



Information Paper

Early Childhood Learning and Care: Data sources, gaps and opportunities

Australia

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and Care: Data sources,
gaps and opportunities**

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PREFACE

There is widespread agreement on the need to improve the evidence base for policy development and program evaluation in the field of early childhood learning and care. A wide range of data on young children is currently collected by government and non-government agencies, but it does not present a cohesive and integrated picture.

This review on early childhood aims to improve the evidence base for early childhood learning and care through recommending better use of existing data held by government agencies. The focus of this project is to overcome key data gaps through improving access to and use of existing data sources, rather than identifying options for new data sources. These existing data sources may be censuses, surveys or administrative data. This paper identifies data gaps through mapping available data sources against the information needed to answer key policy questions, and considers potential enhancements in access to and integration of existing data sources for statistical purposes.

This review has been undertaken by the ABS in close collaboration with the Australian Treasury, the Department of Families, Housing, Community Services and Indigenous Affairs (FaHCSIA), the Department of Education, Employment and Workplace Relations (DEEWR) and the Australian Institute of Health and Welfare (AIHW). The project was guided by the Working Group and Project Board, comprising of representatives from the above agencies. These groups have been instrumental in setting directions for the project, as well as in identifying and articulating key policy issues, information needs and related actions.

The recommendations in this paper are supported in principal by these agencies, who are also committed to progressing the data development activities.

There is considerable interest in early childhood policy and various developments are underway in this area. The ABS and the contributing agencies are anticipating further debate in the policy areas for early childhood learning and care.

Brian Pink
Australian Statistician

EXECUTIVE SUMMARY

OVERVIEW

This review aims to improve the information base for early childhood learning and care through recommending better use of existing data held by government agencies and identifying new opportunities. There is substantial research pointing to the importance of positive care and learning experiences in the early years and it is important to inform policy through data systems.

The Council of Australian Governments (COAG) identifies early childhood development as a key area of reform as part of its Productivity Agenda. All levels of government are involved in policy and programs relating to children's early learning and care and data created as part of these processes has potential to inform all stakeholders.

There is widespread agreement on the need to improve the information base for early childhood policy development and program evaluation, in order to provide a comprehensive picture of early childhood learning and care across Australia.

PURPOSE OF THE PROJECT

The review performed a stock-take of key data collections that related to policy questions, and identified options for addressing key data gaps, improving access and use of existing data sources. Effective use of data collected in this field support policy development, service provision and evaluation of services.

CURRENT POLICY CONCERNS

Improving wellbeing and outcomes for children is a high priority issue in Australia. Key policy directions for the Australian government include:

- enhancing and integrating the provision of early childhood education and care services
- improving the quality and sustainability of the early years workforce
- boosting the participation of parents in the learning and development of their children (MCEETYA and MCVTE 2008).

The overarching policy question, in this review, asks what factors in early childhood are critical to children's optimal development and later outcomes. Consultation with early childhood experts from participating government agencies resulted in a focus on three central themes; preschool participation and characteristics, child care participation and characteristics and parenting behaviours and patterns. The recurring issue was how to improve the captured information for these areas and the ability to assess the impact of change from the introduction of new policies and interventions.

KEY FINDINGS

The review found that except for some specific areas, existing information for early childhood learning and care has potential to meet most user needs. However, knowledge of and access to these data were found to be significant hurdles and were restricting best use of this information. Additionally, due to the varying practices in early childhood services, the main sources for early childhood learning and care data have considerable methodological and definitional differences that limit direct comparability.

These following are identified as outstanding high priority data gaps:

- lack of complete coverage for target populations, e.g. limited information available for children aged 0–5 who do not yet attend school, non-participants of child care and/or preschool, risk groups
- definition of preschool program varies considerably between collections
- reasons for not participating in informal child care, formal child care and preschool

EXECUTIVE SUMMARY *continued*

KEY FINDINGS *continued*

- human resource characteristics for formal child care and preschool workers, including educational qualifications and employment details
- whether preschool program is designed and delivered by a degree qualified early childhood teacher
- limited existing information to enable linking outcome data with historical information.

RECOMMENDATIONS

The gap areas summarised above were identified by a panel of stakeholders from Commonwealth agencies and reflect key policy issues. A series of recommendations are proposed that seek to enhance current data collected from government agencies, practices around the data, extend into new areas of data and improve access to data. The proposed recommendations are endorsed by the participating agencies, who are committed to progressing them.

Quality and comparability of existing learning and care data sources

Significant gains in knowledge in early childhood learning and care could be made across existing data sources by improving data quality, comparability and use. Therefore three recommendations address these issues:

Recommendation 1: Implement consistent data standards and definitions

Recommendation 2: Improve data quality, usability and information management networks

Recommendation 3: Improve statistical training and expertise

Visibility of and appropriate access to existing data sources

The visibility of early childhood learning and care sources is highly varied and limits its use. The wide variation of data release practices, and underpinning legislation and protocols, prevent key statistical data being used effectively and reduces the ability to share information across government agencies. Three recommendations seek to improve this situation:

Recommendation 4: Improve visibility of data holdings for early childhood collections

Recommendation 5: Make high priority information accessible to researchers and policy makers

Recommendation 6: Enable use of data for statistical purposes in future legislation and protocols

Improving current data collections to address priority gap areas

Information for early childhood learning and care is sourced from many collections, but coverage limitations and methodological differences result in data gaps. Two recommendations addressing these gaps in high priority areas will improve knowledge in this field:

Recommendation 7: Improve data capture and coverage for delivery of early childhood learning

Recommendation 8: Improve non-participation data

Creation of new information from existing sources

EXECUTIVE SUMMARY *continued*

RECOMMENDATIONS *continued*

Extensive information is captured from various administrative sources. These sources have significant potential to be adapted and extended through linkage and other expansion options to augment the current data. Two recommendations seek to encourage these developments:

Recommendation 9: Explore augmentation opportunities

Recommendation 10: Explore linkage opportunities

The implementation of these recommendations presents a challenge to all stakeholders in the field of early childhood learning and care. Current policy developments through the Australian government and COAG have initiated changes, and present opportunities for further improvements. Full realisation of these recommendations requires involvement from all stakeholders, across government, non-government and private sectors.

CHAPTER 1 INTRODUCTION

INTRODUCTION

Children benefit from positive care and learning experiences in the early years, and there is widespread agreement that these experiences have positive benefits later in life. International studies support the view that there are greater benefits from investing in early learning programs for disadvantaged children than in programs which occur later in life. There is agreement on the need for an improved evidence base for policy development and program evaluation related to early childhood.

This information paper reports on the Data gaps project on early childhood learning and care, which has been undertaken to improve the evidence base. This project focuses on aspects central to learning and care experiences and their impact on development and later outcomes, with acknowledgement of the many additional influencing factors such as health and socioeconomic status. It has been undertaken by the ABS in collaboration with the Australian Treasury, the Department of Families, Housing, Community Services and Indigenous Affairs (FaHCSIA), the Department of Education, Employment and Workplace Relations (DEEWR) and the Australian Institute of Health and Welfare (AIHW). The project was guided by a Project Board and Working Group comprising of representatives from these agencies.

EARLY CHILDHOOD LEARNING AND CARE

Responsibility for early childhood learning and care is shared between the Australian Government and the state or territory governments, and involves a wide range of service providers including government, local government, community, schools and private businesses.

There is a wide range of early childhood learning and care data collected by government and non-government agencies, partially due to the wide range of governments and providers involved in service delivery. These data do not present an integrated and comprehensive picture of young children's learning and care experiences, and there are many issues affecting data quality and coverage.

Child care overview

The Australian Government's primary role in child care is to assist parents with the cost through the Child Care Benefit (CCB) and the Child Care Tax Rebate (CCTR). It also provides some operational funding to support services and administers the quality accreditation scheme. State and territory governments are responsible for licensing and regulating child care and provide some direct funding. Families can claim CCB and the CCTR for care delivered by approved Long Day Care, Family Day Care, Outside School Hours Care, Vacation Care, In-Home Care and Occasional Care services. These services are provided through a combination of private business, community and some state and local government investment.

Families can also use a range of more informal, unregulated child care arrangements, which may be paid or unpaid. This includes care by siblings, grandparents, other relatives and unrelated people such as friends, neighbours, nannies or babysitters.

Preschool overview

Preschool programs aim to provide early educational activities specifically to help children prepare for school. They offer formal learning programs ideally delivered by a degree-qualified early childhood teacher. Enrolment for children in preschool programs is voluntary. Preschool programs may be delivered through government, non-government (school), for-profit, community preschools and child care providers. Preschools are referred to as 'kindergartens' in five states and territories and are largely

CHAPTER 1 INTRODUCTION *continued*

Preschool overview continued

community based in three states (New South Wales, Victoria and Queensland). They operate under the authority of departments of education and/or departments of community services, and are conducted on a sessional basis of between 10 and 12 hours per week (Elliott 2006).

DATA GAPS PROJECT ON EARLY CHILDHOOD

Aims

The aim of the Data gaps project on early childhood learning and care is to improve the evidence base for early childhood policy development through better use of existing data held by government agencies. Some existing data sources have been created for statistical purposes and are widely used. However, other datasets exist as a part of the administrative processes of government and have large potential statistical value either as they currently stand or through enhancements. This project focuses on highlighting the value of increased use of existing data sources, as it offers benefits in terms of less respondent load, strong relationships between data sources and current policy issues and potentially more detailed analysis.

Outcomes

The outcomes sought from the project include to:

- increase understanding of the key policy questions relevant to the topic
- undertake a review of available information to answer the identified policy questions
- provide options for improving the information base for early childhood through better access to existing information or creating new information from existing data sources (e.g. through data linking or other analysis and research)
- recommend potential enhancements to government data management policies and guidelines for application in other policy fields
- increase awareness of relevant early childhood data sources
- forge partnerships between the key policy agencies and statistical agencies in the management of statistical information.

Process

To achieve these outcomes, the project sought to:

- create a set of concise policy questions to cover key issues relating to early childhood
- identify the data needed to answer the question(s)
- determine the data sources available and who the data custodians were
- consider what gaps or deficiencies remained or needed to be addressed
- identify how existing data could be harnessed through existing business processes and governance arrangements
- propose an interagency data management model to best deliver the outcomes being sought.

These aspects of the project have been investigated and documented in this paper. Further developments from this work include engaging further with stakeholders with a view to creating the policy and legislative environment where government data could be better shared for statistical purposes.

Population Wellbeing Data Gaps Workshop

The Data gaps project was an outcome of the Population Wellbeing Data Gaps Workshop. The concept of well-being can be seen as a state of health or sufficiency in all aspects of life. It encompasses a range of fundamental human needs and aspirations, each of which can be linked to an area of social concern such as family and community,

CHAPTER 1 INTRODUCTION *continued*

Population Wellbeing Data Gaps Workshop continued

health, work and economic resources. For more information, see *Measuring Wellbeing: Frameworks for Australian Social Statistics* (ABS cat. no. 4160.0).

The Population Wellbeing Data Gaps Workshop was held in June 2006 and was co-hosted by ABS, Treasury and the then Department of Families, Community Services and Indigenous Affairs (FaCSIA). The workshop brought together a reference panel from governments, academia and the not-for-profit sector. The workshop discussed data gaps in population wellbeing, including improving priority-setting and facilitating whole of government approaches in this field of statistics. The workshop agenda, papers, summary report and proposed actions are available on the NSS website (<<http://www.nss.gov.au>>).

A key emphasis of the workshop was on how to better utilise existing data. Participants agreed that the evidence base for policy development could be improved through better knowledge of the broad range of existing data currently held by government agencies, and more ready access to and use of such data. These data may be collected specifically through surveys or available as a result of administrative information collected for government business. The information could have statistical benefit for other policy issues or applications well beyond its original collection purpose.

As a result of discussions at the workshop, ABS, Treasury and the former FaCSIA identified a range of actions where collaborative progress could be made. The first of these to be implemented is the Data gaps project on early childhood learning and care.

National Statistical Service

The Data gaps project was designed to support the vision of the National Statistical Service (NSS) and to demonstrate its application in the field of early childhood. The vision of the NSS is that all government agencies work together to deliver the statistics required in Australia. This will be achieved through increasing the availability, accessibility and usability of information derived from key administrative and survey datasets, applying sound statistical and data management principles and practices, and forging statistical partnerships to share knowledge and expertise. More information about the NSS is available on the NSS website.

EARLY CHILDHOOD STATISTICS

There is a lot of activity for statistics in the field of early childhood learning and care which have fed into the Data gaps project. This includes activity around major new or redeveloped collections such as the Longitudinal Study of Australian Children (LSAC), the Childhood Education and Care Survey (CEaCS) and the national rollout of the Australian Early Development Index (AEDI). There is also substantial activity around early childhood reporting and statistical frameworks, including:

- *Information paper: Measuring Learning in Australia: Concepts and Directions in Early Childhood Learning* (ABS cat. no. 4232.0) – This ABS paper reviews and assesses currently available indicators in the field of early childhood learning and proposes a set of further measures that could be reported. It underpins the work done for the Data gaps project and provides a detailed background on early childhood learning.
- *Improving Statistics on Children and Youth: An Information Development Plan, Australia* (ABS cat. no. 4907.0) – This is an agreement among key stakeholders on statistical work required in the field of children and youth.

CHAPTER 1 INTRODUCTION *continued*

EARLY CHILDHOOD STATISTICS *continued*

- *A picture of Australia's children* (AIHW) – This is a national statistical report on the health, development and wellbeing of Australia's children aged 0–14 years. This is available on the AIHW website, <<http://www.aihw.gov.au>>.
- Children's Services National Minimum Data Set (CS NMDS) – This is a common set of data items, definitions and data standards pertaining to children's services, agreed to by all jurisdictions. AIHW is currently conducting a feasibility study of the implementation of the CS NMDS.
- Headline Indicators for Children's Health, Development and Wellbeing – These are a set of national, jurisdictionally agreed headline indicators to monitor the health, development and wellbeing of children.
- Victorian Child and Adolescent Monitoring System (VCAMS) – This is a comprehensive, across government, monitoring system in Victoria which aims to monitor and report on the safety, health, development, learning and wellbeing of children and young people in Victoria.

There will also be statistical activity arising from the Australian Government's current implementation of new early childhood initiatives.

PUBLICATION CONTENT

Chapter 1 covers the project's aims and outcomes, background and governance arrangements.

Chapter 2 reviews major research themes and initiatives, and the conceptual frameworks relevant to early childhood and the Data gaps project.

Chapter 3 outlines the policy questions for the project, including priority areas.

Chapter 4 covers the information requirements needed to address the priority areas for the project.

Chapter 5 provides an overview of early childhood learning and care data sources.

Chapter 6 explores some of the governance issues that control access to the early childhood data sources.

Chapter 7 describes the results of the data holding assessment, which compared the data available against the information requirements. Gaps are identified and prioritised.

Chapter 8 examines the potential options for data linkage to improve early childhood information and considers a linked administrative dataset for statistical and research purposes.

Chapter 9 presents recommendations for future action arising from the Data gaps project.

Appendix 1 provides a summary of state and territory data sources for early childhood learning and care.

Appendix 2 presents a summary of the methodological issues for the data sources.

Appendix 3 contains two data access examples.

Appendix 4 presents the full results of the data holdings assessment against the information requirements for the key early childhood sources.

CHAPTER 1 INTRODUCTION *continued*

PUBLICATION CONTENT
continued

Appendix 5 outlines the NSS key principles.

CHAPTER 2 BACKGROUND

INTRODUCTION

Improving wellbeing and outcomes for children and adults is a high priority issue both in Australia and overseas. There is much research pointing to the importance of positive care and learning experiences in the early years and the value of early interventions which support families and children in need. This chapter reviews major research themes and initiatives, and the conceptual frameworks relevant to early childhood and specifically to the Data gaps project on early childhood learning and care.

What is early childhood?

The United Nations Educational, Scientific and Cultural Organisation (UNESCO) states that 'Early childhood is a time of remarkable transformation and extreme vulnerability' (UNESCO, 2007). While there is no set definition for the period termed 'early childhood', it is generally recognised that children from birth to 8 years display social, emotional and intellectual characteristics which are distinct from those shown in other periods of their lives (Fleer & Udy 2002). The term 'early childhood education and care' is specifically used by the Organisation for Economic Cooperation and Development (OECD) to refer to the inseparable nature of education and care in the early childhood period (OECD 2006; Press 2006).

Early life stages

For the purposes of the Data gaps project, children aged 0–5 years are of primary interest because of the acknowledged gaps in information about their learning and development experiences before starting school. This age range can be disaggregated into two specific age groups, as discussed below.

0–2 YEARS

The age group 0–2 years includes all children aged under 3 years. The experiences children have in utero and from birth onwards are of particular interest because of the substantial impact on development and later outcomes. The first 3 years of a child's life are a time of rapid and growing brain development, with evidence of links to later outcomes from:

- maternal health and risk factors such as smoking (AIHW 2005; Ford et al. 2003)
- breastfeeding patterns (AIHW 2006)
- child health (including birthweight) and disability (AIHW 2006; Ford et al. 2003)
- parental employment and patterns of leave (Waldfogel 2004)
- quality and duration of child care (NICHD 2002, 2003; Vandell & Wolfe 2000).

3–5 YEARS

The age group 3–5 years includes all children who are aged 3 years and over, but have not yet turned 6 years. It is of interest as children in this age group are starting to participate in more structured settings such as formal child care, preschool and school. A child's health, cognitive development, and social and emotional wellbeing reflect the cumulative influences – both genetic and environmental – that children experience over their early years of life. High quality learning and care programs may moderate adverse influences during this period (Waldfogel 2004).

CHAPTER 2 BACKGROUND *continued*

Early life stages continued

3–5 YEARS *continued*

The focus on these age groups is not prescriptive. There is variability among the states and territories in school starting ages and times of the year for which children are eligible for school entry (see Appendix 1). In most cases children will be aged 4 or 5 years when attending preschool in the year prior to starting primary school, but in some cases preschoolers may be aged 3 or 6 years of age. Similarly, children as young as 4 years may be attending primary school.

Early childhood outcomes

Early childhood represents a series of transitions, as children may participate in a variety of settings prior to entry into formal schooling. Information is needed on the transitions between education and child care environments: specifically from home to formal child care and/or preschool, from informal child care to formal child care and/or preschool, and from any of these settings to school. To examine early childhood outcomes resulting from these early experiences requires consideration of children (and their histories) in older age groups as well as those in the 0–5 year age group.

Research by James Heckman and others (see for example Cunha et al. 2005; Heckman 2006a, 2006b; Lindsey 1998; McCain & Mustard 1999; Shonkoff & Phillips 2000) suggests that the early years represent a critical 'developmental window' during which foundations are set for later learning and social development.

International studies support the view that there are greater benefits for disadvantaged children from investing in early years learning programs compared to programs occurring later in life. These studies highlight issues relating to the quality of programs and their effects on learning, and the relationship between family characteristics and children's outcomes. Some projects have also drawn a link between intensive early intervention programs and the prevention of adverse effects on learning (Shonkoff & Phillips 2000; OECD 2006; Mustard 2005).

While Australia has mainly relied on overseas research to support policy and practice, in 2002, the then Department of Family and Community Services initiated *Growing Up in Australia: the Longitudinal Study of Australian Children* (LSAC), which is providing Australian longitudinal data on children and their families. By examining children's characteristics and experiences, and also those of the family, child care, preschool and school, the survey seeks to pinpoint factors leading to advantageous and disadvantageous pathways (Gray & Sanson 2005; Sanson et al. 2002).

Early childhood environments and their quality

Learning, care and development in the early years incorporates many different environments, from informal settings such as the home, to more formal settings including playgroups, child care centres, preschools and schools. Research suggests that positive social interaction, modelling and support from parents and carers enhance a child's brain patterning (Heckman 2006b), while negative environments may have adverse or detrimental effects (Melhuish 2003).

Early childhood environments and their quality continued

FORMAL ENVIRONMENTS

While factors associated with the quality of formal environments vary, some of the more important aspects include the qualification level of staff, the duration of attendance, the nature and type of teacher and child interactions and the size of the learning group (Boocock 1995; Centre for Community and Child Health (CCCH) 2000; National Institute of Child Health and Development (NICHD) 1996; Russell 1985; Smith et al. 2000). Many studies suggest that one of the most important indicators of the quality of formal programs relates to the skills and qualifications of the teacher (DEST 2006; Siraj-Blatchford 2004). Qualifications in a field of study aligned to early childhood education equip staff to better understand a child's developmental needs, making it more likely they will provide children with stimulating and rich learning activities, as well as identifying their early developmental needs (DEST 2006; Farquar 1999; Scarr et al. 1994).

INFORMAL ENVIRONMENTS

Informal environments are also important to early childhood development, particularly those which involve regular engagement between parents and their children. Good family functioning is important for any learning to occur. Parents directly and indirectly influence children to develop skills including resilience, with its associated attributes of persistence and use of coping strategies. Parental involvement in their children's development may have at least a moderate positive effect on a child's cognitive development (Olmsted & Montie 2001; Siegel and Hartzell 2003). Other factors including parenting skills and parents' level of educational attainment are strongly associated with academic competence in younger and older children (Zubrick et al. 1997).

Early intervention and family support

Bronfenbrenner's ecological framework has been used to explore the multiple factors related to the contexts in which children live – such as the family, school, neighbourhood and community – and the conditions and characteristics which shape children's lives (Zubrick et al. 2000). Because of the potential effect these interrelationships have on early childhood outcomes, there is interest in the mix of resources and services available to families.

For the most vulnerable families, effective early intervention enables families to receive appropriate support and manage risks. This may in turn positively influence longer-term outcomes for the child (Press 2006). Effective early intervention involves:

- provision of services to prevent problems from occurring
- timely detection of risks to healthy development and provision of remedial strategies
- the availability of support as early as possible in the life course.

Participation in preschool

The provision of quality preschool programs is an important part of effective early intervention (Esping-Anderson 2004; Press 2006). States and territories in Australia make provision for children to attend a non-compulsory preschool program at least one year before school. The number of hours allocated for children to attend a government-funded preschool program varies between states and territories, along with the level of staff qualifications and child to staff ratios. There is evidence that spending longer periods of time in quality prior-to-school programs – both in terms of overall duration and the number of hours day-to-day – leads to more positive school

CHAPTER 2 BACKGROUND *continued*

Participation in preschool continued

experiences, particularly for those from disadvantaged backgrounds (Fleer & Udy 2002; Press 2006).

Some children do not currently participate in preschool programs. For example, the 2008 Report on Government Services recorded that almost 13% of children were not enrolled in state or territory government funded services in the year before they commenced school (although there are data quality issues for this estimate) (SCRGSP 2008).

Transition to schooling

Experiences in the early years impact on the crucial transition to formal schooling (Meyers et al., 2004). The demands of school require social engagement and skills, such as being cooperative and attentive to a teacher, as well as factors which are more explicitly cognitive in nature such as language development and word/number recognition (High et al., 2000; Hoff and Naigles 2002; Sabatini, 2004). The two years before school are recognised as a critical time for children to develop these skills and to begin making an adjustment to formal environments.

The best known school readiness measurement instrument is the Early Development Index developed and used in Canada (Watson & Moore 2002). The version adapted for use in Australia is known as the Australian Early Development Index (AEDI) (Centre for Community Child Health Research, 2005; Brinkman et al. 2006).

POLICY DIRECTIONS AND INITIATIVES

All levels of government are involved in policy and programs relating to children's early learning and care. Until recently, the Australian Government's primary role has been to assist parents with the cost of child care through the Child Care Benefit (CCB) and the Child Care Tax Rebate (CCTR). It has also provided some operational funding to support services and administers the quality accreditation scheme. Preschool programs operate under the authority of state and territory departments of education, with programs able to be delivered through government, non-government (school), community preschool and child care providers. There is shared jurisdictional responsibility for the accreditation and regulation of child care services (OECD 2006; ABS 2007; Press 2006).

More recently, federal, state and territory agencies have focused on integrating the regulation of services covering preschool and child care. State and territory governments have sought to improve the delivery of services to families and children through a range of initiatives which are documented in some detail in *Improving Statistics on Children and Youth - An Information Development Plan, Australia* (cat. no. 4907.0).

Government initiatives

In partnership with states and territories, and in consultation with early childhood education and care providers, the Australian Government is introducing a number of new early childhood policy initiatives, underpinned by additional investment (<http://www.ocecc.gov.au/new_agenda.htm>). The initiatives include:

- entitlement of all children in the year before formal schooling to 15 hours of learning per week, for a minimum of 40 weeks per year
- universal access to early childhood education programs delivered by four year degree-qualified teachers in a diversity of settings, including child care and preschool
- a national rollout of the AEDI in Australian primary schools, and adaptation of the AEDI to Indigenous communities

CHAPTER 2 BACKGROUND *continued*

Government initiatives continued

- a National Early Years Workforce Strategy to improve quality of staff and to train and retain more qualified staff in both the education and child care fields
- a new Early Years Learning Framework which will have a specific emphasis on play-based learning, early literacy and numeracy skills and social development
- a new Commonwealth Early Childhood Development Act.

Productivity Agenda

The Council of Australian Governments (COAG), as part of its Productivity Agenda, identifies early childhood development as a key area of reform. Details on the proposed policy framework, outcomes and policy directions were discussed at the joint Ministerial Council on Education, Employment Training and Youth Affairs (MCEETYA) and Ministerial Council for Vocational and Technical Education (MCTVE) meeting in April 2008 (<[http://www.mceetya.edu.au/verve/_resources/Draft_Comminque_\(v5\).pdf](http://www.mceetya.edu.au/verve/_resources/Draft_Comminque_(v5).pdf)>). Key policy directions under the agenda include:

- enhancing and integrating the provision of Early Childhood Education and Care services
- improving the quality and sustainability of the early years workforce
- boosting the participation of parents in the learning and development of their children (MCEETYA and MCVTE 2008).

COAG are developing a new national performance reporting framework to measure the effectiveness of policy implementation. National performance indicators aim to enhance public accountability of whether governments are achieving set objectives. The expectation of continuous improvement, including standard data definitions and reporting benchmarks, to support the new national performance reporting framework, should enhance the usability of existing information. This presents an opportunity to move towards a single, integrated, national reporting system.

International initiatives

Since the World Education Forum held in 2000, UNESCO has been monitoring the progress of countries towards six goals as part of its *Education for All: Global Monitoring Report* (UNESCO 2006). These goals include the following areas relevant to early childhood:

- expanding early childhood care and education
- providing free and compulsory primary education
- improving the quality of education.

UNESCO calls on countries to provide programs that support young children in the years before they go to primary school. Such programs create strong foundations for subsequent learning and development, and aim to compensate disadvantage and social exclusion.

The Thematic Review of Early Childhood Education and Care Policy was launched by the OECD Education Committee in March 1998 (OECD 2001). Australia has participated in two comparative early childhood education and care reviews, published respectively by the OECD as *Starting Strong* (OECD 2001) and *Starting Strong II* (OECD 2006). These thematic reviews advocate universal, publicly-funded access to early childhood education and care for all children from the age of 3 years until the commencement of school as one of the most important elements in moving countries towards facilitation of optimal developmental outcomes for children and equitable access for families.

Concepts and directions in early childhood learning

The need to identify and further develop high quality, consistent statistics on early childhood learning was the focus of a recent project undertaken as an initiative of the National Education and Training Statistics Unit in the ABS. This unit is funded by state, territory and Australian Government education and training departments and the ABS. The project provides an assessment of existing measures of early childhood learning and proposes a range of measures together with data development activities which could improve the quality and availability of data on early childhood learning. More information is contained in *Measuring Learning in Australia: Concepts and Directions in Early Childhood Learning* (ABS cat. no. 4232.0).

A further aim of the above project was to conceptualise early childhood issues within a broader framework for learning. Several frameworks were used and further adapted for the Data gaps project. Their main components are summarised below.

FRAMEWORKS FOR EARLY LEARNING

As yet, there is no single agreed framework for early childhood statistics on learning. The concepts presented in this publication draw on several statistical frameworks on learning.

Measuring Learning in Australia: A Framework for Education and Training Statistics (ABS cat. no. 4213.0) assists in defining the boundaries around learning based on its characteristics. The framework can be used to organise the various information needs for learning into some essential elements which can support a set of statistics about learning.

The European Commission (EC) has produced the *Classification of Learning Activities* (EC 2005, 2006). It is largely consistent with the ABS' Framework for Education and Training Statistics and while it was primarily developed to classify forms of adult learning, it is also applicable to the activities associated with early childhood.

In the two frameworks, the formality of a learning activity is underpinned by the following aspects:

- *institutionalisation* – whether or not the activities take place via an institution/organisation that structures, funds and/or conducts the learning process and may also set the content, methods, timing and admission requirements
- *structure* – whether or not the activities have a designated course content (such as a curriculum)
- *delivery* – whether or not the activities are taught (there is a student/teacher relationship, or body/agency through which the course content is provided or delivered)
- *evaluation* – whether or not the activities are assessed, accredited or monitored in some way.

Based on these criteria, formal learning takes place on the basis that institutions fund, organise and set the content for a program of activities, and recognise such learning through a qualification or other accreditation process. However, there are several differences between learning in early childhood and learning that occurs later in life. First, there is no comprehensive or nationally consistent assessment or evaluation process, although teachers and carers may evaluate the progress of children and offer feedback to parents. Instead, a distinction can be made between formal and non-formal activities in that programs are delivered or not delivered by someone with degree

FRAMEWORKS FOR EARLY LEARNING *continued*

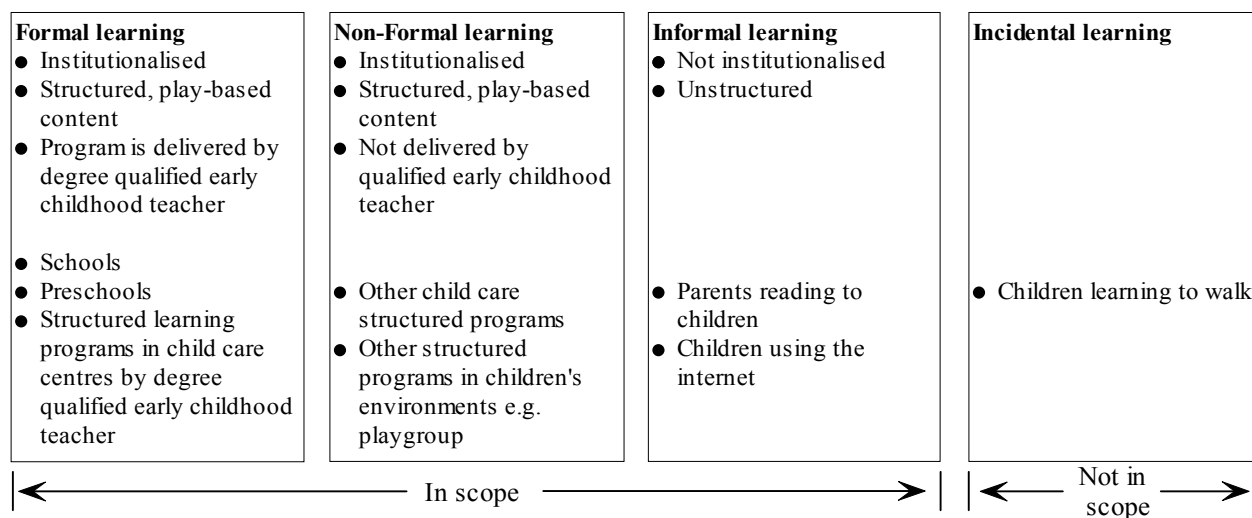
qualifications in an early childhood teaching field. Second, programs may vary in terms of their structure compared with those taking place in the school environment. The 'structured' content of an early learning program usually does not involve a curriculum but instead play-based learning, where children are regularly observed by and interact with staff.

The types of learning experiences can therefore be defined as:

- *Formal early childhood learning* – refers to structured play-based learning in institutions and organisations, delivered by degree-qualified early childhood teachers, and is applicable to children aged 3 years and over.
- *Non-formal early childhood learning* – also refers to structured, play-based learning in institutions and organisations, but differs from formal learning in that it is not delivered by someone with a degree qualification in the early childhood field. It is applicable to children from birth onwards.
- *Informal early childhood learning* – refers to largely unstructured, non-institutionalised learning activities that may occur in the family and in daily life. It is also applicable to children from birth onwards.

Figure 2.1 illustrates how some common examples relating to children's activities may be conceived within the three-way model of formal, non-formal and informal learning, as well as outlining activities that could be considered to be out of scope.

2.1 TYPES OF LEARNING IN THE EARLY CHILDHOOD CONTEXT



Learning and development activities are excluded from the scope of this project when there is no specific intention for the child to learn or the activities take place incidentally in the course of a child's development (e.g. learning to walk).

For more detailed information on these concepts, refer to the information paper *Measuring Learning in Australia: Concepts and Directions in Early Childhood Learning* (ABS cat. no. 4232.0).

Preschool definition

According to the above definitions, *preschool*, called 'kindergarten' in some states, is equivalent to formal learning and refers to programs conducted by a degree-qualified early childhood teacher which provide education for children one to two years prior to the commencement of full-time primary school. In this publication, the terms 'preschool' and 'preschool program' are used interchangeably and may be conducted in a variety of settings, including a separate institution or centre, a long day care centre or as an adjunct to a primary school. Importantly however, regardless of setting, programs are only classified as 'preschool' or 'formal learning' if they are delivered by a degree-qualified early childhood teacher.

Care dimension

Like learning, the care of children may take place in both informal and formal settings, including that provided directly by parents, others within the family, a range of business, government and community organisations, or other people such as nannies. The terminology overlaps with that used for learning experiences, where teacher qualification separates formal from informal settings.

Formal child care is defined as regulated care away from and/or inside the child's home. The main types of formal care are long day care, family day care, occasional care and before and/or after school care

Informal child care is non-regulated care, arranged by a child's parent/guardian, either in the child's home or elsewhere. It comprises care by siblings, care by grandparents, care by other relatives (including a parent living elsewhere) and care by other (unrelated) people such as friends, neighbours, nannies or babysitters. It may be paid or unpaid.

