

National Disability Data Asset: Early Childhood Test Case

Appendix A - Supplementary Materials

Version 2.0 (March 2022)

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1 Executive summary

This Appendix provides supplementary information for the NSW Test Case Final Report.

2 Background

Supplementary information presented in this report includes:

- Descriptions of the content and purpose of each of the linked record sets (Section 3.1)
- An overview of the criteria used to flag a sub-group for the National Linkage (Section 3.2).
- A summary of the disability categories captured in each record set and how they were used to define the five disability types (Section 6.2.1) and 19 disability subtypes used in this National Report (Section 6.2.2)
- Methodological information regarding the definition of key variables used in the Final Report, as well as details of the statistical analyses for relevant sub-cohorts (e.g., sample derivation, descriptive statistics, summary statistics; Section 8).

3 Record sets and linkage

3.1 Record sets

Disability services record sets

National Disability Insurance Scheme provides administrative records of Australia's national disability supports scheme to assist people (7-65 years) with permanent and significant disability access the supports required to participate in everyday activities. This record set used to derive the demographics master file for the cohort (e.g., sex, date of birth), as well as to define the disability sub-cohorts, disability sub/types, and to examine disability support services received under the NDIS.

National Disability Insurance Scheme - Early Childhood Early Intervention provides administrative records of supports for children with disability or developmental delay in a targeted, timely and individualised approach before age 7 years as a gateway within the NDIS. This record set used to derive the demographics master file for the cohort (e.g., sex, date of birth), as well as to define the disability sub-cohorts, disability sub/types, and to examine disability support services received under the ECEI gateway.

Disability Services National Minimum Data Set and Commonwealth State/Territory Disability Agreement National Minimum Data Set is an administrative annual collection of disability support services provided under the National Disability Agreement in place prior to the NDIS. This record set was used to define the disability sub-cohorts, disability sub/types, as well as to examine disability support services received pre-NDIS.

Health and Vital Statistics record sets

NSW Admitted Patient Data Collection provides administrative records of all admitted patient services in NSW public and private hospitals. This record set was used to examine the presence and number of hospital admissions at different ages, as well as to derive demographics (e.g., sex, age).

NSW Emergency Department Data Collection provides administrative records of emergency presentations to NSW public hospital emergency departments, with a coverage of approximately half of the state hospitals. This record set was used to examine the presence and number of emergency department presentations, as well as to derive demographics (e.g., sex, age).

NSW Perinatal Data Collection is a NSW surveillance system for all NSW public and private hospital births, and also includes home births. This record set was used to examine perinatal and pregnancy indicators that are known to have a confounding effect on most of the associations examined (e.g., low birthweight, prenatal smoking exposure, and preterm birth), as well as to derive demographics (e.g., sex, age).

NSW Registry of Births, Deaths and Marriages is a NSW surveillance system under which all babies born in the state must be registered within 60 days. This record set used to derive demographics (e.g., sex, age).

Medicare Benefits Scheme is the rebate structure for medical services under the Australian Governments Medicare system, an insurance system for subsidised health care. This record set was used to define the disability sub-cohorts, disability sub/types, as well as to examine GP services and mental health services received under the MBS.

Medicare Consumer Directory is the patient characteristics information attached to a person MBS number. This record set was used to derive demographics (e.g., sex, age).

Early Childhood Education and childhood services record sets

NSW Annual (Community) Preschool Census provides administrative records of early childhood education provided to children aged 3 to 6 years, that are independent community based, managed and owned preschools that run as a non-for-profit service. This record set was used to define the disability sub-cohorts, as well as examine enrolment and annualised hours of enrolment for children in NSW Community Preschools.

NSW Disability and Inclusion Program - Higher Learning Support Needs provides administrative records of a NSW state government program (which replaced the PDSP, see below) that provides disability support services to enable children with disability to participate in early childhood education services, specifically community preschools. This record set was used to define the disability sub-cohorts, disability sub/types, as well as to examine the receipt of targeted disability supports under this program.

NSW Preschool Disability Support Program provides administrative records of targeted disability support services provided under the PDSP to enable children with disability to participate in community preschools (this was replaced by the DIP HLSN in 2018, see above record set). This record set was used to define the disability sub-cohorts, disability sub/types, as well as to examine the receipt of targeted disability supports under this program.

NSW Mid-Year Census - Government Preschool provides an annual snapshot of the enrolment and attendance in NSW Government Preschools for 3 to 6 years, with Government preschools administered by the NSW Department of Education. This record set examined enrolment and annualised hours of enrolment for children in NSW Government Preschools.

NSW Mid-Year Census - Early Intervention provides an annual snapshot of early intervention support services provided in NSW Government Preschools. This record set was used to define the disability sub-cohorts, disability sub/types, as well as to examine the receipt of targeted disability supports.

Child Care Subsidy/ Child Care Benefit provides administrative records set capturing information on services provided for eligible families (e.g., income threshold and enrolled day requirements) under the scheme. This record set examined enrolment and annualised hours of enrolment for children in Centre-based Day Care and Other CCS/CCB services.

School-age education record sets

Australian Early Development Census is a national census of early childhood development that is completed every three years in the child's first year of formal schooling. The AEDC assesses five domain of functioning: physical health and wellbeing; social competence; emotional maturity; language and cognitive skills (school-based); communication skills and general knowledge; with children considered developmentally vulnerable on these domains if they score below the 10th percentile (based on the 2009 administration). This record set was used to define the disability sub-cohorts, disability sub/types, as well as to examine developmental vulnerability in the first year of formal schooling.

NSW School Enrolment Record is an administrative record of the administrative information collected by the NSW Department of Education's Government Primary and Secondary schools, including schools for specific purposes, when each child enrolls in that school, including information

on the child, their parents and the school. This record set used to derive demographics (e.g., sex, age), as well as to examine enrolment in mainstream government schools and schools for specific purposes.

NSW School Suspensions is an administrative record of school suspensions in NSW Government Primary and Secondary schools on school suspensions. This record set was used to examine the occurrence of suspensions at different schooling levels, as well as number of days suspended.

NSW Attendance is an administrative record of school absences in NSW Government Primary and Secondary schools due to sickness, leave, exemption, unexplained reason, shared or suspension. This record set was used to examine number of days absent at different schooling levels.

NSW Best Start Kindergarten Assessment is an administrative record of the literacy and numeracy skills a child brings with them to school. *This record set was not examined in this Test Case report.*

NSW National Assessment Program - Literacy and Numeracy is an administrative record of the annual assessment of Numeracy, Reading, Spelling, Writing, and Grammar and Punctuation, managed by the Australian Curriculum, Assessment and Reporting Authority (ACARA), and administered to all students in Grades 3, 5, 7 and 9. This record set was used to examine achievement at or below National Minimum Standard and was provided by the NSW Department of Education (NAPLAN data was therefore available for students attending Government schools only).

Nationally Consistent Collection of Data on School Students with Disability is a national annual collection of information on the extent of school-based adjustments (based on the teacher's judgement) made for students with a disability. This record set was used to define the disability sub-cohorts, disability types and disability subtypes, as well as to examine whether school-based adjustments were made for children with disability in NSW Government schools.

NSW Department of Education Student Disability Data collection: Integration Funding Support is an administrative record of information on the school-based adjustments made in NSW Government Schools for students with disability in mainstream classes, and have moderate to high level learning and support needs (i.e., Integration Funding Support). This record set was used to define the disability sub-cohorts, disability types and disability subtypes, as well as to examine whether the child attended a mainstream class with supports.

NSW Department of Education Student Disability Data collection: SCAS (Specialist Support Class Administration System) is an administrative record of information on the school-based adjustments made in NSW Government Schools for students with disability, and have moderate to high level support and learning needs and who attend specialist support classes located in mainstream schools and schools for specific purposes (i.e., Support Class Administration Systems). This record set was used to define the disability sub-cohorts, disability types and disability subtypes, as well as to examine whether the child attended a specialist support class or schools for specific purposes.

Social services record sets

NSW Department of Communities and Justice ChildStory is an administrative record of the child's level of involvement with child protection services. This record set was used to examine the presence and level of child protection involvement in the cohort.

Data Over Multiple Individual Occurrences is an administrative record of welfare owned by the Department of Social Services. This record set was not used as it was not received during the Test Case analysis period.

3.2 Linkage

Flagging criteria for AIHW linkage

The flagged sub-group from the cohort defined in the NSW state-based linkage included the following seven conditions:

1. Have been identified as having a disability (includes developmental delay) in the NSW CPS dataset
2. Have received NSW Education targeted specialist provisions in the NSW Disability Education, PDSP, Disability and Inclusion Program and Government Early Intervention datasets
3. Were reported in the NCCD for NSW Government Schools
4. NSW Government school students who received targeted specialist provisions for disability
5. Have achieved the lowest bands (i.e. students are below the national minimum standard) in NAPLAN – Band 1 (for Year 3), Band 3 (Year 5), Band 4 (Year 7) and Band 5 (Year 9)
6. Confounding birth characteristics (low birth weight ≤ 2500 g; gestational age ≤ 37 wk; maternal smoking) in NSW PDC
7. Experienced repeated (>1) or extended (>28 d) hospitalisations in NSW APDC

The following 6 conditions were then applied by the AIHW DISC during the commonwealth-based linkage:

1. Any NDIS record
2. Any DS NMDS / CSTDA NMDS record
3. MBS record: 135, 289, 137, 139, 82000, 82005, 82010, 82015, 82020, 82025, 82030, 82035, 701, 703, 705, 707, 721, 723, 732, 224, 225, 226, 227
4. Were reported with special needs status (chronic medical, physical or intellectual disabilities that require special assistance, based on medical diagnosis) in the AEDC in NSW
5. Were identified by teachers as requiring further assessment for special needs (e.g., medical and physical, behaviour management, emotional and cognitive development) in the AEDC in NSW
6. Were considered to be 'developmentally vulnerable' on each domain in the AEDC (i.e., children in below the 10th percentile of the 2009 national assessment).

4 Population definition

No supplementary materials are associated with this section of the Final Report.

5 Identification of disability and developmental vulnerabilities in administrative records

5.1 Record sets used to define disability and developmental vulnerability

No supplementary materials are associated with this section of the Final Report.

5.2 Record sets used to define Types of Disability

Five Disability Subtypes

Children identified with Any Disability were classified into five disability types. Table A1 summarises the administrative record coding used to indicate the presence of a disability type, across each record set.

TABLE A1. Disability type categories by Early Childhood Test Case record sets, 5 categories.

Record set	Physical / Diverse	Intellectual / Learning	Sensory / Speech	Psychosocial	Other
Australian Early Development Census	<ul style="list-style-type: none"> - Cerebral palsy - Dyspraxia - Anaphylaxis - Asthma - Diabetes - Epilepsy 	<ul style="list-style-type: none"> - Asperger syndrome - Autism - Autism Spectrum Disorder - Down Syndrome - Dyslexia - Global Developmental Delay - Foetal Alcohol Spectrum Disorder - Spina Bifida 	<ul style="list-style-type: none"> - Blind - Deaf 	<ul style="list-style-type: none"> - Anxiety - ADHD - Oppositional Defiance/Defiant Disorder - Selective mutism 	<ul style="list-style-type: none"> - Other
NSW Annual Preschool Census	<ul style="list-style-type: none"> - Cerebral Palsy - Muscular dystrophy - Hemiplegia - Hypertonia - Hypotonia - Physical disability - Spinal muscular dystrophy - Traumatic brain injury - Acquired brain injury - Arthrogryposis - Goldenhar Syndrome - Erb Palsy 	<ul style="list-style-type: none"> - Global Developmental Delay - Autism Spectrum Disorder - Down Syndrome - Intellectual disability - Pervasive Developmental Disorder - Williams Syndrome 	<ul style="list-style-type: none"> - Hearing impairment - Vision impairment - Severe language disorder - Language delay - moderate - Speech sound disorder- Moderate/Severe - Language delay - severe - Childhood Apraxia of Speech (CAS) 	<ul style="list-style-type: none"> - Severe behavioural disorder - Severe social/emotional disorder - Oppositional Defiance Disorder (ODD) - ADHD/ADD - Tourette Syndrome - Behavioural Disorder – Severe 	<ul style="list-style-type: none"> - Metabolic Disorder - Other - Multiple Disabilities

Record set	Physical / Diverse	Intellectual / Learning	Sensory / Speech	Psychosocial	Other
	<ul style="list-style-type: none"> - Osteogenesis Imperfecta - Apraxia (Motor) - Neurofibromatosis - Neurological disorder - XXX Syndrome - Noonan Syndrome - Achondroplasia - Hirschsprung Syndrome - Opitz G/BBB Syndrome - Ehlers-Danlos Syndrome - Pierre Robin Syndrome - Mucopolysaccharidoses or Mucopolysaccharidoses - Rubinstein-Taybi Syndrome - Velo-Cardio-Facial Syndrome - CHARGE Syndrome - Russell-Silver Syndrome - Charcot-Marie-Tooth Syndrome - DiGeorge Syndrome - Crouzon Syndrome - Cystic Fibrosis - Macrocephaly - Dravet Syndrome - Soto Syndrome - Guillain-Barre Syndrome - Encephalopathy - Leigh Syndrome - Apert Syndrome - Alagille Syndrome 	<ul style="list-style-type: none"> - Down Syndrome /Trisomy 21 - Developmental delay - Foetal Alcohol Syndrome - Smith Magenis Syndrome - Fragile X Syndrome - Angelman Syndrome - Chromosomal Disorder - Prader-Willi Syndrome - Kabuki Syndrome - Rett Syndrome - Tuberous Sclerosis - Microcephaly - Spina bifida 		<ul style="list-style-type: none"> - Social/Emotional Disorder - Severe 	

Record set	Physical / Diverse	Intellectual / Learning	Sensory / Speech	Psychosocial	Other
	<ul style="list-style-type: none"> - Klinefelter Syndrome - Agenesis of corpus callosum - Neurodegenerative disease - Joubert Syndrome 				
NSW Disability and Inclusion Program - Higher Learning Support Needs	<ul style="list-style-type: none"> - Cerebral Palsy - Muscular dystrophy - Physical disability - Spastic diplegia - Apraxia (motor) - Acquired brain injury - Arthrogryposis - Russell-Silver Syndrome - Osteogenesis Imperfecta - Cerebral atrophy - CHARGE Syndrome - Achondroplasia - Velo-cardio-facial syndrome - Neurofibromatosis - Macrocephaly - Soto Syndrome - Cystic Fibrosis - Crouzon Syndrome - Encephalopathy - Noonan Syndrome - Craniofacial disorder - Neurodegenerative disease - Hirschsprung Syndrome - Joubert Syndrome 	<ul style="list-style-type: none"> - Autism Spectrum Disorder - Intellectual disability - Down Syndrome - Down Syndrome /Trisomy 21 - Trisomy 21 - Global Developmental Delay - Developmental delay - Angelman Syndrome - Fragile X Syndrome - Foetal Alcohol Syndrome - Smith Magenis Syndrome - Williams Syndrome - Chromosomal disorder - Prader-Willi Syndrome - Tuberous Sclerosis 	<ul style="list-style-type: none"> - Hearing impairment - Vision impairment - Moderate/severe language disorder - Moderate/severe speech sound disorder - Severe language disorder - Childhood apraxia of speech 	<ul style="list-style-type: none"> - ADHD/ADD - Severe behavioural disorder - Severe social/emotional disorder - Oppositional Defiance Disorder - Tourette Syndrome 	<ul style="list-style-type: none"> - Other - Multiple Disabilities

Record set	Physical / Diverse	Intellectual / Learning	Sensory / Speech	Psychosocial	Other
	<ul style="list-style-type: none"> - Ehlers-Danlos Syndrome - Apert Syndrome 	<ul style="list-style-type: none"> - Rett Syndrome - Kabuki Syndrome - Spina Bifida - Microcephaly 			
NSW Department of Education Student Disability Data Collection: Integration Funding Support and Support Class Administration Systems	<ul style="list-style-type: none"> - Physical 	<ul style="list-style-type: none"> - Autism - Intellectual dis/Autism (IO/AU) - Intellectual disability (IM-mild) - Intellectual disability (IO-mod) - Intellectual disability (IO/AU) - Intellectual disability (IO/IS) - Intellectual disability (IS) 	<ul style="list-style-type: none"> - Deaf/Blind - Hearing impairment - Vision impaired - Language - Reading 	<ul style="list-style-type: none"> - Behaviour disorder - Emotional disturbance 	<ul style="list-style-type: none"> - Early intervention - Multi categorical - Tutorial class
Nationally Consistent Collection Data on School Students with Disability	<ul style="list-style-type: none"> - Physical 	<ul style="list-style-type: none"> - Cognitive 	<ul style="list-style-type: none"> - Sensory 	<ul style="list-style-type: none"> - Social/Emotional 	No unique category
NSW Preschool Disability Support Program	No unique category	No unique category	No unique category	No unique category	No unique category
Mid-Year Census : NSW Government Preschools and Early Intervention	<ul style="list-style-type: none"> - Physical – moderate - Physical – severe 	<ul style="list-style-type: none"> - Autism - Intellectual – mild - Intellectual – moderate - Intellectual – severe 	<ul style="list-style-type: none"> - Hearing - Vision - Expressive & receptive language 	<ul style="list-style-type: none"> - Mental health 	<ul style="list-style-type: none"> - Multiple categorical

Record set	Physical / Diverse	Intellectual / Learning	Sensory / Speech	Psychosocial	Other
Disability Services National Minimum Data Set and Commonwealth State/Territory Disability Agreement Minimum Data Set	See Table 2 below.	See Table 2 below.	See Table 2 below.	See Table 2 below.	See Table 2 below.
National Disability Insurance Scheme	See Table 2 below.	See Table 2 below.	- See Table 2 below.	See Table 2 below.	See Table 2 below.
Medicare Benefits Schedule	See Table 2 below.	See Table 2 below.	See Table 2 below.	See Table 2 below.	See Table 2 below.

