, housing, schooling, activities and resources) to investigate consequent outcomes for children. This will provide an understanding of why some children with young mothers do thrive, despite the potential problems they face. To investigate this, LSAC data was analysed using a cross-sequential design.

Findings of the study highlight factors that shield children born to young mothers from negative outcomes and identify key issues to inform policy concerned with improving outcomes for young parents and their children.

# Publications by LSAC users 2011–212

## Government reports

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Australian Centre for Asthma Monitoring 2011, *Asthma in Australia 2011*, Australian Institute of Health and Welfare Asthma Series no. 4. Cat. no. ACM 22, AIHW, Canberra.

Australian Institute of Family Studies 2011, *The Longitudinal Study of Australian Children Annual Statistical Report 2010*, AIFS, Melbourne.

Sipthorp, M & Daraganova, G 2011, *LSAC Technical paper No. 9, Wave 4*, Australian Institute of Family Studies, Melbourne

Department of Education Employment and Workplace Relations 2011, *Investing in Our Future: an evaluation of the national rollout of the Home Interaction Program for Parents and Youngsters (HIPPY)*, DEEWR, Canberra.

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Amir, LH & Donath, SM 2011, 'Maternal diet and breastfeeding: a case for rethinking physiological explanations for breastfeeding determinants', *Early Human Development*, vol. 88, no. 7, pp. 467-471.

Au, N 2011, 'The health care cost implications of overweight and obesity during childhood, 2011', *Health Services Research*, vol. 47, no. 2.

Barclay, L, Longman, J, Schmied, V, Sheehan, A, Rolfe, M, Burns, E, Fenwick, J 2012, 'The professionalising of breast feeding—where are we a decade on?', *Midwifery*, vol. 28, no. 3, pp. 281-290.

Baxter, JA & Smart, D 2012, 'La paternité au sein des couples australiens avec des jeunes enfants' [translation: An overview of fathering in Australia among couple families with young children], *Information Sociales*, vol. 171, pp. 118-126.

Baxter, JA, Weston, R. & Qu, L 2011, 'Family structure, co-parental relationship quality, post-separation paternal involvement and children's emotional wellbeing', *Journal of Family Studies*, vol. 17, no. 2, pp. 86-109.

Bayer, JK, Ukoumunne, OC, Lucas, N, Wake, M, Scalzo K & Nicholson, JM 2011, 'Risk factors for childhood mental health symptoms: National Longitudinal Study of Australian Children', *Pediatrics*, vol. 128, no. 4.

Bradbury, B, Corak, M, Waldfogel J & Washbrook E 2012, 'Inequality in early childhood outcomes', in J Ermisch, M Jäntti & TM Smeeding (eds), *From parents to children: the intergenerational transmission of advantage*, Russell Sage Foundation, New York.

Byrne, LK, Cook, KE, Skouteris, H & Do, M 2011, 'Parental status and childhood obesity in Australia', *International Journal of Pediatric Obesity*, vol. 6, nos 5-6, pp. 415-18.

Dix, KL, Slee, PT, Lawson, MJ & Keeves, JP 2012, 'Implementation quality of whole-school mental health promotion and students' academic performance', *Child and Adolescent Mental Health*, vol. 17, no. 1, pp. 45-51.



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Edwards, B, Taylor, M & Fiorini, M 2011, 'Who gets the gift of time?', *Australian Review of Public Affairs*, vol. 10, no. 1, pp. 41-60.

Emerson, E, Einfeld, S & Stancliffe, R 2011, 'Predictors of the persistence of conduct difficulties in children with cognitive delay', *The Journal of Child Psychology and Psychiatry and Allied Disciplines*, vol. 52, pp. 1184-94.

Farrant, BM & Zubrick, S 2011, 'Early vocabulary development: the importance of joint attention and parent-child book reading', *First Language*, vol. 32, no. 3, pp. 343-64.

Fletcher, R, Freeman, E, Garfield, C & Vimpani, G 2011, 'The early effects of early paternal depression on children's development', *The Medical Journal of Australia*, vol. 195, no. 11, pp. 685-89.