This project focuses on two age groups, children aged 0–2 and 3–5 years. The types of learning can be and care experiences which they experience are discussed in the previous two sections. Figure 2.2 summarises these types of experiences and the settings in which they may occur, and provide examples of each. In these figures, *primary care* refers to the day-to-day nurture and care provided by a child's parent or guardian.

CHAPTER 2 BACKGROUND *continued*

Children aged 0–2 years

	Formal learning		Non-formal learning		Informal learning	
Experience	Play based learning program based on individual needs		Structured programs offering social opportunities		Nurturing relationships and parental guidance to explore	
Setting	Formal child care	Institution other than child care	Formal child care	Other structured programs	Informal child care	Primary care
Examples	Long day care, Family day care(a)	Play-school	Long day care, Family day care	Playgroup, Kindergym	Nanny, grandparents	Parental care

(a) Formal child care is only regarded as formal learning if it provides an early childhood/teaching program that is developed, delivered and evaluated by a degree-qualified early childhood teacher.

Children aged 3–5 years

	Formal learning		Non-formal learning		Informal learning	
Experience	Early childhood learning program to develop key skills		Structured programs offering social opportunities		Nurturing relationships and parental guidance to explore	
Setting	Formal child care	Institution other than child care	Formal child care	Other structured programs	Informal child care	Primary care
Examples	Long day care, Family day care(a)	Preschool	Long day care, Family day care	Playgroup, Kindergym	Nanny, grandparents	Parental care

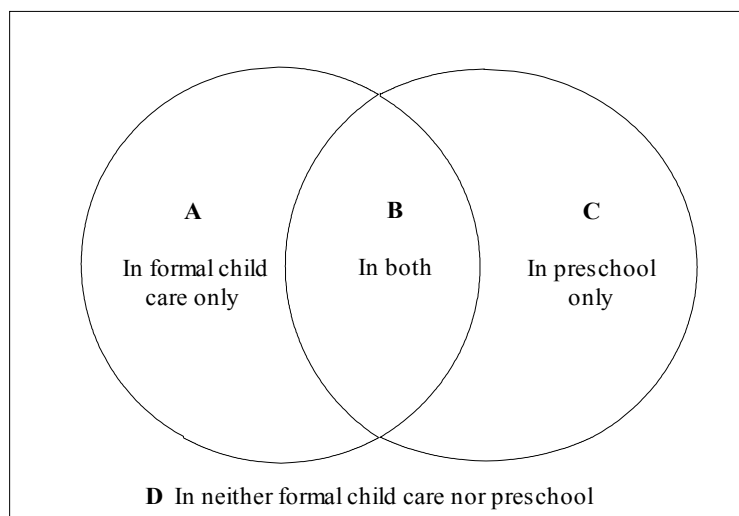
(a) Formal child care is only regarded as formal learning if it provides an early childhood/teaching program that is developed, delivered and evaluated by a degree-qualified early childhood teacher.

Preschool and child care overlap

As there is interest in comparing the outcomes of children across different learning experiences, it is essential to clarify the relevant populations of children that participate in formal child care and preschool programs. These experiences may occur simultaneously, sequentially, and/or be provided by multiple service providers. Figure 2.3 below outlines the overlap in care and preschool experiences that children may be offered prior to school. Note that preschool relates to programs regardless of setting, as covered earlier in this chapter.

Preschool and child care
overlap *continued*

2.3 OVERLAP BETWEEN FORMAL CHILD CARE AND PRESCHOOL



Elements of learning and
care

The ABS' *Framework for Education and Training Statistics* outlines seven elements about which information on learning is required, which are: participants, non-participants, providers, resources, activities, outputs/outcomes and context. For the purposes of the Data gaps project, and using the framework's elements as a basis, the elements which are applicable to learning can be extended to cover the broader dimension of care. An eighth element termed 'family' was also added to reflect the importance of the family environment to the information requirements for the Data gaps project (see chapter 4 for more detail on information requirements).

A description of the eight elements for the early childhood learning and care framework used for this project are:

- *Participants* – those who are undertaking learning and/or care activities.
- *Non-participants* – those who are not undertaking learning and/or care activities.
- *Providers* – organisations, and in some cases individuals, that deliver learning and/or care activities.
- *Resources* – the financial, human and physical resources which are necessary for learning and/or care to occur.
- *Activities* – learning and care activities, activities of education and/or care institutions.
- *Outputs and outcomes* – the results and/or effects of learning and care activities.
- *Family* – the family environment and family-related characteristics which shape learning and care activities.
- *Context* – the wider environment within which decisions are made about learning and care activities.

SUMMARY

The Data gaps project aims to improve information about the learning and care experiences of children before they enter school. Current research highlights the importance of positive care and learning experiences in the early years and the value of early interventions which support families and children in need.

CHAPTER 2 BACKGROUND *continued*

SUMMARY *continued*

The types of learning experiences vary, depending on the structure of the program and the qualifications of the person developing and delivering it. Information about these variables is needed to correctly identify learning type. The variety of settings in which learning experiences may occur adds further complexity to these information requirements. Ideas on how to address these issues, and others, are explored in the following sections.

CHAPTER 3 POLICY QUESTIONS

INTRODUCTION

Early childhood learning and development is a high priority issue that reaches across multiple government departments. The broad nature of the topic means many agencies are responsible for different aspects of policy development. Given the extensive range of potential issues, identifying specific areas of interest was critical to successfully reviewing the data on this wide-ranging subject. Research demonstrates that quality early learning and care, coupled with supportive families and parenting, have short and long term positive outcomes for children. These were the focus areas when developing policy questions for the project. This chapter covers the process and issues raised when determining the appropriate policy questions for investigating data on early childhood.

FORMING THE POLICY QUESTIONS

Early childhood was selected for this study from a range of current policy areas needing improved data. The policy questions were determined by the Working Group and Project Board, representing their agency's views on key policy questions related to early childhood. The Working Group then met to discuss these views to seek agreement on the questions to be included in the Data gaps project. As the policy questions formed the basis for all subsequent work, there was much emphasis on creating the right suite of questions.

The agencies involved in determining the central policy issues had differing priority areas for improved information. This process exposed the breadth of current interest and gap areas in early childhood learning and care information. The final policy question remained very general for this reason.

Overarching question

The overarching policy question to be addressed in the Data gaps project is:

What factors in early childhood are critical to children's optimal development and later outcomes?

The range of important policy concerns identified resulted in a broader question and more wide-ranging populations and topics of interest than first anticipated. The full expanse of issues articulated is discussed in more detail below.

Central themes

In summary, the central themes that emerged were:

- preschool participation and characteristics
- child care participation and characteristics
- parenting behaviours and patterns.

These themes reflect the areas of interest raised by the agencies involved and align with the current policy directions set by the Council of Australian Governments (COAG). The key directions for the Productivity Agenda include to enhance and integrate Early Childhood Education and Care services, and boost the participation of parents in the learning and development of their children.

One recurring issue was the need for information on preschool, child care and parenting, and how these three elements affect outcomes for children, to make it possible to assess the impact of new policies.

CHAPTER 3 POLICY QUESTIONS *continued*

Central themes continued

It has been noted that interrelationships exist between aspects of early childhood learning. In particular there is an overlap between preschool and child care, as children around 4 years of age may be attending both, in a range of different settings. Additionally, children of preschool age may have attended child care at a younger age.

PRESCHOOL PARTICIPATION AND CHARACTERISTICS

The current reporting of preschool participation is based on data that are not directly comparable across the states and territories. There is little information about children who are not attending any preschool programs in the years preceding school. The outcomes in later life for these children, compared to those who do attend preschool, is of great interest and the required information linking well-being outcomes with these early childhood learning experiences is not currently available. Also it is difficult to correctly identify all children receiving a preschool program delivered by a degree-qualified teacher in a child care setting.

CHILD CARE PARTICIPATION AND CHARACTERISTICS

Current information does not address the prevalence of risk and protective factors in child care environments across communities. Additional information was sought on the characteristics of differing care environments, such as long day care and family day care. The impact of child care environments on later outcomes was raised as a key issue by the Working Group. At the child level, information for characteristics and outcomes is particularly desired for non-participants: either those children who are in child care but do not attend preschool, or for children who do not attend any type of formal child care or preschool.

PARENTING BEHAVIOURS AND PATTERNS

The outlined research highlights the importance of parenting behaviours in developing skills, and the potential for positive effects on cognitive and other areas of development. The impact of parenting behaviours on later outcomes was raised as an important issue, especially for children aged 0–2 years. Additionally there was interest in capturing information on participation in non-formal learning activities, such as playgroup, kindergym and music lessons.

FINAL POLICY QUESTIONS

From the overarching policy question, subset policy questions were created to address these raised areas of concern.

Populations of interest

Children under the age of 6 years are of interest for the Data gaps project. This group is further subset into two age ranges of 0–2 years and 3–5 years. The details of the early life stages behind these groupings is in Chapter 2. To accommodate this natural age division in early childhood, two subset policy questions were formed. While this allows the themes to be directly addressed to the appropriate age groups, the questions remain broad in scope.

Subset policy questions

CHAPTER 3 POLICY QUESTIONS *continued*

Subset policy questions
continued

QUESTION 1: THE VERY EARLY YEARS

What are the characteristics and circumstances of 0–2 year old children, including their formal and informal care experiences and family circumstances such as parenting behaviours, and how do these impact on children's development and later outcomes?

QUESTION 2: YEARS PRECEDING PRIMARY SCHOOL

What are the characteristics and circumstances of 3–5 year old children in the years preceding school, including their educational program and care experiences and family circumstances such as parenting behaviour, and how do these impact on children's development and later outcomes?

HIGH PRIORITY AREAS

The broad scope of these questions stems from the cross cutting nature of early childhood in current policy areas. The range of issues raised by the Working Group when canvassing information needs reflect the limitations of the existing data to answer these questions. The high priority issues are listed below, using the modified version of the ABS' *Framework for Education and Training Statistics* (cat. no 4213.0). These are used to structure the information requirements, developed to help answer these policy questions. No high priority issues were reported for the activity and context elements.

Participants: those who are undertaking learning and/or care activities

- What are the characteristics of children participating in preschool and/or child care?
- How many children receive a preschool education and how is this changing over time?
- How many children participate in child care and how is this changing over time?

Non-participants: those who are not undertaking learning and/or care activities

- What are the characteristics of children who do not participate in any formal child care, and what are the reasons for not participating?
- What are the characteristics of children not participating in preschool?
 - Are these children participating in other types of formal child care before commencing school?
 - What are the reasons for not participating in preschool?

Providers: organisations, and in some cases individuals, that deliver learning and/or care activities

- What are the characteristics of child care environments across Australia?
- How does the setting of preschool education (delivered in long day care or preschool) affect longer term outcomes for children?

Resources: the financial, human and physical resources which are necessary for learning and/or care to occur

- What are the characteristics (including qualifications of employees/teachers) of educational providers?

Outputs and outcomes: the results and/or effects of learning and care activities

- How do aspects of parenting behaviours impact on children's later outcomes?
- How do aspects of child care environments impact on children's later outcomes?
- How do the characteristics of preschool education affect longer term outcomes for children?

CHAPTER 3 POLICY QUESTIONS *continued*

HIGH PRIORITY AREAS

continued

- What are the long term outcomes for children who are:
 - from disadvantaged households that miss out on preschool?
 - participating in formal child care without any preschool program, compared to those that do participate in preschool?
 - not participating in formal child care or preschool, compared to those who do?

Families: the family environment and family related characteristics which shape learning and care activities

- Are there identifiable patterns of risk and protective factors in parenting behaviours across Australia?

SUMMARY

The overarching policy question asks what factors in early childhood are critical to children's optimal development and later outcomes. The extensive list of high priority areas that cannot be readily answered from current sources exposes the limitations of the existing information base. The next step is to clarify the information required to answer these priority questions. Investigating the data holdings of early childhood sources against these information requirements will determine what gap areas can be addressed through existing data.

CHAPTER 4 INFORMATION REQUIREMENTS

INTRODUCTION

This chapter outlines the information ideally needed to answer the policy questions, regardless of whether the information is currently available. The field of early childhood learning and care is broad and this chapter includes only the information which is considered most relevant. In particular, baseline measures of children's mental and physical wellbeing were restricted to those most relevant to learning and care outcomes (e.g. disability, long-term health conditions, birthweight and gestational age). The information requirements are structured around the elements of the Framework for Education and Training Statistics. There are also several target populations of interest, which are specified in this chapter.

INFORMATION REQUIREMENTS

In general, the information requirements are specified as a list of potential data items (e.g. child care participation, number of children in program and state or territory). Some information requirements are more broadly expressed and represent a number of data items at a more conceptual level (e.g. quality of early childhood education resources, quality of parents' relationship with each other). It is expected that different combinations of items would be used for different purposes. In addition, the list of information requirements might be refined in the future due to changes in policy priorities or as results are obtained from research activities.

4.1 BROAD INFORMATION REQUIREMENTS

1 Participants

- 1.1 Children's demographic characteristics
- 1.2 Child care, preschool and/or other learning participation
- 1.3 Details of informal child care participation
- 1.4 Details of formal child care participation
- 1.5 Details of preschool participation

2 Non-participants

- 2.1 Children's demographic characteristics
- 2.2 Child care, preschool and/or other learning participation
- 2.3 Reasons for not participating in child care and/or preschool

3 Providers

- 3.1 Formal child care providers
- 3.2 Preschool providers

4 Resources

- 4.1 Formal child care human resources
- 4.2 Preschool human resources

5 Activities

- 5.1 Activities

6 Outputs and outcomes

- 6.1 Physical health and wellbeing
- 6.2 Social knowledge and competence
- 6.3 Emotional maturity
- 6.4 Language and cognitive development
- 6.5 Transition experiences to preschool and/or school

7 Family

- 7.1 Parents' demographic characteristics
- 7.2 Parents' education, labour and income characteristics
- 7.3 Parents' health issues
- 7.4 Parenting style
- 7.5 Family relationships
- 7.6 Social support for family
- 7.7 Safe and secure home environment

8 Context

- 8.1 Geography
 - 8.2 Children's health issues
-

DETAILED INFORMATION REQUIREMENTS

This section outlines the detailed information requirements and the populations about which this information is required. Key terms such as formal child care and preschool are defined in Chapter 2. Some other terms are already defined by the ABS (e.g. labour force status, level of highest educational attainment and housing utilisation) or by other key documents within the field (e.g. service management type and sector) are defined in the *Final report on the development of the Children's Services National Minimum Data Set* (AIHW 2007).

Populations

The populations of interest are:

- children from birth until they start school
- children in their first year of school
- children in Year 3 at school
- formal child care or preschool providers
- human resources in formal child care or preschool providers.

These populations are explained below.

CHILDREN FROM BIRTH UNTIL THEY START SCHOOL

The main population of interest is children from birth until they start school. This is defined as children aged 0–5 years (i.e. up until their sixth birthday) but the focus on these age groups is not prescriptive. There is variability in school and preschool starting ages (see Appendix 1) and it is also recognised that early childhood represents a period of transition.

Within this overall population, some information requirements are specified for certain groups:

- participants in informal child care, formal child care and/or preschool
- non-participants in informal child care, formal child care and/or preschool
- children aged 3–5 years.

CHILDREN IN THEIR FIRST YEAR OF SCHOOL

This population is used to explore the relationship between experiences in the early years and the transition to formal schooling. These children are generally aged 5 or 6 years, although there is variability in school starting ages as mentioned earlier. The first year of formal schooling is the year prior to Year 1 and has different names in most states and territories ('kindergarten', 'reception', 'preparatory', 'pre-primary' and 'transition'). There is some ambiguity in the term 'kindergarten' because it refers to the first year of formal schooling in some states and both territories and to preschool in other states (see Appendix 1).

CHILDREN IN YEAR 3 AT SCHOOL

This population is used to explore the relationship between children's experiences in the early years and their literacy and numeracy outcomes. Australia has an established practice of measuring numeracy and literacy in Year 3. These children are generally aged 7 or 8 years.

Populations continued

FORMAL CHILD CARE OR PRESCHOOL PROVIDERS

This population is needed to understand service characteristics and to explore their relationship to other characteristics such as children's participation details and outcomes. This population includes all formal child care and/or preschool providers.

HUMAN RESOURCES IN FORMAL CHILD CARE OR PRESCHOOL PROVIDERS

This population is needed to explore staff characteristics and to explore their relationship to other characteristics such as children's participation details and outcomes. Human resources are defined as paid or unpaid workers, caregivers or teachers of children in a formal child care or preschool service whose main duties include direct contact with children, management or administrative tasks. The population relates to human resources working with children from birth until they start school.

Participants

Participants are those who are undertaking learning and/or care activities. The population of interest for this element is children from birth until they start school who are participants in informal child care, formal child care and/or preschool.

There are some measurement issues in identifying participants and non-participants in child care and/or preschool:

- timing of participation – Children may participate in child care and/or preschool at particular points in time but not others.
- regularity of participation – Some types of programs are regular whereas other types are less regular. Some children may be enrolled in a regular program but attend irregularly or not at all.
- extent of participation – Children may participate in a program for only a marginal number of hours each week.

Children are regarded as 'participants' regardless of their hours or regularity of attendance. Owing to the measurement problems in participation and non-participation, the information below on participation and details of participation would ideally be collected continuously for children from birth to school entry.

1.1 CHILDREN'S DEMOGRAPHIC CHARACTERISTICS

- name or other identifier
- date of birth
- age
- sex
- Indigenous status
- country of birth
- main language spoken at home

1.2 CHILD CARE, PRESCHOOL AND/OR OTHER LEARNING PARTICIPATION

- whether participating in informal child care
- whether participating in formal child care
- whether participating in preschool

Participants continued

1.2 CHILD CARE, PRESCHOOL AND/OR OTHER LEARNING PARTICIPATION *continued*

- use of multiple child care and/or preschool arrangements
- whether involved in other structured learning programs in children's environment (e.g. play group, music lessons), and type

1.3 DETAILS OF INFORMAL CHILD CARE PARTICIPATION

- type of child care (e.g. grandparents, siblings)
- hours attended per week or day
- days attended per week
- age of commencement or length of attendance
- reason for participating in child care

1.4 DETAILS OF FORMAL CHILD CARE PARTICIPATION

- type of child care (e.g. long day care, family day care)
- hours attended per week or day
- days attended per week
- age of commencement or length of attendance
- reason for participating in child care
- number of child care centres in last year

1.5 DETAILS OF PRESCHOOL PARTICIPATION

- preschool setting (e.g. preschool service, child care)
- hours attended per week or day
- days attended per week
- age of commencement or length of attendance
- reason for participating in preschool
- duration of preschool in months prior to school entry
- whether attends enrolled preschool sessions regularly

Non-participants

Non-participants are those who are not undertaking learning and/or care activities. The populations of interest for this element are children from birth until they start school who are non-participants in informal child care, formal child care and/or preschool. Owing to the measurement problems in participation and non-participation, the information below on participation would ideally be collected continuously for children from birth to school entry.

This element deals with non-participation in learning and/or child care activities outside the home. The opportunities for learning and development within the family environment are covered in 7: *Family*.

2.1 CHILDREN'S DEMOGRAPHIC CHARACTERISTICS

- name or other identifier
- date of birth
- age
- sex
- Indigenous status
- country of birth

Non-participants continued

2.1 CHILDREN'S DEMOGRAPHIC CHARACTERISTICS *continued*

- main language spoken at home

2.2 CHILD CARE, PRESCHOOL AND/OR OTHER LEARNING NON-PARTICIPATION

- whether participating in informal child care
- whether participating in formal child care
- whether participating in preschool
- whether involved in other structured learning programs in children's environment (e.g. play group, music lessons), and type

2.3 REASONS FOR NOT PARTICIPATING IN CHILD CARE AND/OR PRESCHOOL

- reasons for not participating in informal child care
- reasons for not participating in formal child care
- reasons for not participating in preschool

The reasons for non-participation may include cost, parent's preference, no family or friends available, accessibility, quality, no available places and using another care or education program. Additional reasons for non-participation in preschool include home-schooling, preschool program not provided by long day care centre, or preschool program provided by long day care centre, but not when the child attends, and, enrolled in preschool but not attending.

Providers

Providers are organisations, and in some cases individuals, that deliver learning and/or care activities. For this element, the population is defined as providers of formal child care and/or preschool.

3.1 FORMAL CHILD CARE PROVIDERS

- number of places offered
- number of places used
- whether service is accredited
- substantiated breaches
- service activity types e.g. long day care
- service management type e.g. community, private for profit
- service delivery setting e.g. centre-based – school, centre-based – other, home-based

3.2 PRESCHOOL PROVIDERS

- number of places offered
- number of places used
- substantiated breaches
- service activity types e.g. long day care
- service management type e.g. community, private for profit
- service delivery setting e.g. centre-based – school, centre-based – other, home-based

Resources

Resources are the financial, human and physical resources which are necessary for learning and/or child care to occur. In the Data gaps project, the population for this element is human resources (i.e. individuals) in formal child care and/or preschool.

4.1 FORMAL CHILD CARE HUMAN RESOURCES

- level of highest educational qualification
- field of highest educational qualification
- length of experience
- length of time with current service
- working arrangements
- whether have engaged in professional development
- age
- sex
- Indigenous status
- child to staff ratios
- staff turnover

4.2 PRESCHOOL HUMAN RESOURCES

- level of highest educational qualification
- field of highest educational qualification
- length of experience
- length of time with current service
- working arrangements
- whether have engaged in professional development
- age
- sex
- Indigenous status
- child to staff ratios
- staff turnover

Activities

Activities are learning and child care activities, activities of education and/or child care institutions. The population of interest for this element is children from birth until they start school who are participants in formal child care and/or preschool.

5.1 ACTIVITIES

- whether educational program is designed and delivered by a degree-qualified early childhood education teacher
- whether each child has an individual learning program
- whether progress on individual learning is reported to parents
- parental involvement in decision making
- quality of early childhood education resources
- whether preschool has links with primary schools or transitions programs

Outputs and outcomes

Outputs and outcomes are the results and/or effects of learning and care activities. Within the Data gaps project, the main interest is in the transition to school and, to a lesser extent, the transition to preschool.

The populations of interest for the following information requirements are children in their first year of school and, to a lesser extent, children aged 3–5 years who are participating in preschool. For age-appropriate literacy and numeracy skills, information is also required for children in Year 3 at school.

Most of the information requirements below are based on the domains in the Australian Early Development Index (AEDI) (see Chapter 2 and <<http://www.rch.org.au/australianedi>>).

6.1 PHYSICAL HEALTH AND WELLBEING

- physical readiness for preschool or school day
- physical independence
- gross and fine motor skills

6.2 SOCIAL KNOWLEDGE AND COMPETENCE

- overall social competence
- responsibility and respect
- positive approach to learning
- readiness to explore new things
- cooperation with peers
- ability to follow instructions

6.3 EMOTIONAL MATURITY

- prosocial and helping behaviours
- anxious and fearful behaviour
- aggressive behaviour
- hyperactivity and inattention
- self confidence or self-esteem
- self management of behaviour

6.4 LANGUAGE AND COGNITIVE DEVELOPMENT

- age appropriate language and communication skills
- age appropriate literacy and numeracy skills (also required for children in Year 3 at school)
- engagement with literacy
- cognitive development displayed through problem solving and decision making
- imagination and creativity demonstrated through dramatic play, storytelling and the arts

6.5 TRANSITION EXPERIENCES TO PRESCHOOL OR SCHOOL

- willingness to detach from parent or carer and attend preschool or school
- attitude to preschool or school

Family

Family includes the family environment and family-related characteristics which shape learning and care activities. This element reflects the importance of the family environment to early childhood development. The population is children from birth until they start school.

7.1 PARENTS' DEMOGRAPHIC CHARACTERISTICS

- name or other identifier
- date of birth
- age
- sex
- Indigenous status
- country of birth
- main language spoken at home
- proficiency in spoken English
- relationship to child e.g. natural parent, step parent, grandparent

7.2 PARENTS' EDUCATION, LABOUR AND INCOME CHARACTERISTICS

- level of highest educational qualification
- field of highest educational qualification
- labour force status
- whether working full-time or part-time
- hours worked
- occupation
- industry
- whether casually employed
- all sources or principal source of cash income
- total cash income
- financial stress

7.3 PARENTS' HEALTH STATUS

- whether has a long-term health condition
- whether has a mental illness
- whether has a disability

7.4 PARENTING STYLE

- whether mother or father is primary carer
- whether show regular physical closeness
- amount of time spent on verbal interactions with child (e.g. playing games, talking, reading books)
- amount of time spent on other activities with the child (e.g. physical or emotional care, teaching, helping or reprimanding)
- evidence of appropriate physical care and nurturing (e.g. suitable dress for climate, nutritious diet)
- types of behaviour management techniques
- number of children's books and other play-based educational resources in the home
- level and type of contact between non-resident parent and children

Family continued

7.5 FAMILY RELATIONSHIPS

- family composition
- how long in current family composition
- number of different family compositions has experienced
- family structure (intact, step, blended)
- number of siblings within family
- age of siblings
- birth order within family
- quality of parents' relationship with each other

7.6 SOCIAL SUPPORT FOR FAMILY

- contact with family, friends and other children
- whether family asks or able to ask for support from others outside their family
- whether family provide support to relatives or friends
- child's and family's participation in social activities

7.7 SAFE AND SECURE HOME ENVIRONMENT

- crime victimisation (personal and property)
- parents' current or past incarceration
- substance abuse within family
- domestic violence within family
- emotional or mental abuse within family
- child abuse or neglect
- homelessness or access of support services such as Supported Accommodation Assistance Program (SAAP)
- housing utilisation

Context

Context is the wider environment within which decisions are made about learning and care activities. The population for this element is children from birth until they start school.

8.1 GEOGRAPHY

- state or territory
- remoteness area
- residential address
- SEIFA index
- residential mobility

8.2 CHILDREN'S HEALTH ISSUES

- whether has a long-term health condition
- whether has a disability
- disability type
- need for assistance
- birthweight
- gestational age
- whether breastfed

CHAPTER 4 INFORMATION REQUIREMENTS *continued*

SUMMARY

These information requirements were compiled with the assistance of the contributing agencies early childhood experts, and reflect the key factors that influence early childhood learning. The data holdings assessment is based on how information within the identified sources can meet these information needs.

CHAPTER 5 EARLY CHILDHOOD DATA SOURCES

INTRODUCTION

There is a wide range of data sources which contain information about early childhood. This chapter deals with national collections on early childhood learning, development or care which are conducted by government agencies or on behalf of government agencies. The focus of the project is on national data sources. All states and territories also capture a rich set of data on early childhood learning and care. It is beyond the scope of this paper to comprehensively describe all these data sources. They are summarised at the end of this chapter and in Appendix 1.

Included sources

Table 5.1 lists alphabetically the identified data sources, which are then discussed in more detail in the rest of the chapter. These sources include data generated as a by-product of the administrative process of government as well as direct statistical collections such as surveys and censuses. Two collections which do not focus on early childhood are included as they provide rich administrative data on family characteristics (Family Tax Benefits and personal income tax data).

Early childhood sources considered less relevant to the project were excluded from this chapter. For example, the project's information requirements refer to child abuse and neglect and this information is available in the AIHW publication *Child Protection, Australia*. However, the collection was excluded from this chapter as it does not contain information about early childhood learning, development and care. This chapter also excludes future collections.

INDIGENOUS DATA

A key policy requirement is the ability to report on outcomes for Aboriginal and Torres Strait Islander children. This section briefly discusses the availability of Indigenous data for selected early childhood data sources and some key issues associated with the quality of Indigenous data.

Information on Indigenous status is available from most data sources discussed in this chapter, although it is not available for some collections such as the ABS Child Care Survey. See Appendix 4 for more details. Two collections specifically target the Indigenous population:

- The ABS National Aboriginal and Torres Strait Islander Social Survey (NATSISS) is specifically designed around correctly identifying Indigenous Australians and collecting high quality information from them. However, there are limitations to these statistics, for example, some NATSISS data items are only available at the national level.
- The National Preschool Census (NPC) Indigenous component is based on administrative preschool enrolment data and collects additional information on Indigenous preschool students.

Indigenous statistics, particularly those from administrative collections, are currently limited by the quality and completeness of identification of Aboriginal and Torres Strait Islander people. That is, whether a person's Indigenous status is recorded in the collection and how accurately it is recorded. People need to be asked about their Indigenous status, to identify themselves as Aboriginal or Torres Strait Islander and to respond as such. Not everyone who is of Aboriginal and/or Torres Strait Islander origin may choose to identify themselves as such, and this willingness may change over time or across collections.

INDIGENOUS DATA *continued*

Aboriginal and Torres Strait Islander people are identified in data collections using a variety of questions and methods. Most methods fall into one of the following broad categories:

- an interviewer or recording clerk ticking a box on the basis of his or her own observations of knowledge;
- an interviewer asking a precisely worded question and ticking one of a number of predetermined responses;
- a respondent recording his or her own answer without an interviewer being present; or
- an entry being transferred from one data collection record to another, without any communication with the subject.

Often the question process itself can influence whether someone is recorded as Indigenous or not. An interviewer asking a standard question is considered to produce the most reliable response. Self enumeration is considered to be less reliable, and a system which has no contact with the subject is the least reliable. A parent should ideally provide this information in relation to their child. Using the ABS standard question for Indigenous origin in all collections will resolve some quality and comparability issues.

Other collection-specific practises may also affect Indigenous data. For example, there might be different processing practises for data from people who do not respond to the question on Indigenous status, such as classifying these non-responses as "Non-Indigenous" in some collections and "Not stated" in others.

CHAPTER 5 EARLY CHILDHOOD DATA SOURCES *continued*

5.1 EARLY CHILDHOOD DATA SOURCES, Commonwealth government agencies

Source name	Agency	Collection type	Frequency	Population
Australian Early Development Index(a)	DEEWR and CCCH	Census	3 yearly	Children in their first year of school
Australian Government Census of Child Care Services(b)	DEEWR	Census	2 yearly	Australian Government approved and supported child care centres
Census of Population and Housing	ABS	Census	5 yearly	All ages
Child Care Benefit administrative data	DEEWR	Administrative	Ongoing	Claimants of approved child care benefits
Child Care Quality Assurance systems	NCAC	Administrative	Ongoing	Accredited child care services
Childhood Education and Care Survey(c)	ABS	Survey	3 yearly	Children aged 0–12 years
Family Tax Benefit	FaHCSIA	Administrative	Ongoing	Claimants of FTB
Household, Income and Labour Dynamics in Australia	FaHCSIA	Longitudinal survey	Annual	15 years and over
Longitudinal Study of Australian Children	FaHCSIA	Longitudinal survey	2 yearly	Two cohorts aged less than 12 months and 4 years in 2003-04
National Aboriginal and Torres Strait Islander Social Survey	ABS	Survey	6 yearly	Indigenous Australians
National Assessment Program in Literacy and Numeracy	MCEETYA	Administrative	Annual	Year 3 children
National Perinatal Data Collection	AIHW	Administrative	Annual	Births of at least 400g or 20 weeks gestation and their mothers
National Preschool Census	DEEWR	Census/Administrative	Annual	Government and non-government preschools
National Schools Statistics Collection	ABS	Census	Annual	Government and non-government schools, students and staff
Personal income tax data	ATO	Administrative	Annual	Individuals that lodge a tax return
Time Use Survey	ABS	Survey	Irregular	People aged 15 years and over

(a) The AEDI has been utilised in selected locations in Australia since 2004 and is due to be rolled out nationally to all primary schools in 2009.

(b) Beyond 2006, the AGCCCS may not be conducted again in its current form, but the information collected will still be available.

(c) This survey replaces the three-yearly Child Care Survey.

AUSTRALIAN EARLY DEVELOPMENT INDEX

The Australian Early Development Index (AEDI) is a community measure of young children's development in five domains of child development:

- physical health and wellbeing
- social competence
- emotional maturity
- language and cognitive skills
- communication skills and general knowledge.

The AEDI is completed by teachers of children in their first year of school. It has been adapted to Australia from the Early Development Index developed and used in Canada. It has been used in selected locations in Australia since 2004 and is expected to be rolled out nationally to all Australian primary schools in 2009.

The purpose of the AEDI is to measure the health and development of populations of children. Consequently, results will be produced for communities but not for individual children. There are many possibilities for this information at the community level. The potential for using AEDI data for statistical purposes is further discussed in Chapter 9.

The AEDI community results are released on the AEDI website (<<http://www.rch.org.au/australianedi>>). The access arrangements for the nationally implemented AEDI are not yet known.

AUSTRALIAN GOVERNMENT CENSUS OF CHILD CARE SERVICES

The Australian Government Census of Child Care Services (AGCCCS) collects data from Australian Government approved and supported child care. The Census examines information about child care users, staff and carers and operational details of child care services for nine service types.

The 2006 AGCCCS was the last to be conducted in its current form. Data currently collected in the AGCCCS will continue to be collected through administrative or supplementary data collections. The Child Care Management System (CCMS), which is currently being introduced, will collect the bulk of the child based information previously collected in the AGCCCS. DEEWR is currently scoping a data collection exercise to gather required information that is not captured by CCMS.

The AGCCCS collects information on the number of services that offer an early childhood education program conducted by a qualified early childhood teacher. It is the only identified collection which provides national estimates of child care staff qualifications. The AGCCCS potentially double-counts children or staff attending more than one service, although measures were introduced in the 2006 AGCCCS to minimise this.

Information from the AGCCCS is released in the following publications on the DEEWR website:

- *Australian Government Census of Child Care Services*
- *Australian Government Census of Child Care Services - Summary Booklet*

Data can be requested via a consultancy service through DEEWR. Unit record data are not released by DEEWR.

CENSUS OF POPULATION AND HOUSING

The ABS Census of Population and Housing (Census) counts the number of people in Australia on Census night every five years. The most recent census was in 2006. It identifies the key characteristics of people and the dwellings in which they live. The Census provides limited information on preschool participation, but provides rich information on personal and family characteristics.