Nineteen Disability Subtypes

Children identified with Medically Verified Disability were classified into 19 disability types. Table A2 summarises the administrative record coding used to indicate the presence of a disability type, across each record set.

TABLE A2. Disability subtype categories by Early Childhood Test Case record sets, 19 categories.

5 types	19 subtypes	NDIS ICD10 codes	DS NMDS	MBS service item numbers
Physical / Diverse	Cerebral Palsy	G80 - Cerebral palsy	No unique category	18354, 18360, 18361, 49728, 50390, 50450, 50451, 50455, 50456, 50460, 50461, 50465, 50466, 50470, 50471, 50475, 50476.
	Spinal Cord Injury	T09.5 - Spinal cord injury (Complete) T09.7 - Spinal cord injury (Incomplete) C72.7 - Malignant neoplasm of spinal cord (Incomplete)	No unique category	No unique category

5 types	19 subtypes	NDIS ICD10 codes	DS NMDS	MBS service item numbers
Acquired Brain Injury	G93.1 - Hypoxic brain injury T90 - Traumatic brain injury [also called head injury and acquired brain damage]	Acquired Brain Injury	No unique category	
Multiple Sclerosis	No unique category	No unique category	No unique category	
Stroke	I69 - Stroke	No unique category	No unique category	
Other Physical	M95 - Other Physical M12 - Other arthritis M05 - Rheumatoid arthritis T05 - Multiple traumatic amputations Q37 - Cleft palate and lip M45 - Ankylosing spondylitis	Physical	73291, 73292, 73358, 73359, 73347, 73348, 73349, 52333, 52336, 52337, 52339, 52440, 52442, 52444, 52446, 52450, 52452, 52456, 52458, 75001, 75004, 75006, 75009, 75012, 75015, 75018, 75021, 75023, 75024, 75027, 75030, 75033, 75034, 75036, 75037, 75039, 75042, 75045, 75048, 75049, 75050, 75051, 75150, 75153, 75156, 75200, 75203, 75206, 75400, 75403, 75406, 75409, 75412, 75415, 75600, 75603, 75606, 75609, 75612, 75615, 75618, 75621, 75800, 75803, 75806, 75809, 75812, 75815, 75818, 75821, 75824, 75827, 75830, 75833, 75836, 75839, 75842, 75845, 75848, 75851, 75854.	
Other Neurological	G20 - Parkinson's disease G12.2 - Motor neuron disease (amyotrophic lateral sclerosis) G99 - Other Neurological G71.0 - Muscular dystrophy G40 - Epilepsy G99 - Other Neurological (List A) G99 - Other Neurological (List C)	Neurological (including epilepsy & Alzheimer's disease)	No unique category	
Chronic Health Conditions	E14 - Diabetes mellitus J44.9 - Chronic lung disease	No unique category	No unique category	

5 types	19 subtypes	NDIS ICD10 codes	DS NMDS	MBS service item numbers
Intellectual / Learning	Autism	F84.0 - Autism disorder F84.5 - Asperger syndrome F84.2 - Rett syndrome	Autism (including Asperger's syndrome and Pervasive Developmental Delay) ¹	135, 289, 137, 139, 92140, 93048, 93061, 92143, 82000, 82005, 82010, 82030, 82015, 82020, 82025, 82035, 92141, 92142, 92144, 92145, 93032, 93033, 93035, 93036, 93040, 93041, 93043, 93044.
	Down Syndrome	Q90 - Down syndrome	No unique category	No unique category
	Intellectual Disability	F71 - Moderate intellectual disability F79 - Unspecified intellectual disability F70 - Mild intellectual disability F72 - Severe intellectual disability Q89 - Other congenital conditions Q86.0 - Foetal alcohol syndrome Q87.1 - Cornelia de Lange syndrome Q99 - Other chromosomal conditions not listed elsewhere, including Kabuki syndrome, Williams syndrome Q02 - Microcephaly Q04 - Other congenital brain conditions, e.g. tuberous sclerosis	Intellectual (including Down Syndrome) ²	701, 703, 705, 707, 224, 225, 226, 227

¹ Note, in contrast, Pervasive Developmental Delay is coded within Intellectual Disability (19 categories) in the National Disability Insurance Scheme (NDIS). The 5 category coding across both these record sets for Pervasive Developmental Delay are consistent.

² Note, in contrast, Down Syndrome is coded as its own type (19 categories) within the National Disability Insurance Scheme (NDIS). The 5 category coding across both these record sets for Pervasive Developmental Delay are consistent.

5 types	19 subtypes	NDIS ICD10 codes	DS NMDS	MBS service item numbers
		tQ99.2 - Fragile X syndrome Q05 - Spina bifida F73 - Profound intellectual disability Q87.1 - Prader Willi syndrome F84.8 - Pervasive developmental disorder Q93.5 - Angelman syndrome Q93.4 - Cri du Chat syndrome Q91 - Edwards syndrome Q91 - Patau syndrome		
	Developmental delay	F84.90 - Developmental delay	Developmental Delay Specific learning / Attention Deficit Disorder ³ (other than Intellectual)	No unique category
	Global developmental delay	F84.91 - Global developmental delay		No unique category
Sensory / Speech	Hearing Impairment	H90 - Hearing loss Q16.9 - Congenital hearing condition	Hearing	41603, 41604, 41608, 11304, 11318, 41617, 41618
	Visual Impairment	H54 - Visual impairment (including blindness) Q15.9 - Congenital eye condition	Vision	No unique category
	Other Sensory/Speech	R47 - Other Sensory/Speech	Deafblind (dual sensory) Speech	No unique category

³ Note, in contrast, Attention Deficit Disorder is coded within Psychosocial (19 categories) and Psychosocial (5 categories) within the National Disability Insurance Scheme (NDIS).

Psychosocial	Psychosocial disability	F41 - Other Anxiety disorders F99 - Other psychosocial disorders F42 - Obsessive-compulsive disorder F32 - Major depressive illness F20 - Schizophrenia F31 - Bipolar affective disorder F60.3 - Borderline personality disorder F19 - Other substance dependency	Psychiatric	291, 293, 296, 297, 299, 300, 302, 304, 306, 308, 310, 312, 314, 316, 318, 319, 320, 322, 324, 326, 328, 330, 332, 334, 336, 338, 342, 344, 346, 348, 350, 352, 353, 355, 356, 357, 358, 359, 361, 364, 366, 367, 369, 370, 14224, 80000, 80001, 80005, 80010, 80011, 80015, 80020, 80021, 10956, 10968, 80100, 80101, 80105, 80110, 80111, 80115, 80120, 80121, 80125, 80126, 80130, 80135, 80136, 80140, 80145, 80146, 80150, 80151, 80155, 80160, 80161, 80165, 80170, 80171, 81325, 81355, 90250, 90251, 90252, 90253, 90254, 90255, 90256, 90257, 90260, 90261, 90262, 90263, 90264, 90265, 90266, 90267, 90268, 90269, 90271, 90272, 90273, 90274, 90275, 90276, 90277, 90278, 90279, 90280, 90281, 90282, 82350, 82351, 82352, 82353, 82354, 82355, 82356, 82357, 82358, 82359, 82360, 82361, 82362, 82363, 82364, 82365, 82366, 82367, 82368, 82369, 82370, 82371, 82372, 82373, 82374, 82375, 82376, 82377, 82378, 82379, 82380, 82381, 82382, 82383, 93074, 93076, 93079, 93084, 93087, 93092, 93095, 93100, 93103, 93108, 93110, 93113, 93118, 93121, 93126, 93129, 93134, 93137, 91818, 91819, 91820, 91821, 91827, 91828, 91829, 91830, 91831, 92434, 92435, 92436, 92437, 92455, 92456, 92457, 92458, 92459, 92460, 91837, 91838, 91839, 91840, 91841, 92474, 92475, 92476, 92477, 92495, 92496, 92497, 92498, 92499, 92500, 91842, 91843, 91844, 91845, 92112, 92113, 92114, 92115, 92116, 92117, 92118, 92119, 92120, 92121, 92122, 92123, 92124, 92125, 92126, 92127, 92128, 92129, 92130, 92131, 92132, 92133, 92134, 92135, 92146, 92147, 92148, 92149, 92150, 92151, 92152, 92153, 92154, 92155, 92156, 92157, 92158, 92159, 92160, 92161, 92162, 92163, 92166, 92167, 92170, 92171, 92172, 92173, 92176, 92177, 92178, 92179, 92182, 92184, 92186, 92188, 92194, 92196, 92198, 92200, 20104, 2121, 2150, 2196, 2700, 2701, 2712, 2713, 2715, 2717, 2721, 2723, 2725, 2727, 2729, 2731, 91000, 91001, 91005, 91010, 91011,
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5 types	19 subtypes	NDIS ICD10 codes	DS NMDS	MBS service item numbers
				91015, 91100, 91101, 91105, 91110, 91111, 91115, 91125, 91126, 91130, 91135, 91136, 91140, 91150, 91151, 91155, 91160, 91161, 91165, 91169, 91170, 91172, 91173, 91175, 91176, 91181, 91182, 91183, 91184, 91185, 91186, 91187, 91188, 288, 272, 276, 277, 279, 281, 282, 283, 285, 286, 287, 371, 372.
Other	Other	B99 - Other unspecified infectious diseases N18 - Renal failure C71 - Malignant neoplasm of brain B22 - Human immune deficiency virus (HIV) disease E66 - Obesity E88 - Other metabolic disorders	99	No unique category
	Missing	F849 - Migrated Record with DD or GDD	No unique category	No unique category

6 Prevalence of disability

The supplementary materials associated with this section of the Final Report are detailed in Section 5.2 above.

7 Support services provided to children with disability

No supplementary materials are associated with this section of the Final Report.

8 Developmental and Educational Outcomes

8.1 Early childhood developmental vulnerability

These analyses used Australian Early Development Census (AEDC) data from the 2009, 2012, 2015 and 2018 census years to examine factors influencing developmental vulnerability at school entry.

Exposures:

- **Disability** (disability; no disability) was defined as this Test Case's Any Disability sub-cohort;
- **Disability type** (Physical/Diverse; Intellectual/Learning; Psychosocial; Sensory/Speech; Other) was defined as this Test Case's 5 disability types;
- **Early Childhood Education** was examined in the year before school (age 4-5/ year of life 5) for children who were enrolled in:
 - Community Preschools (from the NSW Annual [Community] Preschool Census);
 - Government Preschools (from the NSW Mid-Year Census Government Preschool);
 - Centre-based Child Care (CBDC; from the Child Care Subsidy/Benefit); and,
 - Other Childcare Subsidy/Benefit (from the Child Care Subsidy/Benefit; includes Out of School Hours, Family Day Care, Grandparent Care; excludes Centre-based childcare).
- **Early Childhood Education hours** for each mutually exclusive Early Childhood Education type was examined for whether the child had less than 600 hours or 600 hours or more of Early Childhood Education engagement hours in the child's year before school. For Community Preschools "enrolled hours" was used; for Government Preschool "attendance hours" was used; for CBDC and Other CCS/CCB charged hours was used.
- **Disability functional limitation** (low; medium; high) is an assessment of the individuals functional limitation from disability under the NDIS.

Outcomes: The AEDC classifies children as "Developmentally Vulnerable", "At risk", or "On track" according to cut-off points established from the 2009 national census distribution, as follows:

- **Developmentally Vulnerable** = 0 to 10th percentile
- **Developmentally At risk** = 11th to 25th percentile
- **Developmentally On Track** = 26th to 100th percentile

Each of these three score types were dichotomised for analyses on each of the five AEDC domains: physical health and well-being; social competence; emotional maturity; language and cognitive skills (school-based), and; communication skills and general knowledge; the reference group for each outcome was simply comprised of all children who were not in the subgroup of interest. We also examined AEDC outcomes reflecting developmental vulnerability on any one-or-more (non-specific domain) or two-or-more AEDC domains (where the reference group was children "On-track" on all AEDC domains).

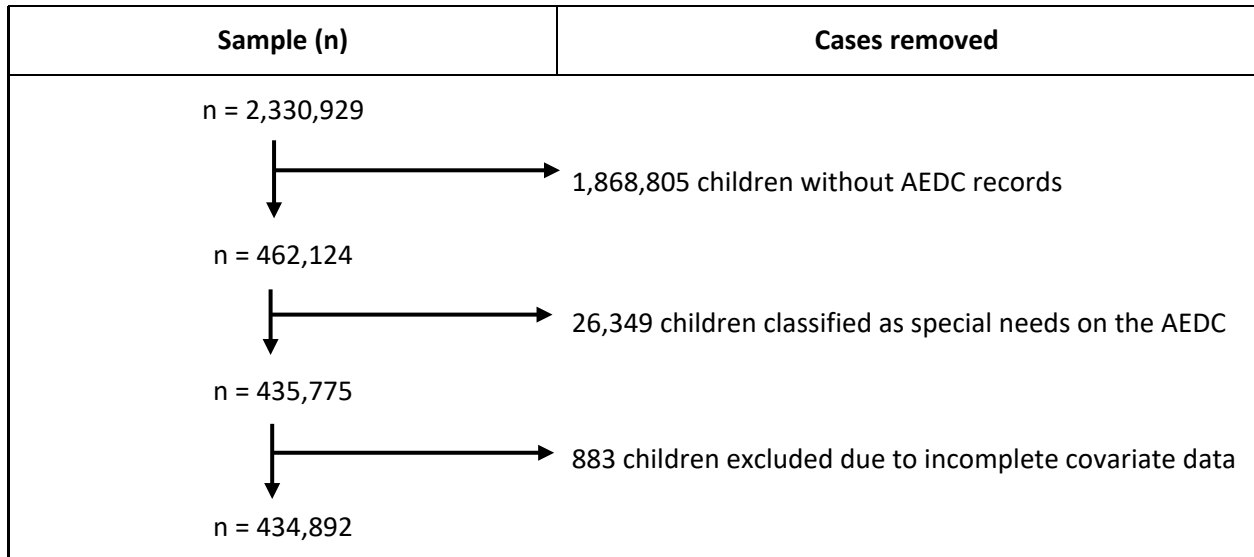
Covariates: In adjusted analyses, covariates included:

- **Sex** (male; REF=female) as derived across multiple record sets;
- **Language background other than English** (LBOTE; REF=non LBOTE);
- **Remoteness** (inner and outer regional; remote and very remote; REF= major cities), was measured using the Accessibility and Remoteness Index of Australia (ARIA+);
- **Socioeconomic disadvantage** (most disadvantaged; REF= least disadvantaged) was measured using the Socio-Economic Indexes for Areas (SEIFA) Index of Relative Socio-economic Disadvantage (IRSD); quintile 1 was designated the most disadvantaged and quintiles 2-5 were combined as the reference group of least disadvantaged children.

8.1.1 Disability, disability type and early childhood development at age ~5 years.

Sample. A sample of 434,892 children were selected for inclusion according to the availability of AEDC data and all covariates (see flow chart in Figure 1, below). Descriptive statistics for this sample are presented in Table A3.

Figure A1: Sample selection flowchart.



Methods.

Exposure: Among a total of 434,892 children included in the study, there 65,856 (15.1%) children were identified with Any Disability and 369,036 children had No Disability. Descriptive statistics on key outcomes and covariates are presented in Table A4 by Disability status.

Outcome: The outcome variables of Developmentally vulnerable, At-risk and On track for each AEDC domain were treated as dichotomous variables where the Reference group for each outcome was *all other children*. Previously published analyses treat the “On track” children as the reference group for both “Developmentally Vulnerable” and “At Risk” odds (association) estimates.

Covariates: The adjusted logistic models accounted for dichotomous variables of sex, LBOTE and socioeconomic disadvantage as well as an ordinal categorical index of remoteness (as described in Section 8.1).

