

**The Longitudinal Study of Australian Children
Review and Revision of the Key Research Questions**



Longitudinal Study of Australian Children

Authors

This review and revision of the Key Research Questions was conducted by Professor Stephen Zubrick. Input was received from members of the Department of Social Services and the LSAC Research Consortium...

Professor Stephen R Zubrick
Senior Principal Research Fellow
Centre for Child Health Research
University of Western Australia

DSS team contributors:

Dr Helen Rogers

Key contributors from the LSAC Research Consortium:

Professor Jan Nicholson
Inaugural Roberta Holmes Professor
Judith Lumley Centre, La Trobe University

Professor Ann Sanson
Honorary Professorial Fellow
Department of Paediatrics, The University of Melbourne

Associate Professor Lyndall Strazdins
Senior Fellow
National Centre for Epidemiology & Population Health
The Australian National University

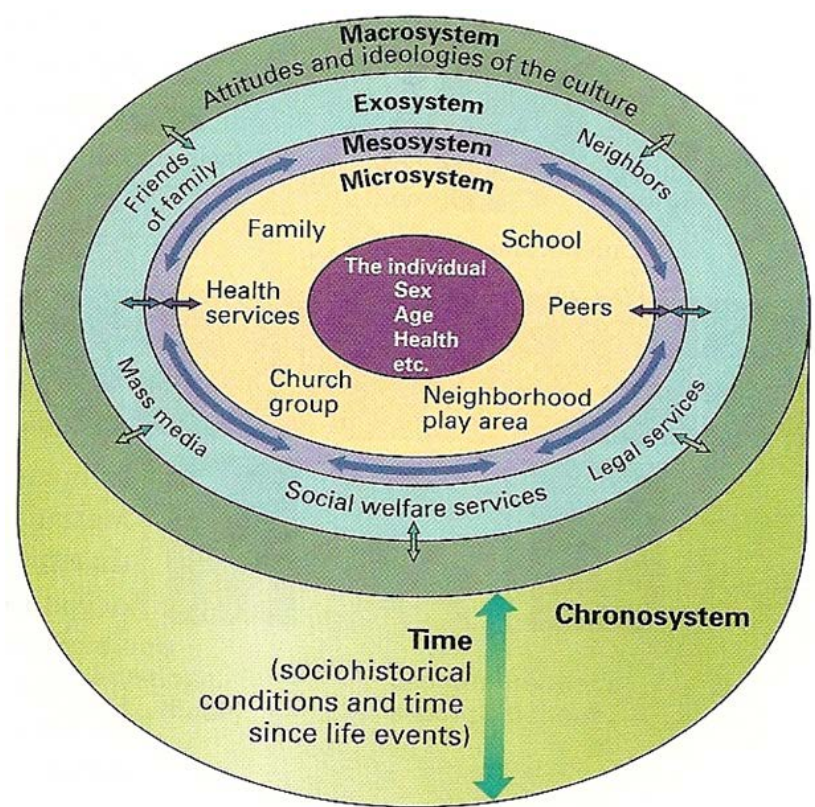
The Longitudinal Study of Australian Children: Review and Revision of the Key Research Questions

16 April 2015

Introduction

The **Longitudinal Study of Australian Children (LSAC)** is based on an bioecological framework of human development (Sanson, Nicholson, Ungerer, Zubrick, & Wilson, 2002). This approach places an emphasis on both the immediate and broader environment as important for child development (Figure 1). It explicitly acknowledges the child's own contribution to their development and highlights time as an important influence (Bronfenbrenner & Morris, 1998, 2006). As summarised in the first overview of the LSAC, according to this conceptual framework the 'family, school, community and broader society, as well as the children's own attributes, are seen to contribute to the child's development in complex interacting ways over time' (Sanson et al, 2002, p5).

Figure 1: Bronfenbrenner: ecological theory of child development. (Source: Santrock 2007)



In applying this conceptual framework, the LSAC takes a developmental pathways approach, emphasising trajectories of development across the lifespan. This perspective seeks to identify the factors that influence pathways for good and for poor outcomes. How these factor vary, especially at crucial transition points such as entry into child care or school or movement out of education into the workforce, is able to be identified and explored. The child's current circumstances and how

earlier transitions have been negotiated (including the skills that children may or may not have developed through these processes) may influence subsequent transitions. By identifying early indicators of detrimental and of beneficial pathways, policies, programs and interventions can be designed to help steer children on a healthy course through life.