In the Census, 'preschool' excludes children enrolled only at child care centres. As the Census is self-enumerated, there are issues associated with how respondents define the term 'preschool'. In addition, there are underlying differences in education systems and terminology between the states and territories.

Preschool data are available on the ABS website (<<http://www.abs.gov.au>>) in Census Tables, Community Profiles and CDATA online, for a broad range of geographic areas. A range of more detailed output is available, including data available on request and a 1% Confidentialised Unit Record File.

CHILD CARE BENEFIT ADMINISTRATIVE DATA

Child Care Benefit (CCB) is provided to assist with the cost of child care for families who use Australian government approved or registered care. The CCB can be paid either to families or directly to approved child care services. The CCB data include information on children's demographic characteristics, child care participation details, parents' characteristics and service providers.

Up to February 2008, all CCB payments were administered by Centrelink. CCMS was implemented in early 2008 and the first child care services became active in the new system in February 2008. Services are transitioning from the Centrelink environment to CCMS across 2008 and in early 2009. CCMS is administered by DEEWR. Centrelink will continue to administer the CCB systems for payments to parents for registered care and approved care paid directly to parents. Centrelink will also continue to capture parents' details as part of the CCB application process. Work is underway on a data warehouse to link the CCMS service-level information and the Centrelink parent-level information.

The quality and usability issues associated with the CCB administrative data include the following:

- The CCB relates to a restricted population: families claiming the CCB for Australian government approved and registered care.
- The type of information available from this data source varies, depending upon whether care is approved or registered, and how the CCB payment is made.
- The information may be updated throughout the year, depending upon how the family claims the CCB.

CCB data are currently released in FaHCSIA's and DEEWR's annual reports and the Report on Government Services. Additional reporting mechanisms are being developed.

CHILD CARE QUALITY ASSURANCE SYSTEMS

The National Childcare Accreditation Council (NCAC) is responsible for the administration of several Child Care Quality Assurance systems for children's services throughout Australia. Separate quality assurance systems exist for family day care, outside school hours care and long day care centres. Services are required to participate in the NCAC quality assurance systems to be eligible to receive the CCB. This process relies on service providers to self assess and rate themselves, which is reinforced with NCAC audits of services. The quality assurance system is undergoing change as part of

CHILD CARE QUALITY
ASSURANCE SYSTEMS
continued

the Australian Government's new early childhood policy initiatives, which involves the development of a new national quality framework for early childhood education and care.

Limited information is available about the content and quality of the NCAC datasets. The Child Care Quality Assurance data are released in the following reports, which are available on the NCAC website:

- *Service Progress Statistics* reports, which are produced separately for each quality assurance system
- *Quality Trends Reports*, which are produced separately for each system
- *NCAC Annual Report*.

CHILD CARE SURVEY

The ABS Child Care Survey (CCS) collected data on child care and preschool attendance, and associated issues such as parents' income and working arrangements. The CCS was one of the few collections to include information on both preschool and child care attendance, and to include non-participants as well as participants. It was conducted outside school holidays when attendance at child care and preschool might be atypical.

In 2008, the CCS was replaced by the Childhood Education and Care Survey (CEaCS). CEaCS incorporates a redevelopment of some aspects of the CCS and new content covering early childhood learning.

The CCS was conducted as a three-yearly survey, which allows for analyses of series over time. It is a rich source for attendance characteristics of children in child care and preschool. Some of the quality issues associated with the CCS are:

- It is limited in terms of addressing other information requirements apart from the demographic characteristics of children and parents. For example, there is no future schooling or outcome information.
- The measures of child care and preschool attendance relate to the survey reference week, rather than usual attendance or enrolment. This is addressed by CEaCS.
- The survey is unable to identify all children attending preschool as it does not currently identify preschool within a formal child care setting. This is addressed by CEaCS through parents' self-reporting.
- The data are collected from either parent in the family and are subject to respondent perceptions as well as the level of knowledge or recall which the selected parent has of their child's arrangements.

The CCS results are published in, *Child Care, Australia* (ABS cat. no. 4402.0). A confidentialised unit record file is available to approved users. Data tables are available on request from the ABS.

CHILDHOOD EDUCATION
AND CARE SURVEY

The CEaCS includes the Child Care and Early Years Learning topics, and was first conducted in June 2008. Data collected on child care are similar to that collected in previous cycles of the CCS. Data collected on early years learning provide information on the provision of formal learning programs and also children's learning activities and environments in their early years.

The CEaCS collects information from a parent or guardian in relation to children 0–12 years, with the Early Years Learning module asked in relation to children 0–8 years.

CHILDHOOD EDUCATION AND CARE SURVEY *continued*

Like the CCS, CEaCS provides a time series and will be a rich source of attendance data for children in child care and preschool, also providing the demographic characteristics of children and parents. As a point-in-time survey, there is no future schooling or outcome information. CEaCS will identify preschool in all settings. However, this is based on parents' self reporting, which is not always an ideal measure.

One publication covering both topics is proposed for release in April 2009. A confidentialised unit record file will be available to approved users. Data tables will be available on request from the ABS.

FAMILY TAX BENEFIT

Family Tax Benefit (FTB) Part A helps families with the cost of raising children and FTB (Part B) gives extra assistance to families with only one main income, including sole parents. Both of these are means tested, although the FTB (Part B) is not means tested for sole parents. Information is at least annual, with FTB being adjusted at tax time against the realised income of the claimant or up to 3 years later based on personal tax records. The main relevance of FTB data to the Data gaps project is its information on family characteristics such as parental relationship to child, labour force status of parents and income details.

The FTB data only relate to claimants. It is estimated that approximately 85% of families with children receive FTB and therefore appear in the administrative data (Breunig et al 2007).

There are no general arrangements for access to FTB data. Basic statistics on the number of clients and payments are published in FaHCSIA's annual report. More detailed figures may also be included in ad-hoc research reports. FTB data are included in the Longitudinal Dataset 1% Sample, which is available to approved researchers and is a sample of Centrelink customer records. Additional datasets containing FTB data have been released for specific ad-hoc research purposes.

HOUSEHOLD INCOME AND LABOUR DYNAMICS IN AUSTRALIA

Household Income and Labour Dynamics in Australia (HILDA) is a longitudinal survey which collects information from people aged 15 years and over about economic and subjective wellbeing, labour market dynamics and family dynamics. Information is also collected on household use of child care and preschool, although there have been several changes to the questionnaire across waves. It commenced in 2001 and is expected to continue annually for at least 12 waves. Although this survey offers a rich, longitudinal information source, there is limited information about children and the information which is collected can generally only be analysed as household characteristics, rather than children's characteristics.

Unit record data are available to researchers approved by FaHCSIA who must abide by strict security and confidentiality protocols. Results from the survey are available at the HILDA website (<<http://www.melbourneinstitute.com/hilda>>). These results include statistical reports, annual reports, journal articles and other papers.

LONGITUDINAL STUDY OF AUSTRALIAN CHILDREN

The Longitudinal Study of Australian Children (LSAC) is the most comprehensive and widely accessible source of data on early childhood. LSAC is a longitudinal survey which commenced in 2004 and is collecting data from two cohorts every two years. LSAC aims to measure the key factors influencing child outcomes at each stage of development,

LONGITUDINAL STUDY OF
AUSTRALIAN CHILDREN
continued

incorporating family and community characteristics, child care and learning developments. A wide range of developmental outcomes are measured to assess health, physical development, emotional wellbeing and intellectual and social development. Information is collected from the child (when of appropriate age) and their parents, carers and teachers.

LSAC provides a detailed source of data for extensive analysis of pathways leading to different outcomes for children. It provides measures of change over time, although there are some constraints on the analysis that is possible. For example, the changing characteristics of 4 year old children can be measured by comparing the older cohort in 2004 in wave 1 (when aged 4 years) with the younger cohort in 2008 in wave 3 (when aged 4 years). New cohorts would need to be introduced to the study to continue to produce information about changing circumstances and outcomes for children. The sample size for some small population groups (e.g. children with particular conditions or cultural backgrounds) may be too small for meaningful analysis.

LSAC is one of the few national child-based collections which collects information on both child care and preschool participation and which identifies preschool in all settings. However, the latter is based on parents' self-reporting or voluntary teacher or carer completed forms, neither of which are ideal measures. Although there were some problems in identifying children at preschool or year level of schooling in Wave 1 of LSAC, this has been addressed in subsequent waves.

Unit record data are available to researchers approved by FaHCSIA who must abide by strict security and confidentiality protocols. A bibliography of research using LSAC data is available on the LSAC website (<<http://www.aifs.gov.au/growingup>>). Publications include annual reports from the survey, and lists are provided of journal articles and conference papers based on LSAC analysis.

NATIONAL ABORIGINAL
AND TORRES STRAIT
ISLANDER SOCIAL
SURVEY

The aim of the National Aboriginal and Torres Strait Islander Social Survey (NATSISS) is to provide broad information across key areas of social concern for Indigenous Australians of all ages. For the first time the 2008 NATSISS will include children aged 0–14 years within the scope of the survey.

The main content related to children is demographic characteristics, child education including child care and preschool, child health services, child nutrition, child development and maternal health. Family and parent characteristics will also be collected, including parent educational qualifications, labour force status, income, social support networks and parenting style.

As the 2008 NATSISS will be the first to include children it is difficult to determine the accuracy of the data with reference to children. However, there are some general data quality issues that affect NATSISS due to the small populations in geographic areas.. Data collection methods and some survey content for remote communities are different to other geographic areas. Therefore, not all data items will be available for the total Indigenous population.

Results from the 2002 NATSISS are available in the publication *National Aboriginal and Torres Strait Islander Social Survey 2002* (ABS cat. no. 4714.0). Authorised users can also access a CURF. Results from the 2008 NATSISS will be available in late 2009.

CHAPTER 5 EARLY CHILDHOOD DATA SOURCES *continued*

NATIONAL ASSESSMENT PROGRAM IN LITERACY AND NUMERACY

The National Assessment Program in Literacy and Numeracy (NAPLAN) uses national tests to assess school children in Years 3, 5, 7 and 9 in reading, writing, numeracy, spelling, and grammar and punctuation. Results are reported using six achievement bands at each year level, with a national minimum standard defined and located within the scale. NAPLAN replaced the former state and territory based assessment programs in 2008.

The literacy and numeracy results are published annually in the MCEETYA annual *National Report on Schooling in Australia*, available on the MCEETYA website. State and territory authorities produce a class report for each school and individual child report for each student, and further data may be available from each authority.

NATIONAL PERINATAL DATA COLLECTION

The National Perinatal Data Collection (NPDC) contains information on pregnancy, childbirth, and the characteristics of mothers and their babies, resulting from births in Australia in hospitals, birth centres and the community.

Midwives and other staff complete notification forms for each birth of at least 400 grams birthweight or at least 20 weeks gestation. These are forwarded to the relevant state or territory health authority, who provide the data to the AIHW National Perinatal Statistics Unit for national collation on an annual basis. The Perinatal National Minimum Data Set (NMDS) aims to ensure consistency for specific data elements. More data elements are included in the NPDC than are specified in the NMDS.

Information is published in the annual publication *Australia's Mothers and Babies*. There is a time lag of just under two years between the end of the collection period and release of the report. An information consultancy service is available for the NPDC. Unit record data may be released providing the necessary ethics approvals are obtained. As the NPDC is compiled from individual state and territory collections, further data may be available from each of the authorities.

NATIONAL PRESCHOOL CENSUS

The National Preschool Census (NPC) collects information annually on government and non-government preschool enrolments in the census week. The collection focuses on Indigenous students, with some data on non-Indigenous students available by state and territory and other basic cross-classifiers.

Data on government preschools are compiled from aggregate data provided by state and territory government departments using their existing Government Census arrangement (see State and Territory data sources at the end of this chapter). Data on non-government establishments involved in the provision of preschool education, registered preschools and centres offering an education program are obtained through the Non-Government Supplementary Census.

Aggregate information is collected for all students (e.g. number of boys and girls by age group) and staff, and individual information is collected for Indigenous students. The NPC is affected by differences in collection arrangements between government and non-government preschools and state and territory differences in definitions, programs, data collection processes and collection scope. From 2007, the NPC is able to better distinguish between enrolment and attendance in non-government preschools.

Data are released in two annual publications:

CHAPTER 5 EARLY CHILDHOOD DATA SOURCES *continued*

NATIONAL PRESCHOOL CENSUS *continued*

- *National Preschool Census, Aboriginal and Torres Strait Islanders and All Students – Summary Report*
- *National Preschool Census, Aboriginal and Torres Strait Islanders and All Students – Technical Report*

These reports are available from DEEWR on request, as are customised tables. Unit record data are not released. As the NPC Government Census is compiled from individual state and territory collections, further data may be available from each of the state or territory authorities.

NATIONAL SCHOOLS STATISTICS COLLECTION

The purpose of the ABS National Schools Statistics Collection (NSSC) is to provide nationally comparable data on primary and secondary government and non-government schools, students and staff. The NSSC is an administrative collection which relates to the census date of the first Friday in August. The data for governments schools are compiled from jurisdictional aggregates provided to the ABS, which detracts from the utility and flexibility of the data and comparability with other sources.

The collection currently excludes preschools from scope, although there is interest in expanding the collection to include preschool. The NSSC is relevant to the Data gaps project because information is provided on children in their first year of school. It contains aggregate data, but the possibility of expanding it to unit record data is currently being investigated.

The data from this collection are published annually in *Schools, Australia* (ABS cat. no. 4221.0) available on the ABS website. More detailed data cubes are available from the ABS website and customised tables are available on request. A confidentialised unit record file is not available as microdata is not collected. Further data on government schools may be available from each of the jurisdictions.

TIME USE SURVEY

The ABS Time Use Survey collects information about the way Australians aged 15 years and over allocate their time to different kinds of activities. The activity classification includes child care activities within the household such as care of children, teaching/helping/reprimanding children and playing/reading/talking with child. The survey also collects information on family use of informal and formal child care (including preschool). Although this survey offers a rich source of information on time use, there is limited information about children and the information which is collected can generally only be analysed as household characteristics, rather than children's characteristics.

The collection is published in *How Australians Use Their Time* (ABS cat. no. 4153.0). A confidentialised unit record file is available to approved users. Data tables are available on request from the ABS.

PERSONAL INCOME TAX DATA

The ATO personal income tax data has information for all individuals who lodge a tax return. Information collected includes occupation, income, tax offsets, and spouse details and number of dependent children in specific cases. This data source will only provide information on early childhood if linked with other datasets.

Data are released in the annual publication *Taxation Statistics*, which is available on the ATO website.

STATE AND TERRITORY DATA SOURCES

All states and territories capture a rich set of data on early childhood learning and care. This section gives an overview of the main types of state or territory data sources on early childhood learning and care, and summarises the information available in each state or territory. This summary is based on publicly available information and some further information obtained by the AIHW for their feasibility study on the CS NMDS. These data sources are further discussed in Appendix 1.

Overview of source types

LICENSING AND REGULATION DATASETS

State and territory governments are responsible for the licensing and regulation of children's services. All states and territories collect licensing information, which contain information submitted in the license application or renewal. There is variability in the services licensed by each state and territory, and in the information collected for licensing purposes.

CENSUS OF CHILDREN'S SERVICES

Some states conduct annual censuses of children's services, collecting information on children, staff and the service. Queensland and South Australia conduct an annual census of licensed children's services. New South Wales and Tasmania collect some information annually from children's services funded by the state government.

PRESCHOOL ENROLMENTS

State and territory governments have primary responsibility for preschool and school education. Preschool enrolments data refers to information about the child provided at the time of preschool enrolment (e.g. sociodemographic characteristics, contact details). These data relate to government-funded preschools only and exclude independent or private preschools in most states and territories. Most states and territories directly deliver preschool programs and consequently capture enrolment details of individual children, often as part of their school enrolment systems.

However, New South Wales, Victoria and Queensland mainly fund other organisations or community groups to deliver preschool education and the relevant government authorities in these states only collect aggregate information indirectly on preschools. A small proportion of New South Wales preschools are attached to primary schools and enrolment information for individual children is captured for these preschools.

PRESCHOOL CENSUSES

This refers to a snapshot of children enrolled in or attending preschool at a particular point in time. All states and territories conduct censuses of preschools, either as part of their children's service census or as a separate collection. The scope for the censuses varies with some states and territories including government-funded services only and others including all licensed preschools. The information and reference period varies between the states and territories.

CHAPTER 5 EARLY CHILDHOOD DATA SOURCES *continued*

Overview of source types
continued

OUTCOME AND DEVELOPMENT MEASURES

This refers to diagnostic instruments or assessment systems at the commencement of schooling. All states except Queensland assess children in their first year of school, with the Queensland systems commencing in Year 1. Performance Indicators in Primary Schools (PIPS) is conducted in Tasmania and the Australian Capital Territory. The remaining states and the Northern Territory all use different assessment systems.

5.2 EARLY CHILDHOOD DATA SOURCES, State and territory government agencies

WHETHER STATE OR TERRITORY CONDUCTS COLLECTION TYPE

State or territory	Licensing dataset	Census of children's services	Preschool enrolments	Preschool census	Outcome and development measures
NSW	Yes	Yes(a)	Partial(b)	Yes	Yes
Vic.	Yes	No	Partial	Yes	Yes
Qld	Yes	Yes	Partial(c)	Yes	Yes(d)
SA	Yes	Yes	Yes	Yes	Yes
WA	Yes	No	Yes	Yes	Yes
Tas.	Yes	Yes(a)	Yes	Yes	Yes
NT	Yes	No	Yes	Yes	Yes
ACT	Yes	No	Yes	Yes(e)	Yes

- (a) Census of state-funded services only.
 (b) Aggregate information on enrolments is collected from the majority of NSW preschools (DoCS-funded) and individual enrolment information from preschools attached to government primary schools.
 (c) Aggregate information only provided to state government department.
 (d) Queensland commences testing in Year 1, whereas all other states and territories test children in their first year of formal schooling.
 (e) From 2008, the ACT government preschool enrolments are included in the school census.

Quality issues

The comparability of data between the state and territories is limited by the differences between the jurisdictions, which include:

- the underlying administrative arrangements and definitions
- the data collection methods
- the data items collected, definitions and classifications
- the services included in the collection (e.g. range of children's services, government and non-government funded services)
- whether information is collected as aggregates or unit records.

Some states and territories integrate responsibility for child care and preschool within one agency, whereas others have multiple agencies involved. If the various data sources are not integrated within the jurisdiction, there is potential for double counting in instances where a child attends more than one service, where staff work in more than one service or where a provider offers more than one children's service. There may also be considerable differences between collections within the one jurisdiction. For more information on the state and territories data sources, refer to the AIHW report *Implementation of the Children's Services National Minimum Data Set: a feasibility study*, March 2009 (AIHW cat. no. CFS 7).

METHODOLOGICAL ISSUES

This chapter has summarised a wide range of national, state and territory data sources on early childhood learning and care. The methodological and definitional differences between the collections are considerable and limit comparability of statistics. These

differences are mainly due to the varying collection types, definitions and standards that are in place across the early childhood sources. Data use issues that stem from these differences are listed below, grouped into priorities. Full details of these issues are in Appendix 2.

The highest priority methodological issues were:

- no single collection to cover all information needs
- overall quality of collection instruments and procedures
- limited comparability between existing collections' data items, definitions and populations
- varied output level of data (unit record, aggregate)
- verification of records at unit record level (potential double-counting of children, staff or services)
- limited cross tabulations available
- limited pathway analysis
- data access restrictions
- minimal collection documentation to support access to data

There was one medium priority methodological issue:

- different data editing practices across collections

Methodological issues of relatively low importance included:

- education system variations across the states and territories
- limited comparability between collections due to differing
 - collection types (survey, census, administrative, longitudinal)
 - reference periods
 - respondents (parent, teacher, service provider)
 - accuracy levels for survey estimates

SUMMARY

In summary, there is a wide range of national, state and territory early childhood data sources which are relevant to the Data gaps project. They vary considerably in their content, methodology, accuracy and accessibility. These differences across sources impact on the quality of information available for early childhood learning and care and may result in data gaps. The issues of availability and gap areas are discussed in the following chapters.

CHAPTER 6 DATA ACCESS

INTRODUCTION

A good evidence base is a critical component of quality policy research and development. This evidence base needs high quality data which are accessible to key stakeholders, while protecting the privacy of individuals and organisations. This chapter explores the governance issues that control access to data on early childhood, including access to early childhood data sources, restrictions around use of data (legislation and agency protocols) and risks associated with data access. Two data sources are discussed in Appendix 3 to highlight the different features of data access in relation to surveys and administrative data.

This chapter focuses on access to administrative, survey and census data for statistical purposes. Access refers to the ease with which information can be found and used. Statistical purposes are functions related to the compilation, analysis and dissemination of statistics for purposes such as policy development, program management, evaluation, research and financial assessment. Specific issues relating to data linkage across data sets, including data access considerations are explored in Chapter 8.

ACCESS TO EARLY CHILDHOOD DATA SOURCES

Government agencies collect early childhood information from individuals, households and organisations for a variety of purposes. Some information is collected for administrative or regulatory purposes, such as administering Child Care Benefits (CCB) payments or assessing whether a new children's service should be licensed. This information can also have considerable statistical value, such as providing summary statistics for program managers about CCB expenditure and the number of CCB recipients. Other information, such as surveys and censuses, are designed specifically for statistical purposes.

All information provided by individuals, households and organisations needs to be used for the purpose for which it was collected, and in an appropriate and sensitive manner with regard to the privacy of individuals. This is a particular issue for administrative data as it usually includes items such as identifiers, personal characteristics and geographic location. Protections for these are delivered through legislation such as the *Privacy Act 1988*, agency or program specific legislation such as the *Census and Statistics Act 1905*, and agency protocols and policies.

In addition to privacy and confidentiality, some of the other issues associated with access to statistical information include:

- *visibility of existing data* – A source may be visible through an agency's website, published material or catalogues of collections. Some administrative data sources may have highly visible program information (e.g. CCB application and payment procedures) but less visible information about the data sources.
- *the mechanisms surrounding data access* – Examples include data management, access control, pricing, copyright and licensing.
- *data ownership* – In general, all Commonwealth collected information is owned by the crown and the agency responsible for collecting the data is the data custodian (e.g. the custodian of the Child Care Survey is the ABS). In some cases data custodian arrangements may be more complex (e.g. states and territories providing data to a national body and data collected by Centrelink on behalf of a Commonwealth agency).

ACCESS TO EARLY CHILDHOOD DATA SOURCES *continued*

- *who can access the information* – There may be restrictions placed on who can access the data, which can be affected by the type of information required, its intended use and whether the user is internal or external to the agency. People who may wish to access information for statistical purposes include program managers, policy developers, the media, service planners, service providers, advocacy groups and researchers.
- *timeliness of data release or access* – This ensures that information is current.
- *types of information available* – Examples include verbal advice, annual report content, reports or table sets, customised data and microdata files.
- *how potential users access the information* – Examples include a website, published material or from an information service contact officer.

Availability of early childhood information

Table 6.1 summarises the access arrangements for the Australian government early childhood data sources investigated by the Data gaps project. There is considerable variation in the extent of statistical data released from early childhood learning and care data sources. Some sources release limited information via their agency's annual reports or the *Report on Government Service Provision* (e.g. Steering Committee for the Review of Government Service Provision 2008). Other sources provide access to a wider range of data, including a source-specific publication, information consultancy services and a unit record file.

SURVEYS AND CENSUSES

Statistical information from censuses and surveys is generally widely available to the public. For example, a wide range of data products and supporting documentation relating to the Census of Population and Housing are available on the ABS website or through the ABS National Information and Referral service. The information for core data products is available at various levels (from textual summaries and tables to microdata), to meet the varying levels of detail required and the statistical capabilities of clients.

ADMINISTRATIVE DATA

Statistical information from administrative collections is generally less widely available than that from censuses and surveys. Administrative statistics are generally used within an agency for program management and evaluation, and development of related policies. Some agencies have a research program to undertake detailed analysis of data sets. There may be some public release of summary statistics and, on occasion, more detailed data may be available (e.g. detailed analytical reports or microdata).

The benefits of access to administrative data include:

- a strong evidence base to support policy development, program management, evaluation, research and financial assessment
- strong relationships between data sources and current policy issues
- consistency between data sources if related policies and programs use the same data standards and definitions
- reduced respondent burden, through improved use of collected data, possibly removing the need for an additional specific survey or census.

CHAPTER 6 DATA ACCESS *continued*

6.1 DATA ACCESS FOR EARLY CHILDHOOD DATA SOURCES, Commonwealth government agencies

<i>Source name</i>	<i>Agency-specific legislation (a)</i>	<i>Agency protocols on data access</i>	<i>External availability of data</i>
Australian Early Development Index	None		Publications, other published material. Under review due to national implementation
Australian Government Census of Child Care Services(b)	A New Tax System (Family Assistance)(Administration)Act 1999		Publication, information consultancy service
Census of Population and Housing	Census and Statistics Act 1905	ABS Manuals on various topics including Policy and legislation, Client Services, Publishing and dissemination, and a range of methodology manuals	Publications, core data products, information consultancy services, aggregate data files, sample unit record file (URF)
Child Care Benefit administrative data	A New Tax System (Family Assistance)(Administration)Act 1999	Protocol for the release of social security information, various former FaCSIA manuals	Annual report and RoGS
Child Care Quality Assurance systems	A New Tax System (Family Assistance)(Administration)Act 1999		Annual report
Child Care Survey	Census and Statistics Act 1905	ABS Manuals on various topics including Policy and legislation, Client Services, Publishing and dissemination, and a range of methodology manuals	Publication, core data products, information consultancy services, confidentialised unit record file (CURF)
Childhood Education and Care Survey	Census and Statistics Act 1905	ABS Manuals on various topics including Policy and legislation, Client Services, Publishing and dissemination, and a range of methodology manuals	Publication, core data products, information consultancy services, CURF
Family Tax Benefit	A New Tax System (Family Assistance)(Administration)Act 1999	Protocol for the release of social security information, Various former FaCSIA manuals	Annual report, information consultancy service, 1% Sample Longitudinal Data Set, ad hoc URF release
Household, Income and Labour Dynamics in Australia	None	Manual for the Access to and Use of FaHCSIA Longitudinal Survey Datasets	Publications, other published material, general release dataset, in-confidence dataset
Longitudinal Study of Australian Children	None	Manual for the Access to and Use of FaHCSIA Longitudinal Survey Datasets	Publications, other published material, general release dataset, in-confidence dataset
National Aboriginal and Torres Strait Islander Social Survey	Census and Statistics Act 1905	ABS Manuals on various topics including Policy and legislation, Client Services, Publishing and dissemination, and a range of methodology manuals	Publication, core data products, information consultancy services, CURF
National Assessment Program in Literacy and Numeracy	Schools Assistance (Learning Together – Achievement Through Choice and Opportunity) Act 2004		Publication, class report for each school, individual child report for each student
National Perinatal Data Collection(c)	Australian Institute of Health and Welfare Act 1987, once received by AIHW	AIHW information security and privacy policy and procedures, Guidelines for custody of AIHW data, AIHW ethics committee	Publication, information consultancy service

(a) Agency-specific legislation in addition to the more general legislation such as the Privacy Act.

(b) Beyond 2006, the AGCCCS may not be conducted again in its current form. Data collection mechanisms to supplement these data are being investigated, which includes the CCB administrative data.

(c) These collections are compiled from individual state and territory collections (partially compiled in the case of the NPC). Additional legislation and access arrangements may apply to each of these in the individual state or territory.

CHAPTER 6 DATA ACCESS *continued*

6.1 DATA ACCESS FOR EARLY CHILDHOOD DATA SOURCES, Commonwealth government agencies *continued*

<i>Source name</i>	<i>Agency-specific legislation(a)</i>	<i>Agency protocols on data access</i>	<i>External availability of data</i>
National Preschool Census(b)(c)	None		Publication available on request, information consultancy service
National Schools Statistics Collection(b)(c)	Census and Statistics Act 1905, once received by the ABS	ABS Manuals on various topics including Policy and legislation, Client Services, Publishing and dissemination, and a range of methodology manuals	Publication, information consultancy service
Personal income tax data	Tax legislation e.g. Income Tax Assessment Act 1936 and Taxation Administration Act 1953	Data practice statements, security practices, training, Memorandum of Understandings, Taxpayer charter: Your privacy and the confidentiality of your affairs	Publication
Time Use Survey	Census and Statistics Act 1905	ABS Manuals on various topics including Policy and legislation, Client Services, Publishing and dissemination, and a range of methodology manuals	Publication, information consultancy service, CURF

- (a) Agency-specific legislation in addition to the more general legislation such as the Privacy Act.
- (b) These collections are compiled from individual state and territory collections (partially compiled in the case of the NPC). Additional legislation and access arrangements may apply to each of these in the individual state or territory.
- (c) Dataset contains aggregate data only.

RESTRICTIONS AROUND DATA ACCESS

Data collected by Commonwealth agencies have restrictions around their use specified in legislation, delegated legislation and agency policies, protocols and procedures. A summary of these is provided in Table 6.2. Legislation is the least flexible type as it requires amendments to be passed by Parliament. Delegated legislation is more flexible than legislation as delegated legislation is only presented to Parliament, not to the Governor General, but delegated legislation is less flexible than agency policies, protocols and procedures which are determined by agencies and are not passed by or presented to Parliament.

This framework also applies to data collected by state or territory agencies, although each state and territory has its own laws and administrative arrangements. Under Australia's Constitution, the federal Parliament can make laws only on certain matters, with the Australian States retaining legislative powers over many areas such as local government, roads, hospitals and schools.

6.2 TYPES OF DATA ACCESS RESTRICTIONS, Commonwealth government agencies

<i>Restriction type</i>	<i>Associated process</i>	<i>Flexibility</i>
<i>Legislation</i>	Must be passed in identical form by both Houses of Parliament and be assented to by the Governor General.	Least flexible – amendments to be passed by Parliament
<i>Delegated legislation(a)</i>	Must be authorised by an Act, and be presented to both houses of the Parliament (can be disallowed). Are scrutinised by a Senate Standing Committee.	Medium flexibility – presented to Parliament
<i>Agency protocols</i>	Determined by agency within the boundaries of relevant laws and policies.	Most flexible – agency responsibility

- (a) Includes regulations, statutory rules, by-laws, ordinances, instruments and determinations.

LEGISLATION

There is a range of Commonwealth legislation and delegated legislation that governs the collection, storage, use and/or disclosure of personal information by Commonwealth government agencies. Legislation may relate to the specific programs, agencies or activities. There is also overarching legislation which has broader relevance, such as the *Privacy Act*.

Specific legislation

Legislation relating to specific programs, agencies or activities may make provision for the collection and use of associated data. Depending upon the purpose of the legislation, the data access clauses may be limited to provisions about disclosure and confidentiality of information, or may range as far as specifying publication and dissemination of statistics. Almost all the legislation included in Table 6.1 allows access to microdata under particular conditions, with the Acts often enabling these details to be developed within delegated legislation such as guidelines or determinations. The exceptions are: the laws on personal tax records, which restrict the release of personal information; and *Commonwealth Schools Assistance (Learning Together through Choice and Opportunity) Act 2004*. The legislation of statistical agencies (e.g. AIHW and ABS) provide more detail on a wider range of statistical activities than the legislation of policy or service delivery agencies, and requires these agencies to publish their statistics.

The specific legislation which relates to early childhood learning and care data sources collected by government agencies are:

- *A New Tax System (Family Assistance) (Administration) Act 1999* details the administration of the new family payments arrangements introduced in 1999, with Part 6 covering Provisions relating to information (information gathering, confidentiality and false statement etc). There are significant legislative protections around private information, however the Act does have a public interest disclosure clause which allows the Secretary to certify that
 - it is in the public interest to disclose information on a case or particular cases, in accordance with guidelines determined by the Minister.
- *Census and Statistics Act 1905* relates to all ABS collections conducted under the Act. This Act provides the Australian Statistician with the authority to conduct statistical collections, and imposes obligations on the Statistician to publish and disseminate compilations and analyses of statistical information and to maintain the confidentiality of information collected under the Act. The Act prohibits the disclosure of information collected under the Act (other than to the person from whom it was obtained) except for the purposes of the Act or in accordance with a determination. The Statistics Determination provides for the disclosure of specified classes of information under very restricted conditions which would otherwise be prohibited by the provisions of the Act.

Specific legislation
continued

- *Commonwealth Schools Assistance (Learning Together through Choice and Opportunity) Act 2004*. This Act relates to financial assistance from the Commonwealth to the States for government and non-government schools, including conditions of financial assistance such as student reports, financial accountability and educational accountability. Under the educational accountability clauses, the States and non-government school authorities must provide the Minister with a report or reports on the requirements for performance information specified in the regulations. The regulations provide further details on the content of reports for performance information such as numeracy and literacy assessments and student characteristics, to enable the publication of the specified information at the Australia and state or territory level. The Act and its regulations do not include clauses associated with confidentiality and security of the data.
- *Australian Institute of Health and Welfare Act 1987*. This Act relates to the establishment and operation of AIHW. In terms of statistical activities, the Act specifies the AIHW's functions (e.g. to collect, produce, coordinate and publish health- and welfare-related information), the AIHW Ethics Committee, periodical reports (publishing *Australia's Health* and *Australia's Welfare* in alternate years) and confidentiality. The Act protects the confidentiality and security of the data. It allows for the communication and publication of non-identifiable information or statistics. It makes provision for the release of microdata for research purposes provided each release has the agreement of the AIHW Ethics Committee.
- Tax legislation (e.g. *Income Tax Assessment Act 1936 and Taxation Administration Act 1953*) – Tax secrecy and disclosure provisions are included in a large number of tax acts. These provisions were reviewed in 2006 and will be standardised into a new framework within a single piece of legislation. Under existing provisions, taxpayers' personal information is protected by law, with the legislation allowing for disclosure of taxpayer information under certain circumstances. The forthcoming standardised secrecy legislation framework will maintain existing disclosures and enable the ATO to release taxpayer information in limited circumstances where the public interest benefits exceed the impact on taxpayer privacy.