Analyses: A series of unadjusted and adjusted logistic regressions between various AEDC outcomes (e.g., developmentally vulnerable and at-risk status on specific AEDC domains, or developmental vulnerability on non-specific or multiple AEDC domains) and disability status (Table A5) and disability type (Table A6).

Table A3. Descriptive statistics for the selected sample.

AEDC Outcomes and covariates	Selected Sample	
	n = 434,892	
	n	% (col)
Developmentally vulnerable on AEDC domains:		
Physical health and wellbeing	38,851	8.93
Social competence	40,198	9.24
Emotional maturity	32,291	7.43
Language and cognitive skills (school-based)	25,194	5.79
Communication skills and general knowledge	36,042	8.29
<i>At-risk</i> on AEDC domains:		
Physical health and wellbeing	57,661	13.26
Social competence	61,933	14.24
Emotional maturity	60,611	13.94
Language and cognitive skills (school-based)	38,368	8.82
Communication skills and general knowledge	68,628	15.78
<i>On track</i> on AEDC domains:		
Physical health and wellbeing	338,380	77.81
Social competence	332,761	76.52
Emotional maturity	341,990	78.64
Language and cognitive skills (school-based)	371,330	85.38
Communication skills and general knowledge	330,222	75.93
Number of developmentally <i>vulnerable</i> AEDC domains		
Any one or more domain	90,810	20.88
Any two or more domains	44,461	10.22
Sex		
Male	219,820	50.55
Female	215,072	49.45
Language background other than English (LBOTE)		
Yes	106,308	24.44
No	328,584	75.56
Remoteness *		
Major Cities	315,811	72.62
Inner Regional	83,110	19.11
Outer Regional	31,200	7.17
Remote	3,449	0.79
Very Remote	1,322	0.30
Socioeconomic disadvantage *		
SEIFA Quintile 1 (most disadvantaged)	92,934	21.37
SEIFA Quintile 2	83,201	19.13
SEIFA Quintile 3	78,732	18.10
SEIFA Quintile 4	78,717	18.10
SEIFA Quintile 5 (least disadvantaged)	101,308	23.29

*Note: For the purpose of analyses presented below, the socioeconomic disadvantage variable was dichotomised (SEIFA Quintile 1 vs Quintiles 2-5 as reference) and the remoteness variable transformed to a categorical variable with 3 levels (see Section 8.1), as shown in Table 4.

Table A4. Prevalence of AEDC outcomes and covariates for among comparison groups.

Outcomes and covariates	Any Disability n = 65,856		No Disability n = 369,036	
	n	% (col)	n	% (col)
Developmentally vulnerable on AEDC domains:				
Physical health and wellbeing	10,805	16.41	28,046	7.60
Social competence	12,297	18.67	27,901	7.56
Emotional maturity	10,558	16.03	21,733	5.89
Language and cognitive skills (school-based)	7,252	11.01	17,942	4.86
Communication skills and general knowledge	9,821	14.91	26,221	7.11
<i>At-risk</i> on AEDC domains:				
Physical health and wellbeing	10,625	16.13	47,036	12.75
Social competence	13,609	20.66	48,324	13.09
Emotional maturity	12,675	19.25	47,936	12.99
Language and cognitive skills (school-based)	8,497	12.90	29,871	8.09
Communication skills and general knowledge	12,650	19.21	55,978	15.17
<i>On track</i> on AEDC domains:				
Physical health and wellbeing	44,426	67.46	293,954	79.65
Social competence	39,950	60.66	292,811	79.34
Emotional maturity	42,623	64.72	299,367	81.12
Language and cognitive skills (school-based)	50,107	76.09	321,223	87.04
Communication skills and general knowledge	43,385	65.88	286,837	77.73
Number of developmentally <i>vulnerable</i> AEDC domains				
Any one or more domain	23,756	36.07	67,054	18.17
Any two or more domains	13,876	21.07	30,585	8.29
Sex				
Male	38,672	58.72	181,148	49.09
Female	27,184	41.28	187,888	50.91
Language background other than English (LBOTE)				
Yes	16,451	24.98	89,857	24.35
No	49,405	75.02	279,179	75.65
Remoteness				
Major Cities	48,470	73.60	267,341	72.44
Inner and Outer Regional	16,907	25.67	97,403	26.39
Remote and Very Remote	479	0.73	4,292	1.16
Socioeconomic disadvantage				
SEIFA Quintile 1 (most disadvantaged)	17,300	26.27	75,634	20.50
SEIFA Quintiles 2 - 5 (least disadvantaged)	48,556	73.73	293,402	79.50

Table A5. Unadjusted (uOR) and adjusted (aOR) Odds Ratios and 95% Confidence Intervals (95% CI) for AEDC outcomes on each domain, for children with Any Disability (relative to children with no disability).

	Any Disability	
	uOR (95% CI)	aOR (95% CI)
Across all AEDC Domains		
Developmentally vulnerable on any ≥ 1 domains	2.54 (2.50,2.59)	2.39 (2.35,2.44)
Developmentally vulnerable on any ≥ 2 domains	2.95 (2.89,3.02)	2.74 (2.68,2.80)
On track on five domains	0.39 (0.39,0.40)	0.42 (0.41,0.43)
Physical Health and Wellbeing		
Developmentally vulnerable	2.39 (2.33,2.44)	2.22 (2.17,2.28)
At-risk	1.32 (1.29,1.35)	1.28 (1.25,1.31)
Either (Developmentally vulnerable or At-risk)	1.89 (1.85,1.92)	1.79 (1.76,1.83)
On track	0.53 (0.52,0.54)	0.56 (0.55,0.57)
Social Competence		
Developmentally vulnerable	2.81 (2.74,2.87)	2.60 (2.54,2.66)
At-risk	1.73 (1.69,1.77)	1.63 (1.60,1.67)
Either (Developmentally vulnerable or At-risk)	2.49 (2.45,2.54)	2.34 (2.30,2.39)
On track	0.40 (0.39,0.41)	0.43 (0.42,0.43)
Emotional Maturity		
Developmentally vulnerable	3.05 (2.98,3.13)	2.78 (2.71,2.85)
At-risk	1.60 (1.56,1.63)	1.49 (1.46,1.52)
Either (Developmentally vulnerable or At-risk)	2.34 (2.30,2.38)	2.19 (2.15,2.23)
On track	0.43 (0.42,0.43)	0.46 (0.45,0.47)
Language and Cognitive (school-based)		
Developmentally vulnerable	2.42 (2.35,2.49)	2.25 (2.19,2.32)
At-risk	1.68 (1.64,1.73)	1.59 (1.55,1.64)
Either (Developmentally vulnerable or At-risk)	2.11 (2.07,2.15)	1.99 (1.95,2.03)
On track	0.47 (0.46,0.48)	0.50 (0.49,0.51)
Communication Skills and General Knowledge		
Developmentally vulnerable	2.29 (2.24,2.35)	2.16 (2.11,2.22)
At-risk	1.33 (1.30,1.36)	1.27 (1.25,1.30)
Either (Developmentally vulnerable or At-risk)	1.81 (1.78,1.84)	1.72 (1.69,1.75)
On-track	0.55 (0.54,0.56)	0.58 (0.57,0.59)

Table A6. Unadjusted (uOR) and adjusted (aOR) Odds Ratios and 95% Confidence Intervals (95% CI) for developmental vulnerability on multiple and specific AEDC domains, according to disability type.

	uOR (95% CI)	aOR (95% CI)
AEDC Developmental vulnerability		
Physical / Diverse Disability		
Developmentally vulnerable on any ≥ 1 domains	4.23 (4.01,4.47)	3.90 (3.69,4.13)
Developmentally vulnerable on any ≥ 2 domains	4.65 (4.39,4.93)	4.18 (3.94,4.44)
Physical health and well being	4.23 (3.98,4.49)	3.81 (3.58,4.05)
Social competence	3.88 (3.65,4.13)	3.47 (3.26,3.69)
Emotional maturity	3.81 (3.57,4.07)	3.32 (3.10,3.55)
Language and cognitive skills (school-based)	4.22 (3.94,4.52)	3.76 (3.51,4.04)
Communication skills and general knowledge	3.97 (3.73,4.22)	3.74 (3.50,1.40)
Intellectual / Learning Disability		
Developmentally vulnerable on any ≥ 1 domains	2.47 (2.41,2.53)	2.23 (2.18,2.29)
Developmentally vulnerable on any ≥ 2 domains	2.91 (2.83,2.99)	2.61 (2.53,2.68)
Physical health and well being	2.46 (2.38,2.53)	2.25 (2.18,2.32)
Social competence	2.61 (2.53,2.69)	2.36 (2.29,2.44)
Emotional maturity	2.53 (2.44,2.61)	2.31 (2.23,2.39)
Language and cognitive skills (school-based)	2.71 (2.61,2.81)	2.39 (2.31,2.48)
Communication skills and general knowledge	2.63 (2.55,2.72)	2.29 (2.21,2.36)
Sensory / Speech Disability		
Developmentally vulnerable on any ≥ 1 domains	2.17 (2.09,2.26)	1.95 (1.87,2.03)
Developmentally vulnerable on any ≥ 2 domains	2.47 (2.36,2.59)	2.18 (2.08,2.29)
Physical health and well being	1.98 (1.88,2.09)	1.81 (1.72,1.91)
Social competence	2.25 (2.14,2.36)	1.99 (1.89,2.09)
Emotional maturity	2.29 (2.17,2.42)	2.00 (1.89,2.11)
Language and cognitive skills (school-based)	2.10 (1.98,2.23)	1.91 (1.79,2.03)
Communication skills and general knowledge	2.46 (2.34,2.58)	2.15 (2.04,2.27)
Psychosocial Disability		
Developmentally vulnerable on any ≥ 1 domains	2.73 (2.67,2.80)	2.75 (2.68,2.82)
Developmentally vulnerable on any ≥ 2 domains	3.06 (2.97,3.15)	3.03 (2.94,3.12)
Physical health and well being	2.34 (2.27,2.42)	2.25 (2.18,2.32)
Social competence	3.19 (3.10,3.28)	3.10 (3.01,3.20)
Emotional maturity	3.86 (3.74,3.98)	3.61 (3.49,3.72)
Language and cognitive skills (school-based)	2.12 (2.04,2.21)	2.11 (2.03,2.20)
Communication skills and general knowledge	1.84 (1.78,1.91)	1.98 (1.91,2.05)
Other Disability		
Developmentally vulnerable on any ≥ 1 domains	4.16 (3.74,4.63)	3.53 (3.17,3.94)
Developmentally vulnerable on any ≥ 2 domains	4.50 (4.02,5.04)	3.63 (3.23,4.08)
Physical health and well being	4.02 (3.57,4.52)	3.22 (2.85,3.63)
Social competence	3.67 (3.26,4.14)	3.01 (2.66,3.40)
Emotional maturity	4.01 (3.54,4.55)	3.06 (2.69,3.48)
Language and cognitive skills (school-based)	4.03 (3.52,4.61)	3.14 (2.74,3.60)
Communication skills and general knowledge	4.25 (3.77,4.79)	3.99 (3.53,4.51)

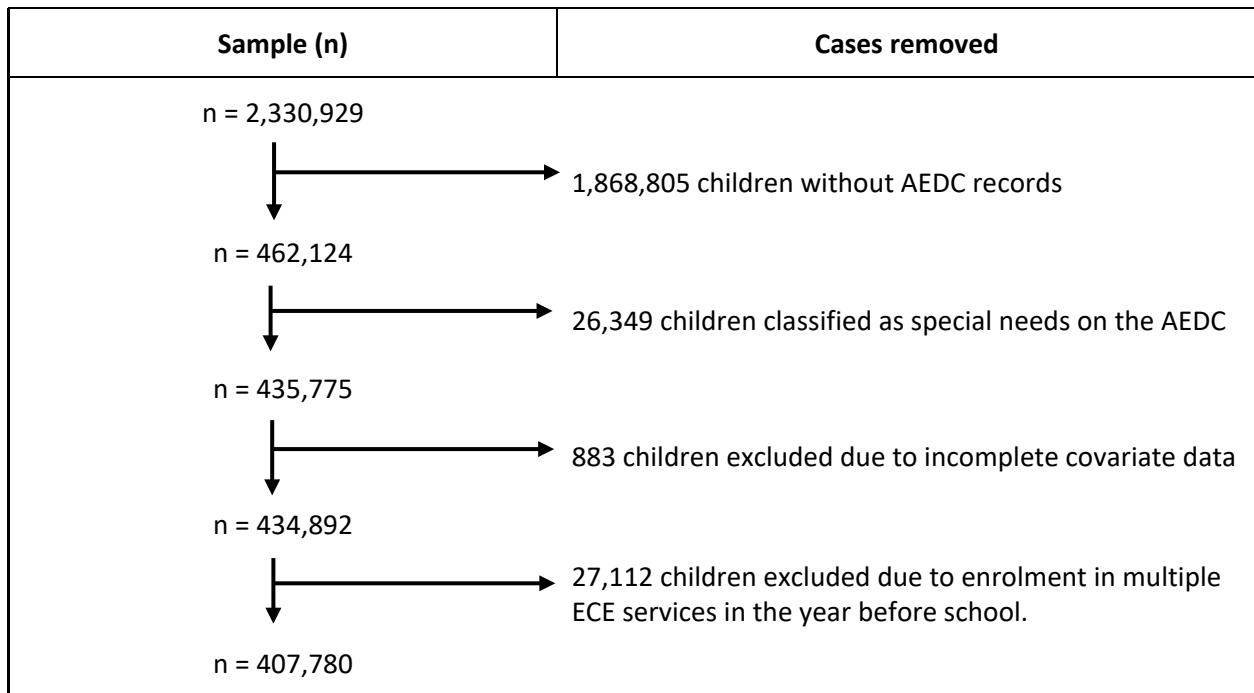
*Separate analyses were conducted for each Disability type.

8.1.2 Early Childhood Education and early childhood development at age ~5 years.

This analysis examined AEDC outcomes in relation to Early Childhood Education enrolment type in the year before starting primary school, and the number of hours enrolled in that year.

Sample: A sample of 407,780 children from this Test Case were selected for analyses according to the exclusion criteria outlined in the sample selection flowchart (Figure A2).

Figure A2: Sample selection flowchart.



Note: AEDC = Australian Early Development Census; ECE = Early Childhood Education.

Methods

Exposures:

1. Five mutually exclusive subgroups of ECE enrolment attendance were derived for analysis, representing children who were enrolled in the following types of ECE service:

- Centre-based Day Care only (n=189,165);
- Other Childcare Benefit/Subsidy (excluding Centre-based Day Care) only (n=10,999);
- Community Preschool (n=27,978);
- Government Preschool (n=2,915), and;
- No Early Childhood Education (n=176,723) – used as the reference group.

2. Hours of enrolment (<600 or ≥600 hours) in the year before primary were calculated for each type of enrolment. Prevalence data are presented in Table A7 according to each ECE group.

Outcomes: Outcomes were limited to two (domain non-specific) AEDC outcomes described in Section 8.1 as being developmentally vulnerable on any ≥1, or ≥2 domains of the AEDC.

Covariates: Covariates are described in Section 8.1 and included the “Any Disability” variable.

Analyses: A series of unadjusted and adjusted logistic regressions were employed to model the associations between the type of ECE enrolment (Table A8) and the number of enrolled hours <600 or ≥600 hours) for each type of ECE enrolment (Table A9).

Table A7. Proportion of children across AEDC outcomes and covariates for Early Childhood Education (ECE) groups.