Why review the key research questions?

Fourteen Key Research Questions (KRQs) reflecting the original Australian Government Request for Proposals were developed and broadly grouped under the headings of: health, family functioning, non-parental child care, education and cross discipline (Sanson et al., 2002). The research questions ensured LSAC reflected a strong theoretical understanding of child development and addressed issues relevant to social policy. These KRQs gave focus to the content of the LSAC during the first four waves of data collection. Appendix A contains the original 14 questions.

A review of the KRQs was conducted in 2008 to ensure the study continued to measure age-relevant issues and circumstances of child development as the children moved into adolescence and to identify gaps in the current KRQs. This review identified 11 KRQs for focus in the period 2008 and onward.

LSAC is now in the planning stages for Wave 7 data collection in 2016. The B-cohort will be aged about 12-13 years and the K-cohort children will be approximately 16-17 years. Wave 7 will be the last data collection period where it is reasonable to assume that most of K-cohort study children will still be at home.

At Wave 8, in 2018, the K-cohort children will have reached the age of majority and be moving out into the world. In this regard, they will be emerging adults. As well as representing significant developmental milestones for the study children, Wave 8 represents a significant developmental milestone for the LSAC. In effect, the LSAC will be on the threshold of becoming a “life course” study.

This is part of the natural evolution of longitudinal studies generally (Zubrick, in press). The original LSAC cohorts are approaching young adulthood, many of the K-cohort children will be leaving the parental home at Wave 7, by Wave 8 some will experience early pregnancy and family formation, and the study design will increasingly need to reflect these circumstances. Moreover, by Wave 8 the LSAC study “children” reach the age of majority and the study will be reliant on their consent and onward willingness to participate.

How do we think about Outcomes now that the LSAC children are emerging adults?

A focus on life course outcomes from infancy and childhood confronts researchers with a fundamental question: What constitutes an “outcome” when so much of life and development is still ahead?

Three ‘domains’ were selected for the LSAC study children as the major components of their wellbeing and as markers for their future capability to participate civically, socially and economically. These domains are: health and physical development, social and emotional functioning, and learning and cognitive ability. The domains and some of the constructs they include are:

HEALTH AND PHYSICAL DEVELOPMENT

- health-related quality of life/health functioning
- global health
- special needs
- perinatal indicators such as birth-weight and gestational age
- specific health issues such as asthma, oral health, vision, sleep problems, toileting problems (enuresis, constipation), headache, allergies
- injuries and hospital admissions
- nutrition
- motor skills
- physical activity, fitness and cardiovascular health
- height, weight and girth
- puberty

SOCIAL AND EMOTIONAL FUNCTIONING

- mental health including:
 - internalizing problems (e.g. anxiety, depression)
 - externalising problems (e.g. conduct problems, hyperactivity)
- temperament
- social competence
- self esteem, self-concept
- parent-child, teacher-child and peer relationships
- bullying
- civic engagement and social consciousness
- issues such as substance use, antisocial behaviours, risk taking behaviours and eating disorders

LEARNING AND COGNITIVE DEVELOPMENT

- non-verbal reasoning
- language – vocabulary, communication skills and receptive language
- academic readiness
- literacy and numeracy competence
- academic achievement
- school engagement and adjustment

As well as these three outcome domains there has been considerable focus throughout every wave of the study on the domain of **Socio-demographic Indicators**. For infants and young children this domain broadly tapped social, educational, economic, employment, geographic and other demographic features of the study child's parents, carers, and other family members. For this reason, the socio-demographic indicators were not denoted as an outcome domain. However, now that the study children are on the threshold of independence, many of the socio-demographic indicators become measurable outcomes for the study children.

The original policy environment of LSAC – looking back 14 years

The **original 2001 Request For Proposals** from the Department of Family and Community Services specified a clear purpose for the study:

The (study) will provide integrated information on which to base social policy in areas concerning children, specifically child care, early childhood education, parenting and family relationships, family support and health. Data from LSAC will be used to identify policy opportunities, for early intervention and prevention strategies. It is expected that the data collected will be used by FaCS, other Commonwealth and State/Territory Departments, and the general research community (FaCS, 2001, RFP, p. 20)."