Some data sources may be collected within the parameters of broader legislation and agency-specific guidelines, but without agency or program specific legislation directly relating to the data source (e.g. LSAC and HILDA).

Broader legislation

There is legislation which relates to personal information collected by government agencies and which was not designed to be agency or program specific. This includes the *Privacy Act 1988*, *Freedom of Information Act 1982*, *Telecommunications Act 1997*, *Data Matching Program (Assistance and Tax) Act 1990* and the *Crimes Act 1914*. The *Privacy Act 1988* is most relevant and is discussed in more detail below.

PRIVACY ACT 1988

The *Privacy Act 1988* provides protection for personal information that is handled by Commonwealth and ACT government agencies. The eleven Information Privacy Principles (IPPs) are extracted from Section 14 of the *Privacy Act 1988* and are the base line privacy standards which the Commonwealth and ACT government agencies need to comply with in relation to personal information kept in their records. The IPPs do not permit agencies to use or disclose, in identifiable form, records of personal information

Broader legislation continued

PRIVACY ACT 1988 *continued*

for research and statistical purposes, unless specifically authorised or required by another law, or the individual has consented to the use or disclosure. The IPPs are:

- Principle 1 – Manner and purpose of collection of personal information
- Principle 2 – Solicitation of personal information from individual concerned
- Principle 3 – Solicitation of personal information generally
- Principle 4 – Storage and security of personal information
- Principle 5 – Information relating to records kept by record-keeper
- Principle 6 – Access to records containing personal information
- Principle 7 – Alteration of records containing personal information
- Principle 8 – Record-keeper to check accuracy etc of personal information before use
- Principle 9 – Personal information to be used only for relevant purposes
- Principle 10 – Limits on use of personal information
- Principle 11 – Limits on disclosure of personal information.

Since the IPPs came into effect, a number of public interest determinations relating to the government sector have been issued by the Privacy Commissioner.

The *Privacy Amendment (Private sector) Act 2000* amended the *Privacy Act 1988* to ensure that most private organisations are bound by the ten National Privacy Principles outlined in Schedule 3 of the Act. The National Privacy Principles in the *Privacy Act 1988* set out how private sector organisations and health service providers should collect, use, maintain, keep secure and disclose personal information

The principles and guidelines of the *Privacy Act 1988* are enacted either through state legislation or practice guidelines in each of the state and territories not covered by the Act.

PROTOCOLS, POLICIES AND PROCEDURES

In addition to legislation and delegated legislation, agencies have further administrative arrangements in place on various aspects of data release and dissemination. These administrative arrangements are normally documented as internal procedures, policies or protocols about data access and release (hereafter referred to as protocols). Some of these documents may also be available externally.

Statistical agencies and research agencies (e.g. ABS, AIHW and AIFS) have well-developed protocols in place. For example, the ABS has internal policy manuals on topics including Policy and legislation, Client services, and Publishing and dissemination. There is also information on the ABS website on issues such as how to access ABS statistics, information consultancy services, access to CURFs and the ABS pricing policy. AIHW has extensive documentation on its website on privacy policies, protocols and procedures, as well as other aspects of data access and release.

Policy agencies develop protocols as needed, but they generally cover a narrower range of topics than the protocols of statistical or research agencies. Policy agencies also have fewer protocols available on their website. For example, the DEEWR website contains the DEEWR privacy policy, but little other material on data access protocols. There are a range of internal DEEWR, FaHCSIA or Centrelink protocols which are followed, including *Protocol for the release of social security information*, *Social Security Information Principles and the Mutual Assurance Protocol*, *Publishing Information protocol*

PROTOCOLS, POLICIES AND PROCEDURES *continued* (former FaCSIA), *Business Partnership Agreement: Data Framework* (former FaCSIA) and *Business Partnership Agreement, Privacy, Records and Information* (former FaCSIA).

Protocol topics

There is wide variation between agencies on the number and content of data access protocols. Across agencies, examples of the access issues covered by protocols include:

- data privacy
- survey participant information
- rules regarding the release of statistical information
- confidentiality procedures
- dissemination
- publishing procedures
- pre-embargo access
- release and approvals
- copyright
- pricing
- data management
- information technology security
- microdata release
- data linking
- ethics committees.

Confidentiality procedures

Most agencies have procedures in place to protect the confidentiality of the data they release. These include:

- confidentialising data in tables e.g. suppressing cells with less than a particular number of contributors, data rounding and redesigning tables (e.g. removing detailed cross-classifications or collapsing detailed classifications)
- confidentialising unit record data by data reduction (e.g. using ranges instead of actual values, top and bottom coding and removing some data items from some respondents or from the file altogether) or data modification (e.g. data swapping, replacing values for small groups with mean values and replacing some information for selected respondents with imputed values).

Confidentiality is further protected by data management and IT security procedures such as:

- maintaining privacy during data collection and processing e.g. using code numbers instead of names on questionnaires, removal of names and addresses from the data file at the processing stage and destroying questionnaires as early as possible
- maintaining high standards of security in the physical and IT environment e.g. a secure Internet gateway, strict control of access to premises containing confidential information and strict control on who can access personal information.

DECISION MAKING
AUTHORITY

The decision making authority is the position or group which decides what statistical information can be released and to whom.

For the release of microdata, this is often specified in legislation or delegated legislation and is generally the agency head or an ethics committee. For example, the *AIHW Act 1987* makes provision for the release of microdata for research purposes provided each release has the agreement of the AIHW ethics committee and the data custodian. *A New Tax System (Family Assistance) (Administration) Act 1999* allows the Secretary to certify it is in the public interest to disclose information on a case or particular cases, in accordance with guidelines determined by the Minister.

However, the release of microdata can also be determined by agency protocols or policies for data sources which are not specifically covered by legislation. For example, LSAC and HILDA microdata release is detailed in the *Manual for the Access to and use of FaHCSIA longitudinal surveys*.

The decision-making authority for aggregate information is specified in agency protocols and policies. The positions which make this decision include the collection manager (ABS) and the collection manager (DEEWR – NPC).

In addition to these delegations, agencies usually have governance arrangements to further scrutinise particular kinds of data use or release. For example, the AIHW Ethics Committee examines applications for release of AIHW data for research purposes. The ABS Microdata Review Panel examines microdata files prior to their release and assesses the risk of disclosure associated with such a release. The Microdata Review Panel makes a recommendation to the Australian Statistician and the Statistician then decides whether to approve-in-principal that the CURF be made available for access.

DATA ACCESS RISKS

Privacy and confidentiality

There is a wide range of risks associated with public access to data. This chapter primarily focuses on the risks associated with privacy and confidentiality. The statistical needs of users and the public good that results from these statistics needs to be balanced with agencies' abilities to maintain privacy and confidentiality and minimise the risk of disclosure. Trust is an important aspect in the collection of high quality data. Individuals or organisations who are concerned about potential breaches of privacy and confidentiality may provide less complete information or elect not to participate in a program to avoid providing information.

Misinterpretation or misuse

Another risk associated with data access is misinterpretation or misuse of data. Misuse can be either statistical misuse or breach of the conditions of use.

Statistical misuse or misinterpretation is where the use is not statistically valid but still abides by the conditions of use. For example, it would be inappropriate to use CCB administrative data to analyse informal child care as the CCB is only provided for registered or approved care. A data source which is released in too much or too little detail for the intended use may also be misused or misinterpreted. Misinterpretation can also occur when supporting documentation about a collection is unavailable or not used.

Breach of the conditions of use is where a data source is used in ways that the data custodian has specifically prohibited (e.g. linking microdata from different data sources when the conditions of use prohibit this).

Fitness for purpose

There may also be risks if data are not fit for the intended purpose due to data quality problems or methodological limitations. There are varying levels of quality requirements for data collections, depending upon how the data are being used. For example, administrative data generally provides accurate figures for the number of people receiving a particular payment or service, but subsidiary information such as socio-demographic details may not be as accurate.

Some data items may have specific problems associated with their collection. This includes poorly constructed questions or classifications, subjective data items, lower response to voluntary items within a data collection, and problematic items such as Indigenous status and income.

For censuses and surveys, sample design and estimation procedures will impact on the quality and representativeness of the results. Problems include low response rates, a biased sample, too small a sample for the level of estimates required and high relative standard errors.

The level of editing and data cleaning within a data source also affects the fitness for purpose of a data source, although this is less important than a well-designed methodology.

Under-resourcing

It is resource intensive to provide access to data, particularly if the agency has limited statistical expertise. A data custodian may believe that their data source has wider statistical value and be willing to provide fair and equal access to the data. However, the agency may have limited resources or expertise to support an administrative collection as a statistical collection. Other work associated with release and access to data source are:

- developing policies on issues such as privacy and confidentiality, allowable and non-allowable use of data and data security
- cleaning and describing data
- developing IT infrastructure and processes so that the dataset is in a suitable format for statistical analysis, has security arrangements in place and is appropriately stored and retained.

CONCLUSION

There is considerable value in most of the early childhood learning and care data sources being accessible for statistical purposes as they add considerable value to the early childhood evidence base. There is considerable variation in the extent of data released from early childhood data sources, and the legislation and policies or procedures underpinning this release. Some of the issues identified in this area include:

- potential statistical value of administrative data
- limited visibility of administrative data
- limited access to administrative data
- some data access not open to external users
- risks associated with wider data access
- governance arrangements which control data access.

CHAPTER 7 DATA GAPS

INTRODUCTION

There are a number of surveys and administrative collections which store information that address elements of the policy questions in early childhood development. However, there remain substantial gaps in existing early childhood information to answer the fundamental questions posed in Chapter 2. This chapter explores these data gaps. It presents the results of the data holding assessment, which examined and compared the data available in the early childhood learning, development and care sources against the information requirements. The full details of this assessment are in Appendix 4, which for completeness should be read in conjunction with this chapter. This chapter also revisits the priority areas listed in Chapter 3, to assess how these questions may be answered.

Priority of gap areas

There is no single collection to capture all information on early childhood learning and care. Preschool and child care information are mostly disparate as they were historically managed by different sectors (education and community services respectively). The data gap areas of the highest priority mainly stem from this structural problem. The issues are:

- lack of complete coverage for target populations, e.g. limited information available for the following populations:
 - children aged 0–5 who do not yet attend school
 - total number of children attending child care
 - total number of children attending preschool, and the setting of the program non-participants of child care and/or preschool
 - risk groups
 - regional level information
- definition of preschool program varies considerably between collections
- reasons for not participating in informal child care, formal child care and preschool
- human resource characteristics for formal child care and preschool workers, including educational qualifications and employment details
- whether program is designed and delivered by a degree qualified early childhood teacher
- limited existing information to enable linking outcome data with historical information

What is a data gap?

A *data gap* is an information requirement for which no relevant data are collected or the existing data are inadequate. Inadequate data includes cases where the population, coverage or data item (e.g. question and categories) do not fully match the information requirements or where the quality is not fit-for-purpose. To comprehensively determine data gaps within the early childhood sources, it is necessary to look beyond the missing data, and consider if the existing data are fit for use.

CHAPTER 7 DATA GAPS *continued*

Example

How many children are participating in preschool in the year before commencing formal schooling?

There is considerable policy interest in gauging the extent of children's participation in formal preschool programs. Information is currently collected on preschool participation from both survey and administrative data, but due to differing data standards and definitions of preschool, there are concerns about the quality of these aggregate estimates. Some general aspects of participation to consider include attendance and duration, and of particular interest are the characteristics of non-participants. A key priority question raised for this project was how to identify non-participants of preschool, and reasons for not participating. Preschool participation is currently collected across many collections but due to inconsistencies in definition, state and territory variations, differing reporting units and the difficulty of capturing preschool programs delivered in a different settings, the existing data are *inadequate*.

DATA ASSESSMENT PROCESS

To determine the gap areas, an extensive assessment process was necessary. The process followed was to:

- consider the populations of interest and coverage of the relevant collections
- finalise the sources for inclusion in the assessment process
- capture all metadata from each source relevant to the project
- assess data holdings within collections against the information requirements

Assessing the sources also requires checking the data are fit for purpose. Aspects of concern include quality, use of standards, access arrangements and visibility. The assessment was conducted as if all the existing data was available, however access arrangements may prevent some use, particularly for the administrative datasets.

Collections included in the assessment

The collections considered for assessment were determined by their relevance to the project and the amount of supporting documentation. This was required to provide sufficient information for the assessment to take place. The final collections included in the assessment were:

- Australian Government Census of Child Care Services (AGCCCS)
- Census of Population and Housing (Census)
- Child Care Benefit administrative data (CCB)
- Child Care Survey (CCS)
- Childhood Education and Care Survey (CEaCS)
- Longitudinal Study of Australian Children (LSAC)
- National Assessment Program in Literacy and Numeracy (NAPLAN)
- National Aboriginal and Torres Strait Islander Social Survey (NATSISS)
- National Perinatal Data Collection (NPDC)
- National Preschool Census (NPC)

A full list of the collections is in Table 7.1. Additionally, Table A4.1 in Appendix 4 provides a brief explanation for collections not included in the assessment.

PRIORITISING GAPS FOR INFORMATION REQUIREMENTS

To find where the gaps exist, all data holdings in the included collections were assessed against the information requirements. The assessment process considered how the data items in the relevant sources matched to the list of information requirements. The detailed results of this assessment process are in Appendix 4. This includes issues

PRIORITISING GAPS FOR INFORMATION REQUIREMENTS *continued*

encountered with how the data are captured and reported, such as capturing a child's age but not date of birth or school year. A data gap was identified where there was no relevant existing information in the assessed sources that was fit for purpose. The data gap areas were then considered by the Working Group, and priorities assigned. Recommendations to address these issues are outlined in Chapter 9.

Of the collections reviewed, LSAC has the most comprehensive coverage of early childhood development, learning and care. The survey content covers all broad information requirements, with minimal gaps in some specific areas, such as informal child care participation, detailed attendance for child care and preschool, and associated human resources for the service providers.

Excluding LSAC, the collections generally were not designed to capture a comprehensive set of indicators and outcomes for early childhood. The information available from these sources reflects the purpose the collections were designed to achieve. For this assessment, there are limitations both in the extent of information captured and in the quality and/or availability of the early childhood data sources. This is highlighted in Table 7.1, which summarises the relevance of the sources and provides a brief summary of the relevant data inclusions and potential limitations of each source.

CHAPTER 7 DATA GAPS *continued*

7.1 SUMMARISING EARLY CHILDHOOD SOURCES FOR DATA HOLDINGS ASSESSMENT

<i>Source name</i>	<i>Agency</i>	<i>Relevant topic areas</i>	<i>Potential limitations</i>	<i>Included in assessment</i>
High priority				
Australian Early Development Index	DEEWR and CCCH	Outcome measures for school readiness	Collected for aggregate use	No
Australian Government Census of Child Care Services(a)	DEEWR	Characteristics for child care providers, workers, attending children	Coverage limited to government approved and supported child care	Yes
Child Care Benefit administrative data	DEEWR	Child care participation, child and parent demographics, service providers	Coverage limited to government funded and approved providers	Yes
Child Care Survey	ABS	Child care and preschool usage	Replaced with CEaCS 2008, limitations on some state level estimates	Yes
Childhood Education and Care Survey	ABS	Child care and preschool usage, informal learning	Limitations on some state level estimates	Yes
National Assessment Program in Literacy and Numeracy	MCEETYA	Outcome measures for literacy and numeracy	Aggregate data released	Yes
Longitudinal Study of Australian Children	FaHCSIA	Characteristics, child care and preschool participation, outcomes	Small sample size, no future cohorts planned	Yes
National Aboriginal and Torres Strait Islander Social Survey	ABS	Family characteristics, parenting, child care and preschool participation	Limitations on some state level estimates	Yes
National Preschool Census	DEEWR	Preschool enrolments	Aggregate data, jurisdiction variations,	Yes
Medium priority				
Census of Population and Housing	ABS	Family characteristics, preschool participation	Variation of preschool definition for respondents	Yes
Family Tax Benefit	FaHCSIA	Family characteristics, labour force status, income details	Coverage limited to eligible claimants of benefit	No
National Perinatal Data Collection	AIHW	Birth event data	Release time lag	Yes
National Schools Statistics Collection	ABS	Students and staff of first year at primary school	Collected for aggregate use, preschool out on scope	No
Low priority				
Child Care Quality Assurance systems	NCAC	Service provider details	Limited information available on data collected	No
Household, Income and Labour Dynamics in Australia	FaHCSIA	Household use of child care and preschool	Household level data, survey changes across waves	No
Personal income tax data	ATO	Income, tax offsets	No family/household links	No
Time Use Survey	ABS	Household child care activities, use of child care, preschool	Limited information for children, data at household level	No

(a) Beyond 2006, the AGCCCS will not be conducted again in its current form, but the information collected will still be available.

COVERAGE OF POPULATIONS

No single source meets all the information requirements for this assessment. Similarly, there is no one source that meets all the population requirements. The populations of interest are:

- children from birth until they start school, in particular the subgroups of participants and non-participants in informal child care, formal child care and preschool
- children of preschool age (3 to 5 years)
- children in their first year of school
- children in year 3 at school
- formal child care or preschool providers
- human resources in formal child care or preschool providers.

COVERAGE OF
POPULATIONS *continued*

The early childhood sources each cover a proportion of one or more of these populations. The extent of that coverage depends on the original scope the collection was designed to meet. No one collection covers all populations.

Populations

VERY HIGH PRIORITY

There is limited information for the populations below. These gap areas were identified as of the highest priority by the Working group:

- *Children aged 0–5 years* – captured by CCS, CEaCS and Census, with partial coverage by LSAC and NATSISS.
- *Total number of children attending child care* – formal and informal care captured by CCS, CEaCS, LSAC and NATSISS. Formal care captured for Australian government approved and supported child care by AGCCCS and Australian Government approved and registered care for CCB.
- *Total number of children attending preschool program* – captured by Census, CCS, CEaCS, LSAC and NPC, and partially by NATSISS.
- *Non-participants of child care and/or preschool* – met by survey data.

There is no single source that sufficiently covers all required populations for early childhood learning, development and care. The above collections provide detailed information on various aspects of early childhood, but due to differing methodologies and rationales, there are variations in the final data. The following example highlights how these variations impact by comparing population estimates.

Example

How many children are participating in preschool in the year before commencing formal schooling?

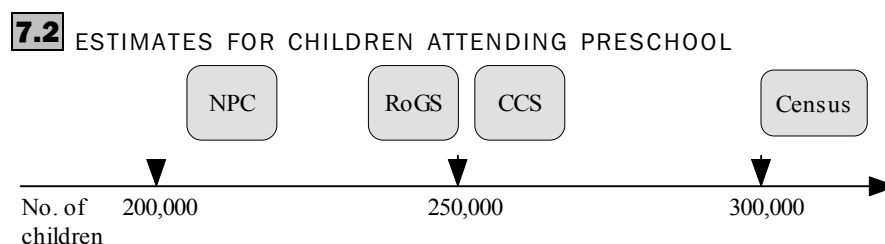
Multiple sources collect information on preschool participation, and produce a national estimate. However, varying methodologies used to collect information result in variations in the data. Some of the sources which contain data on who is participating in preschool are:

- Report on Government Services (RoGS)
- NPC
- Census
- CCS

The RoGS estimate is compiled using enrolment information from state and territory departments which, due to the coverage differences, has many caveats linked to its use. For example, there is some double counting of children in NSW, Qld, WA and NT because some children moved in and out of the preschool system throughout the year and some children accessed more than one program. The NPC is aggregate data collected from both government and non-government preschools for the census week. State and territory definitional differences still impact, and only preschools operating as separate institutions are captured. The Census of Population and Housing also only captures separate preschool institutions, but this is based on the responding parents' interpretation of preschool, and as a self enumerated census there is potential for misreporting. Preschool participation is also reported by parents in the CCS, although further explanation can be provided by the interviewer if required.

Example continued

The variations of the preschool participation estimates from these sources for 2006 (2005 for CCS) are shown below.



This example demonstrates the difficulty in obtaining a definitive count of preschool enrolments. A full assessment of current indicators for measures of participation and non-participation in preschool, child care and educational institutions are in *Measuring Learning in Australia, Concepts and Directions in Early Childhood Learning* (ABS cat. no. 4232.0), Chapter 4. The issues identified in the assessments include:

- Whether the populations of preschool participants are disaggregated by age. There is variability in preschool and school starting ages, which means that age is not a precise proxy.
- Inclusion of private and non-government preschools varies for each state and territory.
- Estimates from the CCS are subject to higher standard errors in the smaller states and territories, which affects the usefulness of the CCS at the state or territory level.

Other issues affecting coverage

There are other issues that impact on how well a source can meet the population requirements. These include:

- *the varied use of cross classifiers* – Data collection and presentation of results may be at different levels, which confounds information, e.g. capturing age, date of birth or school year.
- *difficulty in capturing non-participation* – Information in administrative systems captures details for those who are using a service or program. No information is available for those who do not participate in programs.
- *linking outcomes with historical information* – To accurately measure outcomes, the information captured as test results or scores needs to be linked to historical characteristics and details, e.g. Australian Early Development Index (AEDI) assessments with pre populated preschool attendance histories attached.
- *limited information on staff and programs* – There are no current collections that adequately capture details for service provider staff characteristics and program details.
- *double counting of child care and preschool* – Multi-use of services, both between and within child care and preschool providers, is not currently reflected in administrative data. This results in counting children, services and staff more than once.

Participants continued

VERY HIGH PRIORITY

Information on participants in learning and/or care activities is limited by the coverage of the relevant collections. This is further confounded by the differences in the preschool program definitions. The following issues for capturing information of participants were considered as data gap areas of very high priority:

- Limited information on total number of children attending child care
- Limited information on total number of children attending preschool programs and the setting of the program
- Definition of preschool programs varies considerably between collections.

MEDIUM PRIORITY

There was only one outstanding requirement rated as medium priority:

1.3 Details of informal child care participation

- duration of preschool in months prior to school entry

The number 1.3 refers to the numbering system used for the information requirements in Chapter 4.

LSAC, CCS, CEaCS and NATSISS are the only child-focused datasets which collect information on preschool, formal child care and informal child care. CEaCS and LSAC are the only current collection which distinguish between preschool programs delivered in a preschool setting, preschool programs delivered in a formal child care setting and formal child care without a preschool program.

Non-participants

HIGH PRIORITY

Of key concern is the limited ability to capture information on people who are not engaged in learning and/or care. Administrative systems only capture those who are using the provided service. Information from survey collections relies on parental identification of the learning and/or care, which tend toward over-reporting of learning experiences. This issue was rated as high priority:

- Limited identification of non-participants

The following data gap areas were also determined high priority:

2.3 Reasons for not participating in child care and/or preschool

- reasons for not participating in informal child care
- reasons for not participating in preschool

This gap area is difficult to address until the available information on non-participants is improved.

Providers

MEDIUM PRIORITY

Service provider characteristics help rate the quality of care and/or learning experienced. LSAC collects information on providers but it is not designed to produce representative estimates. The following gap areas for providers were determined medium priority:

3.1 Formal child care providers

- substantiated breaches

3.2 Preschool providers

Providers continued

MEDIUM PRIORITY *continued*

- number of places offered
- substantiated breaches
- service management type
- service delivery setting

The NPC captures information on preschool providers, with limited details. Expanding the information collected from the NPC to meet the categories of the CS NMDS would improve the use of the data.

Resources

HIGH PRIORITY

The population of interest for Resources is human resources in formal child care and preschool providers.

These outstanding resource information requirements were flagged as high priority:

4.1 Formal child care human resources

- sex
- child to staff ratios
- staff turnover

4.2 Preschool human resources

- Data gaps exist for all information requirements in this area

Existing data for preschool staff is limited to LSAC and NPC. Information on the human resources, numbers and characteristics for learning and care providers is important in both classifying the learning experience and quality assessment. Preschool programs should be delivered by tertiary qualified early childhood teachers, currently this cannot be determined.

Activities

There is little reporting of Activities in the collections reviewed. The only sources to cover these requirements were LSAC and CEaCS. This coverage was determined to be partial, due to both the subjective nature of the requirements and the lack of established standards or instruments in the field.

HIGH PRIORITY

Preschool programs are defined from the qualifications of the child's carer or teacher. With this in mind, the following outstanding information requirement was determined to be of high priority:

5.1 Activities

- whether program is designed and delivered by degree qualified early childhood teacher

LOW PRIORITY

The following information requirements have no data collected or the collected data is inadequate:

5.1 Activities

- whether each child has an individual learning program
- whether preschools have links with primary schools or transition programs

Outputs and outcomes

HIGH PRIORITY

Outcomes are the results and/or effects of learning and care activities. Outcome data can only be termed as such if it can be brought together with historical participation and characteristics. LSAC is currently the only collection to do this. However, LSAC is limited as there are no future cohorts planned past the first two waves. The difficulty in measuring outcomes in the first school year or on a national basis is considered very high priority. This stems from most collections being point in time, with no historical information to provide context for the outcomes.

The list of outcomes in the information requirements were based on the AEDI domains. The planned national implementation of the AEDI in 2009 should improve outcome measures, provided some historical information is captured or obtained.

LOW PRIORITY

The following information requirements are not met by LSAC, but are covered in the AEDI instrument: 6.1 Physical health and well-being physical readiness for preschool or school day 6.4 Language and cognitive development imagination and creativity demonstrated through dramatic play, storytelling and the arts

Family

MEDIUM TO LOW PRIORITY

The family environment and characteristics are important in shaping learning and care activities. Information on characteristics, parenting style and family relationships are well represented across the collections. Less represented are information on social support and home environment. The following information requirements remain data gaps:

7.4 Parenting style

- evidence of appropriate physical care and nurturing

7.6 Social support for family

- whether family provide support to relatives or friends
- child and family's participation in social activities

7.7 Safe and secure home environment

- crime victimisation
- domestic violence within family
- emotional and/or mental abuse within family
- parent's current or past incarceration
- child abuse and/or neglect
- homelessness or access of support services such as Supported Accommodation Assistance Program (SAAP)

These gap areas could be met from other collections that focus on household and family, such as Household Income and Labour Dynamics in Australia (HILDA) and the General Social Survey.

Context

LOW PRIORITY

There are two main areas for context; geography and children's health issues. All information requirements were met. Most of the reviewed sources contained information on context, particularly geography. Standards for geography and disability are varied.

CHAPTER 7 DATA GAPS *continued*

DATA GAPS FOR HIGH PRIORITY AREAS

The assessment of the information requirements provides a broad view of how existing data can be used to assess early childhood learning and care. The high priority gap areas relate to the correct identification of the populations of interest, and being able to assess outcomes and how changes impact these populations. This can be summarised by revisiting the high priority areas identified as needed to improve the available evidence base. The table below shows these key data concerns, and summarises where the gaps are occurring.

7.3 REVISITING THE GAP AREAS FOR THE HIGH PRIORITY POLICY ISSUES

High priority areas

Participants

What are the characteristics of children participating in preschool and/or child care?

Summary of current information

Partly addressed by LSAC, CEaCS, CCS and NATSISS, but limited by small sample size.

How many children receive a preschool education and how is this changing over time?

Currently an indicator in ROGS, but administrative data are not reliable across states.

How many children participate in child care and how is this changing over time?

Currently an indicator in ROGS, but administrative data are not reliable across states.

Non-participants

What are the characteristics of children who do not participate in any formal child care, and what are the reasons for not participating?

Limited information available from LSAC, CEaCS, CCS and NATSISS.

What are the characteristics of children not participating in preschool?

see above

Are these children participating in other types of formal child care before commencing school?

see above

What are the reasons for not participating in preschool?

see above

Providers

What are the characteristics of child care environments across Australia?

Information exists in administrative systems, but with limited availability of statistics. Partly addressed by LSAC but not designed for nationally representative estimates of providers.

Resources

What are the characteristics (including qualifications of employees/teachers) of educational providers?

Child care human resources addressed by AGCCCS. Preschool human resources partly addressed by LSAC but not designed to be nationally representative of staff.

Outputs and Outcomes

What are the long term outcomes for children who are participating in formal child care without any preschool program, compared to those that do participate in preschool?

No information to differentiate if preschool offered within formal child care. Partly addressed by LSAC, but limited by small sample of this population group.

What are the long term outcomes for children who are not participating in formal child care or preschool, compared to those who do?

In future, partly addressed by LSAC, but limited by small sample of this population group.

What are the long term outcomes for children who are from disadvantaged households that miss out on preschool?

In future, partly addressed by LSAC, but limited by small sample of this population group.

How do aspects of child care environments impact on children's later outcomes?

Partly addressed by LSAC, but limited by small sample size. Will not address prevalence of identified risk and protective factors in child care environments across the community.

How does the setting of preschool education (delivered in long day care or preschool) affect longer term outcomes for children?

No information linking preschool setting to outcomes.

How do the characteristics of preschool education impact on children's later outcomes?

Partly addressed by LSAC, but limited by small sample size. Will not address prevalence of identified risk and protective factors in preschool environments across the community.

How do aspects of parenting behaviours impact on children's later outcomes?

Partly addressed by LSAC, but limited by small sample size. Will not address the prevalence of identified risk and protective factors in the community.

Families

Are there identifiable patterns of risk and protective factors in parenting behaviours across Australia?

Partly addressed by LSAC, but limited by small sample size. Will not address the prevalence of identified risk and protective factors in the community.

SUMMARY

The existing information for early childhood care, learning and development can be sourced from many collections. There is no single source that sufficiently covers all the information requirements for early childhood learning and care. No single source covers all the populations of interest. There are collections that provide detailed information on various aspects of early childhood but, due to differing methodologies and rationales, there are variations in the final data.

The high priority issues are:

- lack of complete coverage for target populations, e.g. limited information available for the following populations:
 - children aged 0–5 who do not yet attend school
 - total number of children attending child care
 - total number of children attending preschool, and the setting of the program
 - non-participants of child care and/or preschool
 - risk groups
 - regional level information
- definition of preschool program varies considerably between collections
- reasons for not participating in informal child care, formal child care and preschool
- human resource characteristics for formal child care and preschool workers, including educational qualifications and employment details
- whether program is designed and delivered by a degree qualified early childhood teacher
- limited existing information to enable linking outcome data with historical information

This assessment of the high priority information needs has shown the limitations of the existing evidence base to answer these questions. The next chapters consider options for overcoming these limitations, and put forward recommendations to improve the evidence base for early childhood learning and care.

CHAPTER 8 DATA LINKAGE

INTRODUCTION

An extensive range of data relating to young children is collected and held across government and non-government agencies and in national survey collections. However these data do not present an integrated or comprehensive picture of young children's care and learning experiences, and there are many issues affecting data quality. A cross-cutting approach which makes existing information more available, and improves its quality, would assist research and therefore enhance the policy cycle.

This chapter examines the potential for using data linkage to improve available information for statistical and research purposes. The example of combining all relevant administrative data sources to enable the compilation of new statistical outputs using linked, but subsequently de-identified records is explored. The proposed linked dataset would be a powerful tool for research and policy purposes, but involves significant risks and considerable effort to implement and manage. This chapter describes linkage options, proposes a linkage model, its possible implementation, the key data sources to be utilised, its benefits and limitations, and the key information requirements which are met and not met through the model.

OPTIONS TO IMPROVE THE EVIDENCE BASE ON EARLY CHILDHOOD

Improvements to the evidence base on early childhood could be addressed in several ways, which include developing new collections, expanding existing collections, or implementing improved standards for existing collections. One additional way of making data on early childhood more useful for research, while also addressing availability and quality issues, is through data linkage. *Data linkage* is the bringing together of information from two or more records which belong to the same individual or entity (such as people, households or businesses), within or across datasets.

Potential linking scenarios

There are various levels of data linking that would add value to the current information base. Some examples are listed below.

- *Enhancing collections with aggregate information from other sources* – This involves merging aggregate information from supplementary sources onto records in the primary data source, matched by a characteristic such as geographic location. For example, the Longitudinal Study of Australian Children (LSAC) file includes Census Collector District summary statistics from the Census of Population and Housing (e.g. socio-economic indexes for areas (SEIFA) indexes and percentage of persons born in Australia for current postcode) which are merged onto the child's LSAC record based on their collection district. This is fairly straightforward to do and has minimal confidentiality risks as it is not attempting to match two separate pieces of information about an individual.
- *Linking individual collections longitudinally to create a richer single source* – This involves linking multiple episodes together for the same individual or entity within the one data source. For example, a longitudinal Child Care Benefit (CCB) dataset would enable children's child care use to be tracked over time. This approach overcomes some linkage access issues but methodological changes to the collection over time may cause logistic problems in matching records.