Outcomes and covariates	Centre-based Day Care n = 189,165		Other CCS/CCB n = 10,999		Community Preschool n = 27,978		Government Preschool n = 2,915		No ECE n = 176,723	
	n	% (col)	n	% (col)	n	% (col)	n	% (col)	n	% (col)
Developmentally vulnerable on ≥ 1 AEDC domain:										
No (Reference)	151,446	80.06	8,099	73.63	23,799	85.06	2,201	75.51	136,772	77.39
Yes	37,719	19.94	2,900	26.37	4,179	14.94	714	24.49	39,951	22.61
Developmentally vulnerable on ≥ 2 AEDC domains:										
No (Reference)	170,786	90.28	9,534	86.68	26,103	93.30	2,562	87.89	156,975	88.83
Yes	18,379	9.72	1,465	13.32	1,875	6.70	353	12.11	19,748	11.17
Early Childhood Education enrolled hours										
Less than 600 hours	31,077	16.43	4,529	41.18	2,271	8.12	665	22.81	n.a.	n.a.
600 or more hours	158,088	83.57	6,470	58.82	25,707	91.88	2,250	77.19	n.a.	n.a.
Any Disability before 7 years										
No (Reference)	154,755	81.81	8,940	81.28	21,008	75.09	2,013	69.06	161,841	91.58
Yes	34,410	18.19	2,059	18.72	6,970	24.91	902	30.94	14,882	8.42
Sex										
Female (Reference)	93,244	49.29	5,743	52.21	13,751	49.15	1,520	52.14	87,513	49.52
Male	95,921	50.71	5,256	47.79	14,227	50.85	1,395	47.86	89,210	50.48
Language background other than English										
No (Reference)	143,683	75.96	7,113	64.67	23,156	82.77	1,670	57.29	133,461	75.52
Yes	45,482	24.04	3,886	35.33	4,822	17.23	1,245	42.71	43,262	24.48
Remoteness										
Major Cities (Reference)	148,051	78.27	6,959	63.27	16,785	59.99	2,500	85.76	124,550	70.48
Inner and Outer Regional	40,112	21.20	3,912	35.57	10,796	38.59	341	11.70	49,303	27.90
Remote and Very Remote	1,002	0.53	128	1.16	397	1.42	74	2.54	2,870	1.62
Socioeconomic disadvantage										
Quintile 1 (most disadvantaged)	33,392	17.65	3,928	35.71	5,194	18.56	1,406	48.23	42,314	23.94
Quintiles 2 - 5 (least disadvantaged) (Reference)	155,773	82.35	7,071	64.29	22,784	81.44	1,509	51.77	134,409	76.06

Table A8. Unadjusted (uOR) and adjusted (aOR) Odds Ratios and 95% Confidence Intervals (95% CI) for developmental vulnerability on any ≥ 1 domain, or ≥ 2 AEDC domains, for children with Early Childhood Education enrolment in the year before school

	Developmentally vulnerable (≥ 1 domains)		Developmentally vulnerable (≥ 2 domains)	
	uOR (95% CI)	aOR (95% CI)	uOR (95% CI)	aOR (95% CI)
Early Childhood Education enrolment				
Centre-based Day Care	0.85 (0.84,0.87)	0.80 (0.78,0.81)	0.86 (0.84,0.87)	0.78 (0.77,0.80)
Other CCS/CCB	1.23 (1.17,1.28)	1.00 (0.96,1.05)	1.22 (1.15,1.29)	0.97 (0.91,1.02)
Community Preschool	0.60 (0.58,0.62)	0.49 (0.48,0.51)	0.57 (0.54,0.60)	0.44 (0.42,0.47)
Government Preschool	1.11 (1.02,1.21)	0.75 (0.68,0.82)	1.10 (0.98,1.23)	0.69 (0.62,0.78)
Covariates				
Any Disability (identified <Age 7 years)	2.54 (2.49,2.59)	2.61 (2.56,2.66)	2.93 (2.86,3.00)	2.98 (2.91,3.06)
Male sex	2.05 (2.02,2.08)	2.01 (1.98,2.05)	2.37 (2.31,2.42)	2.29 (2.24,2.34)
Language background other than English	1.40 (1.38,1.43)	1.41 (1.39,1.44)	1.30 (1.27,1.33)	1.30 (1.27,1.34)
Inner and Outer Regional	1.18 (1.16,1.20)	1.24 (1.22,1.26)	1.26 (1.24,1.29)	1.30 (1.27,1.33)
Remote and Very Remote	1.56 (1.46,1.67)	1.57 (1.47,1.68)	1.73 (1.59,1.88)	1.72 (1.58,1.87)
Socioeconomically disadvantaged	1.88 (1.85,1.91)	1.69 (1.65,1.72)	2.01 (1.96,2.05)	1.78 (1.74,1.83)

Note: Separate models were conducted for each AEDC outcome.

Table A9. Unadjusted (uOR) and adjusted (aOR) Odds Ratios and 95% Confidence Intervals (95% CI) for developmental vulnerability on ≥ 1 AEDC domains for children with <600 or ≥ 600 hours of Early Childhood Education enrolment in the year before school and covariates.

	Centre-based Day Care		Other CCS/CCB		Community Preschool		Government Preschool	
	uOR (95% CI)	aOR (95% CI)	uOR (95% CI)	aOR (95% CI)	uOR (95% CI)	aOR (95% CI)	uOR (95% CI)	aOR (95% CI)
Early Childhood Education enrolled hours								
<600 hours	0.98 (0.96,1.01)	0.91 (0.88,0.94)	1.04 (0.97,1.12)	0.91 (0.84,0.97)	0.62 (0.55,0.70)	0.52 (0.46,0.58)	1.37 (1.16,1.62)	0.93 (0.78,1.12)
≥ 600 hours	0.83 (0.81,0.84)	0.78 (0.76,0.79)	1.36 (1.29,1.44)	1.05 (1.00,1.12)	0.60 (0.58,0.62)	0.50 (0.48,0.52)	1.04 (0.94,1.15)	0.69 (0.63,0.77)
Covariates								
Any Disability (identified <7 years)	2.56 (2.51,2.61)	2.58 (2.53,2.64)	2.64 (2.56,2.73)	2.46 (2.38,2.54)	2.39 (2.32,2.46)	2.60 (2.52,2.68)	2.64 (2.55,2.73)	2.50 (2.41,2.59)
Male sex	2.06 (2.02,2.09)	2.02 (1.98,2.05)	1.95 (1.90,1.99)	1.94 (1.90,1.99)	1.95 (1.91,2.00)	1.94 (1.90,1.98)	1.94 (1.90,1.99)	1.93 (1.89,1.98)
Language background other than English	1.38 (1.36,1.41)	1.41 (1.38,1.44)	1.58 (1.54,1.62)	1.6 (1.56,1.64)	1.56 (1.52,1.59)	1.58 (1.54,1.62)	1.54 (1.51,1.58)	1.59 (1.55,1.63)
Inner and Outer Regional	1.21 (1.19,1.24)	1.24 (1.22,1.27)	1.15 (1.12,1.18)	1.26 (1.23,1.30)	1.17 (1.14,1.19)	1.28 (1.25,1.31)	1.19 (1.16,1.22)	1.29 (1.25,1.32)
Remote and Very Remote	1.56 (1.46,1.68)	1.54 (1.43,1.66)	1.51 (1.39,1.63)	1.58 (1.45,1.71)	1.64 (1.52,1.76)	1.64 (1.52,1.78)	1.59 (1.46,1.72)	1.62 (1.50,1.76)
Socioeconomic disadvantage	1.85 (1.81,1.88)	1.67 (1.63,1.70)	1.87 (1.82,1.91)	1.67 (1.63,1.71)	1.92 (1.88,1.97)	1.71 (1.66,1.75)	1.86 (1.82,1.91)	1.68 (1.64,1.72)

Note: Separate models were conducted for each Early Childhood Education Enrolment type.

8.2 School Attendance

These analyses examined School attendance (Absences and Suspensions) outcomes in relation to several exposures, as detailed below.

Exposures: The following exposures were examined in this section (REF=reference group):

- Any Disability (REF=no disability);
- Disability Type (5 types; REF=no disability);
- Developmental Vulnerability (on 2 or more domains of the AEDC; REF=no Developmental Vulnerability);
- ECE hours enrolled (REF=no ECE enrolment);
- Disability functional limitation from NDIS records (medium; high; REF=low limitation).

Outcomes: The following outcomes were examined separately for Primary and Secondary school:

- Mean Days (per year) absent was calculated across years with a valid attendance record;
- Total days suspended was calculated across years with a valid attendance record;
- Any days suspended at different levels of schooling (All years, Primary and Secondary);
- Mean Days (per year) suspended was calculated across years with a valid attendance record.

Covariates: The following covariates were considered in this analysis:

- Sex (male; REF=female) as derived across multiple record sets;
- Language background other than English (LBOTE; REF=non LBOTE) from multiple records;
- Remoteness (major cities; REF=inner regional, outer regional, remote and very remote), was measured using the Accessibility and Remoteness Index of Australia (ARIA+);
- Low birthweight (<2500 grams; REF: ≥2500 grams) from perinatal records;
- Preterm birth (<37 weeks gestation; REF: ≥37 weeks gestation) from perinatal records;
- Prenatal smoking exposure (REF=no exposure) from perinatal records.

Analysis methods: Any recorded suspension within a given time-period was treated as a dichotomous variable (Yes/No), while days (per year) absent or suspended, and the total days suspended, were treated as continuous variables.

For the dichotomous outcome variable (i.e., any suspension record), a series of unadjusted and adjusted logistic regression models were employed to estimate associations between disability (or disability types) and the likelihood of any suspensions. The regression parameters were reported as odds ratios (ORs) and 95% confidence intervals (CIs). Odds ratios were considered significant if the 95% CIs did not cross one.

For the rest of the analyses, outcome variables were modelled as continuous variables to determine the associations between disability (or disability types) and school absences (i.e., mean days absent) or suspensions (i.e., mean or total days suspended) with regression parameter estimates (β weights) were reported (and 95% CIs); a 95% CI not crossing 0 was interpreted as a significant relationship. The adjusted models account for the seven covariates of sex, language background other than English, remoteness, socioeconomic disadvantage, low birthweight, preterm birth and prenatal smoking exposure.

8.2.1 School attendance for children with Any Disability and Developmental Vulnerability

Sample: This analysis included a subsample of 786,805 (33.75%) children who had NSW Government school attendance records (see Flow Chart in Figure 3). Prevalence data is presented in Table A10.

Figure A3: Sample selection flowchart.

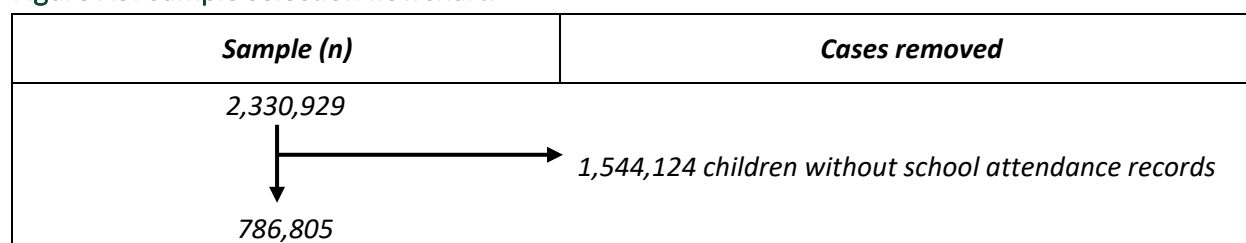


Table A10. Prevalence of outcomes and covariates in this population.

		Whole Sample
		n = 786,805
Measure	Category	n (%)
Disability	Yes	153,124 (19.46)
	No	633,681 (80.54)
Developmental Vulnerability	Yes	26,140 (3.32)
	No	228,239 (29.00)
Disability Type	Physical Disability	21,832 (2.78)
	Psychosocial Disability	65,255 (8.29)
	Sensory	26,463 (3.36)
	Intellectual Disability	84,937 (10.80)
	Other Disability	11,271 (1.43)
School Attendance Records	All School Levels	786,805 (100)
	Primary	542,568 (68.96)
	Secondary	308,435 (39.20)
School Absences	All School Levels	774,082 (98.38)
	Primary	532,415 (67.67)
	Secondary	302,582 (38.46)
School Suspensions	All School Levels	65,238 (8.29)
	Primary	17,452 (2.22)
	Secondary	46,778 (5.95)
Remoteness	Major Cities	586,101 (74.49)
	Inner and Outer Regional	196,171 (24.93)
	Remote and Very Remote	3,858 (0.49)

We firstly present descriptive statistics (and differences in key outcomes) among children with disability and no disability, for all children in the cohort (Tables A11 and A12). We then present descriptive statistics (and differences in key outcomes) among children with disability and no disability who had at least one absence or suspension (Tables A13 and A14).

Table A11. Descriptive statistics for school attendance according to Any Disability and Developmental Vulnerability status.

	Any Disability				Developmental Vulnerability			
	Yes		No		Yes		No	
	N	Mean (SD)	N	Mean (SD)	N	Mean (SD)	N	Mean (SD)
Days Absent								
Primary School	131,884	14.29 (12.66)	410,684	11.67 (10.62)	16,488	16.51 (14.68)	143,362	11.93 (10.26)
Secondary School	28,980	20.56 (20.81)	279,455	18.17 (19.56)	11,872	27.06 (27.02)	99,597	18.23 (19.14)
Total Days Suspended								
Primary School	131,884	0.96 (6.67)	410,684	0.24 (3.20)	16,488	1.57 (8.49)	143,362	0.27 (3.23)
Secondary School	28,980	3.94 (13.73)	279,455	2.42 (10.71)	11,872	7.09 (18.66)	99,597	2.25 (10.13)
Any Suspensions								
Primary School	131,884	8,801 (6.67)	410,684	8,651 (2.11)	16,488	1820 (11.04)	143,362	3,346 (2.33)
Secondary School	28,980	6,186 (21.35)	279,455	40,592 (14.53)	11,872	3943 (33.21)	99,597	13,964 (14.02)

Table A12. Differences in mean days absent and/or suspended from school per year for the entire population of children with and without disability.

Schooling Level	Any Disability vs. No disability							
	DAYS ABSENT				DAYS SUSPENDED			
	T	df	p-value	Cohen's d	t	df	p-value	Cohen D
Primary	67.68	195006.30	<0.001	0.224	37.76	151805.90	<0.001	0.137
Secondary	18.76	34504.93	<0.001	0.119	18.24	32739,00	<0.001	0.123

Table A13. Descriptive statistics of school attendance for those with at least one absence/suspension recorded, according to Any Disability and Developmental Vulnerability status.

	Any Disability				Developmental Vulnerability			
	Yes		No		Yes		No	
	N	M (SD)	N	M (SD)	N	M (SD)	N	M (SD)
Days Absent								
Primary School	130,381	14.45 (12.64)	402,034	11.93 (10.59)	16,300	16.70 (14.66)	141,740	12.07 (10.24)
Secondary School	28,569	20.86 (20.81)	274,013	18.53 (19.59)	11,695	27.47 (27.02)	98,120	18.51 (19.15)
Total Days Suspended								
Primary School	8,801	14.32 (21.80)	8,651	11.24 (19.02)	1,820	14.25 (21.74)	3,346	11.48 (17.85)
Secondary School	6,186	18.44 (24.80)	40,592	16.67 (23.50)	3,943	21.36 (27.27)	13,964	16.03 (22.61)

Table A14. Differences in mean days absent and/or suspended from school per year for children with and without disability who had an absence and suspension record respectively.

Schooling Level	Any Disability vs. No disability							
	DAYS ABSENT				DAYS SUSPENDED			
	t	df	p-value	Cohen's d	t	df	p-value	Cohen D
Primary	65.12	193278.70	<0.001	0.217	9.93	17207.54	<0.001	0.150
Secondary	18.11	34058.76	<0.001	0.115	5.29	7970.04	<0.001	0.074

8.2.2 Associations between disability and school attendance accounting for other factors

Sample: This analysis included a subsample of 293,224 children from the NDDA EC Test Case who had NSW Government school attendance records and full covariate data (Figure A4). The prevalence of examined factors for this subsample are presented in Table A15.

Figure A4: Sample selection flowchart.

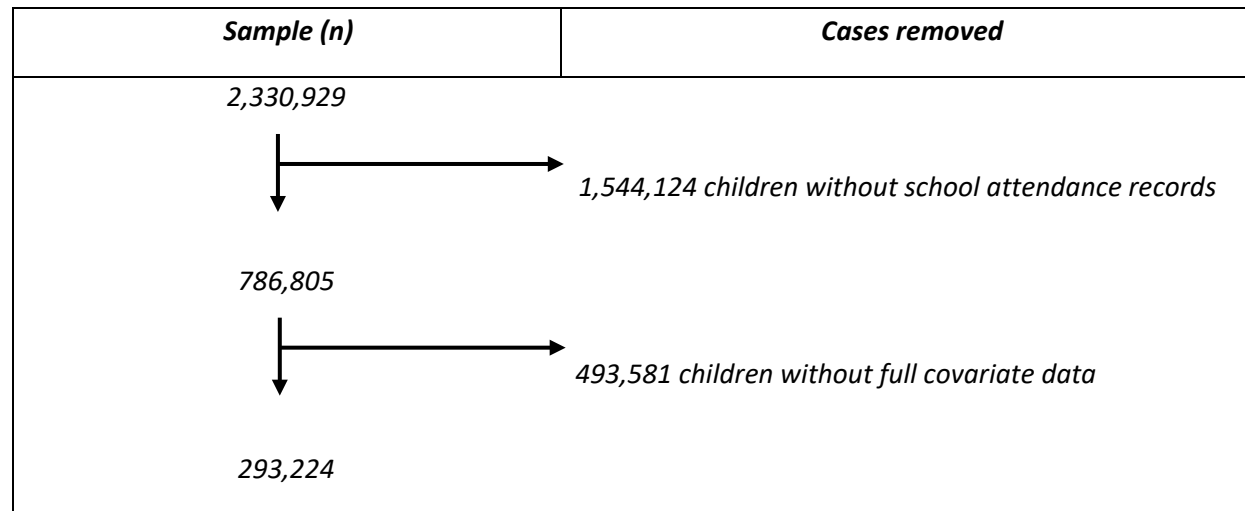


Table A15. Descriptive statistics for the selected study sample (n=293,224).