At this time, the Commonwealth Government was increasingly requiring policy responses that cross portfolio boundaries.

LSAC was seen to provide the evidence-base on which to develop sound policies particularly in the area of stronger families and early intervention/prevention.

The initial policy setting and need for evidence at the time the LSAC was initiated was summarised as follows:

"All Commonwealth departments . . . would ideally like to understand how the issues they are concerned with will translate to outcomes later in children's lives. There is a shared policy interest in the early determinants of adult behaviour, capacities and attitudes, including successful transitions to adulthood and full economic and social participation, educational attainment, relationship and family formation, parenting, and citizenship, adult health status, and so on.

The Commonwealth government believes that the study of children's experience in the domains of health, parenting, family relationships, education and childcare is inter-twined. This is because the factors associated with determining outcomes and relationships in these domains are linked.

These associations suggest that LSAC must draw on a large range of inter- and multi-disciplinary areas. Overall, the study of children within an inter-disciplinary framework, and the anticipated analytical developments, will pay off in better informed policy development.

LSAC, with its focus on factors influencing early development, will provide an important, and until now, missing component of this total picture. (FaCS, RFP, 2001, p. 28)"

What now constitute adult "outcomes" for the LSAC children?

It is not possible to evaluate the relevance of the original Key Research Questions, without adopting a general definition of the "outcomes" of interest now that the study children are emerging adults.

The framework for these outcomes should be assessed against contemporary policy needs. The LSAC has established a solid empirical basis from which to address current and future policy needs. While not attempting to encompass the full range of these policy priorities, the existing study can inform already known issues relevant to individuals and families in the context of: 1) an ageing population, 2) globalization and 3) rapidly changing technology. **The broad adult outcome domains for which developmental evidence is required are those that pertain to:**

An **overarching theme** for the next 10-15 years:

- Transitions to adulthood

Specific high level (i.e. unit) outcome domains:

- Economic participation
- Social participation
- Civic participation and citizenship
- Educational attainment and skill development (cognitive and non-cognitive skills)
- Relationships within and outside the family
- Family formation and parenting
- Personal safety/security and housing
- Health status
- Social and emotional adjustment

This relatively small set of adult outcome domains is powerful and measurable.

These areas reflect the current cross portfolio policy interest as indicated by consultations undertaken during 2013-2014. They are congruent with the historical policy context of the study and map to contemporary policy needs of today. Importantly, the LSAC design process and content has been developed to address the analytic demands of these outcomes.

What is now needed though is ongoing and careful design of the measures of these outcomes for the LSAC study children as they become adults. The predictors are extensively mapped in the extant data in preceding waves. Many of the socio-demographic indicators are now relevant as outcomes for the study participants in their own right.