*Potential linking scenarios
continued*

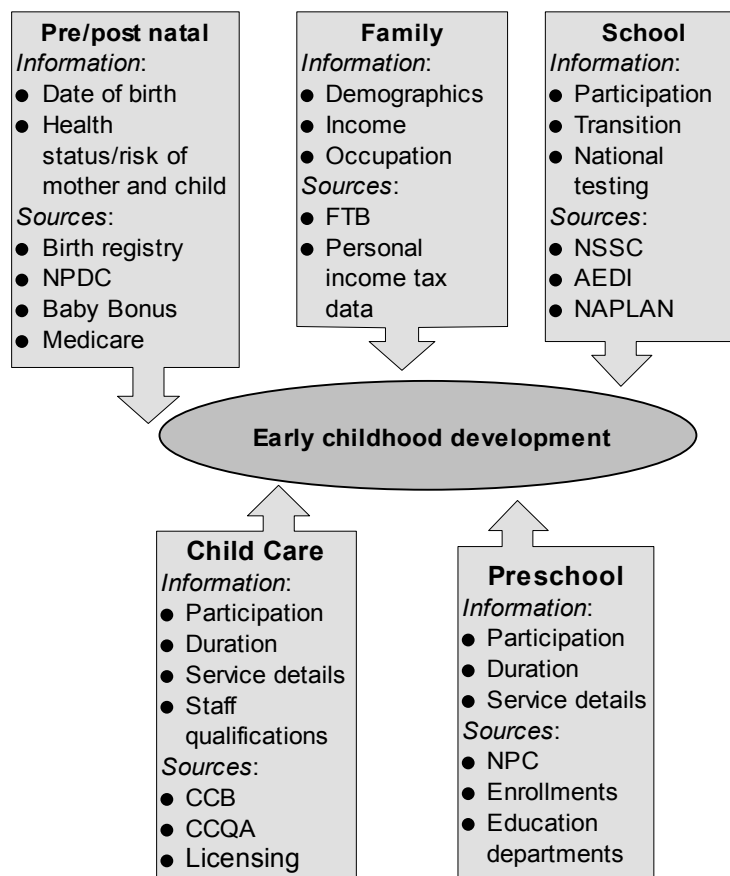
- *Linking collections held by the same custodian* – A single custodian merging their own data sources together overcomes some of the restrictions in disclosure of personal information, which are usually much more restrictive outside an agency than within an agency. The agency could then disseminate the results to minimise confidentiality breaches (e.g. research paper or confidentialised unit record file). For example, the Department of Education, Employment and Workplace Relations (DEEWR) is the custodian of the National Preschool Census (NPC), the Australian Government Census of Child Care Services (AGCCCS) and CCB and this information could possibly be merged (e.g. at the service provider level) if a common statistical linkage key was used. Similarly, state or territory government agencies could link data sources within their jurisdiction.
- *Using supplementary data to pre-populate fields in another data collection* – This relates to merging selected data from one source onto another data source. This has the benefit of obtaining desired fields without requiring full access to all personal information on the supplementary collection. For example, primary school enrolment data could be pre-populated with preschool attendance details to provide participation history for latter outcome analyses. The associated personal and family information collected for preschool students would not be retained. This option could also involve surveys merging some administrative information onto an individual's record to reduce respondent burden and enable better analysis of the association between survey characteristics and government programs. For example, the LSAC data file includes the Child Care Quality Assurance (CCQA) systems, which was linked with consent and provides information on quality of care on all long day care centres and family day care schemes.
- *Combining some key early childhood data sources to create a statistical dataset* – This could involve merging several key early childhood data sources together (e.g. two or three sources), in order to address the highest priority policy issues. For example, if state or territory preschool enrolment information could be merged with child care attendance (CCB or AGCCCS), then this could be used to obtain a more complete picture of formal learning and/or care participation in the year before school. Similarly, preschool enrolments merged with the National Assessment Program in Literacy and Numeracy (NAPLAN) would enable analysis of the effect of preschool literacy participation on numeracy outcomes.
- *Combining all administrative data sources to create a comprehensive statistical dataset* – This would involve merging early childhood administrative data sources with other relevant statistical collections, to produce a comprehensive dataset which covers all populations of interest. This would ideally be constructed as a longitudinal dataset. This option would be the most beneficial for research and analysis, but there are significant access requirements and logistical issues to overcome.

The range of options allow some flexibility in overcoming access or sensitivity issues, with the potential to reduce respondent burden. This chapter focuses on creating a longitudinal child level dataset from existing administrative data for statistical and research purposes, within a controlled environment which safeguards privacy.

LINKAGE PROPOSAL FOR
EARLY CHILDHOOD

There are a range of administrative sources that collect information central to early childhood learning and care. The framework below considers how these sources could be brought together to form a comprehensive longitudinal dataset. It covers information about the child, their family circumstances, and their child care and learning experiences over time.

8.1 PROPOSAL FOR INTEGRATING EARLY CHILDHOOD DEVELOPMENT DATA



This framework displays what might be possible if existing constraints to sharing data did not exist. The legislative and privacy issues related to the linkage strategy are considerable, and are only briefly discussed. Exploring the full body of work required to enable the creation of this model is beyond the scope of this paper.

Purpose for linking data

The existing information for early childhood is disparate across custodians and jurisdictions. The strategy outlined here focuses on bringing together Commonwealth administrative data, and includes some state and territory level government data. Currently, no administrative collection or aggregate data from these collections are able to provide regular, accurate data on the number of children who participate, or do not participate, in early childhood education and/or care programs, or the links between children's characteristics and experiences to outcomes. Specific surveys have limited coverage, usually only provide information for a certain reference period and focus on a particular area of interest. In the case of longitudinal surveys, they provide information constrained to the cohorts involved in each wave of collection.

*Purpose for linking data
continued*

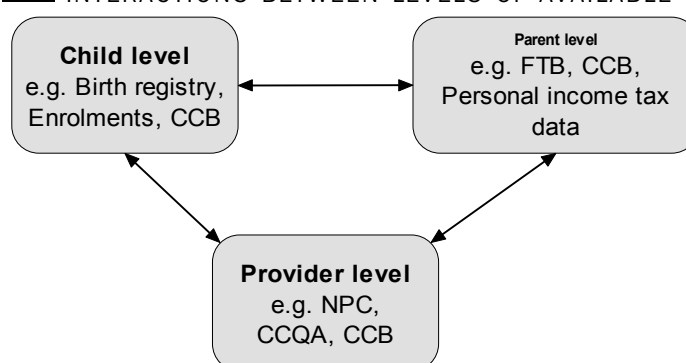
The linked dataset could enable extraction of point-in-time information on the characteristics of children from birth to school entry, including aspects of their family, child care and learning environments. In addition, the dataset may include some information on early outcomes (such as Year 3 National Assessment Program in Literacy and Numeracy (NAPLAN) results), giving an understanding of how children move through the early transitions in their lives, and what factors might influence these transitions.

*Explaining the linkage
proposal*

The proposal centres on capturing key factors that influence learning and care development in early childhood. These factors do not aim to be a comprehensive set. The above framework and datasets proposed are illustrative of the types of information which could be included, and may be improved with further input from stakeholders.

Information for the sources is reported at two levels, person and provider. At the person level, information may be for the child or for the parent or carer. Having data available at different levels, and the potential for linking and interactions between sources at these levels, gives the proposal strength. For example, child care usage from CCB at the child level can be linked to service provider details from CCB systems and the CCQA systems, to give a comprehensive picture of child care usage and quality.

8.2 INTERACTIONS BETWEEN LEVELS OF AVAILABLE DATA



Information at the *child level* would form the basis for analysis across sources and over time. Characteristics of children at birth may be obtained from the National Perinatal Data Collection (NPDC). Additional data may be available from Medicare updates and Family Tax Benefit (FTB) application, including the Baby Bonus claim where eligible, and birth registration to capture this target population. Participation characteristics for formal child care usage could be sourced from CCB administrative data. Preschool enrollment information is collected in most states and territories.

At the *parent level*, additional information on children, parents and families can be drawn from sources including family tax benefit and personal income tax records. These are ongoing collections and can provide at least an annual snapshot of changing family circumstances. Links between these sources already exist for reconciling provided estimates of income.

Explaining the linkage proposal continued

Information at the *provider level* could use Government administrative sources on child care such as the CCB and CCQA systems data, and preschool data from a source such as the NPC. These sources contain details on the characteristics of service providers and some details on staff. This information is not necessarily comprehensive. Future developments to address staff characteristic gaps for child care service providers may be addressed when the Child Care Management System (CCMS) is implemented from 2008. Additional state and territory administrative data are available from the licensing of child care centres and the funding of preschool services, e.g. service location, staff payroll. Note that as these are administered by individual states, data are not necessarily comparable.

DATA SOURCES

The proposed data linking model includes data sourced from a number of collections for which a range of custodians are responsible. The created dataset is made more powerful if information can be linked between the child, their family and the service providers accessed (see Figure 8.2). Levels of interest include child, person (parent or carer, staff member) and service provider.

Suitability for linking

The sources cited for this proposal are desirable for their early childhood information. The captured data would require standardisation into a format suitable for linking. A key requirement for this to occur is for the information to be available at a unit record level. Table 8.3 shows the levels the data are collected at, with summary comments on linkage suitability.

For all sources listed, only one is partially collected at an aggregate level. The NPC collects information at the child level for the Indigenous component of the census, the remainder is aggregate counts by gender. Additionally, both school sources, which provide outcome information, are designed for aggregate reporting. The potential for linking exists as the information is captured at the unit record level. To realise the benefit of this outcome information, it must be possible to match these results back to the children's history.

The legislation and availability of each data source are also paramount in determining whether data linking is possible. These issues are covered separately in the legislation section later in this chapter.

State and territory data

The state and territory governments regulate and license child care centres through their various departments of community services. Preschool services are administered from either these departments or through education departments. As there are no current data collection standards in place, the data holdings vary considerably. Data would need to be standardised to overcome these differences. The children's services departments for New South Wales, Victoria and Queensland, do not capture individual preschool enrolments as most preschools are operated through non-government providers. Full details on information collected from state and territory programs are in Appendix 1.

CHAPTER 8 DATA LINKAGE *continued*

8.3 SUITABILITY OF DATA AND SOURCES FOR PROPOSED LINKING MODEL

<i>Source name</i>	<i>Custodian</i>	<i>Data level</i>	<i>Additional available level(s)</i>	<i>Comments</i>
Pre/post natal				
Baby Bonus	FaHCSIA	Child	Claimant	Stored with Centrelink, data shared on common platform
Birth registry	State/Territory registration offices	Child	Parent	Lack of data comparability compromised due to system and definitional differences across states
Medicare	Medicare	Person, family	Cardholder	Multiple card/numbers within a family may confound unique family unit identification
National Perinatal Data Collection	AIHW	Child	Mother	Statistical collection designed for data use
Family				
Family Tax Benefit	FaHCSIA	Parent/carer	Child	Stored with Centrelink, data shared on common platform
Personal income tax data	ATO	Person	Partner	Act provisions prevent linking
Child care				
Child Care Benefit	DEEWR	Person	Claimant, Service provider	Stored with Centrelink, data shared on common platform
Child Care Quality Assurance systems	DEEWR	Provider		Uncertain data quality
Licensing	State/Territory departments	Provider		Lack of data comparability due to system and definitional differences across states
Preschool				
National Preschool Census	DEEWR	Provider	Child (Indigenous component only)	Collection of aggregate counts (students by sex)
Enrolments	State/Territory departments	Child	Provider	Data comparability due to system and definitional differences across states
Education departments	State/Territory departments	Provider	Person (staff)	Lack of data comparability due to system and definitional differences across states
School				
Australian Early Development Index	DEEWR	Provider	Child(a)	Data protocol to be developed
National Assessment Program in Literacy and Numeracy	MCEETYA	Child(a)	Provider	Developed for aggregate data release

(a) Data are collected at the child level for aggregate results, may not be accessible at this level

Augmentation with other datasets

Linkage of administrative data could provide information to address a number of current data gaps in areas of key interest in policy terms. Linking additional data from existing surveys could enrich the initial dataset with information which is not readily obtainable from administrative data sources, such as:

- LSAC provides further details on reasons for non-participation and social outcomes for children
- Childhood Education and Care Survey (CEaCS) has information on children's informal child care arrangements and learning experiences, and parental involvement in learning.

Specialised surveys could also be conducted using samples drawn from the linked dataset to provide additional information not currently available (or in some instances, not possible to collect) from these administrative sources.

Augmentation with other datasets continued

The proposed dataset could be expanded in the future, by linking to existing or new datasets which enable a broader range of concerns to be analysed. For example, there is potential to add information on the environmental and social characteristics of small geographic areas which might affect child development (e.g. SEIFA or pollution characteristics such as air quality). The early childhood scope could be expanded to include other aspects central to development, such as using the Australian Child Immunisation Register for health-related information.

Linking techniques

Successful data linkage requires high quality data and a robust matching strategy based on both deterministic and probabilistic approaches. Regardless of the technique used, the resulting dataset can be tested to ensure confidentiality requirements are met, including removing identifiers post-matching. These techniques are not further examined in this information paper, but are covered in publications such as *Methodology of Evaluating the Quality of Probabilistic Linking* (cat. no 1351.0.55.018) and *Data Integration Manual* (SNZ 2006).

Examples of current linked datasets

There are several examples of early childhood collections that have taken advantage of data linking. The list below briefly explains some existing linkages:

- LSAC links the information collected from the parent with the CCQA systems for children who attend formal care, for those consenting to participate. This was done to provide information on quality of care on long day care centres and family day care schemes used by the study child.
- The Longitudinal Data Warehouse links data across Centrelink's common platform. A one percent Longitudinal Data Sample is available to external researchers for designated projects which relate to FaHCSIA's strategic interests. It is provided under strict conditions, including signing a legal licensing agreement and undertaking appropriate data security arrangements.
- NAPLAN links information collected from school enrolments, to provide background information on students and parents, such as demographic and employment characteristics.

USES FOR THE LINKED DATASET

The linked data could enable both longitudinal analyses of pathways for the same individuals across time, and cross-sectional analyses of change over time from a regularly updated dataset (e.g. for the extraction and reporting of performance indicators). Key transitional populations such as children entering preschool or school could be tracked and monitored, establishing a single point in time before and after which transitions could be monitored. Spatial analyses, which overcome the averaging effect of state or region and thus allow users to gauge small area variations, could also be possible.

Initially, the strategy as outlined relates only to the early childhood years and early outcomes for children, based on existing collections. The current focus on investing in early childhood for improving future outcomes by the Government has resulted in the development of many new initiatives and policies. The implementation of these new developments should provide data, either new or enhanced, that will add to that described in the linking proposal.

USES FOR THE LINKED DATASET *continued*

The guiding principles generated from this linking exercise could also be developed and extended to a broader population (such as young adults) or applied to other government data.

The potential uses for the proposed dataset can be examined through the following two examples addressing high priority gap areas.

Example 1

How many children receive a preschool program and how is this changing over time?

Issues: There is considerable policy interest in gauging the extent of participation, and non-participation, of children in formal preschool programs, which occur across a range of settings including child care centres. Both administrative and survey collections currently provide estimates of the number and proportion of children participating in preschool, and some also provide data on the changing levels of participation in preschool and child care over time. However, most collections have only point in time information on the number of children participating in preschool, and data standards and definitions of preschool differ. In addition, it is important to differentiate between programs in which there is a tertiary qualified early childhood teacher, and other more generalised programs. While some information on the provision of 'preschool programs' is currently collected, this is subject to differing definitions on such programs.

How linked data would assist: Bringing datasets on preschool and child care participation together could help to monitor counts of participation against the entire population of children in the relevant age groups (with some limitations - see section on *Limitations* for more details). The quality of these programs could be assessed, for example by considering the educational qualifications of staff. How children transition in and out of various programs and over time could be examined, along with variables such as the type of preschool (e.g. government, non-government) and multiple service usage or attendance. Data for smaller states and territories could become more reliable. Data on particular populations such as children in the year immediately before school could also be identified.

Further survey augmentation could allow high priority issues such as the effects of parental employment status, and reasons for participating or not participating in preschool, to be explored.

Example 2

What are the long term outcomes for children from disadvantaged households who miss out on preschool?

Issues: There is thought to be a relationship between family income and the achievements of students in these families, and lower level academic achievement is frequently cited as being more prevalent for students from disadvantaged backgrounds than those from non-disadvantaged backgrounds. However, it is not known to what extent early learning programs can ameliorate educational outcomes, or how other child and family-related factors may influence children's educational achievements.

Example 2 continued

How linked data would assist: Longitudinal data provide an opportunity to examine the relationship between patterns of family income, and the preschool participation, transitions, and academic achievements of children. There would be comprehensive and accurate data on people who are characteristically under-represented in survey data. Small populations, such as remote regions or Indigenous children, could be analysed.

Income is only one measure of disadvantage. The linked data together with augmented survey data could provide opportunities to examine a number of other interrelated variables of disadvantage, such as SEIFA and the Accessibility/Remoteness Index of Australia (ARIA), along with parental characteristics such as educational attainment.

BENEFITS

Data linkage is recognised as a powerful tool for policy development and planning. Given the importance that governments and researchers place on the period of early childhood, the linkage proposal is fundamental to help address gaps in existing information on children and improve the evidence base for early childhood policy development.

Aside from reducing respondent burden and sensitivity, the creation of a linked administrative dataset on early childhood lends itself to more effective research capability by providing:

- a universal dataset on children which enables a picture of their characteristics and circumstances to be built up over time
- a relatively comprehensive coverage of all children, giving scope for small population groups to be analysed, and issues to be examined on children from birth onwards
- an ongoing dataset from which to explore issues of non-participation in care and/or education programs
- a richer data environment through which children's outcomes can be researched.

The value of statistical integration is in the creation of a linked dataset that is able to meet these needs. This proposal does not encompass linking for administrative control, such as client management for compliance.

Key information requirements addressed through the model

The proposed linked dataset would meet a significant range of information requirements in areas of key policy interest in early childhood, although it would not address all data gaps. In general, the linked dataset would provide information on:

- children's characteristics
- children's participation in formal child care and preschool
- family and service level characteristics, and
- basic early childhood outcomes.

Table 8.4 outlines some of the important information requirements that would be met through the linked dataset.

CHAPTER 8 DATA LINKAGE *continued*

8.4 KEY INFORMATION REQUIREMENTS ADDRESSED THROUGH THE ADMINISTRATIVE DATA MODEL

<i>Key information</i>	<i>Examples of information requirements</i>	<i>Comments</i>
Participation in a preschool program and how this is changing over time	Preschool program and formal care attendance characteristics	Issues around identification and definition of preschool programs.
Characteristics of children receiving and not receiving a preschool education	Age, sex, geographic information, birthweight of children; Age, sex and income of parents	Limited information available in this area for non-participants.
The setting of preschool programs	Preschool program and formal care attendance characteristics	Will only be met with significant changes to the identification and definition of preschool programs.
Participation in formal child care services and how this is changing over time	Formal child care attendance	Child care participation only relates to Australian government approved and registered care.
Characteristics of children participating and not participating in formal child care	Age, sex, geographic information, birthweight for children; Age sex and income for parents	Limited information available in this area, particularly for children's health issues, and non-participants.
Aspects of care and learning environments	Details of attendance: hours and days per week, type of child care service. Providers: no. of children in program, service management type. Staff: educational qualifications, age and sex	Limited national level information available, state/territory data has definition and system differences
Outcomes for children in relation to preschool and child care participation	Age appropriate literacy and numeracy skills, a range of indicators across areas of physical, emotional, social and cognitive and communication	Most of these will only be met through national implementation of the AEDI.

Addressing data quality and availability

The creation of a statistically integrated dataset would also improve the quality and availability of early childhood data. Improvements could be expected in two main ways:

- *Verification of records at unit record level* – A key issue of quality with existing administrative sources on early childhood is the double-counting of services, and of children using those services. At the service level, double-counting may occur because Commonwealth and state and territory governments collect data about the same services, and because jurisdictions provide services according to different models and regulatory frameworks. At the child level, double-counting may occur because children attend more than one service, type of service or program, or because they are making transitions between child care, preschool and school settings at different ages or times of the year. The proposed combined dataset could allow for unit record details at the child and service level to be uniquely identified and verified (with some limitations - see section on *Limitations* for more details on coverage of preschool and child care attendance) thus eliminating much of the risk of double-counting records at either of these levels. Feedback of these instances could improve the source quality.

*Addressing data quality
and availability continued*

- *More complete coverage* – Despite a high level of government and community interest in the provision of children’s services and the number of children who use them, no administrative collection currently gives a comprehensive picture of children’s services or experiences across Australia. Information from surveys is constrained by sample error which means that comparisons between states and territories, and over time, are often problematic. The proposed linked dataset would capture the full population of interest (with some limitations - see section on *Limitations* below for more details) and thus better reflect the complexity associated with measuring the participation and non-participation of children in various services, and the nature and impact of their early experiences.

LIMITATIONS

The linked dataset comes from a variety of administrative data sources, each designed to collect information for a distinct and very separate purpose. As such, there are limitations on how information from these specific administrative sources could be extended to meet the statistical demands of the proposed linked dataset, including the following:

- *Identifying the target population completely* – The suggested sources only capture those children born in Australia, and in the case of the baby bonus, those eligible and motivated to claim the payment. The immigrant population would need to be drawn into the initial population through a subsequent process. The outgoing population resulting from death or external migration would also need to be identified and excluded. Significant maintenance may be required to capture changing details, e.g. change of address, family separations and reformations.
- *Capturing all formal child care attendance* – Those claiming the CCB is a proxy for children participating in child care throughout Australia. However, only those participating in Australian Government approved and registered child care (CCB), and those whose parents choose to claim each benefit, are included. The child care services that do not provide a CCB rebate are also not covered.
- *Identifying all preschool enrolments* – Current information captured for preschool enrolments varies depending on the administrative arrangements in place for each state or territory. The majority of preschool services in New South Wales, Victoria and Queensland are community provided, and information is captured through children services departments. Detailed enrolment information for these states are not available. The remaining states administer preschool through education departments, and collect enrolment information, which may be linked to primary school enrolment data. Early education programs that occur in child care settings may be categorised as preschool programs, provided the program is designed and delivered by a degree-qualified teacher. Staff qualification information was collected from child care providers in the AGCCCS and will continue to be collected in a supplementary data collection. This supplementary collection will be a sample survey rather than a census of all child care providers.
- *Data standards and definitions* – Substantial standards and definitions work would be required to:
 - identify children who are attending preschool programs designed and delivered by tertiary qualified early childhood teachers
 - identify children attending private institutions, and those not attending any institution
 - ensure children attending multiple institutions are identified accurately, and

CHAPTER 8 DATA LINKAGE *continued*

LIMITATIONS *continued*

- ensure the same details about children's characteristics are available in all jurisdictions.
- *Information not available* – Some of the information required may not be available from any administrative source, for example, aspects of parenting behaviour.
- *Timing of information* – Some information is available continuously (e.g. CCB and FTB) whereas other information is collected at particular times to accompany particular events (e.g. NPDC and NPC). This would impact on analysis and interpretation of the linked data.
- *Other methodological issues* – Decisions would need to be made about which dataset would be the definitive source for items common across datasets (e.g. Indigenous status, income), how to reconcile different reference periods, and how often to update the dataset. Data must be collected and available at unit record level.

Outstanding key information requirements

The proposed dataset would give limited or no information on participation in informal child care services and other early childhood services, reasons for not attending care or preschool and aspects of parenting behaviour. However, these could be met by using data from relevant surveys to augment the linked dataset. Where no data exists, new surveys could be commissioned to specifically collect high priority information.

Two options which may assist in the development of a common set of definitions and scoping criteria for all administrative sources are the development of the Children's Services National Minimum Data Set (CS NMDS) and the possible expansion of the National Schools Statistics Collection to include early childhood records.

Table 8.5 summarises some of the important information requirements that would *not* be met through the linked dataset.

8.5 OUTSTANDING INFORMATION REQUIREMENTS NOT ADDRESSED THROUGH THE ADMINISTRATIVE DATA MODEL

<i>Key information</i>	<i>Examples of information requirements</i>	<i>Comments</i>
Participation in care and other early childhood services such as playgroups	Informal child care attendance, whether involved in other learning experiences and type	Some information is available from the CCB about registered care, however most informal care is not registered.
Reasons for not attending preschool programs or formal child care	Reasons for not attending informal care, formal care and preschool programs	
Aspects of care environments - activities	Whether progress is reported to parents, quality of early childhood education resources	
Aspects of parenting behaviours and how these impact on children's later outcomes	Amount of time spent on verbal interactions with children, types of behaviour management techniques, family composition, quality of parent's relationship with each other, domestic violence within family	This is the main area which the linked dataset will not address.

ISSUES FOR ACCESS

There are many obstacles to overcome before a linked dataset can be created. These stem from a need to balance the public interest in maximising the value of statistical resources through data linking exercises and the public interest in the preservation of personal privacy. Data linking has clear advantages in reducing provider load and supporting longitudinal analysis. However, there are privacy issues, real and perceived, that need to be recognised and managed. These encompass data access issues discussed in Chapter 6, and further legislation relating specifically to data matching. Maintaining confidentiality according to the input sources privacy requirements is paramount, but needs to be considered alongside the need to accurately match records. There are also security protocols for sharing information to consider, the question of how to keep the resulting dataset sufficiently secure and ongoing governance arrangements.

Legislation and agency protocols

Personal information collected by Commonwealth agencies is collected under and protected by various legislation. There are many layers of legislation relevant to determining the circumstances in which it is lawful to collect, store and disclose identifying, or identifiable data for research purposes. Legislation may relate to the specific program, agencies or activities. There is also overarching legislation which has broader relevance, such as the *Privacy Act 1988*. While legislation is fixed, the supporting regulations and protocols may provide allowances to access data for statistical purposes that align with the original intent of the administrative program.

SPECIFIC LEGISLATION FOR INDIVIDUAL SOURCES

There are legislative issues that would need to be addressed in order for data linkage to occur. Specific legislation for most sources in the linkage proposal are discussed in Chapter 6. This legislation and internal agency protocols specify constraints about the release of personal information, the purposes for which this information can be used and the mechanisms for any release. For example, *A New Tax System (Family Assistance) (Administration) Act 1999* covers FTB and CCB data. It has significant legislative protections around the release of personal information (e.g. for the purposes of family assistance law), but does have a public interest disclosure clause which allows the Secretary to certify it is in the public interest to disclose information in a case or class of cases. The Protocol for the Release of Social Security Information specifies guidelines for the release of information collected under this Act. This protocol states that the purpose for which information is collected is the determinant of its use and that any secondary use must relate to improving outcomes for program clients and the community.

Access arrangements to most data sources included in the data linkage model are discussed in Chapter 6. The legislation relating to access and privacy for those data sources not included there are listed briefly below.

- *Baby Bonus* – The payment of the Baby Bonus is under FaHCSIA's jurisdiction, with Centrelink as the primary custodian of the administrative data. The data are collected under two acts, *A New Tax System (Family Assistance) (Administration) Act 1999* and *Social Security (Administration Act) 1999* where both acts have a public interest disclosure clause. The legislation exists to protect the rights of the individuals. There is scope to release information if it is in the public interest, provided the purpose of the planned use adheres to the original purpose for which the data were collected. The purpose must be for the betterment of customers, which does include compliance.

CHAPTER 8 DATA LINKAGE *continued*

Legislation and agency protocols continued

Specific legislation for individual sources continued

- *Births, Deaths and Marriages* – Birth registration data are collected by offices in each state and territory, and protected by individual state level legislation. The legal infrastructure is designed to enable access, with the acts specifying the rules to govern the access decisions made by the registry. These include provisions to access the data for research purposes for organisations with ethical approval and to extract statistical information (e.g. ABS, AIHW). The Registry provides the ABS birth, death and marriage registration data each month, for statistical analyses.
- *Medicare* – All requests for personal information are subject to the secrecy provisions including those under section 135A of the *National Health Act 1953 (PBS Data)*, section 130 of the *Health Insurance Act 1973 (Medicare information)* and/or the *Privacy Act 1988*. In general, de-identified aggregated data may be released, subject to assessment of any potential privacy issues to ensure individuals cannot be identified or re-identified. With respect to the collection, use and disclosure of personal information, Medicare Australia complies with the Information Privacy Principles of the Commonwealth *Privacy Act 1988*. Requests for statistical data must consider how the information will contribute to improving Australia's health, what the information will be used for and to whom the information will be disclosed.

OFFICE OF THE PRIVACY COMMISSIONER GUIDELINES

Privacy legislation exists at the Commonwealth, state and territory level. Commonwealth agencies are protected by the Privacy Act and the Information Privacy Principles. The legal infrastructure for each state varies, but is generally based on a similar set of privacy principles. The Information Privacy Principles set limits on the use and disclosure of personal information, depending on gaining individual consent, purpose of use and awareness of disclosure practises.

In addition to the Privacy Act and other agency specific legislation, the Office of the Privacy Commissioner has developed legislation and guidelines for data matching, defined as "*The large scale comparison of records or files of personal information, collected or held for different purposes, with a view to identifying matters of interest.*" The Privacy Commissioner has advisory *Guidelines for the Use of Data-Matching in Commonwealth Administration* for voluntary adoption by agencies conducting matching other than the programs specifically regulated by the 1990 Act. These Guidelines apply when the tax file number is not used in the matching process.

The coverage of the guidelines indicates that data linking for statistical purposes falls outside the scope of a data matching exercise, if permanent datasets are not created. Where the sources have information that was not collected for statistical purposes, and the resulting dataset is permanently created, the guidelines discuss a range of public notification activities that are to be conducted by all agencies involved in the data matching exercise. This includes informing respondents of the data matching program, for surveys or collections that are involved in data linking. There is a clause for exemption from aspects of these guidelines, should it be deemed as in the public interest.

Legislation and agency protocols continued

ISSUES TO OVERCOME

To create a linked dataset requires agencies to recognise the value of their administrative data holdings and amend access arrangements to facilitate linking. The agreed linking technique will impact on changes to the data access protocols, as linking may be performed either by exact matching, using identifiers or statistical linkage keys, or statistical matching, without identifiers. A full discussion of these extensive legislation and agency protocol issues regarding data linking, including those specific to the contributing source agencies, is beyond the scope of this paper. A range of potential issues are summarised below.

- *Release of source information to linking agency* – The level of identifying information available for release from the contributing agencies will impact on the linking success rate. Many agencies place restrictions on the release of identifiers such as Tax File Number, Customer Reference Number, name and address. Current release policies restrict how the data may be used, e.g. ABS confidentialised unit record file (CURF) conditions of use prohibit matching unit record information to other data sources.
- *Responsibilities of the data linking agency* – The creation, storage and access of the linked dataset should be managed from one central repository. Trust in the agency responsible for data linking is paramount. All agencies involved must agree on the role of the linking agency, its ethics and the procedures put in place.
- *Minimising the risk of identification* – When personal information is combined, the risk of disclosure increases. This can occur by combining information from multiple sources and/or creating longitudinal information from the same source. The resulting dataset would require stringent confidentiality checks to minimise the risk of personal information leading to potential identification by users. Confidentiality issues relating to use of unit record data are revised separately below.
- *Access and release arrangements for the linked dataset* – The value of the linked dataset is in improving the information available for evidence-based research and policy development. As such, researchers need access to the final, linked, confidentialised longitudinal data. All contributing agencies would need to agree to a cohesive set of guidelines to govern access and release arrangements. It is important to emphasise that this access is for statistical purposes, thus personal identifiers are not required on the released data.

Confidentiality

The linked dataset would need to meet stringent confidentiality requirements. To enable full benefit to researchers, the dataset should be accessible at the unit record level. This would require complete de-identification and use of confidentiality techniques to prevent the risk of personal identification.

Security

There are several aspects of security for the creation of the linked dataset. These include managing the security of the individual sources as they are input into the linked dataset and the access arrangements for users of the linked dataset.

Most agencies maintain a high standard of practices to ensure the security of all information they hold. The security needs of all contributing agencies would need to be considered and a security protocol agreed to.

SUMMARY

This chapter has aimed to promote discussion on the possibility of augmenting existing data sources in order to increase the capacity for addressing the policy questions raised in Chapter 3. It is noted that early childhood learning and care, and their impacts on subsequent outcomes, are areas of strong interest across a number of policy domains. There are various levels of data linkage that would add value to the current information base. These include:

- enhancing collections with aggregate information from other sources
- linking individual collections longitudinally to create a richer single source
- linking collections held by the same custodian
- using supplementary data to pre-populate fields in another data collections
- combining some key early childhood data sources to create a statistical dataset
- combining all administrative data sources to create a comprehensive statistical dataset.

This chapter expanded on the last option to display what might be possible if existing constraints to data access did not exist. The information that could be drawn together from administrative systems in these areas has the potential to provide an expanded evidence base. However, there would still be limitations such as capturing all preschool and child care attendance, information not available from administrative sources and different standards and definitions. This publication has mainly focused on national collections, but state and territory collections would play an integral role in the most comprehensive data linking option.

Considerable work would be required to progress any data linking scenario, in areas such as:

- issues relating to privacy, confidentiality and public trust
- legislative protection and enablers
- appropriate agency protocols
- operational considerations
- coordination across various agencies, sectors and jurisdictions.

These options are further considered as part of the recommendations to improve the information base for early childhood learning and care.

CHAPTER 9 RECOMMENDATIONS

INTRODUCTION

This report has highlighted many issues surrounding the use of current early childhood learning and care data. These issues were identified by a reference panel from various Commonwealth agencies and reflect key policy issues. Drawn from an analysis of these policy issues and the required data, a series of recommendations have been proposed that seek to enhance current data, practices around the data, extend into new areas of data and improve access to data.

OVERVIEW

The aim of this project is to consider ways to use existing data to improve the evidence base for early childhood learning and care. The following tasks were undertaken to identify all data issues for the existing information:

- review of the current data sources and their extensive array of information and limitations
- highlight the current priority areas that have insufficient data to address the information requirements,
- consider how to improve the existing information base through improving current collections and investigating linkage options.

The area of early childhood learning and care is dynamic and rapidly evolving. The current policy directions for early childhood were listed in Chapter 2. They include many new initiatives such as the national roll out of Australian Early Development Index (AEDI) in Australian primary schools and initiatives under the Council of Australian Governments (COAG) productivity agenda (e.g. to enhance and integrate the provision of early childhood education and care services). There is also particular focus on monitoring and improving outcomes for Indigenous school education, including the participation of Indigenous children in preschool programs. The implementation of these initiatives presents valuable opportunities for improved data collection. These opportunities are incorporated into the recommendations where possible, to take advantage of new collection, framework, legislation and integration prospects.

RECOMMENDATIONS

The recommendations presented below align with the issues identified in Chapters 5 to 9 in this publication.