Freeman, E, Fletcher, R, Collins, CE, Morgan, PJ, Burrows, T & Callister, R 2012, 'Preventing and treating childhood obesity: time to target fathers', *International Journal of Obesity*, vol. 36, no. 1, pp. 12-15.

Giallo, R, D'Esposito, F, Christensen, D, Mensah, F, Cooklin, A, Wade, C, Lucas, N, Canterford, L & Nicholson, JM 2012, 'Father mental health during the early parenting period: results of an Australian population based longitudinal study', *Social Psychiatry and Psychiatric Epidemiology*.

Gray, M & Baxter, JA 2012, 'Family joblessness and child wellbeing in Australia', in A Kalil, R Haskins & J Chesters (eds), *Investing in children: work, education, and social policy in two rich countries*, Brookings Institute.

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Hesketh, K, Campbell, K & Taylor, R 2011, 'Epidemiology of obesity in children and adolescents in Australia, New Zealand and the Pacific Region', *Epidemiology of Obesity in Children and Adolescents*, vol. 2, no. 1.

Hiscock, H, Scalzo, K, Canterford, L, Wake, M 2011, 'Sleep duration and body mass index in 0 to 7-year olds', *Archives of Disease in Childhood*, vol. 96, no. 8, pp. 735-739.

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Magee, CA, Caputi, P & Iverson, DC 2012, 'Are parents' working patterns associated with their child's sleep? An analysis of dual-parent families in Australia', *Sleep and Biological Rhythms*, vol. 10, no. 2, pp.100-108.

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McLeod, S 2011, 'Cultural and linguistic diversity in Australian 4 to 5-year-old children and their parents', *Acquiring Knowledge in Speech, Language, and Hearing*, vol. 13, no. 3, pp. 112-119.

Mission, S, Sanson, A, Berthelsen, D, Rogers, H, Rothman, S, Siphthorp, M & Wake, M 2011, *Tracking children's development over time: the Longitudinal Study of Australian Children Outcome Indices, Waves 2 and 3*, Australian Institute of Family Studies, Melbourne.

Nicholson, JM, D'Esposito, F, Lucas, N, Westrupp, EM 2011, Chapter 12: 'Raising children in single-parent families', in J Walker (ed.), *Supporting the family in the 3rd millenium: global trends in marriage and family life*, in press.

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Strazdins, L, Lucas, N, Shipley, M, Mathews, R, Berry, H, Rodgers, B & Davies, A 2012, 'Parent and child wellbeing and the influence of work and family arrangements: a three-cohort study', *Social Policy Research Paper No. 44*, Department of Families Housing Community Services and Indigenous Affairs.

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## Conference presentations

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Ampon, R, Poulos, L, Cooper, S, Waters, A-M, Reddel, H & Marks, G 2010, 'The association between antibiotic use in infancy and the use of inhaled corticosteroids later in childhood', poster presentation at the National Medicines Symposium, Melbourne, 26-28 May.

Ampon, R, Poulos, L, Cooper, S, Waters, A-M, Reddel, H & Marks, G 2011, 'Time trends in the incidence and prevalence of asthma in Australian children: a cohort and age-period analysis', paper presented at *Growing Up in Australia* and *Footprints in Time*. LSAC and LSIC Research Conference, Melbourne, 15-16 November.

Barnett, T 2012, 'Home-based early childhood development interventions for pre-school children from socially disadvantaged families: do they work?', paper presented at the Home Interaction Program for Parents and Youngsters (HIPPY) International Directors' Conference, Dallas, Texas.

Barnett, T 2012, 'Home-based early childhood development interventions for pre-school children from socially disadvantaged families: Do they work?', paper presented at the 4th National Early Childhood Intervention Conference, Sibul, Malaysia, 7-9 June.

Barnett, T 2012, 'Investing in our future: an evaluation of the national rollout of the Home Interaction Program for Parents and Youngsters (HIPPY)', paper presented at the Family-School & Community Partnerships Bureau's Engaging Parents and Families in Learning and Schools National Symposium, Canberra, 11-12 May.