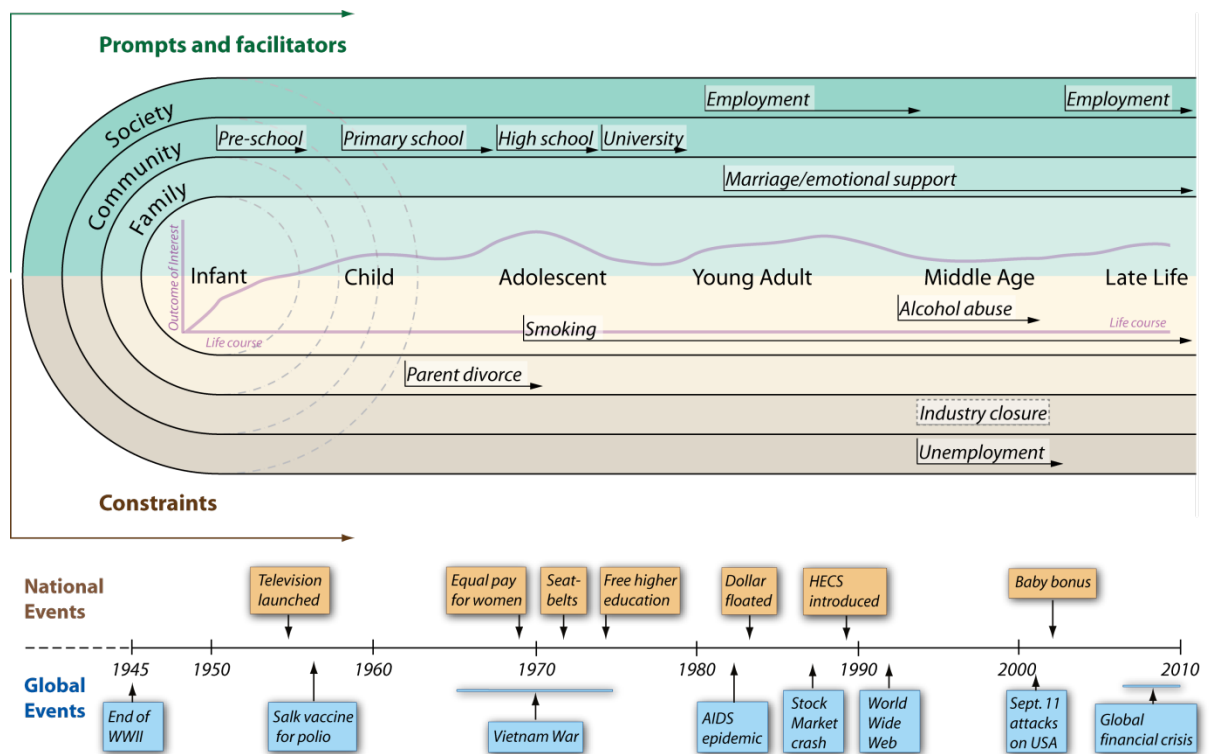
How should we measure adult outcomes and opportunities for the LSAC children?

As the LSAC children emerge into young adulthood it is reasonable to believe that the broad overarching outcome of human development is measured in their capability to participate economically, socially and civically. To be interested in capability formation across the life course is to ask, how do individuals and populations achieve more equal outcomes in enabling people to choose lives that they value? This capability can be measured across the lives of individuals, generations and populations.

Capability, and an interest in its expansion, has several theoretical, philosophical and political origins and an extensive literature and application (see Zubrick et al, 2009). Its attraction here in the context of viewing the life course from childhood onwards is through its ability to define some “end” to which human development broadly works and to serve as a theoretical anchor point of developmental coherence across the life course. It enables this without restricting the scope of study into specific types of outcomes (i.e. diseases, health, education) while at the same time encourages many outcomes to be considered as developmental “means”. Looking from childhood onwards across the lifecourse, a human capability framework seeks to understand the ways in which health, wellbeing and capability develop in individuals, generations and populations in different historical,

political, cultural, social and economic contexts. Figure 2 represents the emerging model that could be seen to guide the onward focus of LSAC as the study children become adults.

Figure 2: Life Course Study of Australian Families: Growing up in Australia



(from Zubrick et al, 2009)

A revision of the Key Research Questions

The original 11 questions (Appendix A) have produced an intense focus on every aspect of the LSAC design. Their value has been to define predictors, covariates and “outcome” measures as the children move from infancy to adulthood. At all points in the design, there has been recognition that outcomes at one developmental stage may become predictors at another. So, as the LSAC children enter adulthood, the principal design requirement is to now map and produce onward descriptions of adult “outcomes”. While there are likely additions, and probable changes to language as a result of this process, it would be surprising if the high level adult outcomes were found to be irrelevant or inflexible to modification.

These **high level adult outcomes domains** (as specified above) will serve as the markers for “Transitions to adulthood” and include: 1) economic participation, 2) social participation, 3) civic participation and citizenship 4) educational attainment and skill development (cognitive and non-cognitive skills), 5) relationships within and outside the family 6) family formation and parenting, 7) personal safety/security and housing, 8) adult health status and, 9) adult social and emotional adjustment. They permit flexibility to explore ‘pathways’ which can open the door to more person-centred analysis (identifying groups of individuals on different trajectories

Using these high level outcomes to developmentally adjust the original Key Research Questions produces the following revisions:

Key Research Question A

What earlier factors directly influence and/or mediate or moderate an adult's later physical health and development over time? What is the effect of earlier physical health development on an adult's overall wellbeing and on other specific outcomes¹, and how does this influence change over time?