Quality and comparability of existing learning and care data sources

1. Implement consistent data standards and definitions
2. Improve data quality, usability and information management networks
3. Improve statistical training and expertise

Visibility of and appropriate access to existing data sources

4. Improve visibility of data holdings for early childhood collections
5. Make high priority information accessible to researchers and policy makers
6. Enable use of data for statistical purposes in future legislation and protocols

Improving current data collections to address priority gap areas

7. Improve data capture and coverage for delivery of early childhood learning
8. Improve non-participation data

Creation of new information from existing sources

9. Explore augmentation opportunities
10. Explore linkage opportunities

QUALITY AND COMPARABILITY OF EXISTING LEARNING AND CARE DATA SOURCES

Existing data sources for early childhood learning and care provide a vast repository of information. However, no single source covers all information needs and the differences between collections limit comparability. The division of early childhood services into either child care or preschool, in an operational and funding manner, results in difficulties in capturing information across these sectors. This is further confounded by jurisdictional differences in program delivery, monitoring and evaluation. These differences result in varying methodologies, definitions, populations and data items, all which impact on comparability. Overcoming these differences presents the most efficient way of utilising the current information base and effectively maximising the value of existing data.

Recommendation 1

IMPLEMENT CONSISTENT DATA STANDARDS AND DEFINITIONS

The current collections are diverse in nature and as such are not consistent. There is no single set of comprehensive data standards (definitions, collection methods) in place. This prevents links between and within datasets and limits the development of integrated frameworks. The latter is particularly important for combining data from different sources. While the focus of this publication is on existing national data sources, the state and territories are rich sources of administrative information from licensing and delivery of early childhood services. All sources need consistent standards and definitions to successfully build a national picture of early childhood learning and care.

ACTIONS

The following actions are recommended:

- *Apply universal metadata across child care and preschool sectors* – This could enable comparability of items, definitions and populations for collected data to be readily combined and disseminated. The ABS already has in place a range of concepts, classifications and statistical standards that are being implemented in some administrative collections and surveys across the field (see <<http://www.abs.gov.au>>), however closer adherence to these by data managers would ensure greater comparability. It would also ensure comparability with broader social data collections in non-education and care fields. Some of these data standards are included in the Children's Services National Minimum Data Set (CS NMDS). This is an agreed framework with comprehensive documentation that is being widely adopted. It is important that the metadata should evolve, and incorporate shifts in terminology as work on integrating early childhood services continues. This includes recent Australian Government election commitments as well as information requirements for the COAG early childhood reforms.
- *Improve collection and dissemination of Indigenous data* – All collections should capture and process Indigenous status consistently. This may require a comprehensive data quality assessment of Indigenous data for early childhood learning and care.
- *Implement consistent collection of unit record data* – To capture information on children, staff and services at the unit record level for use in the provision of high quality statistical information.

OPPORTUNITIES

These activities provide opportunities to improve consistency across collections.

Recommendation 1 *continued*

Opportunities continued

- *Implementation of national reporting framework* – to move towards a simple, integrated system, as part of the COAG productivity agenda. This includes agreeing to review reporting requirements, rationalising data collection processes and identifying and addressing data gaps for important indicators.

Recommendation 2

IMPROVE DATA QUALITY, USABILITY AND INFORMATION MANAGEMENT NETWORKS

There is extensive information collected around early childhood learning and care. However, issues with data quality and usability mean that key statistics are not always available to policy makers. The quality of information available depends on the provision of reliable data and cooperation from government agencies. Improvements can be achieved through increasing the usability of information derived from key administrative and survey data sets, applying sound statistical and data management principles and practices, and forging statistical partnerships to share knowledge and expertise. The benefits from this should include:

- providing better, broader and more comparable information
- simpler monitoring for effectiveness and efficiency of program services
- reducing duplication of information collection across agencies
- improving access to and use made of the data by the wider community
- reducing overall costs for the provision of government information services
- creating opportunities to link data together across collections and have compatible data for linkage and analysis.

ACTIONS

The following actions are recommended:

- *Use existing statistical reference materials and guidelines* – to follow established procedures and protocols in all aspects of the statistical cycle from planning statistical activities to disseminating and evaluating statistical information. Two key existing documents are the National Statistical Service (NSS) Key Principles (see Appendix 5) and the NSS Handbook (see <<http://www.nss.gov.au>>).
- *Ensure data sources are of appropriate quality* – to assess the quality of existing data sources and to improve quality where appropriate for the requirements. This should include use of a data quality framework to address key quality aspects of the data source (e.g. relevance, accuracy, timeliness, accessibility, interpretability and coherence).
- *Practise good data management* – to improve the handling of the data, from collection through to processing, output and storage. This should assist in creating data holdings of sufficient quality to meet user needs, and improve overall quality of collection instrument and procedures.
- *Improve collection documentation within agencies* – ensure metadata (such as data dictionaries, data item questions and classification levels) are created and maintained, to provide a reference manual for managing the data and help evaluate whether data is fit for purpose. Agreed standards for the creation of metadata should be applied.

Recommendation 2 *continued*

Actions *continued*

- *Improve statistical infrastructure* – to improve data sharing and increase knowledge, through existing links with agencies and the forging of new partnerships.
- *Participate in statistical coordination groups* – to improve coordination of information collected and reported across agencies and jurisdictions. These groups should also drive the implementation of universal data standards and data sharing practises.

Recommendation 3

IMPROVE STATISTICAL TRAINING AND EXPERTISE

Producing statistical information requires specific professional skills and staff competent in skills of data management and analysis. Good data management requires staff that understand the subject matter data, its derivation, context and the mechanisms by which data are collected. Analytical staff require knowledge of statistical techniques and methodologies to determine sample sizes, derive estimates and calculate standard errors within acceptable quality bounds. Both are essential to achieve the consistent standards and improved quality and usability in the first two recommendations. An unskilled workforce could result in opportunity costs from not using data effectively, incorrect interpretation of the data and inability to support external users.

ACTIONS

The following actions are recommended:

- *Create statistical skills training* – This will ensure agencies have strategies in place to provide the skills necessary for professional and managerial competence in effective statistical operations and data management of the organisation. These skills may be obtained through training, recruiting appropriately skilled staff, contracting external consultants or obtaining expertise elsewhere, either within the organisation or other agencies. Training methods should include formal statistical training courses, supplemented with on the job guidance and supervision.
- *Undertake regular skills stocktake of staff* – Having knowledge of staff skills will allow agencies to identify any shortages in statistical and data management skills so that appropriate measures may be implemented.
- *Provide detailed documentation* – The supporting documentation should cover all aspects of procedures, classifications, coding and systems. It must be provided to new staff and can also be used as a reference for existing staff, data users and collectors of data.

VISIBILITY OF AND
APPROPRIATE ACCESS TO
EXISTING SOURCES

The data holdings review for this project found that except for some specific areas, existing information for early childhood learning and care has the potential to meet most needs. However, knowledge of and access to these data are significant hurdles in gaining the maximum return on these information investments. It is in the public interest that key stakeholders have ready access to quality statistics and information to assist in policy, program and service management. The objective is to balance the statistical needs of stakeholders with data custodians' legislative obligations, resources, privacy and confidentiality requirements.

Recommendation 4

IMPROVE VISIBILITY OF DATA HOLDINGS FOR EARLY CHILDHOOD
COLLECTIONS

Current visibility of early childhood learning and care sources is varied, and can be poor for both statistical and administrative collections. Summary information from administrative sources is limited, both in prominence and availability, which reduces the statistical value of these sources. Stakeholders may not be able to locate information for some collections and key summary statistics on relevant websites. Data must be made visible to be used as information.

ACTIONS

The following actions are recommended:

- *Place information on websites* – This is to improve the visibility of data holdings. Users should be able to readily locate key summary information and metadata for statistical collections.
- *Increase visibility of administrative data* – Key summary information contained in administrative collections to be created and publicly released.
- *Include relevant administrative collections in existing statistical directories* – This will provide a complete summary of available information sources, e.g. including child care administrative data sources in the ABS publication *A Directory of Education and Training Statistics* (ABS cat. no. 1136.0) and other similar directories, to provide information on learning programs delivered in a child care setting.

Recommendation 5

MAKE HIGH PRIORITY INFORMATION ACCESSIBLE TO RESEARCHERS
AND POLICY MAKERS

All collections have potential to provide important statistics to contribute to the evidence base for early childhood learning and care. The current high priority policy concerns have many data gap areas, as outlined in Chapter 7. The NSS Key Principles include ensuring that important statistics are compiled from key administrative and survey data sets relating to government programs and activities. Agencies with such data holdings are responsible for providing statistical information to assist researchers and policy makers. The release of information externally should be as complete as existing data and access arrangements allow. Publishing the methodologies used in producing statistics is also essential for users, to assist in determining if the data is fit for purpose, and to ensure correct usage.

*Recommendation 5
continued*

ACTIONS

The following actions are recommended:

- *Provide supporting documentation to external data users* – This should improve transparency for all aspects of the statistical process to assist in correct usage of data.
- *Publications made available to stakeholders* – This is essential for interpretability and usability. All publications and research papers related to a collection should be available. Content should reflect the achieved data quality, recognising that data value is maximised through acknowledging and addressing all issues.
- *Explore options for releasing more detailed data to stakeholders* – This will allow data users to undertake further analysis, as long the conditions of use for the data source are met. Options for the release of more detailed data include standard statistical tables, information consultancy services or confidentialised unit record files, depending upon issues such as resources, agency protocols and legislative requirements.
- *Provide stakeholders with data decision tree* – This will make the data release process more transparent. This should provide clarity to researchers on how to apply for use of data, including what support material the researchers need to provide, who the custodians are and how the decisions are made.

OPPORTUNITIES

These are opportunities for improving information from existing data holdings, to address high priority gap areas.

- Review of data holdings by the Department of Education, Employment and Workplace Relations (DEEWR) and make supporting documentation and summary information available on the DEEWR website. High priority needs include summary information for users of child care, service provider characteristics and preschool participation.
- Improve functionality and visibility of the Longitudinal Data Warehouse, to enable longitudinal identification and characteristics for claimants and risk groups.
- Improve indicator quality and relevance in the Report on Government Services (ROGS), through increased comparability of state data and the flow on for national estimates of child care and preschool statistics.
- The COAG early childhood education reform agenda is driving the creation of regular indicators for early childhood learning. Work from this project should be recognised and indicators developed to meet both program and policy needs. It is also anticipated that the COAG work on an early childhood development strategy will generate indicators around broader early childhood development and wellbeing.
- Improve and make available documentation (including metadata) for administrative sources and reports which compile data from various sources, such as ROGS.

Recommendation 6

CONSIDER USE OF DATA FOR STATISTICAL PURPOSES IN FUTURE LEGISLATION AND PROTOCOLS

The wide variation of data release practices, and underpinning legislation and protocols, prevent key statistical data being used effectively and reduces the ability to share information across government agencies. Legislative limitations often inhibit data access, use of data for statistical purposes and data sharing. There are also protocol limitations around data collection, where best practise should include informing data providers

Recommendation 6 continued

CONSIDER USE OF DATA FOR STATISTICAL PURPOSES IN FUTURE LEGISLATION AND PROTOCOLS *continued*

about the potential uses of the data and efficiencies from data sharing across government agencies.

It is beyond the scope of these recommendations to suggest specific changes to existing legislation. However, if legislation or protocols are undergoing amendments, then agencies should consider data access requirements as part of these changes to enable use of data for statistical purposes. These changes begin at the agency level, but would be most effective if universally applied across the whole of government. Requirements to be considered in legislation and protocols include:

- collection mechanisms to have informed consent procedures
- dissemination and publishing of key statistical information
- creation of mechanisms to support the external release of statistics
- protection of personal information and confidentiality
- necessary governance arrangements.

ACTIONS

The following actions are recommended:

- *Create clear and consistent governance arrangements to manage data access* – to have efficient measures in place to manage and support the wide use of statistical data.
- *Amend legislation as opportunities arise* – This will improve access to data and enable collection and use of data for statistical purposes. This should be incorporated into all legislation and protocols, as created or amended.
- *Employ confidentiality techniques* – This is to encourage data sharing by balancing information requirements of stakeholders with data privacy needs. It is necessary to identify risks associated with wider data access. Statistical information should employ these techniques to prevent identification, to enable data sharing with researchers and relevant agencies.

OPPORTUNITIES

These future activities provide opportunities for enabling use of data for statistical purposes.

- Development of performance indicators and quality framework to support the COAG Reform Council. Development of the Early Childhood Act by DEEWR.
- Development of supplementary data collection which will compliment the administrative data and replace the Australian Government Census of Child Care Services (AGCCCS).
- Development of program monitoring requirements for new policy on universal access to preschool.
- National implementation of the AEDI.
- Development of Early Learning Framework, to encourage data creation and sharing, and implementing consistent standards.

IMPROVING CURRENT
DATA HOLDINGS TO
ADDRESS PRIORITY GAP
AREAS.

The existing information for early childhood learning and care can be sourced from many collections. These provide detailed information on various aspects of early childhood, but coverage limitations and methodological differences result in data gaps. This means the existing information base is unable to answer all the high priority information needs for early years learning.

Recommendation 7

IMPROVE DATA CAPTURE AND COVERAGE FOR DELIVERY OF EARLY
CHILDHOOD LEARNING

The division of early childhood services into either education or care is an artificial split. Learning occurs constantly, regardless of setting. The key coverage issue for preschool data stems from the different program delivery settings, which may be provided in educational or child care settings. Additionally, there is variability between the states and territories in the provision of preschool programs in the year before beginning formal schooling. Thus the information collected across jurisdictions is variable. This is further complicated by the community and private school preschool programs offered, generally in addition to the government programs.

There is great potential to improve preschool data by utilising the state enrolment information, especially if preschool enrolments can be incorporated with primary school enrolment systems. The main quality issues with these data stem from the jurisdictional differences confounding reporting at national level. The COAG developments for the productivity agenda are seeking to redress this situation. Enrolment data for private school providers (pre- and primary) are not currently included in these collections.

There are difficulties associated with capturing data on preschool participation. Generally, either enrolment or attendance is collected as a proxy for participation. Currently there is no mechanism to capture national unit record information. A key aspect of this project's policy questions was to address the data gaps around assessing the impact of early learning experiences on outcomes. This requires historical information to be joined to outcome measures, through retaining, capturing, linking or other similar means.

ACTIONS

The following actions are recommended:

- *Identification of early childhood learning* – All collections should identify the provision of preschool programs based on the teacher having a tertiary degree in early childhood education. This should be through the capture of information on teaching qualifications for the person who designs and delivers the program.
- *Expand current preschool collections to unit record level* – This will allow the capture of detailed characteristics on children participating in early learning programs. Vehicles to consider include the National Schools Statistics Collection (NSSC), NPC and state enrolment collections.
- *Expand information collected on staff characteristics* – This will allow the capture of detailed characteristics, such as experience and educational qualifications, for providers of preschool programs. Potential vehicles include NPC and the replacement collection for AGCCCS.

Recommendation 7
continued

Actions continued

- *Align reference periods across collections* – This is to improve data comparability. This is most relevant for state based collections, to build a national picture for early childhood.
- *Improve coverage of enrolment collections* – The inclusion of non-government providers for preschool and primary school in enrolment collections should provide near full coverage. Further expansion to include preschool programs provided in child care settings would capture all preschool participation.
- *Consider compiling statistical information through one independent authority* – This would coordinate the bringing together early childhood learning and care data from each jurisdiction, through producing and disseminating the integrated data from one central repository of information. The efficiencies include improved data standardisation, information sharing and increasing the focus for data dissemination. This must be balanced against jurisdictional requirements of data agencies and their individual data reporting needs.
- *Combine early childhood services into one collection* – This would remove the separation of education and care by considering the service provisions synonymously. Most data comparability issues would be resolved. This should result in a more transparent provision of early childhood learning and care services.

The following actions aim to improve outcome measures through expanding current collections and data capture methods. They are listed for further consideration:

- *Preschool enrolment incorporated into primary school enrolment systems* – This could enable preschool data to be analysed with outcome information, such as from the National Assessment Program in Literacy and Numeracy (NAPLAN).
- *Expansion of NSSC to include preschool institutions* – The collection could capture counts of primary school students who attended preschool. This could begin with preschools associated with primary schools and extend to capture all preschool programs.
- *National implementation of unique student identifiers* – This would enable national reporting without double counting due to interstate moves. Maximum benefit from beginning at preschool enrolment where possible.
- *National implementation of electronic student records* – This would allow many data management efficiencies. Collections include enrolment information and NAPLAN results.

Recommendation 8

IMPROVE NON-PARTICIPATION DATA

There is limited information captured for non-participants in early childhood education and care. Data from survey collections is able to capture detailed information on non-participants characteristics, identify other learning experiences and identify reasons for non-participation. However, due to small sample sizes and the propensity of interest, these statistics often have caveats about their use. Administrative data captures extensive information on those who are participating in the program activities, but there are limitations on the complementary identification of non-participants, as early learning may occur in many settings.

*Recommendation 8
continued*

IMPROVE NON-PARTICIPATION DATA *continued*

The impact of non-participation in early childhood learning on later outcomes is a high priority data need. How do outcomes for children who have no formal learning experiences compare with those children who participate in formal learning? This information could be gathered through the actions to improve outcome measurement listed under Recommendation 7, such as incorporating preschool enrolments into primary school enrolment systems, national implementation of unique student identifiers and expanding current collections to unit record level.

Recommendation 8
continued

ACTIONS

The following actions are recommended:

- *Consider expansion of collections* – This is to comprehensively capture information on non-participants. The cost of these program expansions could be favourable for these populations over the more intensive data enhancement or linking options.
- *Consider administrative and survey linkage opportunities* – This is to enable comparison of the whole population base against those participating in services, to identify non-participants and some of their characteristics. Data linkage is further discussed under Recommendation 10.

CREATION OF NEW
INFORMATION FROM
EXISTING SOURCES

There is extensive information captured for various administrative uses on early childhood learning and care. This evidence base has potential for considerable adaptation for improved statistical use through data enhancement and the creation of new datasets, using data augmentation and linkage. These strategies are in line with current whole of government activities encouraging data exchange mechanisms.

Recommendation 9

EXPLORE AUGMENTATION OPPORTUNITIES

The current information base could be expanded by enhancing the detail and extent of captured data for existing collections. Some options were explored in recommendation 7, to improve information and outcome measures for childhood learning. Administrative data capture details for specific programs, which are not always sufficient to meet information needs. These needs could be met through conducting a survey and targeting specific populations from the administrative source. There is potential to capture a greater depth of data through such mechanisms, which can be combined with the administrative population characteristics and benchmarks. Survey collections also have potential to be considered as ongoing collections, which can allow for comparisons over time.

ACTIONS

The following actions are recommended:

- *Augment administrative datasets with survey data* – This is to capture detailed information which can supplement the business process data in specific instances.
- *Consider surveys as ongoing collections* – This would allow the comparison of information from multiple reference periods.
- *Consider capturing child care participation in the Census of Population and Housing* – This would expand the coverage of the Census to include both child care and preschool participation.

OPPORTUNITIES

This future activity provides the opportunity for exploring data augmentation.

- Development of supplementary collection to replace AGCCCS.

Recommendation 10

EXPLORE LINKAGE OPPORTUNITIES

It is widely agreed that there is potential to improve the evidence base for early childhood policy development through better use of the significant range of existing data currently held by government agencies. In this regard, data linkage could substantially enhance the availability and quality of information on the changing circumstances of children that may influence their later outcomes, thus allowing for appropriate interventions and policies to be developed. Data linkage can be an efficient, effective way to create new information from existing sources, or improve current data and coverage. There are many options for data linkage, ranging from simple enhancements, such as the addition of small area summary indicators, through to more complex data matching of multiple sources. However, there are significant issues that must be addressed to make data linkage more viable. These mainly stem from privacy and data access legislative requirements, at both state and Commonwealth levels. There are opportunities to address these in ways which improve access while maintaining privacy, through activities being undertaken by COAG. Additionally, the quality and comparability issues raised in Recommendation 1 must be done to enable data matching. If these can be overcome, data linkage strategies can present an effective way to address many high priority information gaps by fully utilising existing data. These types of data linkage options need to be considered in a whole of government approach to effectively govern data and to maximise cross linkage with other influential data (e.g. health, social security)

ACTIONS

The following actions are recommended:

- *Recognise potential of data linking* – This should occur initially at the agency level. There are small and large scale linkage options discussed in Chapter 8. These examples include longitudinal linking of CCB to track child care usage over time and merging preschool enrolments with NAPLAN to enable analysis of preschool literacy and numeracy outcomes.
- *Initiate enablers for data linking environment* – This is to create an appropriate legislative environment, with consideration of operational and agency protocol opportunities. Data collection should include possibilities and mechanisms for undertaking linkage while safeguarding confidentiality.
- *Capture early learning participation with primary school enrolments* – This is to build on the information base for all learning activities prior to full time schooling. Would enable identification of non-participants of preschool and provide summary information of other educational experiences, including child care participation.
- *Consider administrative and survey linkage opportunities* – This would add value to sample survey data with population information from relevant administrative sources. An example is improving child care usage estimates through incorporating attendance details from CCMS.

SUMMARY

This project aims to improve the evidence base for early childhood learning and care through recommending better use of existing data held by government agencies. There is widespread agreement on the need to improve this base to better inform stakeholders for policy development and program evaluation. This agreement must now extend to working collaboratively to achieve outcomes in the short and long term.

The wide range of data currently collected by government and non-government agencies does not present a comprehensive picture of early childhood learning and care across Australia. This project has identified many high priority areas for which there are data gaps. To address these gaps will require action on the proposed recommendations from these multiple stakeholders.

There is strong reliance on being able to use state and territory data, as these custodians have extensive information collected for preschool enrolments and child care service providers. The value of these data could be realised through incorporation into these recommendation and the contributing sources evolving to commonality.

These recommendations are based on extensive research into early childhood learning and care data holdings. Comment is invited on these recommendations, actions and opportunities. Agencies should implement actions when initiating work on current programs, developing new programs or as needs and opportunities arise. Through this, the current evidence base for early childhood learning and care will be improved.

ABBREVIATIONS

ABS	Australian Bureau of Statistics
ACT	Australian Capital Territory
AEDI	Australian Early Development Index
AGCCCS	Australian Government Census of Child Care Services
AIFS	Australian Institute of Family Studies
AIHW	Australian Institute of Health and Welfare
ALP	Australian Labor Party
ARIA	Accessibility/Remoteness Index of Australia
ASPARD	Annual Service Planning and Reporting Document
ATO	Australian Taxation Office
CCB	Child Care Benefit
CCCH	Centre for Community Child Health
CCMS	Child Care Management System
CCQA	Child Care Quality Assurance
CCS	Child Care Survey
CCTR	Child Care Tax Rebate
CDSMAC	Community and Disability Services Ministers' Advisory Council
CEaCS	Childhood Education and Care Survey
COAG	Council of Australian Governments
CRB	collector record book
CS NMDS	Children's Services National Minimum Data Set
CURF	confidentialised unit record file
DECS	South Australian Department of Education and Children's Services
DEECD	Victorian Department of Education and Early Childhood Development
DEEWR	Australian Government Department of Education, Employment and Workplace Relations
DEST	Australian Government Department of Education, Science and Training
DoCS	New South Wales Department of Community Services
EC	European Commission
FaCSIA	Australian Government Department of Families, Community Services and Indigenous Affairs
FaHCSIA	Australian Government Department of Families, Housing, Community Services and Indigenous Affairs
FTB	Family Tax Benefit
HIC	Health Insurance Commission
HILDA	Household, Income and Labour Dynamics in Australia Survey
IEP	Indigenous Education Program
LSAC	Growing Up in Australia: the Longitudinal Study of Australian Children
MCEETYA	Ministerial Council on Education, Employment, Training and Youth Affairs
NATSISS	National Aboriginal and Torres Strait Islander Social Survey
NCAC	National Childcare Accreditation Council
NICHD	National Institute of Child Health and Human Development
NMDS	National Minimum Data Set
NPC	National Preschool Census
NPDC	National Perinatal Data Collection
NSS	National Statistical Service
NSSC	National Schools Statistics Collection

ABBREVIATIONS *continued*

NSW	New South Wales
NT	Northern Territory
OECD	Organisation for Economic Co-operation and Development
OECECC	Office of Early Childhood Education and Child Care
PC	Productivity Commission
PIPS	Performance Indicators in Primary School
Qld	Queensland
RADL	Remote Access Data Laboratory
ROGS	Report on Government Services
SA	South Australia
SAAP	Supported Accommodation Assistance Program
SCRGSP	Steering Committee for the Review of Government Service Provision
SEIFA	Socio-Economic Indexes for Areas
Statistics NZ	Statistics New Zealand
Tas.	Tasmania
DoE	Tasmanian Department of Education
UNESCO	United Nations Educational, Scientific and Cultural Organization
VCAMS	Victorian Child and Adolescent Monitoring System
Vic.	Victoria
WA	Western Australia

APPENDIX 1 STATE AND TERRITORY DATA SOURCES

INTRODUCTION

This publication has focused on national sources of early childhood learning and care data. State and territory sources are also a rich source of information in this field due to the key role of the jurisdictions in the licensing and delivery of early childhood services. There are a large number of state and territory data sources. It is a complex area, with a wide variation between data sources in scope, content and methodology, and there are several other current or planned projects which will enhance understanding (see below). Consequently, it is out of the scope of this project to extensively document these data holdings. This appendix gives an overview of the state and territory data sources on early childhood learning and care. It is based on publicly available material and some information collected by the AIHW for the CSNMDS feasibility study.

OTHER REVIEWS OF STATE AND TERRITORY DATA SOURCES

There are other current or upcoming descriptions of state and territory data sources, which will enhance understanding and documentation in this field.

The *Report on Government Services* (SCRGSP 2008) compiles data from the various state and territory sources, and documents some of the methodological issues. However, there is little information available on the full range of data sources and how they can be accessed.

Concepts and Directions in Early Childhood Learning (ABS cat. no. 4232.0) assesses currently available indicators in the field of early childhood learning, including some indicators from state and territory data sources. A brief description of State and Territory and Australian Government administrative data is also included.

The AIHW report *Implementation of the Children's Services National Minimum Data Set: a feasibility study* (AIHW cat. no. CFS 7) documents the extent to which data items from the CS NMDS have been incorporated into existing data collections in the states and territories, it was completed in March 2009.

There are several projects which are planned or underway in relation to state or territory data holdings, although these might not result in publicly available reports. These projects are:

- inventory of school student data holdings (ABS). This will describe the data holdings of school students (including preschool students) in administrative systems held by state, territory and Commonwealth education departments. A report will be provided to the National Education and Training Statistics Unit Management Board.
- DEEWR consultancy on state level datasets.

DATA SOURCE TYPES

For the purposes of this Appendix, data sources have been categorised into five broad types:

- Licensing and regulation datasets: information submitted in the license application or renewal, as part of the state and territory government's responsibility for the licensing and regulation of children's services.
- Census of children's services: information collected as part of an annual census of children's services (e.g. information on children, staff and the service).
- Preschool enrolments: information about the child provided at the time of preschool enrolment (e.g. sociodemographic characteristics, contact details).
- Preschool censuses: a snapshot of children enrolled in or attending preschool at a particular point in time.
- Outcome and development measures: diagnostic instruments or assessment systems at the commencement of schooling.

OVERVIEW OF PRESCHOOL DEFINITIONAL DIFFERENCES

The term preschool relates to formal learning programs conducted by a degree-qualified early childhood teacher which provide education for children one to two years prior to the commencement of full-time primary school. Full-time primary school commences in the year before Year 1. The variations in state and territory nomenclature for these programs, and the various starting ages, are detailed in the table below.

APPENDIX 1 STATE AND TERRITORY DATA SOURCES *continued*

A1.1 SCHOOL STARTING AGE AND NOMENCLATURE BY STATE OR TERRITORY

State or territory	Minimum Age	Age in the year before Year 1	Compulsory Age	Nomenclature – year before school(a)	Nomenclature – year before Year 1
NSW	4.5	turn 5 by 31 July	Year child turns 6	Preschool	Kindergarten
Qld	4.6	turn 5 by 30 June	Year child turns 6.6	Kindergarten	Preparatory
Vic.	4.8	turn 5 by 30 April	Year child turns 6	Kindergarten	Preparatory
WA	4.6	turn 5 by 30 June	Year children turn 6.6	Kindergarten	Pre-primary
SA	5	continuous entry in term after 5th birthday	From the age of 6	Kindergarten	Reception
Tas.	5	turn 5 by 1 January	Year after turning 5	Kindergarten	Preparatory
NT	4.6	turn 5 by 30 June	Year child turns 6	Preschool	Transition
ACT	4.8	turn 5 by 30 April	Year child turns 6	Preschool	Kindergarten

(a) School denotes the full time year commencing at the year before Year 1.

Source: Adapted from Cost/Benefit Analysis Reating to the Implementation of a Common School Starting Age and Associated Nomenclature by 1 January 2010, Volum 1, report prepared for the Ministerial Council on Education, Employment, Training and Youth Affairs, March 2006, <<http://www.mceetya.edu.au>>, accessed 23 May 2007.

NEW SOUTH WALES

Licensing

The NSW Department of Community Services (DoCS) licenses children services, including long day care, occasional day care, family day care, home-based care and preschool. Licenses are for a term of three years or less. Information collected in the licensing application includes licensee and nominated supervisor details (e.g. previous employment and qualifications), maximum number of children and hours of centre operation per week.

Census of children's services

A census of all children's services is not conducted. However, children's services funded by DoCS are required to complete an Annual Service Plan and Reporting Document (ASPARD). ASPARD collects information on organisational details and related fees. Further information for a reference week is collected, including hours and days of business, aggregate information on children (e.g. age, special needs groups, hours and days of attendance, and parental details) and aggregate information on staff (e.g. qualifications and Indigenous status).

Preschool enrolment

The majority of preschools in New South Wales are funded by DoCS, which provides funding for community-based preschool services to a range of organisations such as local government, community organisations or child care centres. Enrolment details are collected by individual services, with aggregate information provided to DoCS via ASPARD.

In addition, the Department of Education and Training (DET) New South Wales has 100 preschools attached to government schools. Enrolments in DET preschools occurs via a NSW government school enrolment form, which is the same form used for other year groups. Information collected is in line with state and national reporting purposes and covers parents' education and occupation, student demographics and special needs.

Preschool census

DoCs funded preschools fall under the ASPARD collection discussed above.

DET conducts a census on preschools attached to primary schools. There are three sections to the preschool census collection: general preschool data (e.g. number of children enrolled, number of Indigenous children), class and/or group data (overall sessions details for service and individual attendance for children, along with date of birth, sex and special needs) and teacher data (e.g. qualifications and length of employment).

APPENDIX 1 STATE AND TERRITORY DATA SOURCES *continued*

<i>Outcome and development measures</i>	The Best Start Kindergarten assessment is administered in all government schools at the beginning of the kindergarten year. Software is currently being developed to assist with storing and reporting of the data at the school, regional and state level.
VICTORIA	
<i>Licensing</i>	The Department of Education and Early Childhood Development (DEECD) licenses child care services including preschool (known as kindergarten in Victoria), long day care, family day care, in-home care, occasional care and outside school hours care. Information collected from services in the licensing application include licensee and nominee details (e.g. previous employment details, previous involvement with children and qualifications) and service details (e.g. the maximum number of children, hours of centre operation per day and details about education and recreation programs).
<i>Census of children's services</i>	A census of children's services is not conducted in Victoria.
<i>Preschool enrolments</i>	DEECD provides funding for preschool services, which are run by a range of organisations such as local government, community organisation or child care centres. Enrolment information is collected by individual preschools, which provides DEECD with aggregate information on anticipated and actual enrolments for funding purposes (see 'Preschool census' below). Data is collected on funded enrolments only (that is, generally the first year of preschool for four year olds).
<i>Preschool census</i>	DEECD collects information from all government-funded preschools in the Confirmed Kindergarten Funding Data Collection. Information collected includes: service details (e.g. number of children, fees and services offered), information on the number of enrolments (e.g. number of children by age, sex and special needs), attendance data for a reference week (e.g. number of children who attended by session, and main reasons for non-attendance) and staff details (e.g. individual de-identified information on qualification, date of birth and hours of employment per week). The data collected is stored on the department's computerised database and may be used to produce statistics and reports.
<i>Outcome and development measures</i>	The Preparatory Entry Assessment is conducted on entry at school and again in years 1 and 2. An online data collection approach is employed, and this is intended as baseline data to map development of a student's progress over time.
QUEENSLAND	
<i>Licensing dataset</i>	Children's services in Queensland are licensed by the Department of Communities. They include long day care centres, preschool (called kindergarten in Queensland), family day care schemes and limited hours care services. Information collected from services for licensing purposes includes applicant or nominee details, service information (e.g. days and hours of operation, maximum number of children and details about the facility and program) and staff member details (individual details including name, position, date of commencement and qualification).
<i>Census of children's services</i>	A voluntary annual Child Care Services Census is conducted in Queensland. The census includes all licensed child care services (long day care, family day care, limited hours care and kindergarten). Information collected includes service details (e.g. management type, opening hours and physical setting), children's characteristics (e.g. number of children by age and target groups) and staff characteristics (e.g. number of staff by target groups and individual details including position, qualifications, age and in-service training). Results are published in the Child Care Census fact sheets which are released on the department's website.
<i>Preschool enrolments</i>	In 2007, Queensland schools replaced a sessional preschool program in some schools with a full-time preparatory year prior to Year 1. The Crèche and Kindergarten Association of Queensland is funded partly by the Department of Education, Training and the Arts to provide kindergarten programs in community kindergartens.