Baxter, J 2012, 'Fathers' working arrangements and experiences of family-work spillover', paper presented at the YMCA internal launch of a VicHealth funded program focused on gender equity in the workplace, Fairfield, Vic, 22 May.



Baxter, J 2012, 'Fathers' parenting and self-efficacy: associations with measures of fathering and fathers' and families' characteristics', paper presented to the Australian Social Science Academy workshop, Brisbane.

Baxter, J 2011, 'Fathers' involvement in young children's social and educational activities', paper presented to the *Growing Up in Australia* and *Footprints in Time*: LSAC and LSIC Research Conference, Melbourne, 15-16 November.

Baxter, J 2011, 'Fathering across families: how father involvement varies for children when their father has children living elsewhere', paper presented at the Australian Sociological Association Forum 'Australian Fatherhood: New Vistas, Familiar Dilemmas', Brisbane, 19 October.

Baxter, J & Alexandar, M 2011, 'Employment arrangements and the capacity of fathers with young children to co-parent effectively', paper presented at the 13th Australian Social Policy Conference, Social Policy in a Complex World, Sydney, NSW, February.

Belousova, E, Ampon, R, Poulos, L, Cooper, S, Reddel, H, Marks, G 2012, 'Prognostic significance of wheeze for poor health outcomes in children aged 4 to 5 years', Thoracic Society of Australia and New Zealand Annual Scientific Meeting, Canberra, May.

Blanden, J, Katz, I & Redmond, G 2011, 'Persistent inequality? A comparison of the impact of family background on children's outcomes in the UK and Australia', paper presented to *Growing Up in Australia* and *Footprints in Time*: The LSAC and LSIC Research Conference, Melbourne, 15-16 November.

Bittman, M, Rutherford, L & Brown, J 2011, "Digital Natives"? The effects of new and old media on children's language acquisition and literacy', paper presented to *Growing Up in Australia* and *Footprints in Time*: LSAC and LSIC Research Conference, Melbourne, 15-16 November.

Brown, J, Skouteris, H, Bittman, M & Rutherford, L 2011, 'Parenting practices, children's media use and childhood obesity', paper presented to *Growing Up in Australia* and *Footprints in Time*: LSAC and LSIC Research Conference, Melbourne, 15-16 November.

Brown, JE, Nicholson, JM, Broom, D 2011, 'Parenting practices, children's lifestyle behaviours and childhood obesity', paper presented to the Australian Social Policy Research Conference, Sydney, July.

Chen, J & Ou, L 2011, 'What are the differences of developmental trajectories between Indigenous and non-Indigenous Australian infants?' paper presented to the Annual Research Symposium of the School of Public Health and Community Medicine, University of New South Wales, August.

Chen, J & Ou, L 2011, 'Do the developmental trajectories of health, social wellbeing and learning outcomes vary between Indigenous and non-Indigenous Australian infants?', paper presented to the CRIAH Aboriginal Health Research Conference, Sydney, 5-6 May.

Christensen, D, Mitrou, F, Lawrence, D, Sanson, A, Zubrick, S 2011, 'Child temperament, parenting style and emotional and behavioural problems in early childhood—findings from the Longitudinal Study of Australian Children', paper presented to *Growing Up in Australia* and *Footprints in Time*. LSAC and LSIC Research Conference, Melbourne, 15-16 November.

Cooklin, A, Giallo, R, Strazdins, L, Westrupp, E, Lucas, N, Nicholson, JM 2011, 'Maternal Separation Anxiety in the postpartum: the role of social disadvantage', paper presented to Australian Society for Psychosocial Obstetrics and Gynaecology, Adelaide, July.

Cooklin, A, Westrupp, E, Strazdins, L & Nicholson, J 2011, 'Employment and family conflict: parenting quality and couple relationship for mothers of 4-5 year olds', paper presented to *Growing Up in Australia* and *Footprints in Time*. LSAC and LSIC Research Conference, Melbourne, 15-16 November.