Key Research Question B

What are the nature and impacts of early family composition, relationships and dynamics on the adult outcome domains, and how do these relationships and their effects change over time?

Key Research Question C

What is the influence of prior parental labour force participation, education and economic status on the individual adult outcome domains? How do the impacts of prior parental labour force participation, education and economic status change over time?

Key Research Question D

What are the prior effects of non-parental child care and children's school engagement and achievement on individual adult outcome domains? How do these experiences and influences change over time and relate to adult outcomes?

Key Research Question E

What is the influence of participation in education, training and the labour force on adult outcomes?

Key Research Question F

What are the impacts of children's use of time on individual adult outcomes? Do different patterns of time use produce differential adult outcomes?

Key Research Question G

Which prior child, parental and community beliefs, attitudes and expectations influence adult outcomes? Do different patterns and effects of these beliefs, attitudes and expectations produce differing adult outcomes?

Key Research Question H

How do circumstances such as the prior parental labour force participation, education and economic status of children, families and communities help individuals achieve resilience and thus the ability

¹ These outcomes would include 1) economic participation, 2) social participation, 3) civic participation and citizenship 4) educational attainment and skill development (cognitive and non-cognitive skills), 5) relationships within and outside the family 6) family formation and parenting, 7) personal safety/security and housing, 8) adult health status and, 9) adult social and emotional adjustment

to cope with transitions or adversity? How do these factors influence individual adult outcomes and how do these influences change over time?

Key Research Question I

Which prior social connections and supports available to families and children contribute to different adult outcomes?

Key Research Question J

Do earlier neighbourhood characteristics and community connectedness, engagement, trust and violence produce adult outcomes? How?

Key Research Question K

What is the impact of intergenerational characteristics on individual adult outcomes, and how does this impact change over time?

These revised KRQs illustrate the “core” stability in the original KRQ’s while at the same time shift the emphasis firmly towards understanding the processes of *change* that result in specific adult outcome domains. They particularly permit the study of moderating factors that can change outcomes over time. In this regard, the questions are still relevant and have not substantially changed.

What has changed is the focus on emerging adult developmental outcomes and the need for the questions to address processes rather than fixed states. These questions allow differing analytic approaches to describe and illuminate the potential role of mediators and moderators from other domains influencing the impact of the main independent variables mentioned in each question – ie the cross-domain and interdisciplinary potentials for analysis. As mentioned above, they permit flexibility to explore ‘pathways’ which can open the door to more person-centred analysis (identifying groups of individuals on different trajectories). There is an emphasis on longitudinal processes of development. The revised questions capitalise on the extant data and permit considerable flexibility in addressing policy interests and needs. They offer some prospect of sensibly containing the pressure on content demand in the face of the cohorts become fully independent adults.

Other opportunities

This paper is not designed to comprehensively “fill in” the emerging requirements for the LSAC. Social, cultural, economic and political contexts change. So too does the environment. Policy reform is an ongoing process that results in the need for continued review of the relevance of LSAC and assessment of the flexibility of the study to deliver needed results.

With this said, there is an opportunity to reflect more widely on broader aspirations and expectations that governments, families and communities have for children when they are brought into the world and grow up.

One of the needs of the study will be the direct measurement of how the emerging study participants evaluate their own capabilities. Whatever might be “measured” by LSAC in regards to

social, civic and economic participation as outcomes, it is also reasonable to ask, “Are the study participants able to choose a life they value?”

Some of the concepts to measure might reflect the following (from Anand et al, 2009):

Bodily integrity: Being able to move freely from place to place; being secure against violent assault; having opportunities for sexual satisfaction; being able to express feelings of love, grief, longing, gratitude, and anger compared with most people of your age.

Emotions: Being able to have attachments to things and people outside yourself; to love those who love and care for us; Not having one’s emotional development blighted by fear and anxiety; Being able to form a conception of the good; to engage in critical reflection about the planning of one’s life.

Affiliation: Being able to engage in various forms of social interaction; Being able to laugh, to play, to enjoy recreational activities; being able to build and enjoy caregiving bonds, caring for other and raising children.