		Study Population (n=293,224)	
		n	% (column)
Disability	No Disability (Reference)	224,716	76.64
	Any Disability	68,508	23.36
Disability Type	Intellectual/Learning	37,137	12.67
	Physical/Diverse	10,053	3.43
	Sensory/Speech	11,790	4.02
	Psychosocial	28,437	9.70
	Other	5,782	1.97
	Developmental Vulnerability	Yes	21,393
	No	194,600	66.37
School Attendance Records	All School Levels	293,224	100.00
	Primary	212,197	72.37
	Secondary	105,651	36.03
School Absences	All School Levels	290,436	99.05
	Primary	209,726	71.52
	Secondary	104,161	35.52
School Suspensions	All School Levels	22,995	7.84
	Primary	10,856	3.70
	Secondary	15,772	5.38
Sex	Male	151,501	51.67
	Female (Reference)	141,723	48.33
Remoteness	Major Cities (Reference)	206,891	70.56
	Inner and Outer Regional and Remote and Very Remote	86,333	29.44
	Language background other than English	Yes	64,441
Socioeconomic disadvantage	No (Reference)	228,783	78.02
	SEIFA Quintile 1 (most disadvantaged)	67,758	23.11
	SEIFA Quintiles 2 - 5 (least disadvantaged) (Reference)	225,466	76.89
Low birthweight	Yes	16,801	5.73
	No (Reference)	276,423	94.27
Preterm birth	Yes	20,015	6.83
	No (Reference)	273,209	93.17
Prenatal smoking exposure	Yes	43,769	14.93
	No (Reference)	249,455	85.07

8.2.2.1 Number of days absent

Table A16. Unadjusted ($u\beta$) and Adjusted ($a\beta$) regression parameter estimates and 95% confidence intervals (CI) for mean days absent.

	Mean Days Absent (Primary school) (n=209,726)		Mean Days Absent (Secondary school) (n=104,161)	
	$u\beta$ (95% CI)	$a\beta$ (95% CI)	$u\beta$ (95% CI)	$a\beta$ (95% CI)
Any Disability	2.41 (2.30,2.51)	1.74 (1.63,1.84)	1.87 (1.50,2.25)	0.78 (0.41,1.14)
Male Sex	0.42 (0.32,0.51)	0.26 (0.17,0.35)	1.03 (0.78,1.27)	0.99 (0.75,1.22)
Remoteness (major cities)	-2.51 (-2.61,-2.41)	-1.31 (-1.41,-1.20)	-4.48 (-4.75,-4.22)	-1.45 (-1.72,-1.18)
LBOTE	-1.34 (-1.45,-1.23)	-0.36 (-0.48,-0.25)	-5.38 (-5.68,-5.09)	-3.60 (-3.91,-3.30)
Socioeconomic disadvantage	4.18 (4.07,4.29)	2.95 (2.84,3.06)	5.58 (5.31,5.85)	4.07 (3.80,4.34)
Low birthweight	1.59 (1.39,1.80)	0.32 (0.09,0.56)	2.57 (2.06,3.08)	0.24 (-0.37,0.85)
Preterm birth	1.13 (0.95,1.31)	0.23 (0.02,0.45)	1.68 (1.20,2.16)	0.19 (-0.38,0.76)
Prenatal smoking exposure	6.68 (6.55,6.81)	5.38 (5.24,5.51)	13.38 (13.08,13.68)	11.75 (11.44,12.06)

8.2.2.2 Likelihood of at least one suspension

Table A17. Unadjusted (uOR) and Adjusted (aOR) Odds Ratios and 95% confidence intervals (CI) for being suspended at least once.

	Any Suspension (Primary school) (n=212,197)		Any Suspension (Secondary school) (n=105,651)	
	uOR (95% CI)	aOR (95% CI)	uOR (95% CI)	aOR (95% CI)
Any Disability	3.39 (3.23,3.56)	2.41 (2.29,2.54)	1.46 (1.39,1.53)	1.17 (1.11,1.23)
Male Sex	5.58 (5.23,5.96)	5.47 (5.11,5.85)	2.53 (2.44,2.62)	2.68 (2.58,2.78)
Remoteness (major cities)	0.41 (0.39,0.43)	0.66 (0.62,0.69)	0.62 (0.60,0.64)	0.85 (0.81,0.88)
LBOTE	0.29 (0.27,0.32)	0.44 (0.40,0.48)	0.60 (0.57,0.63)	0.73 (0.69,0.77)
Socioeconomic disadvantage	3.25 (3.10,3.41)	2.32 (2.21,2.45)	2.09 (2.02,2.17)	1.82 (1.75,1.89)
Low birthweight	1.52 (1.39,1.66)	1.08 (0.96,1.21)	1.31 (1.23,1.40)	1.07 (0.98,1.17)
Preterm birth	1.44 (1.32,1.56)	1.02 (0.91,1.13)	1.22 (1.14,1.29)	0.98 (0.90,1.06)
Prenatal smoking exposure	5.46 (5.20,5.74)	3.53 (3.35,3.73)	3.74 (3.61,3.88)	3.28 (3.16,3.42)

8.2.2.3 Total number of days suspended

Table A18. Unadjusted ($u\beta$) and Adjusted ($a\beta$) regression parameter estimates and 95% confidence intervals (CI) for the total number of days suspended.

	Total Days Suspended (Primary) (n=7,008)		Total Days Suspended (Secondary) (n=15,772)	
	$u\beta$ (95% CI)	$a\beta$ (95% CI)	$u\beta$ (95% CI)	$a\beta$ (95% CI)
Any Disability	2.81 (1.83,3.79)	2.65 (1.67,3.63)	1.30 (0.26,2.33)	0.83 (-0.20,1.85)
Male Sex	4.45 (3.09,5.81)	5.04 (3.68,6.39)	2.32 (1.50,3.13)	3.04 (2.22,3.85)
Remoteness (major cities)	-1.83 (-2.80,-0.85)	-1.03 (-2.05,-0.02)	-2.39 (-3.16,-1.62)	-0.96 (-1.76,-0.16)
LBOTE	-5.38 (-7.16,-3.60)	-4.39 (-6.23,-2.54)	-4.18 (-5.24,-3.12)	-2.38 (-3.49,-1.27)
Socioeconomic disadvantage	3.32 (2.35,4.29)	3.21 (2.23,4.19)	1.78 (1.02,2.55)	1.16 (0.39,1.93)
Low birthweight	0.35 (-1.44,2.13)	-1.59 (-3.74,0.56)	2.03 (0.59,3.46)	-1.42 (-3.16,0.31)
Preterm birth	1.96 (0.28,3.63)	2.04 (0.03,4.05)	3.38 (1.99,4.76)	3.04 (1.37,4.71)
Prenatal smoking exposure	3.52 (2.54,4.50)	2.94 (1.94,3.95)	7.11 (6.35,7.87)	6.78 (5.99,7.56)

8.2.3 School attendance according to disability type

Sample: This analysis included a subsample of 786,805 (33.75%) children from the NDDA EC Test Case as described under Section 8.2.1 of this Appendix.

Table A19. Descriptive statistics on school attendance indices for children with recorded absences and suspensions with disability according to disability type.

	Physical/Diverse		Intellectual/Learning		Sensory/Speech		Psychosocial		Other Disability	
	N	Mean (SD)	N	Mean (SD)	N	Mean (SD)	N	Mean (SD)	N	Mean (SD)
Days Absent										
Primary School	19,935	15.78 (13.67)	76,874	14.9 (13.08)	20,120	14.21 (12.64)	55,465	14.53 (12.50)	9,132	16.95 (15.02)
Secondary School	2,621	21.05 (20.55)	9,460	21.01 (21.13)	7,941	19.27 (19.28)	12,915	21.05 (20.71)	2,827	21.05 (21.17)
Total Days Suspended										
Primary School	1,655	13.25 (18.65)	5,018	13.64 (20.84)	1,349	12.61 (19.06)	5,393	15.12 (22.58)	1,007	13.76 (19.89)
Secondary School	388	15.65 (21.90)	2,049	18.3 (25.18)	1,566	16.09 (22.70)	2,916	18.67 (24.42)	547	18.61 (25.06)

Sample: This analysis included a subsample of 293,224 children from the NDDA EC Test Case as described in Section 8.2.2 of this Appendix.

Table A20. Unadjusted ($u\beta$) and Adjusted ($a\beta$) regression parameter estimates and 95% confidence intervals (CI) relating to Mean Days Absent for those with *Physical/Diverse disability*.

	Mean Days Absent (Primary) (n=160,068)		Mean Days Absent (Secondary) (n=92,914)	
	$u\beta$ (95% CI)	$a\beta$ (95% CI)	$u\beta$ (95% CI)	$a\beta$ (95% CI)
Physical/Diverse Disability	3.77 (3.55,3.98)	2.96 (2.75,3.17)	2.05 (0.81,3.30)	0.67 (-0.52,1.87)
Male Sex	0.30 (0.19,0.40)	0.23 (0.13,0.33)	1.00 (0.74,1.25)	1.04 (0.80,1.29)
Remoteness (major cities)	-2.37 (-2.48,-2.26)	-1.26 (-1.38,-1.15)	-4.52 (-4.79,-4.24)	-1.47 (-1.76,-1.19)
LBOTE	-1.21 (-1.33,-1.09)	-0.30 (-0.42,-0.17)	-5.35 (-5.66,-5.05)	-3.56 (-3.88,-3.24)
Socioeconomic disadvantage	3.97 (3.84,4.09)	2.83 (2.70,2.95)	5.62 (5.33,5.91)	4.08 (3.79,4.37)
Low birthweight	1.51 (1.28,1.74)	0.29 (0.02,0.56)	2.53 (1.98,3.08)	0.18 (-0.47,0.83)
Preterm birth	1.12 (0.91,1.33)	0.26 (0.01,0.51)	1.59 (1.08,2.11)	0.16 (-0.45,0.77)
Prenatal smoking exposure	6.61 (6.45,6.76)	5.45 (5.29,5.60)	13.77 (13.45,14.09)	12.17 (11.83,12.5)

Table A21. Unadjusted ($u\beta$) and Adjusted ($a\beta$) regression parameter estimates and 95% confidence intervals (CI) relating to Mean Days Absent for those with *Intellectual/Learning disability*.

	Mean Days Absent (Primary) (n=184,902)		Mean Days Absent (Secondary) (n=95511)	
	$u\beta$ (95% CI)	$a\beta$ (95% CI)	$u\beta$ (95% CI)	$a\beta$ (95% CI)
Intellectual/Learning Disability	2.86 (2.74,2.99)	1.99 (1.87,2.11)	2.14 (1.48,2.80)	0.00 (-0.64,0.64)
Male Sex	0.40 (0.30,0.50)	0.26 (0.16,0.35)	1.00 (0.75,1.25)	1.01 (0.77,1.25)
Remoteness (major cities)	-2.49 (-2.6,-2.39)	-1.28 (-1.39,-1.17)	-4.53 (-4.81,-4.26)	-1.46 (-1.75,-1.18)
LBOTE	-1.32 (-1.43,-1.20)	-0.38 (-0.50,-0.26)	-5.46 (-5.76,-5.15)	-3.63 (-3.95,-3.32)
Socioeconomic disadvantage	4.13 (4.01,4.24)	2.89 (2.77,3.01)	5.58 (5.30,5.87)	4.04 (3.76,4.33)
Low birthweight	1.63 (1.42,1.85)	0.38 (0.12,0.63)	2.48 (1.94,3.02)	0.22 (-0.42,0.87)
Preterm birth	1.15 (0.96,1.35)	0.20 (-0.03,0.43)	1.54 (1.03,2.04)	0.08 (-0.52,0.67)
Prenatal smoking exposure	6.70 (6.56,6.84)	5.40 (5.25,5.54)	13.6 (13.29,13.92)	11.99 (11.66,12.31)

Table A22. Unadjusted (u β) and Adjusted (a β) regression parameter estimates and 95% confidence intervals (CI) relating to Mean Days Absent for those with *Sensory/Speech disability*.

	Mean Days Absent (Primary) (n=160,108)		Mean Days Absent (Secondary) (n=95,026)	
	u β (95% CI)	a β (95% CI)	u β (95% CI)	a β (95% CI)
Sensory/Speech Disability	2.47 (2.25,2.68)	1.80 (1.59,2.01)	-0.02 (-0.73,0.68)	-0.53 (-1.21,0.15)
Male Sex	0.26 (0.16,0.36)	0.24 (0.15,0.34)	0.95 (0.70,1.20)	1.02 (0.78,1.26)
Remoteness (major cities)	-2.42 (-2.53,-2.31)	-1.33 (-1.45,-1.22)	-4.52 (-4.8,-4.25)	-1.5 (-1.78,-1.21)
LBOTE	-1.21 (-1.33,-1.10)	-0.36 (-0.48,-0.23)	-5.30 (-5.60,-5.00)	-3.55 (-3.86,-3.24)
Socioeconomic disadvantage	3.87 (3.75,3.99)	2.77 (2.65,2.90)	5.52 (5.24,5.81)	4.07 (3.79,4.36)
Low birthweight	1.39 (1.16,1.62)	0.28 (0.01,0.56)	2.51 (1.97,3.06)	0.17 (-0.47,0.81)
Preterm birth	0.99 (0.79,1.20)	0.25 (0.00,0.49)	1.62 (1.11,2.13)	0.26 (-0.34,0.86)
Prenatal smoking exposure	6.53 (6.38,6.68)	5.42 (5.27,5.58)	13.60 (13.28,13.92)	12.00 (11.68,12.33)

Table A23. Unadjusted (u β) and Adjusted (a β) regression parameter estimates and 95% confidence intervals (CI) relating to Mean Days Absent for those with *Psychosocial disability*.

	Mean Days Absent (Primary) (n=175,339)		Mean Days Absent (Secondary) (n=96,997)	
	u β (95% CI)	a β (95% CI)	u β (95% CI)	a β (95% CI)
Psychosocial Disability	2.58 (2.44,2.72)	2.03 (1.89,2.17)	1.66 (1.10,2.22)	1.06 (0.52,1.60)
Male Sex	0.38 (0.28,0.48)	0.27 (0.17,0.36)	1.03 (0.79,1.28)	1.05 (0.81,1.28)
Remoteness (major cities)	-2.38 (-2.48,-2.27)	-1.30 (-1.41,-1.18)	-4.47 (-4.74,-4.19)	-1.49 (-1.77,-1.21)
LBOTE	-1.29 (-1.41,-1.17)	-0.32 (-0.44,-0.20)	-5.34 (-5.64,-5.03)	-3.56 (-3.88,-3.25)
Socioeconomic disadvantage	3.99 (3.87,4.11)	2.87 (2.75,2.99)	5.60 (5.32,5.89)	4.09 (3.8,4.37)
Low birthweight	1.43 (1.21,1.65)	0.32 (0.06,0.58)	2.54 (2.00,3.09)	0.24 (-0.4,0.88)
Preterm birth	1.03 (0.83,1.23)	0.25 (0.02,0.49)	1.59 (1.08,2.10)	0.14 (-0.45,0.74)
Prenatal smoking exposure	6.50 (6.35,6.64)	5.29 (5.15,5.44)	13.58 (13.26,13.89)	11.98 (11.66,12.30)

Table A24. Unadjusted ($u\beta$) and Adjusted ($a\beta$) regression parameter estimates and 95% confidence intervals (CI) relating to Mean Days Absent for those with *Other disability*.

	Mean Days Absent (Primary) (n=155,653)		Mean Days Absent (Secondary) (n=93,072)	
	$u\beta$ (95% CI)	$a\beta$ (95% CI)	$u\beta$ (95% CI)	$a\beta$ (95% CI)
Other Disability	4.92 (4.63,5.22)	3.60 (3.31,3.89)	2.12 (0.96,3.28)	-0.05 (-1.16,1.06)
Male Sex	0.29 (0.18,0.39)	0.23 (0.13,0.33)	0.99 (0.73,1.24)	1.04 (0.79,1.28)
Remoteness (major cities)	-2.41 (-2.52,-2.30)	-1.24 (-1.35,-1.12)	-4.51 (-4.79,-4.23)	-1.47 (-1.76,-1.19)
LBOTE	-1.26 (-1.38,-1.14)	-0.33 (-0.45,-0.20)	-5.38 (-5.69,-5.08)	-3.59 (-3.9,-3.27)
Socioeconomic disadvantage	3.94 (3.81,4.06)	2.80 (2.67,2.92)	5.61 (5.32,5.90)	4.06 (3.77,4.35)
Low birthweight	1.48 (1.24,1.71)	0.36 (0.08,0.63)	2.49 (1.94,3.05)	0.19 (-0.46,0.84)
Preterm birth	1.03 (0.82,1.24)	0.18 (-0.07,0.43)	1.52 (1.00,2.04)	0.07 (-0.54,0.68)
Prenatal smoking exposure	6.57 (6.42,6.73)	5.41 (5.25,5.56)	13.73 (13.41,14.05)	12.13 (11.8,12.46)

Table A25. Unadjusted ($u\beta$) and Adjusted ($a\beta$) regression parameter estimates and 95% confidence intervals (CI) relating to Total Days Suspended and *Physical/Diverse disability*.