Cooklin, A, Westrupp, E, Strazdins, L, Lucas, N & Giallo, R 2011, 'Maternal employment, strains and gains and family relationships in parents of 4 to 5-year-old children', paper presented to *Growing Up in Australia* and *Footprints in Time*. LSAC and LSIC Research Conference, Melbourne, 15-16 November.

Cronin, P, Reeve, R & Goodall, S 2011, 'Measuring the economic impact of speech impairment on academic achievement and social wellbeing: a study of the Longitudinal Study of Australian Children', paper presented to *Growing Up in Australia* and *Footprints in Time*. LSAC and LSIC Research Conference, Melbourne, 15-16 November.

D'Esposito, F, Giallo, R, Stewart, P, Mensah, F & Nicholson, J 2011, 'True blue baby blues: prevalence and persistence of mental health difficulties in Indigenous Australian fathers with infants and young children', paper presented to *Growing Up in Australia* and *Footprints in Time*. LSAC and LSIC Research Conference, Melbourne, 15-16 November.

Edwards, B & Baxter, JA 2011, 'Children living in rural and regional areas of Australia', paper presented to the 13th Australian Social Policy Conference, Social Policy in a Complex World, Sydney, 6 July.

Edwards, B & Baxter, J 2011, 'A tyranny of distance or disadvantage? Children living in rural and regional Australia', paper presented to *Growing Up in Australia* and *Footprints in Time*. LSAC and LSIC Research Conference, Melbourne, 15-16 November.

Ernst, M, Collins, L & Wulczyn, F 2011, 'Differential susceptibility to the environment: an examination of the moderating effect of temperament on the relation between the home environment and child development', paper presented to *Growing Up in Australia* and *Footprints in Time*. LSAC and LSIC Research Conference, Melbourne, 15-16 November.

Farrant, B & Zubrick, S 2011, 'Early vocabulary development: the importance of joint attention and parent-child book reading', paper presented to *Growing Up in Australia* and *Footprints in Time*. LSAC and LSIC Research Conference, Melbourne, 15-16 November.

Giallo, R, D'Esposito, F, Christensen, D, Mensah, F, Cooklin, A, Wade, C, Lucas, N & Nicholson, JM 2011, 'Fathers' mental health in the postnatal and early childhood period: results from the Longitudinal Study of Australian Children', paper presented to the 2011 National Men's Health Gathering, Perth, September.





Giallo, R, Cooklin, A, Wade, C, D'Esposito, F & Nicholson, JM 2011, 'Fathers' postnatal mental health and child wellbeing at aged five: the mediating role of parental self-efficacy and parenting behaviour', paper presented to *Growing Up in Australia* and *Footprints in Time*. LSAC and LSIC Research Conference, Melbourne, 15-16 November.

Giallo, R, Cooklin, A, Wade, C, D'Esposito, F, Mensah, F, Lucas, N & Nicholson, JM 2011, 'Fathers' postnatal mental health, parenting and child wellbeing in the early childhood period: results of an Australian population based longitudinal study', paper presented to the 3rd North American Congress of Epidemiology, Montreal, Canada, 21-24 June.

Giallo, R, Cooklin, A, Wade, C, D'Esposito, F & Nicholson, JM 2011, 'Maternal postnatal mental health, parenting and early child wellbeing: results of an Australian population based longitudinal study', paper presented to the 24th Annual Meeting of the Society for Pediatric and Perinatal Epidemiologic Research, Montreal, June.

Gray, M & Baxter, JA 2011, 'Family joblessness, child wellbeing and labour market and income support policies', paper presented to the 13th Australian Social Policy Conference: Social Policy in a Complex World, Sydney, May.

Hancock, KJ, Lawrence, D, Mitrou, F, Zarb, D, Berthelsen, D, Nicholson, JM & Zubrick, SR 2011, 'The association between playgroup participation, learning competence and social-emotional wellbeing for children aged 4-5 years in Australia', paper presented to the Australian Social Policy Conference, Sydney, July.