Control over one’s environment: Being able to participate effectively in political choices that govern one’s life; having the right of political participation, protection of free speech and association; being able to hold property (both land and movable goods), and having property rights on an equal basis with others; having the right to seek employment on an equal basis with others.

These are suggested ways of thinking about the questions that might be relevant to ask the LSAC study participants who, after all, are becoming adults and making their own judgments about the lives they are living. These types of questions place into a wider human context, those important adult outcomes centered on social, economic and civic participation. They seek to find out if individuals are, despite all of the challenges and circumstances, happy and able to choose a life they value.

Conclusion

The LSAC is poised to move from a longitudinal study of children to become a life course study. This is a natural progression and a common phenomenon among large international studies of this type. A life course framework has always been a foundational potential of the study. This review proposes that this be now made more explicit by reviewing and revising the Key Research Questions to focus them on adult outcome domains and upon the processes by which these are achieved.

Research efforts in life course studies have offered impressive contributions to our understanding of health trajectories across lives, generations and populations. This has been accomplished through the careful assembly of data from multiple methodologies (e.g., longitudinal, cross-sectional, time-series) and different sources of data (e.g., census and administrative datasets, area level information, postal surveys, direct assessment). These efforts show us that there is no “one perfect” study design for the life course. Instead, the life course, as represented in research, is best understood as a construction of findings from suitably designed and powered studies that permit causal insights into the relationship between the timing and sequencing of exposures on one hand, and outcomes of interest on the other. LSAC is one of these important studies.

Bibliography

Anand, Paul , Hunter, Graham , Carter, Ian , Dowding, Keith , Guala, Francesco and Van Hees, Martin (2009) The Development of Capability Indicators , *Journal of Human Development and Capabilities*, 10: 1, 125-152, DOI: 10.1080/14649880802675366 URL: <http://dx.doi.org/10.1080/14649880802675366>

Becker GS. *Human capital: A theoretical and empirical analysis with special reference to education*. Chicago: University of Chicago Press; 1993.

Ben-Shlomo Y, Kuh D. A lifecourse approach to chronic disease epidemiology: Conceptual models, empirical challenges and interdisciplinary perspectives. *International Journal of Epidemiology*. 2002;31:285-93.

Bronfenbrenner U. *Making human beings human: Bioecological perspectives on human development*. Thousand Oaks, CA: Sage Publications; 2005.

Bronfenbrenner, U., & Morris, P. A. (2006). The bioecological model of human development. In W. Damon & R. M. Lerner (Eds.), *Handbook of child psychology* (Vol. 1, pp. 793-828). New York: John Wiley & Sons.

Coleman JS. *Foundations of Social Theory*. Cambridge, Massachusetts: The Belknap Press of Harvard University Press; 1990.

Coleman JS. Social Capital in the Creation of Human Capital. *American Journal of Sociology*. 1988;94(Supplement):S95-S120.

Doyle O, Harmon CP, Heckman JJ, Tremblay RE. Investing in early human development: Timing and economic efficiency. *Economics and human biology*. 2009;7:1-6.

Fukuda-Parr S, Shiva Kumar AK, editors. *Readings in human development: Concepts, measures and policies for a developmental paradigm*. New Delhi: Oxford University Press; 2003.

Holman CD, Bass AJ, Rosman DL, Smith MB, Semmens JB, Glasson EJ, et al. A decade of data linkage in Western Australia: Strategic design, applications and benefits of the WA data linkage system. *Australian Health Review*. 2008;32:766-77.

Jablensky AV, Morgan V, Zubrick SR, Bower C, Yellachich L-A. Pregnancy, delivery and neonatal complications in a population cohort of women with schizophrenia and major affective disorders. *American Journal of Psychiatry*. 2005;162(1):79-91.

Lawrence D, Holman CDJ, Jablensky AV. *Duty to Care: Preventable physical illness in people with mental illness*. Perth: The University of Western Australia; 2001.

Lynch J, Davey Smith G. A life course approach to chronic disease epidemiology. *Annual Review of Public Health*. 2005;26:1-35.

Mayer KU. New directions in life course research. *Annual Review of Sociology*. 2009;35:413-33.