	Total Days Suspended (Primary) (n=3,846)		Total Days Suspended (Secondary) (n=13,468)	
	$u\beta$ (95% CI)	$a\beta$ (95% CI)	$u\beta$ (95% CI)	$a\beta$ (95% CI)
Physical/Diverse Disability	2.37 (1.28,3.46)	1.26 (-0.27,2.8)	1.28 (-0.50,3.05)	-5.27 (-9.41,-1.14)
Male Sex	4.19 (2.71,5.67)	4.48 (2.86,6.10)	2.29 (1.43,3.14)	3.08 (2.22,3.94)
Remoteness (major cities)	-2.01 (-3.10,-0.93)	-1.47 (-2.74,-0.20)	-2.37 (-3.18,-1.57)	-0.96 (-1.82,-0.10)
LBOTE	-5.41 (-7.39,-3.43)	-4.05 (-6.28,-1.82)	-4.31 (-5.43,-3.19)	-2.42 (-3.6,-1.24)
Socioeconomic disadvantage	3.33 (2.25,4.41)	3.03 (1.81,4.25)	1.74 (0.94,2.55)	1.20 (0.37,2.02)
Low birthweight	1.27 (-0.71,3.26)	-0.60 (-3.27,2.06)	2.25 (0.73,3.77)	-1.47 (-3.34,0.39)
Preterm birth	3.57 (1.70,5.44)	3.84 (1.30,6.38)	3.46 (1.98,4.94)	3.31 (1.51,5.12)
Prenatal smoking exposure	4.01 (2.93,5.09)	2.78 (1.53,4.03)	7.25 (6.45,8.05)	7.09 (6.25,7.93)

Table A26. Unadjusted ($u\beta$) and Adjusted ($a\beta$) regression parameter estimates and 95% confidence intervals (CI) relating to Total Days Suspended for those with *Intellectual/Learning disability*.

	Total Days Suspended (Primary) (n=5,456)		Total Days Suspended (Secondary) (n=14,073)	
	$u\beta$ (95% CI)	$a\beta$ (95% CI)	$u\beta$ (95% CI)	$a\beta$ (95% CI)
Intellectual/Learning Disability	2.37 (1.28,3.46)	2.03 (0.94,3.12)	1.28 (-0.50,3.05)	0.01 (-1.76,1.77)
Male Sex	4.19 (2.71,5.67)	4.89 (3.41,6.37)	2.29 (1.43,3.14)	3.09 (2.24,3.94)
Remoteness (major cities)	-2.01 (-3.10,-0.93)	-1.22 (-2.34,-0.10)	-2.37 (-3.18,-1.57)	-0.91 (-1.75,-0.07)
LBOTE	-5.41 (-7.39,-3.43)	-4.09 (-6.14,-2.03)	-4.31 (-5.43,-3.19)	-2.49 (-3.67,-1.31)
Socioeconomic disadvantage	3.33 (2.25,4.41)	3.11 (2.03,4.20)	1.74 (0.94,2.55)	1.09 (0.28,1.91)
Low birthweight	1.27 (-0.71,3.26)	-1.74 (-4.11,0.63)	2.25 (0.73,3.77)	-1.09 (-2.92,0.75)
Preterm birth	3.57 (1.70,5.44)	3.81 (1.57,6.04)	3.46 (1.98,4.94)	2.96 (1.18,4.73)
Prenatal smoking exposure	4.01 (2.93,5.09)	3.30 (2.19,4.41)	7.25 (6.45,8.05)	6.92 (6.09,7.74)

Table A27. Unadjusted ($u\beta$) and Adjusted ($a\beta$) regression parameter estimates and 95% confidence intervals (CI) relating to Total Days Suspended for those with *Sensory/Speech disability*.

	Total Days Suspended (Primary) (n=3,723)		Total Days Suspended (Secondary) (n=13,890)	
	$u\beta$ (95% CI)	$a\beta$ (95% CI)	$u\beta$ (95% CI)	$a\beta$ (95% CI)
Sensory/Speech Disability	1.07 (-0.58,2.73)	0.98 (-0.67,2.63)	-1.11 (-3.14,0.92)	-0.62 (-2.63,1.38)
Male Sex	3.46 (1.80,5.12)	4.39 (2.74,6.05)	2.21 (1.36,3.07)	3.06 (2.22,3.91)
Remoteness (major cities)	-2.33 (-3.57,-1.09)	-1.47 (-2.76,-0.17)	-2.33 (-3.14,-1.52)	-0.89 (-1.73,-0.04)
LBOTE	-5.05 (-7.16,-2.94)	-4.03 (-6.25,-1.81)	-4.07 (-5.16,-2.98)	-2.30 (-3.45,-1.15)
Socioeconomic disadvantage	3.57 (2.34,4.80)	3.45 (2.21,4.69)	1.78 (0.97,2.59)	1.20 (0.39,2.02)
Low birthweight	1.78 (-0.52,4.08)	-1.27 (-3.97,1.42)	2.13 (0.59,3.66)	-1.30 (-3.14,0.54)
Preterm birth	4.01 (1.80,6.21)	4.01 (1.43,6.60)	3.48 (1.99,4.96)	3.14 (1.37,4.91)
Prenatal smoking exposure	3.78 (2.54,5.03)	3.01 (1.73,4.28)	7.25 (6.45,8.05)	6.94 (6.11,7.77)

Table A28. Unadjusted ($u\beta$) and Adjusted ($a\beta$) regression parameter estimates and 95% confidence intervals (CI) relating to Total Days Suspended for those with *Psychosocial disability*.

	Total Days Suspended (Primary) (n=5,397)		Total Days Suspended (Secondary) (n=14,379)	
	$u\beta$ (95% CI)	$a\beta$ (95% CI)	$u\beta$ (95% CI)	$a\beta$ (95% CI)
Psychosocial Disability	3.44 (2.32,4.55)	3.65 (2.53,4.77)	0.81 (-0.69,2.31)	0.69 (-0.8,2.18)
Male Sex	4.61 (3.09,6.12)	4.96 (3.45,6.47)	2.25 (1.41,3.10)	3.04 (2.20,3.88)
Remoteness (major cities)	-1.56 (-2.66,-0.46)	-1.21 (-2.36,-0.06)	-2.32 (-3.12,-1.52)	-0.97 (-1.80,-0.14)
LBOTE	-5.06 (-7.05,-3.08)	-4.14 (-6.19,-2.10)	-4.05 (-5.15,-2.95)	-2.26 (-3.41,-1.10)
Socioeconomic disadvantage	3.39 (2.29,4.50)	3.47 (2.35,4.58)	1.80 (1.01,2.60)	1.17 (0.36,1.97)
Low birthweight	0.15 (-1.93,2.24)	-1.91 (-4.39,0.57)	2.27 (0.76,3.79)	-1.50 (-3.32,0.32)
Preterm birth	2.14 (0.19,4.10)	2.44 (0.13,4.75)	3.83 (2.36,5.29)	3.55 (1.79,5.30)
Prenatal smoking exposure	3.15 (2.04,4.27)	2.72 (1.58,3.86)	7.24 (6.45,8.03)	6.95 (6.14,7.77)

Table A29. Unadjusted ($u\beta$) and Adjusted ($a\beta$) regression parameter estimates and 95% confidence intervals (CI) relating to Total Days Suspended for those with *Other disability*.

	Total Days Suspended (Primary) (n=3,613)		Total Days Suspended (Secondary) (n=13,548)	
	$u\beta$ (95% CI)	$a\beta$ (95% CI)	$u\beta$ (95% CI)	$a\beta$ (95% CI)
Other Disability	2.18 (0.39,3.97)	1.63 (-0.15,3.4)	0.53 (-2.75,3.81)	-0.67 (-3.91,2.57)
Male Sex	3.79 (2.13,5.46)	4.59 (2.94,6.25)	2.23 (1.37,3.09)	3.06 (2.21,3.92)
Remoteness (major cities)	-2.03 (-3.29,-0.78)	-1.17 (-2.47,0.13)	-2.35 (-3.17,-1.53)	-0.87 (-1.73,-0.02)
LBOTE	-5.17 (-7.37,-2.96)	-4.13 (-6.44,-1.81)	-4.26 (-5.38,-3.13)	-2.46 (-3.64,-1.28)
Socioeconomic disadvantage	3.79 (2.55,5.04)	3.64 (2.39,4.89)	1.88 (1.06,2.7)	1.24 (0.42,2.06)
Low birthweight	2.55 (0.23,4.87)	-0.25 (-3.01,2.51)	2.19 (0.63,3.75)	-1.33 (-3.2,0.54)
Preterm birth	4.09 (1.85,6.33)	3.51 (0.85,6.16)	3.52 (2.01,5.03)	3.11 (1.31,4.92)
Prenatal smoking exposure	3.58 (2.33,4.84)	2.74 (1.46,4.02)	7.43 (6.62,8.24)	7.1 (6.26,7.94)

Table A30. Unadjusted (uOR) and Adjusted (aOR) Odds Ratios and 95% confidence intervals (CI) of any (at least one) suspension for children with *Physical/Diverse disability*.

	At Least One Suspension (Primary) (n=162,090)		At Least One Suspension (Secondary) (n=94,241)	
	uOR (95% CI)	aOR (95% CI)	uOR (95% CI)	aOR (95% CI)
Physical/Diverse Disability	5.57 (5.05,6.14)	2.79 (2.51,3.1)	1.30 (1.11,1.51)	0.88 (0.74,1.03)
Male Sex	5.41 (4.96,5.91)	5.58 (5.10,6.10)	2.48 (2.38,2.57)	2.67 (2.56,2.78)
Remoteness (major cities)	0.34 (0.32,0.36)	0.58 (0.54,0.62)	0.61 (0.59,0.64)	0.85 (0.81,0.88)
LBOTE	0.31 (0.28,0.35)	0.51 (0.45,0.58)	0.60 (0.57,0.63)	0.73 (0.69,0.77)
Socioeconomic disadvantage	3.73 (3.49,3.99)	2.54 (2.36,2.73)	2.13 (2.05,2.21)	1.84 (1.76,1.92)
Low birthweight	1.62 (1.43,1.83)	1.18 (1.01,1.39)	1.35 (1.26,1.46)	1.09 (0.99,1.20)
Preterm birth	1.43 (1.27,1.61)	0.95 (0.81,1.10)	1.25 (1.16,1.34)	1.00 (0.92,1.10)
Prenatal smoking exposure	6.38 (5.97,6.83)	4.15 (3.85,4.46)	3.90 (3.74,4.05)	3.43 (3.29,3.58)

Table A31. Unadjusted (uOR) and Adjusted (aOR) Odds Ratios and 95% confidence intervals (CI) of any (at least one) suspension for children with *Physical/Diverse disability*.

	At Least One Suspension (Primary) (n=162,090)		At Least One Suspension (Secondary) (n=94,241)	
	uOR (95% CI)	aOR (95% CI)	uOR (95% CI)	aOR (95% CI)
Physical/Diverse Disability	4.17 (3.84,4.53)	2.66 (2.43,2.90)	0.86 (0.71,1.03)	0.63 (0.52,0.77)
Male Sex	5.40 (4.96,5.88)	5.56 (5.10,6.07)	2.48 (2.39,2.58)	2.68 (2.58,2.79)
Remoteness (major cities)	0.36 (0.34,0.38)	0.59 (0.55,0.63)	0.61 (0.59,0.64)	0.85 (0.81,0.88)
LBOTE	0.32 (0.28,0.35)	0.50 (0.44,0.56)	0.60 (0.57,0.63)	0.73 (0.69,0.77)
Socioeconomic disadvantage	3.65 (3.42,3.89)	2.55 (2.38,2.73)	2.13 (2.05,2.21)	1.84 (1.77,1.92)
Low birthweight	1.57 (1.39,1.77)	1.14 (0.97,1.33)	1.35 (1.26,1.45)	1.10 (1.00,1.21)
Preterm birth	1.43 (1.27,1.60)	0.94 (0.81,1.09)	1.24 (1.16,1.33)	1.01 (0.92,1.10)
Prenatal smoking exposure	6.12 (5.74,6.54)	4.04 (3.76,4.33)	3.89 (3.74,4.05)	3.43 (3.29,3.58)

Table A32. Unadjusted (uOR) and Adjusted (aOR) Odds Ratios and 95% confidence intervals (CI) of any (at least one) suspension for children with *Intellectual/Learning disability*.

	At Least One Suspension (Primary) (n=187,133)		At Least One Suspension (Secondary) (n=96,877)	
	uOR (95% CI)	aOR (95% CI)	uOR (95% CI)	aOR (95% CI)
Intellectual/Learning Disability	3.55 (3.36,3.75)	2.35 (2.21,2.49)	1.51 (1.39,1.64)	1.02 (0.93,1.11)
Male Sex	5.55 (5.16,5.97)	5.48 (5.09,5.92)	2.50 (2.41,2.60)	2.68 (2.57,2.79)
Remoteness (major cities)	0.39 (0.37,0.41)	0.65 (0.61,0.69)	0.61 (0.59,0.63)	0.85 (0.81,0.88)
LBOTE	0.28 (0.25,0.31)	0.43 (0.38,0.47)	0.59 (0.56,0.62)	0.73 (0.69,0.77)
Socioeconomic disadvantage	3.39 (3.21,3.58)	2.37 (2.24,2.52)	2.11 (2.03,2.19)	1.82 (1.75,1.90)
Low birthweight	1.56 (1.41,1.72)	1.09 (0.95,1.24)	1.36 (1.26,1.45)	1.11 (1.01,1.22)
Preterm birth	1.46 (1.33,1.61)	1.00 (0.89,1.13)	1.24 (1.16,1.33)	0.99 (0.90,1.08)
Prenatal smoking exposure	5.85 (5.53,6.18)	3.7 (3.48,3.93)	3.86 (3.71,4.01)	3.39 (3.25,3.53)

Table A33. Unadjusted (uOR) and Adjusted (aOR) Odds Ratios and 95% confidence intervals (CI) of any (at least one) suspension for children with *Sensory/Speech disability*.

	At Least One Suspension (Primary) (n=162,172)		At Least One Suspension (Secondary) (n=96,389)	
	uOR (95% CI)	aOR (95% CI)	uOR (95% CI)	aOR (95% CI)
Sensory/Speech Disability	3.40 (3.11,3.72)	2.24 (2.04,2.46)	1.26 (1.15,1.38)	1.04 (0.94,1.15)
Male Sex	5.44 (4.99,5.93)	5.68 (5.20,6.21)	2.48 (2.39,2.58)	2.67 (2.56,2.78)
Remoteness (major cities)	0.35 (0.33,0.38)	0.57 (0.53,0.61)	0.62 (0.59,0.64)	0.85 (0.81,0.88)
LBOTE	0.33 (0.30,0.37)	0.51 (0.46,0.58)	0.61 (0.58,0.64)	0.74 (0.70,0.78)
Socioeconomic disadvantage	3.69 (3.46,3.94)	2.57 (2.40,2.76)	2.10 (2.02,2.18)	1.83 (1.75,1.90)
Low birthweight	1.62 (1.43,1.82)	1.19 (1.02,1.40)	1.34 (1.25,1.44)	1.08 (0.98,1.18)
Preterm birth	1.43 (1.27,1.61)	0.97 (0.83,1.12)	1.25 (1.16,1.33)	1.02 (0.93,1.11)
Prenatal smoking exposure	6.24 (5.84,6.67)	4.14 (3.85,4.45)	3.82 (3.67,3.97)	3.38 (3.24,3.52)

Table A34. Unadjusted (uOR) and Adjusted (aOR) Odds Ratios and 95% confidence intervals (CI) of any (at least one) suspension for children with *Psychosocial disability*.