APPENDIX 1 STATE AND TERRITORY DATA SOURCES *continued*

<i>Preschool census</i>	Preschools provided by the Department of Education, Training and the Arts are covered in the annual census of child care services.
<i>Outcome and development measures</i>	The Year 2 Diagnostic Net is conducted in all Queensland state schools, Catholic schools and some independent non-state schools. The department's corporate data warehouse contains Year 2 Diagnostic Net data which can be aggregated at school, student groupings and state levels for state schools. The Year 2 Diagnostic Net commences in the first term of year 1 with parents receiving a report in years 1, 2 and 3.
SOUTH AUSTRALIA	
<i>Licensing dataset</i>	The Department of Education and Children's Services (DECS) is responsible for the licensing of child care centres, family day care and baby sitting agencies, and the approval of family day care providers. The DECS licensing and standards unit collects information on child care services via licensing applications. Information collected from services includes licensee and proposed manager details (e.g. name, date of birth, qualifications, experience), maximum number of children and hours and days of centre operation per week.
<i>Census of children's services</i>	DECS conducts an annual census of all services it licenses across the preschool and child care sector. Completion of the preschool form is mandatory and completion of the child care forms is voluntary. The information collected varies by type of service, with information collected on the service (e.g. address, days, start and finish time), staff (e.g. age, sex, length of experience, qualifications) and children (e.g. Indigenous status). Most forms collect unit record data for children (only aggregate data are collected for vacation care, rural care programs in preschool, out of school hours care and occasional care) and all forms collect unit record data for staff. Results are published in the Children's Services annual report.
<i>Preschool enrolments</i>	DECS in South Australia operates government preschool programs and provides funds to some non-government preschool programs. The Preschool Administration System is used to record student enrolment details, compile census results and produce reports. A term based enrolment collection is undertaken for resourcing purposes. Limited demographic information is collected and all data are received in aggregate form.
<i>Preschool census</i>	The preschool census is conducted as part of the children's services census.
<i>Outcome and development measures</i>	<i>School Entry Assessment – Planning for Learning</i> supports educators to collect information about the knowledge, skills and understandings children bring to school, and to use this information as they plan programs to meet the needs of each child. The School Entry Assessment assesses literacy and numeracy on entry to school. Information is recorded manually in a Learner Record Booklet (one for each child). Schools have the capacity to store and analyse School Entry Assessment data electronically and it can be further used after the first year of school to provide longitudinal data.
WESTERN AUSTRALIA	
<i>Licensing dataset</i>	The WA Department for Communities licenses child care centres, sessional care (occasional day care and pre-kindy), family day care and outside school hours care. In Western Australia, licenses are renewed every three years or when changes are made in the intervening period by the service. Information collected from services includes license applicant and nominated supervising officer details (e.g. name, sex, date of birth, previous employment, qualifications) and child care service details (e.g. the maximum number of children, days and hours of service operation per week and site).
<i>Census of children's services</i>	A regular census of children's services is not conducted.

APPENDIX 1 STATE AND TERRITORY DATA SOURCES *continued*

<i>Preschool enrolments</i>	Preschool education (referred to as kindergarten in Western Australia) is staffed and funded by the Western Australia DET, with most preschools integrated on school sites. Information collected for preschool or school enrolment include child's details (e.g. name, date of birth, sex and special needs) and parent details (e.g. occupation, qualifications and language background).
<i>Preschool census</i>	The census for preschools is run by the Western Australian DET and takes place twice yearly (February and August). The August data are more comprehensive than the first and provides details and statistics related to public schools, students and staff. School and student data are collected from private schools.
<i>Outcome and development measures</i>	<p>There are two key assessments tools to monitor progress:</p> <ul style="list-style-type: none"> ■ The Kindergarten and Pre-primary Profile, which is used for monitoring against progress profiles in six development categories ■ K-7 Literacy Net and K-7 Numeracy Net, which is designed to target students who are not progressing adequately.
TASMANIA	
<i>Licensing dataset</i>	The Child Care Unit of the Department of Education (DoE) licenses, monitors and supports child care services in Tasmania. Licensed services include centre based care (long day care, occasional care, playcentres and outside school hours care) and home based care. Information collected from services includes licensee details (e.g. previous employment and qualifications), service details (e.g. maximum number of children, hours and days of centre operation per week, and management structure) and a schedule of personnel (e.g. name, position and qualifications).
<i>Census of children's services</i>	A small census of children's services is conducted each year by DoE. The census covers vacation care, occasional care services and play centres funded by DoE. Information collected pertains to hours and places available, number of children by age, number of staff, number of staff with qualifications, and children with special needs.
<i>Preschool enrolments</i>	Government preschool education (called kindergarten in Tasmania) is funded and staffed by DoE. They are integrated with a primary school and are normally located on the same campus. The preschool enrolment form is the same as used by other year groups and is in line with national reporting. Information collected pertains to student details (e.g. name, date of birth, sex and special needs) and parent's details such as occupation, qualifications and language spoken at home.
<i>Preschool census</i>	A census of government and non-government preschools is conducted each August, as part of the school census.
<i>Outcome and development measures</i>	<p>Performance Indicators in Primary School (PIPS) is conducted twice during children's first year of compulsory education (preparatory year in Tasmania)). PIPS are collected along with student unique educational identifiers, as a result longitudinal tracking and linking of the data to national testing is provided. All assessments undertaken at the school are retrievable.</p> <p>Schools also conduct the Kindergarten Development Check on each child during the kindergarten (preschool) year, again connected to the student unique educational identifier.</p>
NORTHERN TERRITORY	
<i>Licensing dataset</i>	The Northern Territory DET is responsible for the licensing and support of child care and children's development services. Information collected in the licensing application includes service details (e.g. name, address, building and physical environment, proposed number of children by age and hours of centre operation), applicant details (e.g. name and address) and proposed staff (e.g. name and qualifications).

APPENDIX 1 STATE AND TERRITORY DATA SOURCES *continued*

<i>Census of children's services</i>	A regular census of children's services is not conducted. A survey of child care vacancies, fees and opening hours was conducted in March 2008.
<i>Preschool enrolments</i>	In the Northern Territory, government preschools are staffed and funded by the Department of Education and Training, are integrated with a primary school and are almost all located on the same site as the primary school. The Student Enrolment Form is completed for preschool students. Information collected includes student details (e.g. name, address, date of birth and Indigenous status) and parent details (e.g. name, address, language spoken and qualifications).
<i>Preschool census</i>	<p>Enrolment and attendance in schools (including preschool) is collected eight times per year in weeks four and eight of each term. In addition, an annual schools census is conducted every August. This provides preschool enrolment numbers for government and non-government schools by age, grade, sex and Indigenous status. A school staff census is conducted at the same time to collect information on the number of staff by position, sex and Indigenous status.</p> <p>For the first time in 2008, an additional trial survey was conducted for government preschools to capture the number of sessions per week.</p>
<i>Outcome and development measures</i>	The Assessment of Student Competencies is used for children in the first year of school (called transition in the Northern Territory), to identify those who may be at risk. School summaries and individual student reports are made available to schools via a centralised web-based reporting tool (the Business intelligence Centre)..
AUSTRALIAN CAPITAL TERRITORY	
<i>Licensing dataset</i>	The Department of Disability, Housing and Community Services is responsible for licensing of children's services in the Australian Capital Territory. Licensed children's services include centre-based care (long day care and occasional care), school aged care, non-government preschools and playschools. Information collected in the licensing application includes applicant details (name, address and position), service details (e.g. name, location of service, maximum number of children and hours of centre operation per week) and staffing plan (name, qualification, position held and hours worked).
<i>Census of children's services</i>	A regular census of children's services is not conducted in the Australian Capital Territory.
<i>Preschool enrolments</i>	Government preschool education is staffed and funded by the Australian Capital Territory DET and preschools are amalgamated with primary schools. Preschool children are enrolled at the relevant primary school using the Student Record System Enrolment Form and an additional form for students starting preschool. The Student Record System Enrolment Form collects student details (e.g. name, date of birth, sex and Indigenous status) and parent details (e.g. name, relationship to child, language spoken and qualifications). The additional preschool form records basic details about child care attendance (if relevant) and preferences regarding preschool site and session.
<i>Preschool census</i>	Prior to 2008, the preschool census was run twice yearly in February and August. From 2008, the government preschool enrolments are included in the school census, also conducted in February and August of each year. Australian Capital Territory public school census data are electronically downloaded from the department's centralised administrative system. Information published on the Australian Capital Territory DET website includes preschool enrolments by sex and school.
<i>Outcome and development measures</i>	PIPS is used in the first three weeks of the school year and again at the end of the year. ACT DET provides schools with longitudinal student data provided in table and graph formats. It shows each students value added progress from the end of kindergarten to their ACT Assessment Program results in Year 3.

APPENDIX 2 METHODOLOGICAL ISSUES

INTRODUCTION

This appendix includes an overview of the three broad collection types and outlines the main methodological differences between the early childhood data sources discussed in the rest of this information paper.

COLLECTION TYPES

There are three broad collection types which are discussed in this information paper: sample survey, census and administrative data. The type of collection created in a particular circumstance depends upon factors such as collection purpose, resources, timing and reporting requirements. All collection types are affected by non-sampling errors, which are inaccuracies that occur because of imperfections in reporting by respondents and interviewers, and errors made in coding and processing data. The advantages and limitations for each of the collection types are discussed below.

Some of the early childhood data sources are by-products of the administrative processes of government such as Child Care Benefit (CCB) and Family Tax Benefit (FTB). Other data sources were conducted specifically to collect statistical information. These may be surveys conducted at a particular point in time (e.g. the Child Care Survey (CCS)), longitudinal surveys collecting information from the same cohort(s) at regular intervals (e.g. Longitudinal Study of Australian Children (LSAC)) or censuses of everyone in the population of interest (e.g. the Census of Population and Housing).

Survey

In a sample survey only part of the total population is selected, and the survey can be either at a point-in-time or longitudinal.

Some of the advantages of survey data are:

- capture of extensive information on specific topics
- sample design techniques which ensure the sample is representative of the population
- repeat surveys which allow for analysis of change over time
- inclusion of non-participants as well as participants, depending upon the survey topic
- targeting of specific population subgroups.

Some of the limitations of survey data are:

- sampling error which limits analysis of small groups
- non-sampling error which is often not measured
- limited retrospective and outcomes information if the survey is not longitudinal
- sample loss across waves for longitudinal surveys
- samples which exclude particular geographic areas for operational reasons (e.g. remote and sparsely settled areas).

Census

A census aims to collect information from every unit in the population. It is often completed by the respondent, rather than a trained interviewer or clerical worker, so generally use simple questions and sequencing to minimise the non-sampling error.

The advantages of census data are:

- full coverage of a population, although this is dependent on the quality of the frame (list of members of target population)
- inclusion of participants as well as non-participants, depending on the collection topic
- suitability for small group or small area analysis
- content can be designed to suit data requirements, subject to respondent load.

Some of the limitations of census data are:

- partial non-response to specific questions
- non-response from some members of target population to census.

Administrative data

Administrative data are collected for regulatory purposes or for the administration of various government programs (such as CCB).

Administrative data continued

Some of the advantages of administrative data are:

- full coverage of a population
- suitability for small group or small area analysis
- suitability for longitudinal analysis
- provision of detailed information in a specific area of government program or regulation
- reduction of respondent load through use of an existing collection for statistical purposes.

Some of the limitations of administrative data are:

- sources are designed for agency specific functions, so no single dataset offers the complete picture
- focus is generally on population in receipt of program or service. This means comparisons are difficult with those not receiving the program or service
- administrative data can be compiled from a number of different jurisdictions and there may be differences in underlying questions, definitions and collection methodology
- there may be limited opportunity to influence business processes underlying the creation of administrative data
- there may be partial non-response
- some data items may have underlying issues of non-reponse or variability (e.g. Indigenous status).

METHODOLOGICAL ISSUES

The early childhood collections of interest vary considerably in their methodology. The working group identified a list of potential issues that stemmed from the various collection methodologies used, and their impact on data quality. These were assigned priorities and are listed below, grouped according to the determined level of priority.

High priority methodological issues

The concerns of the highest priority for methodological issues included:

- no single collection to cover all information needs
- limited comparability between existing collections' data items, definitions and populations
- varied output level of data (unit record, aggregate)
- verification of records at unit record level
- limited cross tabulations available
- limited pathway analysis
- data access restrictions
- minimal collection documentation to support access to data.

No single administrative or provider-based collection, or combination of collections, is able to provide accurate, regular measures of the number, characteristics and proportion of children who attended, or do not attend, early childhood education and care programs. The data access restrictions were discussed in Chapter 6, and the remaining high priority issues are discussed below. A majority of these issues stem directly from the inability to source all information from the one collection.

LIMITED COMPARABILITY BETWEEN EXISTING COLLECTIONS

All the collections have considerable differences in data items, definitions and populations, as they were developed independently to individual specifications based on the user's needs. The core definitions of preschool and child care vary considerably between collections. This is further confounded by the different (and sometimes overlapping) populations covered by each collection.

High priority methodological issues continued

Information about early learning and care is currently not collected in a standard way across jurisdictions. There is a need for standard concepts and definitions to be accepted and applied when collecting information about this topic. The ABS information paper on *Measuring learning in Australia: Concepts and directions in early childhood learning* (ABS cat. no. 4232.0), addresses these issues. For example, it is important to measure the concept of preschool education, including programs delivered in child care settings and not limit information to children attending a government or independent preschool.

One key aspect of comparability arises from systemic differences across the states and territories. The implementation of the Children's Services National Minimum Data Set (CS NMDS) has begun to address this issue, by providing a formal set of agreed definitions. However, the uptake of these definitions is limited, with jurisdictions only seeking to including the revisions as their collection tools are revised. As the state and territory collection requirements are unchanged, the inclusion of the consistent definition or data item may result in potential duplication of data items on individual systems.

Most data sources only focus on the subgroup of interest. For example, the Australian Government Census of Child Care Services (AGCCCS) collects information on children attending Australian government approved and supported child care services and the National Preschool Census (NPC) collects information on children attending government and non-government preschool institutions. Administrative collections generally only include those people accessing a particular service. Information is required on both participants and non-participants in early childhood learning and care, so that their characteristics and outcomes can be compared. The collections of interest which relate to both participants and non-participants are the Census of Population and Housing, CCS, Childhood Education and Care Survey (CEaCS), LSAC and National Aboriginal and Torres Strait Islander Social Survey (NATSISS).

VARIED OUTPUT LEVEL OF DATA

The end requirement of the data may be for either detailed record analysis or for aggregate population reporting. Data collected for aggregate use may have limited opportunities for further analyses and other statistical purposes. The end user may be restricted to the produced cross classifications.

VERIFICATION OF RECORDS

For administrative sources, there is the potential of double counting of services, or of children using those services. The double-counting of services may occur from Commonwealth and state or territory governments collecting data from the same services. Differences in the provision models for services across jurisdictions, and the supporting regulatory frameworks is also a factor. The double-counting of children may occur as children can use multiple services concurrently. It is also possible for double-counting to occur due to transitions between service providers that are within reference periods for the collections.

LIMITED CROSS TABULATIONS AVAILABLE

The value of data can be determined by its ability to provide information for desired cross sections of the population. When data sources are comprised of aggregate data, such as the NPC, the cross tabulations are limited by the input data provided.

Users are increasingly demanding data for small areas, and for specific population groups. For example, knowledge of where the non-participants of preschool are living could assist in targeting programs to encourage participation.

High priority methodological issues continued

LIMITED PATHWAY ANALYSIS

Pathway analyses are desirable to be able to assess the link between decision points and outcomes. Decision points may include information on characteristics, participation, location. Longitudinal surveys provide the most complete picture of pathways, LSAC is the only current collection which could be used to assess pathways to particular outcomes.

SUPPORTING DOCUMENTATION

The ability to use data appropriately is determined by the quality of the supporting documentation. Collections that were developed for information sharing, such as Household, Income and Labour Dynamics in Australia Survey (HILDA) and LSAC, have expansive documentation available to support the data user. At the other end of the scale, administrative collections may develop progressively, with limited documentation. This may also impact on the continuity of the collection, with additional system updates changing the information available to users.

Medium priority methodological issues

There was one issue with medium priority:

- different data editing practices across collections

All the data sources have different purposes and place different priorities on data editing and cleaning to create meaningful statistical data. Sources with less rigorous data editing procedures may have inconsistent data for an individual person.

Low priority methodological issues

Data quality issues of relative low importance included:

- education system variations across the states and territories
- limited comparability between collections due to differing:
 - collection types (survey, census, administrative, longitudinal)
 - reference periods
 - respondents (parent, teacher, service provider)
 - accuracy levels for survey estimates

EDUCATION SYSTEM VARIATIONS

Education is managed and administered by the state and territory governments. The compounding factor for early childhood is the differing school starting ages. Education system variations are out of scope of this project. Differences across jurisdictions may be readily overcome by good system management. However, the supporting systems were developed independently for the individual data reporting requirements. There is a movement towards national reporting requirements within the current Council of Australian Government (COAG) agenda.

COLLECTION TYPE

The advantages and limitations of different collection types for surveys, census and administrative collections were listed at the beginning of this appendix.

REFERENCE PERIOD

The reference period is the time about which information was collected. The reference period may be a point in time, such as the second Tuesday evening in August for the Census, or a longer period of one week or more. Collections such as the CCS, NPC, AGCCS and LSAC are based on a reference period, although this differs between collections (e.g. the CCS relates to child care and preschool attendance during a reference week whereas LSAC collects usual attendance).

Most administrative collections are based on ongoing data collection. However, how the collections are updated, and most importantly, the frequency the updates are applied, varies. The benefit data, CCB and FTB, may be claimed either through fortnightly payments or as an annual lump sum. This necessitates a reconciliation period at the end of the financial year.

Low priority methodological issues continued

The timeliness of statistical information refers to the delay between the reference point (or end of the reference period) to which the information pertains, and the time the information becomes available.

RESPONDENTS

The selection unit is the unit that is selected in the sample, e.g. the service management centre. The reporting unit is the unit that responds to the survey, e.g. each service provider of the group. The tabulation unit is the unit for which results are presented, e.g. all children using the service.

In some cases, the service provider provides the information about children, staff or the service (e.g. AGCCCS and state and territory preschool and child care licensing datasets). In other cases, parents respond on behalf of their child (e.g. CCS and LSAC). Some information is provided by a secondary source. For example, the National Assessment Program in Literacy and Numeracy uses national tests sat by school children, with results compiled by the state or territory department and then provided for national reporting to the Ministerial Council on Education, Employment, Training and Youth Affairs (MCEETYA).

APPENDIX 3 DATA ACCESS EXAMPLES

INTRODUCTION

This appendix discusses the data access arrangements for two early childhood data sources: the Child Care Survey (CCS) and Child Care Benefits administrative data (CCB). These two examples have been chosen as they highlight the different features of data access in relation to surveys and administrative data.

EXAMPLE 1: CHILD CARE SURVEY

As with all ABS collections, data from the CCS are widely available to clients. Data are released under standard ABS embargo arrangements on an advertised release date to all users.

There is a wide range of information about the CCS released on the ABS website, which has been designed to meet most user requirements. Information on the website includes a media release, publication, core data products, articles in compendium publications, and some metadata and supplementary information. Clients are also able to directly contact the author area or the ABS National Information and Referral Service to clarify issues associated with the CCS or to request additional aggregated data. A confidentialised unit record file (CURF) is available to approved users. Information about CURF applications is available on the ABS website.

Legislation

The ABS operates within a framework that includes the *Australian Bureau of Statistics Act 1975* and the *Census and Statistics Act 1905*. Other legislation which affects ABS officers includes *Privacy Act 1988*, *Freedom of Information Act 1982*, *Commonwealth Crimes Act 1914*, *Evidence Act 1995* and *Copyright Act 1968*.

The 2005 CCS Expanded confidentialised unit record file (CURF) is released in accordance with a Ministerial Determination in pursuance of section 13 of the Census and Statistics Act. As required by the Determination, the CURF has been designed so that the information on the file is not likely to enable the identification of the particular person to which the data relates. Steps to confidentialise the dataset include removing any information that might uniquely identify an individual, reducing the level of detail for some items and collapsing some categories.

Data access protocols

As a statistical organisation, the ABS has a comprehensive set of protocols which relate to data access, all of which affect access to the CCS. There are internal policy manuals on topics including Policy and legislation, Client services, and Publishing and dissemination. Some of the policies and protocols covered within these manuals include release approvals policy, data management, security and confidentiality in collecting data, administrative by-product, data retention and record keeping, data linking, dissemination of data, corporate communications policy, pricing policy, products policy and products content policy. A wide range of information relating to data access protocols is also available on the ABS website including *How the ABS keeps your information confidential*, CURF microdata access, ABS pricing policy, ABS conditions of sale and ABS service delivery charter.

ABS officers follow a range of well-documented procedures to protect the privacy of respondents. Some of these include:

- The security of the data is protected by a variety of arrangements that apply to all ABS employees, including signing an Undertaking of Fidelity and Secrecy, building security and computer system security.
- Data records are de-identified as soon as possible (e.g. names and addresses removed) and access to files where this information is attached is tightly restricted.
- Access to de-identified unit record data is only provided to those ABS officers who need access to the data in the course of their duties.
- Tables are designed to minimise cells with small numbers of contributors or very high standard errors. A table may have specific cells suppressed if it is assessed as potentially disclosing information about individuals.

Data access protocols
continued

- The 2005 Child Care Survey Expanded confidentialised unit record file (CURF) is available via the Remote Access Data Laboratory (RADL). The RADL is a facility where approved users can remotely use CURFs by submitting analysis jobs against the CURFs, which remain on ABS premises.

Decision making authority

The Release approvals policy includes a matrix which specifies what level in an author area may approve product releases. CURF approval in principle may be provided only by the Australian Statistician. The Australian Statistician is advised by the Microdata Review Panel in this process. Statistical publications are approved at the Assistant Statistician level or higher within the author area. Information consultancy products are signed off by Director or Assistant Director within the author area, who ensures that the appropriate dissemination processes are followed and delegates responsibility as appropriate.

EXAMPLE 2 - CHILD CARE BENEFITS

The main user of CCB data is the Department of Education, Employment and Workplace Relations (DEEWR), who use it for management and policy development purposes. Summary CCB information is included in the Report on Government Services (RoGS) and the department's annual report. An information consultancy service is provided, but this is assessed on a case-by-case basis subject to the nature of the request and the *Protocol for the release of social security information*. Data are generally not provided for market research or commercial purposes.

The release of CCB data is complicated by several separate systems being used to capture different components of the data. These are managed by DEEWR and Centrelink, and DEEWR is currently developing an information warehouse to link some of these systems.

There is limited publicly available information on the content, metadata and explanatory detail of the CCB datasets. CCB application forms are available on the internet, as is information which supports the administration of the CCB. There is no publicly advertised contact point for queries about CCB data.

Legislation

CCB administrative data are collected under *A New Tax System (Family Assistance) (Administration) Act 1999*. Data at the unit record level can be released under the public interest disclosure clause of this Act. Other legislation which more generally affects DEEWR officers includes *Privacy Act 1988*, *Freedom of Information Act 1982*, *Commonwealth Crimes Act 1914*, *Evidence Act 1995* and *Copyright Act 1968*. The *Data Matching Program (Assistance and Tax) Act 1990* applies to any use of Tax File Numbers when comparing payments between ATO and other agencies for compliance purposes.

Data access protocols

The Performance and Analysis Branch of the Office of Early Childhood Education and Child Care (OECECC) at DEEWR is responsible for the CCB data.

The *Protocol for the release of social security information* provides detail on the conditions under which information can be released. The protocol states that the purpose for which information is collected is the determinant of its use and that any secondary use must relate to improving outcomes for those clients and the community. Information requested for research purposes is considered an appropriate use of social security information, whereas information proposed for use as market research purely for commercial purposes is not considered appropriate.

The Protocol operates under the Social Security Information Principles and the Mutual Assurance Protocol, and must be used in conjunction with other Protocols and guidelines within agencies such as Publishing Information protocol (former Department of Families, Community Services and Indigenous Affairs (FaCSIA)), Business Partnership Agreement: Data Framework (former FaCSIA) and Business Partnership Agreement, Privacy, Records and Information (former FaCSIA). The *Child Care Service Handbook*

APPENDIX 3 DATA ACCESS EXAMPLES *continued*

Data access protocols continued

2007-08 also describes some of the practices around release of child care service information (this handbook is available on the DEEWR website).

In order to confidentialise data and protect the privacy of customers, no data cell will contain customer numbers of less than 20 unless authorised by legislation. Cells containing information other than payment recipient numbers may show figures of less than 20 providing customer privacy is maintained.

Decision making authority

Centrelink is the primary physical custodian for the CCB information it administers and DEEWR is the business custodian. DEEWR is the custodian for the CCB data it administers via the Child Care Management System (CCMS). The *Protocol for the release of social security information* states that CCB data are not to be generated or released without specific business custodian approval (the Child Care Policy and Planning Branch).

Microdata releases are approved by the Secretary. However, there have been no CCB microdata released externally to date.

APPENDIX 4 ASSESSMENT OF INFORMATION REQUIREMENTS

INTRODUCTION

The information requirements were developed to capture data needs for early childhood learning, development and care (see Chapter 4). The data holdings in the early childhood sources were studied against these needs. This appendix details the results from this intensive matching process. The discussion of the gap areas in Chapter 7 is based on these data holdings investigations.

OVERVIEW OF ASSESSMENT

Process

The following sections describe how well the information requirements are met by information sources on early childhood learning, care or development. The eight elements and the key populations are individually discussed in this appendix, with a table for each element to show how the information requirements are met by each data source. The tables describe the information requirement assessment as:

- **met** – meaning that the data source contains the item and that it is broadly consistent with the information requirement
- **partial** – meaning that the data source contains a similar item but it only partially matches the information requirements (e.g. restricted population only, definitional issues or quality issues).

Information requirements which are not met by the data source have been left blank.

A *data gap* is defined as an information requirement for which no relevant data are collected or the existing data are inadequate. This appendix separates data gaps into outstanding information requirements and partially met requirements. Outstanding information requirements are those which are not met or partially met by any of the data sources included in the assessment – that is, no relevant data are collected. Partially met requirements are those which are not met by any of the specified data sources, but are partially met by one or more data sources.

Data sources assessed

Table A4.1 outlines which data sources have been assessed in this appendix and the reasons for exclusions. The assessment focused on sources deemed most relevant to early childhood learning and care. Datasets that did not encompass these key areas were excluded from the detailed review. Some sources had information directly related to the specified needs in the information requirements but were excluded due to limited capture of other relevant early childhood information.

The state and territory administrative data holdings were not included in this assessment as a full analysis of these was beyond the scope of this project. Several agencies are reviewing these administrative datasets, see Appendix 1 for details. These datasets hold significant information on child care services and preschool providers and enrolments. As such, information from these datasets may be referred to in the discussions on addressing data gaps.

ACCESSIBILITY OF DATA SOURCES

The accessibility of information from data holdings affects the interpretation of this assessment. The assessment presented is based on the existing information, but does not reflect the access restrictions that may be in place. Table A4.1 summarises the public availability of information, which vary depending on the purpose of the collection. Sources developed for statistical purposes generally have unit record file datasets available, with supporting publications. Access to administrative data is usually limited to use within an agency for program management. Limited public information, such as summary statistics, may be available. The following assessed sources release limited published material

- Child Care Benefit (CCB) administrative data
- National Preschool Census (NPC)

A4.1 EARLY CHILDHOOD DATA SOURCES INCLUDED IN ASSESSMENT

<i>Source name</i>	<i>Abbreviation</i>	<i>Summary</i>
Included sources and summary of relevant topics		
Australian Government Census of Child Care Services	AGCCCS(a)	Characteristics for child care providers, workers, child care users
Census of Population and Housing	Census	Family characteristics, preschool participation
Child Care Benefit administrative data	CCB	Child care participation, child and parent demographics, service providers
Child Care Survey	CCS	Child care and preschool attendance, child and parent demographics
Childhood Education and Care Survey	CEaCS	Child care and preschool attendance, child and parent demographics
Longitudinal Study of Australian Children	LSAC	Characteristics, child care and preschool participation, outcomes
National Aboriginal and Torres Strait Islander Social Survey	NATSISS	Family characteristics, parenting, child care and preschool attendance
National Assessment Program in Literacy and Numeracy	NAPLAN	Outcome measures for literacy and numeracy
National Perinatal Data Collection	NPDC	Birth event data
National Preschool Census	NPC	Preschool enrolments
Excluded sources and reason for exclusion		
Australian Early Development Index	AEDI	Limited metadata available due to being new source.
Baby Bonus		Mainly relevant to data linkage proposal.
Family Tax Benefit	FTB	Mainly relevant to data linkage proposal.
Child Care Quality Assurance systems	CCQA	Limited metadata available.
Household, Income and Labour Dynamics in Australia	HILDA	Collection doesn't enable analysis of children's characteristics.
National Schools Statistics Collection	NSSC	Scope is schools.
Personal income tax data	Tax	Mainly relevant to data linkage proposal.
State and territory administrative systems		Jurisdictional variation in content of data sources.
Time Use Survey	TUS	Collection doesn't enable analysis of children's characteristics.

(a) Beyond 2006, the AGCCCS may not be conducted again in its current form, but the information collected will still be available.

Data sources assessed
continued

In the review, when the assessment cites information from these sources as meeting requirements, this information may be collected but not publicly released. In order to obtain information from these sources, access arrangements would need to be put into place. See Chapter 6 for information on access, and Chapter 9 for recommendations to improve data access and visibility.

In addition to this, some datasets contain aggregate data only rather than unit record information. Aggregate data may not capture all items, or contain identifiers, but these may be available in the underlying or contributing sources. The aggregate datasets in the assessment are:

- National Assessment Program in Literacy and Numeracy (NAPLAN): data compiled from state and territory administrative sources
- NPC: the non-Indigenous component captures aggregate counts of preschool students by sex.

COVERAGE OF CHILD CARE
AND PRESCHOOL

The coverage of children and service providers of child care and preschool are of interest due to double counting of children and services, the overlap of preschools within child care centres, and the definitional and jurisdictional differences for both. The coverage problems are discussed here to minimise repetition in the data gaps discussions that follow. The coverage restrictions are applied to the assessment of the populations in this appendix. They are not applied to the assessment of the remaining information requirements unless coverage issues affect the quality or content of relevant data items.

APPENDIX 4 ASSESSMENT OF INFORMATION REQUIREMENTS *continued*

COVERAGE OF CHILD CARE AND PRESCHOOL *continued*

Participation in child care and/or preschool can be measured by enrolment or attendance. Of these, attendance is preferred as it provides more detail on the use of the service, although it can refer to a reference week or usual attendance depending upon the collection. Enrolment data often over state actual participation.

Coverage of child care

In this publication, child care is categorised as formal (e.g. long day care services, family day care) and informal (e.g. nanny). These definitions are not used in all sources. Formal child care refers to regulated care, and consequently many administrative sources are in place to assess and monitor the provision of a subset of these services, as appropriate for the administrative purpose. Informal child care is non-regulated care that is organised by the parent or guardian. As there is no organising body to support the provision of informal child care, there is no administrative information available on the arrangements in place. This information is captured from child care attendance reported in population surveys. The table below summarises the coverage of child care across the relevant sources.

A4.2 COVERAGE OF CHILD CARE IN EARLY CHILDHOOD SOURCES

<i>Source name</i>	<i>Inclusions</i>	<i>Population</i>
Australian Government Census of Child Care Services(a)	Child care workers, staff and service providers in reference week, as reported by service provider	All Australian Government approved and supported services operational at the time of the census
Child Care Benefit administrative data	Child care participation and service provider details, as reported by service provider	Claimants of child care benefits for Australian government approved or registered care
Child Care Survey	Child care attendance in reference week, as reported by parent/guardian	Children aged 0–12 years
Childhood Education and Care Survey	Child care attendance in reference week, as reported by parent/guardian	Children aged 0–12 years
Longitudinal Study of Australian Children	Usual child care attendance with some linking to information on service providers and staff	Two cohorts aged less than 12 months and 4 years in 2003-04
National Indigenous and Torres Strait Islander Social Survey	Child care attendance in reference week as reported by parent/guardian	Indigenous children aged 0–14 years

(a) Beyond 2006, the AGCCCS may not be conducted again in its current form, but the information collected will still be available.

ADMINISTRATIVE AND PROVIDER COLLECTIONS

The administrative and provider collections relate to information captured for government funding or regulation of child care.

The Australian Government Census of Child Care Services (AGCCCS) was established to cover all Australian government approved and supported child care service providers. It provide substantial information on child care users, staff and service providers.

The CCB relates to families claiming the CCB for supplementing the cost of use at Australian government approved or registered child care. Services are required to participate in the Child Care Quality Assurance (CCQA) systems to be eligible to receive the CCB. The CCB is a rich data source of participants in formal child care, which will be significantly enhanced when the new CCMS is fully implemented from 2008. The CCMS will include attendance information for participants, and may be able to capture information about staff characteristics.

Other relevant administrative collections which were not included in the assessment of the information requirement are the CCQA systems and state and territory data sources.

Coverage of child care
continued

SURVEY COLLECTIONS

The Longitudinal Study of Australian Children (LSAC), the Child Care Survey (CCS) and Childhood Education and Care Survey (CEaCS) provide a rich source of child care usage data. They cover formal and informal child care use, regardless of whether the provider is government funded or not. These are the only sources that are able to identify non-participants (that is, those that do not use any child care and/or do not attend preschool). However, all have the limitations associated with sample surveys, such as wide confidence intervals for estimates pertaining to low prevalence or small areas.

The LSAC design aimed to capture approximately 2% of children for each cohort to form a representative sample. The sampling frame was extracted from the Medicare enrolment database held by Medicare Australia. The sample excludes children not yet registered with Medicare. Some remote postcodes were excluded from the design.

LSAC captures information on formal and informal child care attendance, and whether involved in other structured learning programs. Carers and teachers were asked to respond to the survey, if the parent agreed. In addition, quality information on the child care centre from the CCQA systems was linked to the respondent, when permitted. The staff and service provider components of the study is a reflection of the study child's attendance at centres and thus were not designed to be nationally representative.

The scope of the CCS and CEaCS is families with children aged 0–12 years. These surveys excluded visitors, students at boarding school and dwellings in very remote areas. The surveys capture information on formal and informal care arrangements, for the survey reference week. CEaCS also measures usual attendance.

National Aboriginal and Torres Strait Islander Social Survey (NATSISS) captures information on child care participation and arrangements for the Indigenous population, to produce national level estimates. Children aged 0–14 were included in scope for the first time in 2008.