Hancock, KJ, Lawrence, D, Mitrou, F, Zarb, D, Berthelsen, D, Nicholson, JM & Zubrick, SR 2011, 'Playgroups as sources of social support for mothers', *Growing Up in Australia* and *Footprints in Time*. LSAC and LSIC Research Conference, Melbourne, 15-16 November.

Hand, K & Baxter, J 2012, 'Outside school hours care: how care provision influences mothers' employment decisions', paper presented at the workshop Out of School Hours Care and Women's Labour Force Participation: Innovations in Provision and Supply, Sydney, April.

Harrison, L, Spilt, J & Walker, S 2011, 'Stability and change in teacher-child relationship trajectories from age 4-5 to 8-9 years: associations with academic achievement in Year 5', paper presented to *Growing Up in Australia* and *Footprints in Time*. LSAC and LSIC Research Conference, Melbourne, 15-16 November.

Harrison, L, Farrant, B, Wise, S, Smith, G & Zubrick, S 2011, 'Does child care in the first year of life pose a risk for concurrent and future poor childhood health?', paper presented to *Growing Up in Australia* and *Footprints in Time*. LSAC and LSIC Research Conference, Melbourne, 15-16 November.

Harvey, J 2011, 'Engaging adolescents and minimising attrition in longitudinal studies', paper presented to the Conference of the Australasian Human Development Association, Dunedin, NZ, July.

Hogan, A 2012, 'A fairer hearing: keeping ear health issues on the political agenda', paper presented to the Australian Otitis Media Conference, OMOZ 2012, Fremantle, WA, May.

Hogan, A, Howard, D, Yiengprugsawan, V 2012, 'The wellbeing of children with ear infection', paper presented to the Australian Otitis Media Conference, OMOZ 2012, Fremantle, WA, May.

Jansen, P, Mensah, F & Wake, M 2011, 'Childhood overweight and mental health problems: is there a dose-response relation?', paper presented to *Growing Up in Australia* and *Footprints in Time*. LSAC and LSIC Research Conference, Melbourne, 15-16 November.

Knight, A & Bild, L 2011, 'Social inclusion and participation in community activities for children with disability', paper presented to *Growing Up in Australia* and *Footprints in Time*. LSAC and LSIC Research Conference, Melbourne, 15-16 November.

Lucas, L, Erbas, B & Nicholson, J 2011, 'What about Dad? How non-resident fathers influence child wellbeing', paper presented to *Growing Up in Australia* and *Footprints in Time*. LSAC and LSIC Research Conference, Melbourne, and the National Men's Health Gathering, Perth.

Lucas, N, Westrupp, E, Quach, J, Sciberras, E, Wake, M, Mensah, F, Gold, L & Nicholson, JM 2011, 'Cost of common childhood disorders', paper presented to *Growing Up in Australia* and *Footprints in Time*. LSAC and LSIC Research Conference, Melbourne, 15-16 November.

McCormack, J, Harrison, LJ, McLeod, S & McAllister, L 2011, 'Correspondence between communication impairment in early childhood and outcomes at school', paper presented to *Growing Up in Australia* and *Footprints in Time*. LSAC and LSIC Research Conference, Melbourne, 15-16 November.

McCormack, J, Harrison, LJ, McLeod, S & McAllister, L 2011, 'The Longitudinal Study of Australian Children: school outcomes for children identified with communication impairment in early childhood', paper presented to the Speech Pathology Australia National Conference, Darwin, June.

McCormack, J, Harrison, LJ, McLeod, S & McAllister, L 2011, 'A population study of children identified with communication concerns in early childhood: parent, teacher and child reported outcomes at school age', paper presented to the Asia Pacific Conference on Speech, Language and Hearing, Christchurch, New Zealand, January.

McLeod, S, Harrison, LJ, McCormack, J & McAllister, L 2011, 'Prevalence, risk, impact, and unmet need of children with speech and language impairment in Australia', paper presented to a symposium hosted by the University of Sydney in collaboration with the World Health Organization, 'World report on disability: implications for Asia and the Pacific', Sydney, December.