Sen A. *Development as freedom*. Oxford: Oxford University Press; 1999.

Sanson, A., Nicholson, J., Ungerer, J., Zubrick, S., & Wilson, K. (2002). Introducing the Longitudinal Study of Australian Children. LSAC Discussion paper No. 1. Melbourne: Australian Institute of Family Studies.

Santrock, J. W. (2007). *Child Development*. Eleventh edition. NY: McGraw-Hill Companies, Inc.

Shonkoff JP, Boyce WT, McEwen BS. Neuroscience, Molecular Biology, and the Childhood Roots of Health Disparities: Building a New Framework for Health Promotion and Disease Prevention. *JAMA*. 2009 June 3, 2009;301(21):2252-9.

Zubrick SR, Lawrence DM, Silburn SR, Blair E, Milroy H, Wilkes E, et al. The Western Australian Aboriginal Child Health Survey: The Health of Aboriginal Children and Young People. Perth: Telethon Institute for Child Health Research; 2004.

Zubrick SR, Silburn SR, Lawrence DM, Shepherd C, Mitrou FG, DeMaio J, et al. (2008) Population capability and human development models: Policy changes to improve the lives of Australian Aboriginal children and families. In: Robinson G, Eickelkamp U, Goodnow J, Katz I, editors. *Contexts of child development: Culture, policy and intervention*. Darwin and Sydney: Charles Darwin University Press.

Zubrick SR, Silburn SR, Prior M. (2005) Resources and contexts for child development: Implications for children and society. In: Richardson S, Prior M, editors. *No time to lose: The wellbeing of Australia's children*. Carlton, VIC: Melbourne University Press.

Zubrick, S. R., Taylor, C. L., Lawrence, D. M., Mitrou, F. G., Christensen, D., & Dalby, R. (2009). The development of human capability across the lifecourse: Perspectives from childhood. *Australian Epidemiologist*, 16(3), 6-10.

Zubrick, S. R. (in press). Longitudinal research: Applications for the design, conduct and dissemination of early childhood research. In A. K. Farrell, S. L. Kagan & K. Tisdall (Eds.), *The SAGE Handbook of Early Childhood Research*. London: Sage Publications.

Appendix A

The original 2002 LSAC Key Research Questions (Sanson et al, 2002)

Key Research Question 1

What are the impacts of family relationships, composition and dynamics on child outcomes, and how do these change over time?

Key Research Question 2

What can be detected of the impacts and influences of fathers on their children?

Key Research Question 3

How are child outcomes affected by the characteristics of their parents' labour force participation, their educational attainment and family economic status, and how do these change over time?

Key Research Question 4

Do beliefs and expectations of children (parental, personal and community, in particular the parents' and child's expectations of the child's school success, workforce participation, family formation and parenting) impact on child outcomes, and how do these change over time?

Key Research Question 5

How important are broad neighbourhood characteristics for child outcomes? Does their importance vary across childhood? How do family circumstances interact with neighbourhood characteristics to affect child outcomes?

Key Research Question 6

How important are family and child social connections to child outcomes? How do these connections change over time and according to the child's age? Does their importance vary across childhood?

Key Research Question 7

What is the impact over time of early experience on health, including conditions affecting the child's physical development?

Key Research Question 8

What is the impact on other aspects of health and other child outcomes of poor mental health, including infant mental health and early conduct disorder? How does the picture change over time?

Key Research Question 9

How do socio-economic and socio-cultural factors contribute over time to child health outcomes?

Key Research Question 10

What are the patterns of children's use of their time for activities such as outdoor activities, unstructured play, watching television, reading; and how do these relate to child outcomes including family attachment, physical fitness level and obesity, social skills and effectiveness over time?

Key Research Question 11

What is the impact of non-parental child care on the child's developmental outcomes over time, particularly those relating to social and cognitive competence, impulse control, control of attention and concentration, and emotional attachment between child and family?

Key Research Question 12

What early experiences support children's emerging literacy and numeracy?

Key Research Question 13

What factors over the span of the early childhood period ensure a positive "fit" between child and school and promote a good start in learning literacy and numeracy skills in the first years of primary education?

Key Research Question 14

What are the interactions among factors in family functioning, health, non-parental care and education that affect child outcomes?