	At Least One Suspension (Primary) (n=177,492)		At Least One Suspension (Secondary) (n=98,387)	
	uOR (95% CI)	aOR (95% CI)	uOR (95% CI)	aOR (95% CI)
Psychosocial Disability	4.93 (4.66,5.21)	3.62 (3.41,3.84)	1.51 (1.41,1.62)	1.33 (1.23,1.43)
Male Sex	5.69 (5.29,6.14)	5.46 (5.06,5.89)	2.53 (2.43,2.63)	2.70 (2.59,2.81)
Remoteness (major cities)	0.43 (0.40,0.45)	0.63 (0.60,0.67)	0.62 (0.59,0.64)	0.84 (0.80,0.87)
LBOTE	0.31 (0.28,0.34)	0.50 (0.45,0.56)	0.60 (0.57,0.63)	0.73 (0.69,0.77)
Socioeconomic disadvantage	3.31 (3.13,3.50)	2.42 (2.28,2.57)	2.10 (2.03,2.18)	1.83 (1.76,1.91)
Low birthweight	1.53 (1.38,1.69)	1.12 (0.97,1.28)	1.36 (1.27,1.46)	1.11 (1.01,1.21)
Preterm birth	1.43 (1.30,1.58)	1.01 (0.89,1.14)	1.25 (1.16,1.33)	1.00 (0.91,1.09)
Prenatal smoking exposure	5.54 (5.23,5.85)	3.62 (3.40,3.85)	3.82 (3.67,3.97)	3.37 (3.23,3.51)

Table A35. Unadjusted (uOR) and Adjusted (aOR) Odds Ratios and 95% confidence intervals (CI) of any (at least one) suspension for children with *Other disability*.

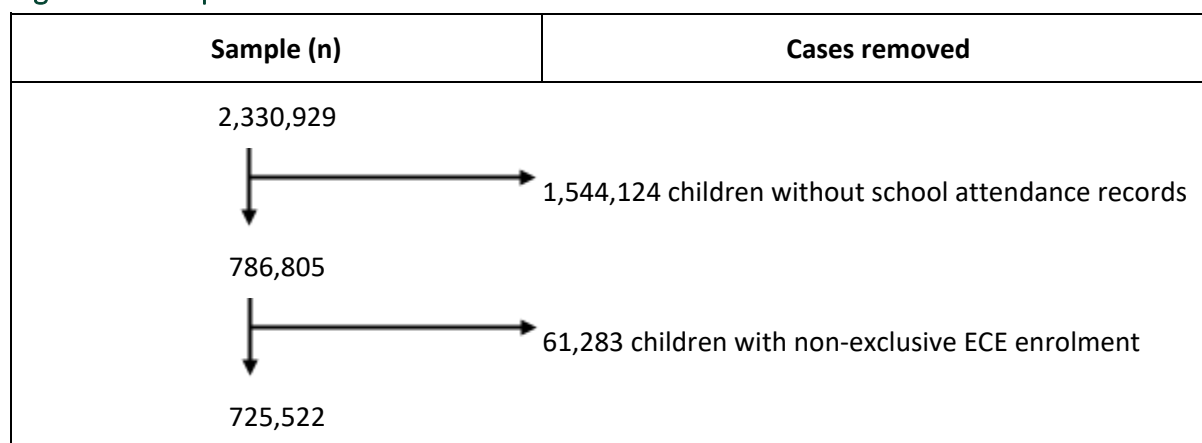
	At Least One Suspension (Primary) (n=157,667)		At Least One Suspension (Secondary) (n=94,397)	
	uOR (95% CI)	aOR (95% CI)	uOR (95% CI)	aOR (95% CI)
Other Disability	5.57 (5.05,6.14)	2.79 (2.51,3.10)	1.30 (1.11,1.51)	0.88 (0.74,1.03)
Male Sex	5.41 (4.96,5.91)	5.58 (5.10,6.10)	2.48 (2.38,2.57)	2.67 (2.56,2.78)
Remoteness (major cities)	0.34 (0.32,0.36)	0.58 (0.54,0.62)	0.61 (0.59,0.64)	0.85 (0.81,0.88)
LBOTE	0.31 (0.28,0.35)	0.51 (0.45,0.58)	0.60 (0.57,0.63)	0.73 (0.69,0.77)
Socioeconomic disadvantage	3.73 (3.49,3.99)	2.54 (2.36,2.73)	2.13 (2.05,2.21)	1.84 (1.76,1.92)
Low birthweight	1.62 (1.43,1.83)	1.18 (1.01,1.39)	1.35 (1.26,1.46)	1.09 (0.99,1.20)
Preterm birth	1.43 (1.27,1.61)	0.95 (0.81,1.10)	1.25 (1.16,1.34)	1.00 (0.92,1.10)
Prenatal smoking exposure	6.38 (5.97,6.83)	4.15 (3.85,4.46)	3.90 (3.74,4.05)	3.43 (3.29,3.58)

8.2.4 School attendance according to Early Childhood Education type.

This series of analyses examines differences in three School absence outcomes (the mean number of days absent, the total number of days suspended, and the likelihood of any suspension) according to the type of Early Childhood Education enrolment (vs no enrolment) in the year before starting primary school, *without accounting for covariates*.

Sample: A sample of 725,522 children were selected for analyses according to the sample selection flowchart (see Figure A5). Prevalence data are presented in Table A36 for the study sample

Figure A5: Sample selection flowchart.



Methods.

Exposures: Five mutually exclusive subgroups of ECE enrolment were derived for analysis, representing children who were enrolled in the following types of ECE service:

- Centre-based Day Care only (n=336,915);
- Other Childcare Benefit/Subsidy (excluding Centre-based Day Care) only (n=18,311);
- Community Preschool (n=70,552);
- Government Preschool (n=7,217), and;
- No Early Childhood Education (n=292,527) – used as the reference group.

Outcomes: The following outcomes were examined separately for Primary and Secondary school, as outlined above in Section 8.2.1):

- Mean Days (per year) absent;
- Mean Days (per year) suspended.

Covariates: No covariates were considered in this section of the analyses.

Analyses: The mean number of days absent and suspended are presented in Tables A37 and A38, respectively, for children with and without disability. Tests of the difference in mean days absent or suspended are presented in Tables A39-A41, according to the type of ECE enrolment, separately for children with and without disability.

Table A36. Descriptive statistics for children in this sample.

		Study Sample (n=725,522)	
		n	% (column)
Disability	No Disability	590,177	81.35
	Any Disability	135,345	18.65
Disability Type	Physical/Diverse	1,9013	2.62
	Intellectual/Learning	74,382	10.25
	Sensory/Speech	23,463	3.23
	Psychosocial	57,528	7.93
	Other	9,845	1.36
	ECE Enrolment	No Enrolment	292,527
	Centre-Based Day care	336,915	46.44
	Other Child Care Subsidy	18,311	2.52
	Government Preschool	7,217	0.99
	Community Preschool	70,552	9.72
Developmental Vulnerability	Yes	24,279	3.35
	No	210,571	29.02
School Attendance Records	All School Levels	725,522	100.00
	Primary	484,478	66.78
	Secondary	300,830	41.46
School Absences	All School Levels	713,596	98.36
	Primary	475,192	65.50
	Secondary	295,095	40.67
School Suspensions	All School Levels	62,600	8.63
	Primary	15,455	2.13
	Secondary	46,098	6.35
Sex*	Male	372,790	>51.00
	Female	352,710	>48.00
	Other	n.p	n.p
Remoteness	Major Cities	547,138	75.41
	Inner and Outer Regional and Remote and Very Remote	177,723	24.50
	Language background other than English	73,071	10.07
Socioeconomic disadvantage	No	245,840	33.88
	SEIFA Quintile 1 (most disadvantaged)	69,854	9.63
	SEIFA Quintiles 2-5 (least disadvantaged)	230,611	31.79
Low birthweight	Yes	34,089	4.70
	No	535,899	73.86
Preterm birth	Yes	39,760	5.48
	No	530,346	73.10
Prenatal smoking exposure	Yes	90,865	12.52
	No	479,302	66.06

* Note: As minimum cell size rule is triggered, perturbation has been applied to the reporting of sex

8.2.4.1 Early Childhood Education in the year before primary school and school attendance rates

Table A37. Mean days absent (per year) for children *with and without disability* across years with at least one recorded absence.

ECE Enrolment Type	Any Disability				No Disability			
	Primary School		Secondary School		Primary School		Secondary School	
	N	mean (SD)	N	mean (SD)	N	mean (SD)	N	mean (SD)
Community Preschool	18,833	14.75 (12.56)	773	16.69 (15.82)	50,846	12.02 (10.05)	4,256	13.38 (12.17)
Government Preschool	2,441	16.58 (13.67)	0	NA	4,642	13.74 (11.84)	0	NA
Centre-based Day Care	68,895	13.15 (11.31)	11,120	18.18 (17.51)	206,641	11.08 (9.36)	78,092	15.29 (14.45)
Other CCS/CCB	4,061	17.48 (13.53)	723	19.81 (19.11)	9,701	14.82 (11.88)	5,349	16.92 (16.04)
No ECE	19,067	18.8 (16.29)	14,761	23.3 (23.20)	90,065	13.79 (13.30)	180,021	20.23 (21.62)

Table A38. Total days suspended for children *with and without disability* who had at least one recorded suspension.

ECE Enrolment Type	Any Disability				No Disability			
	Primary School		Secondary School		Primary School		Secondary School	
	N	mean (SD)	N	mean (SD)	N	mean (SD)	N	mean (SD)
Community Preschool	1,059	15.12 (25.00)	46	7.67 (8.84)	836	12.28 (21.35)	91	8.63 (13.29)
Government Preschool	114	16.13 (24.38)	0	NA	80	9.47 (16.10)	0	NA
Centre-based Day Care	4,906	14.01 (20.74)	1,896	14.77 (19.58)	4,083	10.44 (17.40)	7,641	12.42 (17.47)
Other CCS/CCB	236	13.32 (25.37)	136	17.21 (23.24)	313	10.08 (17.62)	680	13.33 (17.89)
No ECE	1,280	16 (24.31)	3,934	20.59 (27.14)	2,548	12.92 (21.66)	31,674	17.88 (24.83)

Table A39. Differences in days absent from school per year among children enrolled in each type of ECE (vs. no ECE enrolment) for children *with disability* who had an absence record.

ECE Enrolment Type	Primary School Absences				Secondary School Absences			
	t	Df	p-value	Cohen's d	t	df	p-value	Cohen D
Community Preschool	-27.110	35787.84	<0.001	-0.278	-11.020	955.10	<0.001	-0.333
Government Preschool	-7.384	3394.30	<0.001	-0.148	NA	NA	NA	NA
Centre-based Day Care	-44.970	24369.70	<0.001	-0.403	-20.230	25878.95	<0.001	-0.250
Other CCS/CCB	-5.432	6817.05	<0.001	-0.088	-4.740	829.79	<0.001	-0.164

Table A40. Differences in mean days absent from school (per year) among children enrolled in each type of ECE (vs. no ECE enrolment) for children *without disability* who had an absence record.

ECE Enrolment Type	Primary School Absences				Secondary School Absences			
	t	df	p-value	Cohen's d	t	df	p-value	Cohen D
Community Preschool	-28.050	129544.80	<0.001	-0.150	-35.430	4913.01	<0.001	-0.391
Government Preschool	-0.278	5262.31	0.781	-0.004	NA	NA	NA	NA
Centre-based Day Care	-55.340	130532.70	<0.001	-0.235	-68.130	215240.80	<0.001	-0.269
Other CCS/CCB	8.074	12471.57	<0.001	0.082	-14.690	5939.96	<0.001	-0.174

Table A41. Differences in mean days suspended (per year) among children enrolled in each type of ECE (vs. no ECE enrolment) children *with disability* who had a suspension record.

ECE Enrolment Type	Primary School Suspensions				Secondary School Suspensions			
	t	df	p-value	Cohen's d	t	df	p-value	Cohen D
Community Preschool	-0.856	2231.22	0.392	-0.036	-9.398	55.45	<0.001	-0.640
Government Preschool	0.055	133.81	0.956	0.005	NA	NA	NA	NA
Centre-based Day Care	-2.690	1793.90	0.007	-0.088	-9.324	4975.26	<0.001	-0.246
Other CCS/CCB	-1.502	319.64	0.134	-0.108	-1.658	148.02	0.099	-0.134

Table A42. Differences in mean days suspended (per year) among children enrolled in each type of ECE (vs. no ECE enrolment) for children *without disability* who had a suspension record.

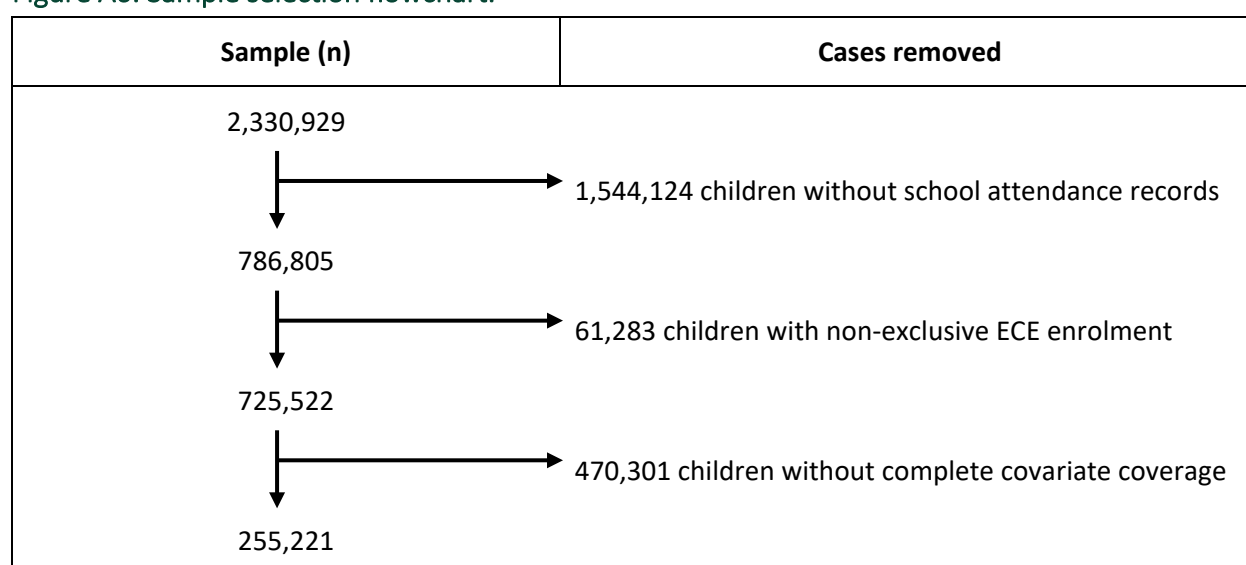
ECE Enrolment Type	Primary School Suspensions				Secondary School Suspensions			
	t	df	p-value	Cohen's d	t	df	p-value	Cohen D
Community Preschool	-0.746	1440.33	0.455	-0.0296	-6.608	91.81	<0.001	-0.465
Government Preschool	-1.860	88.23	0.0657	-0.1806	NA	NA	NA	NA
Centre-based Day Care	-4.874	4550.65	<0.001	-0.1260	-22.400	15983.64	<0.001	-0.254
Other CCS/CCB	-2.620	436.69	0.009	-0.1440	-6.499	736.30	<0.001	-0.210

8.2.4.2 Associations between Early Childhood Education type and school absences when accounting for other factors

This series of analyses examines differences in three School absence outcomes (the mean number of days absent, the total number of days suspended, and the likelihood of any suspension) according to the type of Early Childhood Education enrolment (vs no enrolment) in the year before starting primary school, when accounting for six covariates described in Section 8.2.

Sample: A sample of 255,221 children were selected for analysis according to the sample selection flowchart (see Figure A6). Descriptive statistics for this sample are presented in Table A43.

Figure A6: Sample selection flowchart.



Methods:

Exposures: Five mutually exclusive subgroups of ECE enrolment were derived for analysis, representing children who were enrolled in the following types of ECE service:

- Centre-based Day Care only (n=106,636);
- Other Childcare Benefit/Subsidy (excluding Centre-based Day Care) only (n=6,291);
- Community preschool (n=60,088);
- Government preschool (n=2,561), and;
- No Early Childhood Education (n=79,645) – used as the reference group.

Outcomes: The following were examined for Primary and Secondary school (see Section 8.2.1):

- Mean Days (per year) absent;
- Total Days suspended;
- Any suspension.

Covariates: Six covariates were considered, as described in Section 8.2.

Analyses: Unadjusted and adjusted models are presented separately for children with Any Disability or No Disability, to determine the associations between ECE enrolment type and the three Attendance outcomes (Mean days absent, Total days suspended, and Any suspension) in Tables A44, A45, & A46, respectively.

Table A43. Prevalence of exposures, outcomes and covariates for this study sample..