Mensah, FK, Nicholson, JM, Carlin, J, Headley, E, Berthelsen, D & Wake, M 2011, 'Including multiple domains in analysis of health inequalities: latent class analysis of physical, cognitive and socio-emotional development in the Longitudinal Study of Australian Children', paper presented to the conference of the International Society for Child Indicators, York, UK, July.

Mensah, FK, Nicholson, JM, Carlin, J, Headley, E, Berthelsen, D & Wake, M 2011, 'Analysis of the Breadth, Severity and Stability of Child Health Inequalities', paper presented to *Growing Up in Australia* and *Footprints in Time*. LSAC and LSIC Research Conference, Melbourne, 15-16 November.



O'Kearney, R & Goh, S 2011, 'Do early language problems predict later emotional and behavioural difficulties in children?', paper presented to *Growing Up in Australia* and *Footprints in Time*: LSAC and LSIC Research Conference, Melbourne, 15-16 November.

Ou, L, Chen, J & Hillman, K 2011, 'Have the health gaps between Indigenous and non-Indigenous children changed over time?—Results from the Longitudinal Study of Australian Children', CRIAH Aboriginal Health Research Conference, Sydney, 5-6 May.

Ou, L, Chen, K & Hillman, K 2011, 'Parents' perceived unmet needs in childhood healthcare services and related barriers—what are the differences between ethnic and Indigenous Australian children?', paper presented at the 7th Australian and New Zealand Health Services Research Conference, Adelaide, December.

Quach, J, Gold, L, Hiscock, H, Mensah, FK, Lucas, N, Nicholson, JM, Wake, M 2012, 'Australian health care costs associated with children's sleep problems from 0 to 7 years', paper presented to the 2012 Pediatric Academic Societies Annual Meeting, Boston, Massachusetts, May.

Qu, L & Weston, R 2011, 'Does parental social marital status matter to child well-being?', paper presented to *Growing Up in Australia* and *Footprints in Time*: LSAC and LSIC Research Conference, Melbourne, 15-16 November.

Redmond, G, Gubhaju, B, Smart, D & Katz, I 2011, 'Has the parental education - child outcome gradient narrowed in Australia since the 1980s?', paper presented to *Growing Up in Australia* and *Footprints in Time*: LSAC and LSIC Research Conference, Melbourne, 15-16 November.

Rodgers, B, Gubhaju, B, Butterworth, P, Strazdin, L, Caldwell, T & Crosier, T 2011, 'Investigating stability and change in multiple childhood adversity over time', paper presented to *Growing Up in Australia* and *Footprints in Time*: LSAC and LSIC Research Conference, Melbourne, 15-16 November.

Rogers, H, Shin, H & Ghooti, R 2011, 'Why some children thrive despite the odds being stacked against them: investigating the characteristics of young mothers and their children who have good outcomes', paper presented to *Growing Up in Australia* and *Footprints in Time*: LSAC and LSIC Research Conference, Melbourne, 15-16 November.

Rolfe, M, Barclay, L, Longman, J 2011, 'A conceptual model for breast feeding rates in Australia: a Bayesian network approach', Bayes on the Beach, Gold Coast, 6-7 October.

Rolfe, M, Barclay, L, Mengersen, K, Longman, J, Morgan, G 2011, 'Bayesian network model for Australian breastfeeding rates', paper presented to the 3rd Annual Conference of the Australasian Bayesian Network Modelling Society, Brisbane, 21-25 November.

Rutherford, L & Brown, J 2011, 'Children's media use and time choices', paper presented to *Growing Up in Australia* and *Footprints in Time*: LSAC and LSIC Research Conference, Melbourne, 15-16 November.

Srtivastava, P & Zhang, X 2011, 'Parental health, health risk behaviours and child weight', paper presented to *Growing Up in Australia* and *Footprints in Time*: LSAC and LSIC Research Conference, Melbourne, 15-16 November.

Taylor, M 2011, 'Family size and birth order effects in the Longitudinal Study of Australian Children', paper presented to *Growing Up in Australia* and *Footprints in Time*: LSAC and LSIC Research Conference, Melbourne, 15-16 November.