Coverage of preschool

Preschool is defined as structured play-based learning in institutions and organisations delivered by a degree-qualified early childhood teacher (see Chapter 2). The program may be delivered in a variety of settings, including a separate institution or centre, a long day care centre, or as an adjunct to a primary school. This definition is not captured by any of the featured collections. Two of the key differences in preschool definitions are:

- *the settings captured by the collection* – Preschool programs in all settings are collected by CEaCS and LSAC. Preschool institutions or preschools which are adjunct to primary schools are captured by CCS, Census, NATSISS and NPC. Preschool programs in child care settings are captured by AGCCCS.
- *the use of teacher qualifications as a key criterion for preschool identification* – None of the collections apply this criterion of delivery by a degree-qualified early childhood teacher, although AGCCCS and LSAC collect some relevant information. In most states and territories, preschool institutions must be staffed by a degree-qualified early childhood education teacher, so this definition should underpin administrative collections such as the NPC and state and territory enrolments. It is difficult for teacher qualification to be accurately captured by surveys based on a parent's report alone.

ADMINISTRATIVE AND PROVIDER COLLECTIONS

The administrative and provider collections relate to information captured in government regulation or funding of service providers for preschool and child care. There is limited national administrative information on total number of children attending a preschool program and the setting of the program. This is currently an indicator in ROGS, but the state and territory administrative data are not comparable. The state and territory collections are covered in Appendix 1.

APPENDIX 4 ASSESSMENT OF INFORMATION REQUIREMENTS *continued*

A4.3 COVERAGE OF PRESCHOOL IN EARLY CHILDHOOD SOURCES

<i>Source name</i>	<i>Inclusions</i>	<i>Population</i>
Australian Government Census of Child Care Services(a)	Participation of children in preschool program within child care service, as reported by service provider	All Australian Government approved and supported services operational at the time of the census
Census of Population and Housing	Participation of children in preschool, as reported by household reference person	All ages
Child Care Survey	Preschool attendance in reference week as reported by parent/guardian	Children aged 0–12 years
Childhood Education and Care Survey	Preschool attendance in reference week as reported by parent/guardian	Children aged 0–12 years
Longitudinal Study of Australian Children	Preschool participation in all settings as reported by parent/guardian	Two cohorts aged less than 12 months and 4 years in 2003/04
National Indigenous and Torres Strait Islander Social Survey	Preschool attendance in reference week as reported by parent/guardian	Indigenous children aged 0–14 years
National Preschool Census	Government and non-Government preschool enrolments, as reported by state/territory agency or service provider	Government and non-Government preschools

(a) Beyond 2006, the AGCCCS may not be conducted again in its current form, but the information collected will still be available.

Coverage of preschool continued

The NPC collects information annually from both government and non-government preschool providers for the reference week. Preschool education is mainly government provided in all states and territories, except New South Wales, Victoria and Queensland, where the governments mainly fund other organisations or community groups to deliver preschool education. The 2006 NPC shows that about three-quarters of all preschool enrolments are in the non-government sector, as New South Wales, Victoria and Queensland form the largest proportion of preschools. A comprehensive list of all non-government preschool education providers was compiled from information sourced from each state and territory, thus the definitional and coverage issues arising from these different jurisdictions apply.

The AGCCCS is an annual census of government approved child care service providers which has been conducted since 1996. Information is collected from the service providers on the provision of a preschool program and whether the service takes children out to a preschool. There is no reporting of these data items in the public summary reports.

SURVEY COLLECTIONS

LSAC captures information on preschool enrolments and attendance. The setting of the preschool program is captured in the parent's report for the study child. Carers and teachers also provide some information (e.g. carer qualifications), but this component was not designed to be representative.

The CCS and CEaCS are a rich source for preschool attendance characteristics. The CCS measures preschool attendance in the survey reference week. CEaCS captures usual attendance as well as attendance in the reference week, and identifies preschool programs delivered within a child care setting based on parents reports.

The Census of Population and Housing aims to capture all people in Australia on Census night (for the last Census this was 8 August 2006). Preschool attendance was captured as part of the type of educational institution attending, where parents self-identify their children's education. This should exclude preschool programs offered within a child care setting, however as a self enumerated census there is potential for misreporting.

NATSISS captures preschool participation for the Indigenous population, with some information on usual attendance.

POPULATIONS

These are the populations of interest about whom information is required. These are mainly groups of children, but are also staff or service providers in some cases. There is no single source that adequately covers all the populations of interest.

All populations except one are met by at least one data source. No single source fully captures all populations and the NPDC captures none of the specified populations.

Partially met requirements

The following population has limited data or data of low quality:

- **Preschool resources** – Partially captured only by AGCCCS, LSAC and NPC. AGCCCS and LSAC are discussed in the Issues section below. The NPC collects information on the number of preschool staff, but this information was unable to be provided for government preschools in several jurisdictions.

Issues

There are significant coverage issues for preschool and child care, which were discussed in the previous sections. A source was considered to meet a child care or preschool population if the source related to a substantial proportion of the relevant services. All child care data sources provide a reasonable coverage of the population, so were assessed as fully meeting the relevant populations. Data sources which capture information on preschool in a separate institution or as an adjunct to primary school were assessed as meeting the relevant preschool populations. The AGCCCS only captures information on preschool programs within a child care setting and therefore was assessed as partially meeting the relevant preschool populations.

LSAC partially captures populations relating to services providers and resources as it was not designed to provide nationally representative estimates of these.

All populations for NATSISS were assessed as being partially met due to its restricted scope of Indigenous persons.

APPENDIX 4 ASSESSMENT OF INFORMATION REQUIREMENTS *continued*

A4.4 POPULATIONS

<i>Population requirement</i>	<i>AGCCCS(a)</i>	<i>CCB(b)</i>	<i>CCS</i>	<i>CEaCS</i>	<i>Census</i>	<i>LSAC</i>	<i>NATSISS(c)</i>	<i>NAPLAN</i>	<i>NPC</i>	<i>NPDC</i>
All children from birth until they start school			met	met	met	partial(d)	partial			
Participants										
Informal child care			met	met		met	partial			
Formal child care	met	met	met	met		met	partial			
Preschool	partial		met	met	met	met	partial		met	
Non-participants										
Informal child care			met	met		met	partial			
Formal child care			met	met		met	partial			
Preschool	partial		met	met	met	met	partial			
Children aged 3–5 years			met	met	met	partial(d)	partial			
Children in their first year of school			met	met		partial(d)	partial			
Children in year 3 at school						partial(d)	partial	met		
Providers										
Formal child care providers	met	met				partial(e)				
Preschool providers	partial					partial(e)			met	
Resources										
Formal child care resources	met					partial(e)				
Preschool resources	partial					partial(e)			partial	

(a) Beyond 2006, the AGCCCS may not be conducted again in its current form, but the information collected will still be available.

(b) CCB covers claimants of benefits for supplementing cost for government approved or registered child care service providers

(c) NATSISS provides national level estimates for Indigenous Australians. Children aged 0–14 first included in 2008.

(d) LSAC collects data over seven years from two cohorts of children. It will not provide snap shots of all children from birth until they start school, but this information may be pieced together cross-sequentially across survey waves.

(e) LSAC collects voluntary information from children's carers or teachers, upon the parent's consent. This is not a representative sample and is not designed to provide national estimates of staff or service characteristics.

APPENDIX 4 ASSESSMENT OF INFORMATION REQUIREMENTS *continued*

PARTICIPANTS

Participants are those who are undertaking learning and/or care activities. The population of interest for this element is children from birth until they start school who are participants in informal child care, formal child care and/or preschool. Owing to the measurement problems in participation and non-participation, the information on participation and details of participation would ideally be collected continuously for children from birth to school entry.

All collections assessed include some children's demographic characteristics. Most collections contain information on child care and/or preschool participation, and associated details.

Outstanding information requirements

There are no outstanding information requirements as all were met or partially met by at least one data source.

Partially met requirements

The following information requirement has limited data or data of low quality available:

1.5 Details of preschool participation

- duration of preschool in months prior to school entry – This is partially addressed by CEaCS, which captures if attended preschool prior to school entry, but it does not collect duration.

The number "1.5" refers to the numbering system used for the information requirements in Chapter 4. This system is incorporated into the assessment of data holdings in Table 4.5.

Issues

There are variations in the data collected on children's demographic characteristics. For example, the CCS collects age of child in months for children under 1 year old and years for those over one, whereas LSAC captures age in years and months for all children. Age in years and months (or date of birth) is the most flexible way to collect age.

Indigenous status is of varying quality and availability. Indigenous data should be used with caution in sources which do not include remote areas.

While names, identifiers and date of birth may be collected, they are generally not available or are available for administrative uses only. Identifiers may not be consistent outside a collection or an agency, as they are often based on an individual code or mnemonic system.

There are variations in the definitions used to identify participants and details of participation. Limitations in capturing the populations for preschool and child care were discussed for all collections in the section earlier in this appendix.

NAPLAN and NPDC contain some demographic information, but they cannot be analysed by participants and non-participants in child care and/or preschool as this participation information is not collected.

Other potential sources of information

The state and territories have extensive holdings of preschool administrative data. However, these are subject to definitional and jurisdictional variations. Similarly, the regulation of child care providers is a state responsibility. See Appendix 1 for summary details of these holdings.

APPENDIX 4 ASSESSMENT OF INFORMATION REQUIREMENTS *continued*

A4.5 PARTICIPANTS, Assessment of data holdings

<i>Information requirements</i>	AGCCCS(a)	CCB	CCS	CEaCS	Census	LSAC	NATSISS	NAPLAN	NPC	NPDC
1.1 Children's demographic characteristics										
name or other identifier(b)	met	met	met	met	met	met	met			met
date of birth(b)	met	met	met	met	met	met			partial	met
age	met	met	met	met	met	met	met	met	met	
sex	met	met	met	met	met	met	met	met	met	met
Indigenous status	met		met	met	met	met	met	met	met	
country of birth			met	met	met	met		met		
main language spoken at home	partial		met	met	met	met	met	met		
1.2 Child care, preschool and/or other learning participation										
whether participating in informal child care			met	met		met	met			
whether participating in formal child care	met	met	met	met		met	met			
whether participating in preschool	partial		met	met	met	met	met		met	
use of multiple child care and/or preschool arrangements	partial	partial	met	met		met	met			
whether involved in other structured learning programs in children's environment, and type				met		met				
1.3 Details of informal child care participation										
type of child care			met	met		met	met			
hours attended per week or day			met	met		met				
days attended per week			met	met		met	partial			
age of commencement or length of attendance				met		met				
reason for participating in child care				met		met				
1.4 Details of formal child care participation										
type of child care	met	met	met	met		met	met			
hours attended per week or day	met		met	met		met	met			
days attended per week		met	met	met		met	met			
age of commencement or length of attendance		met		met		met				
reason for participating in child care			met	met		met	met			
number of child care centres in last year						met				
1.5 Details of preschool participation										
preschool setting	partial		met	met		met				
hours attended per week or day			met	met		met			partial	
days attended per week			met	met		met	met		partial	
age of commencement or length of attendance				met		met				
reason for participating in preschool			met	met		met				
duration of preschool in months prior to school entry				partial						
whether attends enrolled preschool sessions regularly						met	met		partial	

(a) Beyond 2006, the AGCCCS may not be conducted again in its current form, but the information collected will still be available.

(b) Names, identifiers and dates of birth are highly sensitive information and are generally not released, and in some cases may not be retained.

APPENDIX 4 ASSESSMENT OF INFORMATION REQUIREMENTS *continued*

NON-PARTICIPANTS

Non-participants are those who are not undertaking learning and/or care activities. The population of interest for this element is children from birth until they start school who are non-participants in informal child care, formal child care and/or preschool. Owing to the measurement problems in participation and non-participation, the information below on participation would ideally be collected continuously for children from birth to school entry.

Most information requirements for non-participants are met.

The comments in the above section on participants also apply to non-participants.

Partially met requirements

The following information requirements have limited data or data of low quality available:

2.3 Reasons for not participating in child care and/or preschool

- reasons for not participating in informal child care
- reasons for not participating in preschool

Issues

Non-participants are generally excluded from administrative data sources.

Non-participants are addressed in the Census, CCS, CEaCS, LSAC and NATSISS but all have issues in terms of child care and preschool coverage. Limitations in survey data can result in unreliable estimates for small population groups.

A4.6 NON-PARTICIPANTS, Assessment of data holdings

<i>Information requirements</i>	AGCCCS(a)	CCB	CCS	CEaCS	Census	LSAC	NATSISS	NAPLAN	NPC	NPDC
2.1 Children's demographic characteristics										
name or other identifier(b)			met	met	met	met	met			met
date of birth(b)			met	met	met	met				met
age			met	met	met	met	met	met		
sex			met	met	met	met	met	met		met
Indigenous status			met	met	met	met	met	met		
country of birth			met	met	met	met		met		
main language spoken at home			met	met	met	met	met	met		
2.2 Child care, preschool and/or other learning participation										
whether participating in informal child care			met	met		met	met			
whether participating in formal child care			met	met		met	met			
whether participating in preschool	partial		met	met	met	met	met			
whether involved in other structured learning programs in children's environment, and type				met		met				
2.3 Reasons for not participating in child care and/or preschool										
reasons for not participating in informal child care							partial			
reasons for not participating in formal child care			partial	met		partial	met			
reasons for not participating in preschool			partial	partial		partial				

(a) Beyond 2006, the AGCCCS may not be conducted again in its current form, but the information collected will still be available.

(b) Names, identifiers and dates of birth are highly sensitive information and are generally not released, and in some cases may not be retained.

APPENDIX 4 ASSESSMENT OF INFORMATION REQUIREMENTS *continued*

PROVIDERS

For this element, the population is defined as providers of formal child care and/or preschool. Providers are organisations, and in some cases individuals, that deliver learning and/or care activities.

Most information requirements on providers are met or partially met from the AGCCCS, CCB, LSAC or NPC. However, all data sources have limitations in their coverage of child care and/or preschool (see earlier in this appendix).

Outstanding information requirements

The following information requirements were not met from any of the specified sources:

3.1 Formal child care providers

- substantiated breaches.

3.2 Preschool providers

- number of places offered
- substantiated breaches

Partially met requirements

The following information requirements have limited data or data of low quality available:

3.2 Preschool providers

- service management type – The NPC does not collect the required response categories.
- service delivery setting.

LSAC collects the above partially met information requirements but it is not designed to provide representative estimates of service providers.

Other potential sources of information

Children's services licensing information includes most of the provider information requirements (e.g. number of licensed places and service management type). Substantiated breaches are reported in RoGS for most states and territories, although this information may not be stored on, or readily extractable from, the licensing system.

A4.7 PROVIDERS, Assessment of data holdings

<i>Information requirements</i>	<i>AGCCCS(a)</i>	<i>CCB</i>	<i>CCS</i>	<i>CEaCS</i>	<i>Census</i>	<i>LSAC(b)</i>	<i>NATSISS</i>	<i>NAPLAN</i>	<i>NPC</i>	<i>NPDC</i>
3.1 Formal child care providers										
number of places offered	met	met				partial				
number of places used	met	met				partial				
whether service is accredited		met				partial				
substantiated breaches										
service activity types		met				partial				
service management type	met	met				partial				
service delivery setting	met					partial				
3.2 Preschool providers										
number of places offered										
number of places used						partial			met	
substantiated breaches										
service activity types						partial			met	
service management type						partial			partial	
service delivery setting						partial				

(a) Beyond 2006, the AGCCCS may not be conducted again in its current form, but the information collected will still be available.

(b) While extensive information is collected which matches the information requirements, LSAC is not designed for nationally representative estimates of service providers.

APPENDIX 4 ASSESSMENT OF INFORMATION REQUIREMENTS *continued*

RESOURCES

Resources are the financial, human and physical resources which are necessary for learning and/or care to occur. In the Data gaps project, the population for this element is staff in formal child care and/or preschool.

The data sources which collect relevant information are AGCCCS and LSAC, although both have coverage restrictions discussed earlier in this appendix. The NPC collects very limited information on staff details (aggregate number of Indigenous staff and total staff by position).

Outstanding information requirements

The following information requirements were not met from any of the reviewed early childhood sources:

- 4.1 Formal care human resources, 4.2 Preschool human resources
 - staff turnover

Partially met requirements

The following information requirements are partially met:

- 4.1 Formal child care human resources
 - sex
 - child to staff ratios – A child to staff ratio is a measure that indicates the number of staff that are caring for a specific number of children in a particular age group at any one time. The child to staff ratio which can be calculated from AGCCCS, LSAC and NPC data is not considered accurate, as it is only based on number of children and number of staff without taking the other factors into account.
- 4.2 Preschool human resources
 - This is an area of limited data and all information requirements in this area are only partially met, with the exception of staff turnover which is not met at all.

LSAC collects most of the above partially met information requirements but it is not designed to provide representative estimates of staff.

Issues

There are variations in the data collected on staff characteristics. In particular:

- Neither AGCCCS nor LSAC use the Australian Standard Classification of Education (ASCED) for collecting and coding level and field of highest educational qualification.
- There are considerable quality and comparability issues in the collection of Indigenous status.
- The AGCCCS collects age in 5-year age ranges whereas LSAC collects age at last birthday in single years.

Other potential sources of information

Other potential sources of the partially met or outstanding information requirements include:

- State licensing regulations specify the required staff:child ratios in that particular state or territory for particular age groups and types of children's services.
- RoGS includes staff data for each state or territory on whether has formal qualifications, length of staff experience and in-service training for child care and preschool services funded and/or managed by the state or territory government. There are caveats around this data.
- Other state or territory datasets may address some information requirements in particular states or territories.
- Child Care Quality Assurance systems (CCQA) self-study report forms includes some staff details.

APPENDIX 4 ASSESSMENT OF INFORMATION REQUIREMENTS *continued*

A4.8 RESOURCES, Assessment of data holdings

<i>Information requirements</i>	AGCCCS(a)	CCB	CCS	CEaCS	Census	LSAC(b)	NATSISS	NAPLAN	NPC	NPDC
4.1 Formal child care care human resources										
level of highest educational qualification	met					partial				
field of highest educational qualification	met					partial				
length of experience	met					partial				
length of time with current service	met					partial				
working arrangements	met					partial				
whether have engaged in professional development	met					partial				
age	met					partial				
sex						partial				
Indigenous status	met									
child to staff ratios	partial					partial				
staff turnover										
4.2 Preschool human resources										
level of highest educational qualification						partial				
field of highest educational qualification						partial				
length of experience						partial				
length of time with current service						partial				
working arrangements						partial				
whether have engaged in professional development						partial				
age						partial				
sex						partial				
Indigenous status									partial	
child to staff ratios						partial			partial	
staff turnover										

(a) Beyond 2006, the AGCCCS may not be conducted again in its current form, but the information collected will still be available

(b) While extensive information is collected which matches the information requirements, LSAC is not designed for nationally representative estimates of staff.

APPENDIX 4 ASSESSMENT OF INFORMATION REQUIREMENTS *continued*

ACTIVITIES	<p>Activities are learning and care activities, activities of education and/or care institutions. The population of interest for this element is children from birth until they start school who are participants in formal child care and/or preschool.</p> <p>Most of the reviewed data sources contained no information on learning and care activities. The only sources that collected this information were LSAC and CEaCS.</p>
<i>Outstanding information requirements</i>	<p>The following information requirements were not able to be met from any of the early childhood data sources:</p> <p>5.1 Activities</p> <ul style="list-style-type: none"> ■ whether each child has an individual learning program ■ whether preschool has links with primary schools or transitions programs
<i>Partially met requirements</i>	<p>The following information requirement has limited data or data of low quality available:</p> <ul style="list-style-type: none"> ■ whether educational program is designed and delivered by a university qualified early childhood education teacher – This is a high priority data gap as preschool programs are defined from the qualifications of the child's carer or teacher.
<i>Issues</i>	<p>The information requirements which were met are subjective and lack established standards or instruments in the field. In LSAC, the information was provided by the child's carer or teacher and in CEaCS it was provided by the child's parent.</p>
<i>Other potential sources of information</i>	<p>The quality areas and principles in the three CCQA systems include some areas and principles relevant to the activity information requirements.</p>

A4.9 ACTIVITIES , Assessment of data holdings

<i>Information requirements</i>	AGCCCS(a)	CCB	CCS	CEaCS	Census	LSAC	NATSISS	NAPLAN	NPC	NPDC
5.1 Activities										
whether educational program is designed and delivered by a university qualified early childhood education teacher	partial					partial				
whether each child has an individual learning program										
whether progress on individual learning is reported to parents				met		met		partial		
parental involvement in decision making						met				
quality of early childhood education resources						met				
whether preschool has links with primary schools or transition programmes										

(a) Beyond 2006, the AGCCCS may not be conducted again in its current form, but the information collected will still be available.

OUTPUTS AND OUTCOMES

Outputs and outcomes are the results and/or effects of learning and care activities. Within the Data gaps project, the main interest is in the transition to school and, to a lesser extent, the transition to preschool. The value of outcome data can only be realised if historical characteristics and experiences can be linked to the results.

There are only two current national collections which provide information on outcomes. LSAC is currently the only longitudinal collection with the capacity to link results and/or effects of learning and care activities with historical characteristics and experiences. For age-appropriate literacy and numeracy skills, aggregate information is available from NAPLAN for children in Year 3 at school.

Some enrolment information for the outcome populations is available from the NSSC, however is limited by lack of historical links to preschool experience and any information on outcomes. Expansion of the NSSC to include preschool and NAPLAN results could overcome this limitation.

Outstanding information requirements

The following information requirements were not able to be met from any of the early childhood data sources:

6.1 Physical health and wellbeing

- physical readiness for preschool or school day

6.4 Language and cognitive development

- imagination and creativity demonstrated through dramatic play, storytelling and the arts.

Partially met information requirements

There were no partially met information requirements.

Issues

LSAC provides extensive coverage of pathways and outcomes, as a longitudinal survey. However, there are limitations on estimates for small populations and no future planned cohorts for the survey.

Other potential sources of information

The outcome information for the years prior to school could be sourced from the national implementation of the AEDI in 2009. The AEDI is planned to provide results at a community level. The value of the data for full outcome analyses could be realised if unit record data were available with historical preschool attendance information. The presented outcome measures were based on the AEDI domains. The outstanding requirements are captured by the AEDI instrument.

All states and territories conduct diagnostic instruments or assessment systems at the commencement of schooling. The system used varies between the states and territories.

APPENDIX 4 ASSESSMENT OF INFORMATION REQUIREMENTS *continued*

A4.10 OUTPUTS AND OUTCOMES, Assessment of data holdings

<i>Information requirements</i>		AGCCCS(a)	CCB	CCS	CEaCS	Census	LSAC	NATSISS	NAPLAN	NPC	NPDC
6.1	Physical health and wellbeing										
	physical readiness for preschool or school day										
	physical independence										met
	gross and fine motor skills										met
6.2	Social knowledge and competence										
	overall social competence										met
	responsibility and respect										met
	positive approach to learning										met
	readiness to explore new things										met
	cooperation with peers										met
	ability to follow instructions										met
6.3	Emotional maturity										
	prosocial and helping behaviours										met
	anxious and fearful behaviour										met
	aggressive behaviour										met
	hyperactivity and inattention										met
	self confidence or self-esteem										met
	self management of behaviour										met
6.4	Language and cognitive development										
	age appropriate language and communication skills										met
	age appropriate literacy and numeracy skills										met
	engagement with literacy										met
	cognitive development displayed through problem solving and decision making										met
	imagination and creativity demonstrated through dramatic play, storytelling and the arts										met
6.5	Child's transition experiences to preschool/school										
	willingness to detach from parent or carer and attend preschool or school										met
	attitude to preschool or school										met

(a) Beyond 2006, the AGCCCS may not be conducted again in its current form, but the information collected will still be available

FAMILY

Family includes the family environment and family-related characteristics which shape learning and care activities. This element reflects the importance of the family environment to the information requirements. The population is families with children from birth until school age.

Many administrative datasets that capture early childhood data also capture basic sociodemographic data about parents. This may be very simple, such as employment details for AGCCCS, or may be more comprehensive, such as age, employment details and income for the CCB. Survey information is generally collected directly from the parents and captures more detail on their characteristics.

Outstanding information requirements

The following information requirements were not able to be met from any of the early childhood data sources:

7.7 Safe and secure home environment

- domestic violence within family
- emotional or mental abuse within family
- homelessness or access of support services such as SAAP

Partially met requirements

The following information requirements have limited data or data of low quality available:

7.4 Parenting style

- evidence of appropriate physical care and nurturing (e.g. suitable dress for climate, nutritious diet)

7.6 Social support for family

- whether family provide support to relatives or friend – LSAC captures limited information and NATSISS only relates to the Indigenous population
- child's and family's participation in social activities – as above.

7.7 Safe and secure home environment

- crime victimisation – NATSISS covers some aspects but not all, and only relates to the Indigenous population.
- parent's current or past incarceration – CCB captures limited information and NATSISS only relates to the Indigenous population.
- child abuse or neglect – AGCCCS partially captures this as whether referred because child at risk of serious abuse or neglect.

Issues

There are different standards in place across collected data items, especially for labour force status and educational qualifications.

The concept of disability can vary, depending on the requirements of the collection and the instrument used to capture the information. Even when the same definition for disability is used, the outputs can differ due to differences in the populations from using different methodologies (e.g. Census of Population and Housing output compared to Survey of Disability, Ageing and Carers).

Information captured for family relationships is varied and difficult to compare, due to differences in how the individual data items are captured. Some relevant information is collected for siblings and birth order, but may be limited, such as age of oldest sibling for CCS, CEaCS.

Other potential sources of information

There are many datasets that capture family characteristics (e.g. HILDA), or aspects of safe and secure home environments (e.g. child protection data, SAAP data). These were not included in the review due to limited capture of early childhood information. Data from sources outside those presented for this assessment may address some data gap areas.

APPENDIX 4 ASSESSMENT OF INFORMATION REQUIREMENTS *continued*

A4.11 FAMILY, Assessment of data holdings

<i>Information requirements</i>	<i>AGCCCS(a)</i>	<i>CCB</i>	<i>CCS(b)</i>	<i>CEaCS</i>	<i>Census</i>	<i>LSAC</i>	<i>NATSISS</i>	<i>NAPLAN</i>	<i>NPC</i>	<i>NPDC(c)</i>
7.1 Parents' demographic characteristics										
name or other identifier		met	met	met	met	met	met			met
date of birth		met	met	met	met	met				met
age		met	met	met	met	met	met			met
sex		met	met	met	met	met	met			met
Indigenous status		met			met	met	met			met
country of birth		met		met	met	met				met
main language spoken at home	partial				met	met	met	met		
proficiency in spoken English					met	met	partial			
relationship to child		met			met	met	met			
7.2 Parents' education, labour and income characteristics										
level of highest educational qualification				met	met	met	met	met		
field of highest educational qualification				met	met		met			
labour force status	partial	met	met	met	met	met	met			
full-time and part-time employment status		met	met	met	met	met	met			
hours worked			met	met	met	met	met			
occupation					met	met	met	met		met
industry					met		met			
whether casually employed		met				met	met			
all sources or principal source of cash income		partial	met	met		met	met			
total cash income		partial	met	met	met	met	met			
financial stress						met	met			
7.3 Parents' health issues										
whether has a long-term health condition						met				
whether has a mental illness						met				
whether has a disability	partial	met			partial		met			
7.4 Parenting style										
whether mother or father is primary carer						met	met			
whether show regular physical closeness						met				
amount of time spent on verbal interactions with child(ren)				met		met	met			
amount of time spent on other activities with the children						met				
evidence of appropriate physical care and nurturing						partial				
types of behaviour management techniques						met				
number of children's books and other play-based educational resources in the home.				partial		met				
level and type of contact between non-resident parent and children						met				

(a) Beyond 2006, the AGCCCS may not be conducted again in its current form, but the information collected will still be available.

(b) Some additional information requirements which are not met by the CCS were collected as part of the LFS but not merged onto the CCS data file (e.g. Indigenous status).

(c) Parent's demographic characteristics for the NPDC were collected for the mother only.

APPENDIX 4 ASSESSMENT OF INFORMATION REQUIREMENTS *continued*

A4.11 FAMILY, Assessment of data holdings *continued*

<i>Information requirements</i>	<i>AGCCCS(a)</i>	<i>CCB</i>	<i>CCS(b)</i>	<i>CEaCS</i>	<i>Census</i>	<i>LSAC</i>	<i>NATSISS</i>	<i>NAPLAN</i>	<i>NPC</i>	<i>NPDC(c)</i>
7.5 Family relationships										
family composition			met	met	met	met	met			
how long in current family composition						met				
number of different family compositions has experienced						met				
family structure (e.g. intact, step, blended)					met	met	met			
number of siblings within family						met				
age of siblings						met				
birth order within family						met				
quality of parents' relationship with each other						met				
7.6 Social support for family										
contact with family, friends and other children						met				
whether family asks or able to ask for support from others outside their family						met	met			
whether family provides support to relatives or friends						partial	met			
child's and family's participation in social activities						partial	met			
7.7 Safe and secure home environment										
crime victimisation (personal and property)							partial			
parents' current or past incarceration			partial				met			
substance abuse within family						met	met			
domestic violence within family										
emotional or mental abuse within family										
child abuse or neglect				partial						
homelessness or access of support services such as SAAP										
housing utilisation						met	met			

- (a) Beyond 2006, the AGCCCS may not be conducted again in its current form, but the information collected will still be available.
- (b) Some additional information requirements which are not met by the CCS were collected as part of the LFS but not merged onto the CCS data file (e.g. Indigenous status).
- (c) Parent's demographic characteristics for the NPDC were collected for the mother only.

APPENDIX 4 ASSESSMENT OF INFORMATION REQUIREMENTS *continued*

CONTEXT Context is the wider environment within which decisions are made about learning and care activities. The population for this element is children from birth until they start school.

All information requirements were met. Most of the reviewed sources contained information on context, particularly geography.

Issues

Standards for geography vary, particularly for remoteness. For example, ABS collections use the Accessibility Remoteness Index of Australia (ARIA) whereas the NPC uses the MCEETYA classification of geographic location. In addition, some collections also don't cover particular geographic locations (e.g. CCS and CEaCS exclude very remote locations).

The concept of disability can vary (see earlier discussion above under 'Family').

Other potential sources of information

There are many further sources of geographic and health information.

A4.12 CONTEXT, Assessment of data holdings

<i>Information requirements</i>	<i>AGCCCS(a)</i>	<i>CCB</i>	<i>CCS</i>	<i>CEaCS</i>	<i>Census</i>	<i>LSAC</i>	<i>NATSISS</i>	<i>NAPLAN</i>	<i>NPC</i>	<i>NPDC</i>
8.1 Geography										
state or territory	met	met	met	met	met	met	met	met	met	met
remoteness area		met	met	met	met	met	met	met	met	met
residential address		met			met	met				
SEIFA index				met		met	met			
residential mobility					met	met	met			
8.2 Children's health issues										
whether has a long term health condition	partial					met				
whether has a disability	partial	met			partial	met		partial		
disability type						met				
need for assistance	met				met	met				
birthweight						met	met			met
gestational age						met	partial			met
whether breastfed						met	met			

(a) Beyond 2006, the AGCCCS may not be conducted again in its current form, but the information collected will still be available.

APPENDIX 5 NSS KEY PRINCIPLES

NATIONAL STATISTICAL SERVICE KEY PRINCIPLES

The wide availability of statistical information to assist and encourage informed decision making, research and discussion within Governments and the community is fundamental to open government and the democracy which we enjoy in Australia. The objectives of the NSS Key Principles are to assist government organisations, at Commonwealth, State or Territory and local levels, to produce and publish Australia's National Statistics, and promote 'best practice' to guide the achievement of high standards in the collection, compilation and dissemination of statistics. The key principles are listed below.

The NSS Handbook (<<http://www.nss.gov.au/nss/home.NSF/pages/NSS+Handbook>>) is directly related to the NSS Key Principles. It applies to data from statistical collections and administrative systems. The chapters cover the statistical cycle from planning statistical activities to disseminating and evaluating statistical information, while also describing other requirements for creating useable data, including protecting confidentiality, managing data effectively and using standards. It acknowledges administrative data as a powerful source of basic data, which can be summarised to provide statistical information for the population related to the program.

Statistical Integrity

1. Be objective in data definition, analysis, interpretation and release of statistics.
2. Be open about all aspects of the statistical process:
 - set, and publicise in advance, the dates for and nature of statistical releases;
 - publish methodologies used in producing statistics; and
 - invite and respond promptly to comment.

Relevance

3. Consult widely with government, business and the community to ensure the statistical information produced supports debate about current and emerging issues, within available resources.

Coherence

4. Use standard classifications, standards and frameworks. Explain deviations from the relevant international and national standards.
5. Ensure that the statistical methodology and data remain internally consistent over time. Explain reasons for any changes that occur between collection periods.

Timeliness

6. Allow enough time to check the data for a reasonable level of accuracy and plan to release the statistics as soon as possible after their collection.
7. Where a publication date has been advertised, ensure that the statistics are released on this date.

Accessibility

8. Ensure that important statistics are compiled from key administrative and survey datasets relating to government programs and activities.
9. Provide all Australians with ready access to quality statistics.

Interpretability

10. Provide analyses and explanations where they help the interpretation of statistics.
11. Be open about the quality of the statistics, so that users can better understand and interpret them.

Accuracy

12. Ensure sound statistical practices are followed for collecting, processing, storing and presenting statistical data.

Statistical Professionalism

13. Ensure necessary professional statistical skills are developed or acquired and used in the production of statistics.

Trust of Data Providers

14. Place only the minimum reporting load necessary on data providers, commensurate with administrative requirements, priority statistical objectives and sound statistical practice.
15. Explain clearly to data providers how the information provided may be used.

APPENDIX 5 NSS KEY PRINCIPLES *continued*

Trust of Data Providers
continued

16. Ensure compliance with privacy principles, confidentiality guarantees and other undertakings to data providers.

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