Taylor, N 2011, 'Early Pathways and Capabilities', paper presented to *Growing Up in Australia* and *Footprints in Time*: LSAC and LSIC Research Conference, Melbourne, 15-16 November.

Wade, C, Giallo, R, Cooklin, A, Lucas, N, Canterford, L & Nicholson, JM 2011, 'Modelling the relationship between family context, parenting and child outcomes', paper presented to 3rd North American Congress of Epidemiology, Montreal, 21-24 June.

Wake, M 2011, 'The Health of Australia's Children', keynote speech at *Growing Up in Australia* and *Footprints in Time*: LSAC and LSIC Research Conference, Melbourne, 15-16 November.

Walker, S & Berthelsen, D 2011, 'The contribution of quality home learning environments to a successful school transition: findings from the Longitudinal Study of Australian Children', paper presented to the Biennial Conference for the Australasian Human Development Association, Dunedin, NZ, July.

Washbrook, E, Waldfogel, J, Bradbury, B, Corak, M, Ghangro, A 2011, 'The development of young children of immigrants in Australia, Canada, the United Kingdom and the United States', paper presented to *Growing Up in Australia* and *Footprints in Time*: LSAC and LSIC Research Conference, Melbourne, 15-16 November.

Westrupp, E 2011, 'Mental health in "low-to-moderate risk" preterm, low birth weight and small for gestational age children at 4-5 years: the role of early maternal parenting', paper presented to *Growing Up in Australia* and *Footprints in Time*: LSAC and LSIC Research Conference, Melbourne, 15-16 November.

Westrupp EM, Mensah FK, Giallo R, Cooklin AR, Nicholson JM 2012, 'Mental health in "low-to-moderate risk" preterm, low birth weight and small for gestational age children at 4-5 years: the role of early maternal parenting', poster presented at the International Society for the Study of Behavioural Development Biennial Meeting, Edmonton, Canada, 8-12 July.

Whiteford, C, Walker, S & Berthelsen, D 2011, 'Children with special health care needs: social/emotional and learning competence in the early years', poster presented at the Biennial Conference of the Australasian Human Development Association. Dunedin, NZ, July, 2011.

Yiengprugsawan, V & Hogan, A 2012, 'Ear infection and subsequent hearing impairment: findings from a prospective longitudinal study of Australian children', paper presented to the Australian Otitis Media Conference, OMOZ 2012, Fremantle, May.

Yu, M, Ziviani, J, Baxter, J & Haynes, M 2011, 'Time use differences between children with and without risk of developing conduct problems', paper presented to the 5th Asia Pacific Occupational Therapy Congress, November 2011, Chang-Mai, Thailand.

Zubrick, SR 2011, 'Language development and change: growth, patterns, and processes in the Australian longitudinal studies', paper presented to *Growing Up in Australia* and *Footprints in Time*: LSAC and LSIC Research Conference, Melbourne, 15-16 November.



## Theses

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Dillon-Wallace, JA 2011, 'Mothers of young children with special health care needs: maternal wellbeing and engagement in work', PhD thesis, Queensland University of Technology.

Hancock, K 2012, 'A longitudinal analysis of the association between overprotective parenting and the physical health of children', MSc thesis, Swinburne University of Technology.

Lucas, N 2012, 'What about Dad? How non-resident fathers influence child mental health', Masters thesis, La Trobe University.

McCormack, J 2011, 'The extent and experience of childhood speech impairment', PhD thesis, Charles Sturt University.

Shulver, W 2012, 'Parenting groups as sources of social capital: their patterns of use and outcomes for Aboriginal and non-Aboriginal mothers of young children', PhD thesis, Flinders University.

# LSAC website activities

The *Growing up in Australia* website, <http://www.aifs.gov.au/growingup/>, allows easy access to updates from the study. The website has areas to cater for study participants (children and parents), data users, researchers and policy makers. There continues to be an ongoing interest in publications and papers based on LSAC, as illustrated in Table 2.

Table 2		Website visits and downloads								
	Release date	2004–05	2005–06	2006–07	2007–08	2008–09	2009–10	2010–11	2011–12	
Total site visits		57,227	85,966	107,890	155,144	182,263	202,264	202,233	260,204	
Publications—downloads		14,860	19,664	37,387	51,501	55,919	88,172	94,417	127,695	
2004–05 Annual Report	May 2005	501	10,831	9,024	5,183	2,747	925	2,117	1,411	
2005–06 Annual Report	Dec 2006			8,026	4,817	1,339	426	1,755	1,293	
2006–07 Annual Report	Jun 2008				2,938	4,122	691	2,668	3,223	
2007–08 Annual Report	Dec 2008						1,970	998	2,509	
2008–09 Annual Report	Nov 2009						5,562	3,105	39	
2009–10 Annual Report	Feb 2011							787*	805	
2010–11 Annual Report	Oct 2012									
2010 Annual Statistical Report	Aug 2011								92,863	
Discussion Paper 1	Mar 2002	3,002	17,844	15,198	4,927	3,734	2,575	12,870	9,099	
Discussion Paper 2	Sep 2003	1,483	1,721	2,987	2,830	1,743	1,316	1,420	1,298	
Paper 3 Discussion	May 2004	10,317	10,389	9,471	9,104	1,574	1,196	8,550	4,871	
Discussion Paper 5	Jun 2007			196	2,182	1,573	1,228	1,144	1,255	
Technical Paper 1	Sep 2005		2,521	3,401	4,702	8,823	6,042	4,751	6,331	
Technical Paper 2	Jan 2006		2,322	1,960	1,945	1,454	1,367	1,231	1,109	
Technical Paper 3	May 2006		103	1,351	1,188	1,165	1,030	1,245	1,298	
Technical Paper 4	July 2007				1,896	1,392	1,061	1,012	1,085	
Technical Paper 5	Oct 2007				671	1,210	936	911	1,059	
Technical Paper 6	Aug 2009						701	678	752	
Technical Paper 9	Aug 2011								931	
Study Newsletters		7,928	8,257	12,431	18,589	20,699	15,286	14,551	14,199	
Data Dictionary		150	2,237	2,625	1,931	2,374	1,099	2,123	2,291	

\*Due to a technical error the statistics for this are unavailable. This number indicates the number of PDF versions of the report that were downloaded

## Data access

Data from *Growing Up in Australia: the Longitudinal Study of Australian Children* is warehoused at AIFS and is available to researchers approved by FaHCSIA. AIFS provides user support services. Prospective users must abide by strict security and confidentiality protocols and are required to complete a dataset application and read and sign a deed of licence.

Data from Waves 1, 1.5, 2, 2.5, 3, 3.5 and 4 are available. Application forms and deeds of licence are available on the study's website, [www.aifs.gov.au/growingup](http://www.aifs.gov.au/growingup). A nominal fee is charged to cover the administrative costs of delivering datasets.

Datasets are accompanied by a user manual describing the sample design and how the fieldwork was conducted, giving details of weighting procedures and item derivations, and listing variable names, labels and response categories. User training sessions expand on the information provided in the user manual. Please contact the AIFS data manager if you are interested in attending a data user training session.

For data requests, contact:

*Growing Up in Australia* Data Administrator

Phone: (03) 9214 7803

Email: <[aifs-lsac@aifs.gov.au](mailto:aifs-lsac@aifs.gov.au)>

More information on *Growing Up in Australia* is on the study website, [www.aifs.gov.au/growingup](http://www.aifs.gov.au/growingup). People with an interest in the study can join the email alert group to receive regular information on the study.

To join, send the following email:

To: <[majordomo@aifs.gov.au](mailto:majordomo@aifs.gov.au)>

Subject: (leave blank)

In the body of the email, type: `subscribe growingup-refgroup`

For general inquiries contact:

*Growing Up in Australia* Senior Research Fellow

Phone: (03) 9214 7853

Email: <[aifs-lsac@aifs.gov.au](mailto:aifs-lsac@aifs.gov.au)>

For study participant inquiries contact:

ABS

Phone: 1800 005 508

Email: <[growingup@abs.gov.au](mailto:growingup@abs.gov.au)>