		Study Sample (n=255,221)	
		n	% (column)
Disability	No Disability	197,900	77.54
	Any Disability	57,321	22.46
Disability Type	Physical/Diverse	8,240	3.23
	Intellectual/Learning	30,678	12.02
	Sensory/Speech	9,876	3.87
	Psychosocial	23,564	9.23
	Other	4,761	1.87
Early Childhood Education	No ECE Enrolment	79,645	31.21
	Centre-Based Day care	106,636	41.78
	Other Child Care Subsidy	6,291	2.46
	Government Preschool	2,561	1.00
	Community Preschool	60,088	23.54
Developmental Vulnerability	Yes	19,799	7.76
	No	179,390	70.29
School Attendance Records	All School Levels	255,221	100.00
	Primary	175,650	68.82
	Secondary	101,526	39.78
School Absences	All School Levels	252,858	99.07
	Primary	173,651	68.04
	Secondary	100,112	39.23
School Suspensions	All School Levels	21,521	8.43
	Primary	9,552	3.74
	Secondary	15,490	6.07
Sex*	Male	131,479	51.52
	Female (Reference)	123,742	48.48
Remoteness	Major Cities	183,793	72.01
	Inner and Outer Regional and Remote and Very Remote (Reference)	71,428	27.99
Language background other than English	Yes	55,714	21.83
	No (Reference)	199,507	78.17
Socioeconomic disadvantage	SEIFA Quintile 1 (most disadvantaged)	59,230	23.21
	SEIFA Quintiles 2-5 (least disadvantaged) (Reference)	195,991	76.79
Low Birthweight	Yes	14,831	5.81
	No (Reference)	240,390	94.19
Preterm Birth	Yes	17,534	6.87
	No (Reference)	237,687	93.13
Prenatal Smoking Exposure	Yes	39,460	15.46
	No (Reference)	215,761	84.54

Table A44. Unadjusted ($u\beta$) and Adjusted ($a\beta$) regression parameter estimates and 95% confidence intervals (CI) for Mean Days Absent among children with Any Disability and No Disability (separate models), according to ECE enrolment type (REF=no ECE enrolment).

	ANY DISABILITY				NO DISABILITY			
	(Primary School) (n=48,129)		(Secondary School) (n=11,554)		Primary School (n=125,522)		Secondary School (n=88,558)	
	$u\beta$ (95% CI)	$a\beta$ (95% CI)	$u\beta$ (95% CI)	$a\beta$ (95% CI)	$u\beta$ (95% CI)	$a\beta$ (95% CI)	$u\beta$ (95% CI)	$a\beta$ (95% CI)
Community	-4.55	-3.83	-7.08	-6.69	-3.46	-2.89	-8.36	-7.54
Preschool	(-4.91,-4.19)	(-4.19,-3.48)	(-8.72,-5.44)	(-8.28,-5.09)	(-3.64,-3.29)	(-3.06,-2.71)	(-9.01,-7.71)	(-8.17,-6.92)
Government	-2.99	-3.00	NA	NA	-1.76	-1.92	NA	NA
Preschool	(-3.85,-2.13)	(-3.84,-2.16)			(-2.28,-1.24)	(-2.43,-1.42)		
Centre-based Day	-6.32	-5.15	-6.08	-5.59	-4.58	-3.68	-7.18	-6.30
Care	(-6.67,-5.97)	(-5.49,-4.81)	(-6.88,-5.29)	(-6.37,-4.81)	(-4.75,-4.41)	(-3.85,-3.52)	(-7.46,-6.89)	(-6.57,-6.02)
Other CCS/CCB	-2.39	-2.06	-4.42	-5.66	-1.03	-1.20	-6.31	-7.23
	(-3.11,-1.68)	(-2.76,-1.36)	(-6.67,-2.18)	(-7.84,-3.47)	(-1.42,-0.64)	(-1.58,-0.82)	(-7.14,-5.48)	(-8.03,-6.42)
Male Sex	0.18	0.35	0.08	0.24	0.19	0.27	1.01	1.05
	(-0.05,0.40)	(0.14,0.57)	(-0.72,0.88)	(-0.53,1.01)	(0.08,0.31)	(0.16,0.39)	(0.75,1.27)	(0.81,1.30)
Remoteness (major	-3.24	-1.45	-4.34	-1.44	-2.66	-1.31	-4.81	-1.55
cities)	(-3.48,-2.99)	(-1.71,-1.2)	(-5.17,-3.5)	(-2.29,-0.59)	(-2.78,-2.53)	(-1.45,-1.18)	(-5.10,-4.52)	(-1.85,-1.26)
LBOTE	-1.63	-0.69	-5.24	-3.99	-1.05	-0.34	-5.50	-3.76
	(-1.91,-1.35)	(-0.98,-0.40)	(-6.28,-4.20)	(-5.05,-2.93)	(-1.19,-0.92)	(-0.47,-0.20)	(-5.82,-5.18)	(-4.08,-3.44)
Socioeconomic	4.63	3.09	5.19	3.94	4.10	2.60	5.69	3.70
disadvantage	(4.38,4.88)	(2.84,3.34)	(4.36,6.02)	(3.1,4.77)	(3.96,4.24)	(2.46,2.74)	(5.39,5.99)	(3.41,4.00)
Low birthweight	1.56	0.12	2.00	0.00	1.40	0.30	2.56	0.18
	(1.14,1.98)	(-0.39,0.63)	(0.68,3.32)	(-1.65,1.66)	(1.14,1.66)	(-0.01,0.61)	(1.99,3.14)	(-0.49,0.84)
Preterm birth	1.10	0.48	1.65	0.99	0.97	0.26	1.60	0.14
	(0.71,1.49)	(0.02,0.94)	(0.41,2.89)	(-0.57,2.54)	(0.73,1.21)	(-0.02,0.54)	(1.06,2.14)	(-0.48,0.76)
Prenatal smoking	6.64	5.07	10.61	8.86	6.78	5.44	13.98	11.95
exposure	(6.37,6.92)	(4.78,5.36)	(9.72,11.50)	(7.95,9.77)	(6.61,6.96)	(5.26,5.61)	(13.65,14.31)	(11.61,12.29)

Table A45. Unadjusted ($u\beta$) and Adjusted ($a\beta$) regression parameter estimates and 95% confidence intervals (CI) for Total Days Suspended among children with Any Disability and No Disability (separate models), according to ECE enrolment type (REF=no ECE enrolment).

	ANY DISABILITY				NO DISABILITY			
	Primary School (n=3,166)		Secondary School (n=2,346)		Primary School (n=2,623)		Secondary School (n=13,141)	
	$u\beta$ (95% CI)	$a\beta$ (95% CI)	$u\beta$ (95% CI)	$a\beta$ (95% CI)	$u\beta$ (95% CI)	$a\beta$ (95% CI)	$u\beta$ (95% CI)	$a\beta$ (95% CI)
Community	-0.71	-0.58	-13.50	-14.34	-1.60	-1.65	-9.66	-12.41
Preschool	(-3.23,1.80)	(-3.08,1.92)	(-21.34,-5.65)	(-22.15,-6.52)	(-3.62,0.43)	(-3.68,0.37)	(-14.82,-4.49)	(-17.50,-7.32)
Government	-1.32	-1.45	NA	NA	-4.94	-5.83	NA	NA
Preschool	(-7.71,5.08)	(-7.82,4.92)			(-11.32,1.44)	(-12.13,0.47)		
Centre-based Day	-2.00	-0.87	-8.65	-8.66	-4.65	-3.51	-8.14	-8.34
Care	(-4.33,0.32)	(-3.22,1.49)	(-10.82,-6.47)	(-10.83,-6.49)	(-6.53,-2.78)	(-5.38,-1.63)	(-9.20,-7.08)	(-9.39,-7.30)
Other CCS/CCB	-2.64	-1.37	-3.01	-4.66	-5.20	-4.85	-7.85	-9.13
	(-7.59,2.32)	(-6.30,3.56)	(-9.97,3.94)	(-11.6,2.28)	(-9.20,-1.21)	(-8.80,-0.91)	(-11.05,-4.65)	(-12.29,-5.97)
Male Sex	4.95	5.63	2.32	3.37	3.64	4.60	2.29	3.61
	(2.60,7.300)	(3.27,8.00)	(-0.24,4.87)	(0.84,5.90)	(1.71,5.57)	(2.69,6.52)	(1.41,3.17)	(2.75,4.48)
Remoteness	-1.92	-0.58	-2.74	-1.59	-2.80	-1.48	-2.50	-0.87
(major cities)	(-3.53,-0.31)	(-2.30,1.14)	(-4.84,-0.65)	(-3.76,0.58)	(-4.31,-1.30)	(-3.07,0.11)	(-3.34,-1.66)	(-1.73,0.00)
LBOTE	-6.45	-5.69	-3.60	-2.56	-5.50	-3.97	-4.33	-2.69
	(-9.59,-3.30)	(-8.91,-2.48)	(-6.73,-0.46)	(-5.78,0.67)	(-8.04,-2.96)	(-6.63,-1.31)	(-5.46,-3.19)	(-3.87,-1.50)
Socioeconomic	3.29	3.06	1.52	1.07	3.55	3.02	1.88	1.54
disadvantage	(1.69,4.89)	(1.42,4.70)	(-0.56,3.59)	(-1.02,3.16)	(2.05,5.05)	(1.50,4.54)	(1.04,2.71)	(0.71,2.37)
Low birthweight	-2.29	-3.11	0.15	-2.09	3.11	-0.91	2.32	-1.35
	(-5.09,0.50)	(-6.56,0.33)	(-3.38,3.69)	(-6.56,2.38)	(0.24,5.97)	(-4.22,2.41)	(0.73,3.92)	(-3.24,0.54)
Preterm birth	-0.56	0.61	1.39	2.28	5.81	5.19	3.74	3.14
	(-3.12,2.00)	(-2.53,3.76)	(-1.98,4.75)	(-1.96,6.51)	(3.02,8.59)	(1.97,8.41)	(2.20,5.29)	(1.32,4.96)
Prenatal smoking	3.58	2.98	5.02	4.33	4.46	3.35	7.47	7.22
exposure	(1.98,5.19)	(1.32,4.64)	(2.95,7.09)	(2.21,6.46)	(2.96,5.95)	(1.81,4.89)	(6.65,8.30)	(6.38,8.07)

Table A46. Unadjusted (uOR) and Adjusted (aOR) Odds Ratios and 95% confidence intervals (CI) for being suspended among children with Any Disability and No Disability (separate models), according to ECE enrolment type (REF=no ECE enrolment).

	ANY DISABILITY				NO DISABILITY			
	Primary School (n=48,523)		Secondary School (n=11,720)		Primary School (n=127,127)		Secondary School (n=89,806)	
	uOR (95% CI)	aOR (95% CI)	uOR (95% CI)	aOR (95% CI)	uOR (95% CI)	aOR (95% CI)	uOR (95% CI)	aOR (95% CI)
Community Preschool	0.69 (0.62,0.78)	0.75 (0.66,0.84)	0.18 (0.13,0.25)	0.18 (0.12,0.24)	0.45 (0.40,0.50)	0.53 (0.47,0.59)	0.09 (0.07,0.12)	0.10 (0.08,0.12)
Government Preschool	0.73 (0.54,0.97)	0.82 (0.60,1.11)	NA	NA	0.61 (0.43,0.84)	0.68 (0.48,0.95)	NA	NA
Centre-based Day Care	0.84 (0.75,0.93)	1.08 (0.97,1.21)	0.58 (0.53,0.64)	0.59 (0.53,0.66)	0.45 (0.41,0.50)	0.67 (0.60,0.74)	0.39 (0.37,0.41)	0.41 (0.39,0.43)
Other CCS/CCB	0.87 (0.70,1.09)	1.07 (0.84,1.35)	0.51 (0.37,0.69)	0.42 (0.30,0.57)	0.89 (0.72,1.09)	0.90 (0.72,1.11)	0.45 (0.39,0.52)	0.38 (0.33,0.44)
Male Sex	4.66 (4.20,5.18)	5.07 (4.56,5.64)	2.52 (2.25,2.81)	2.74 (2.44,3.07)	5.02 (4.55,5.55)	5.58 (5.04,6.18)	2.48 (2.39,2.58)	2.74 (2.62,2.85)
Remoteness (major cities)	0.50 (0.46,0.54)	0.74 (0.68,0.80)	0.63 (0.57,0.70)	0.8 (0.72,0.89)	0.32 (0.29,0.34)	0.52 (0.48,0.57)	0.60 (0.58,0.62)	0.83 (0.80,0.87)
Language background other than English	0.29 (0.25,0.33)	0.37 (0.32,0.43)	0.66 (0.57,0.75)	0.73 (0.63,0.85)	0.34 (0.30,0.39)	0.51 (0.44,0.58)	0.59 (0.56,0.62)	0.71 (0.67,0.75)
Socioeconomic disadvantage	2.47 (2.30,2.66)	2.13 (1.97,2.31)	1.80 (1.64,1.98)	1.63 (1.47,1.80)	3.98 (3.68,4.30)	2.63 (2.42,2.86)	2.12 (2.04,2.20)	1.76 (1.69,1.84)
Low birthweight	1.21 (1.07,1.38)	0.96 (0.81,1.13)	0.97 (0.83,1.14)	0.93 (0.75,1.16)	1.57 (1.35,1.81)	1.20 (0.99,1.45)	1.36 (1.26,1.46)	1.09 (0.98,1.20)
Preterm birth	1.25 (1.11,1.40)	1.11 (0.95,1.29)	0.94 (0.81,1.09)	0.92 (0.75,1.13)	1.35 (1.16,1.55)	0.93 (0.78,1.12)	1.26 (1.17,1.35)	1.01 (0.92,1.11)
Prenatal smoking exposure	3.69 (3.42,3.97)	2.80 (2.58,3.04)	2.77 (2.51,3.05)	2.49 (2.24,2.77)	6.77 (6.26,7.32)	4.19 (3.85,4.57)	3.89 (3.74,4.05)	3.37 (3.23,3.52)

8.2.5 Severity of disability and school attendance

This section examines whether the functional limitation due to disability affects school attendance, using severity indicators only available in the NDIS.

Sample: A sample of 26,821 children were selected for analysis according to the exclusion criteria presented in Figure A6. Descriptive statistics for this sample are presented in Table A47.

Figure A6: Sample selection flowchart.

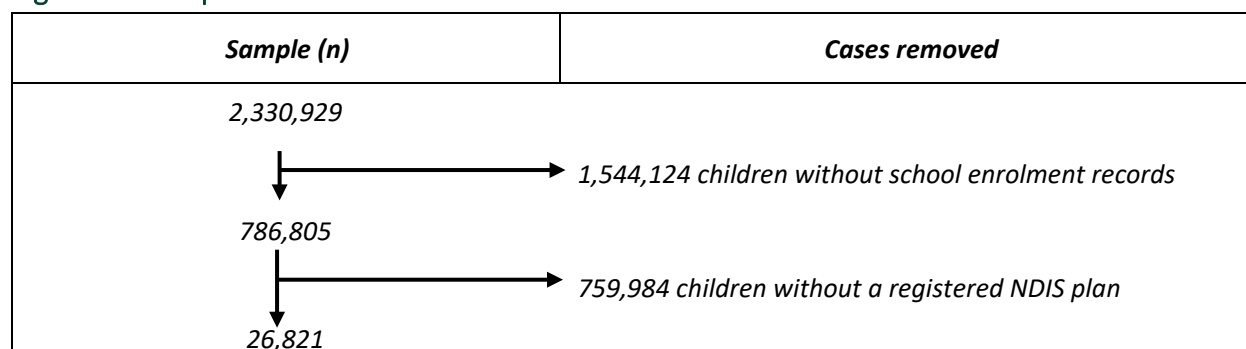


Table A47. Descriptive statistics for the selected study sample (n=26,821).

		Study Population (n=26,821)	
		n	% (column)
Disability Type*	Intellectual/Learning	9,337	34.81
	Physical/Diverse	19,153	71.41
	Sensory/Speech	8,057	30.04
	Psychosocial	11,999	44.74
	Other	6,453	24.06
Disability Severity	Low Functional Limitation	11,407	42.53
	Medium Functional Limitation	11,518	42.94
	High Functional Limitation	3,896	14.53
Developmental Vulnerability	Yes	1,408	5.25
	No	7,101	26.48
School Attendance Records	All School Levels	26,821	100.00
	Primary	21,262	79.27
	Secondary	7,454	27.79
School Absences	All School Levels	26,492	98.77
	Primary	21,011	78.34
	Secondary	7,325	27.31
School Suspensions	All School Levels	4,509	16.81
	Primary	2,587	9.65
	Secondary	1,883	7.02
Sex	Male	19,099	71.21
	Female	7,722	28.79
Remoteness	Major Cities	18,315	68.29
	Inner and Outer Regional and	8,495	31.67
	Remote and Very Remote		
Language background other than English	Yes	1,537	5.73
	No	25,284	94.27

* Note: restricted to children with a NDIS registered plan before 18 years.

Methods.

Exposure: Disability functional limitation (low; medium; high) is an assessment of the individuals functional limitation from disability under the NDIS.

Outcomes: Mean Days Absent (per year) in Primary and Secondary school (see Section 8.2.1)

Analyses: Mean days absent per year and mean days suspended per year (among children with a recorded suspension) in Primary and Secondary School are presented for groups of children with Low, Medium and High functional limitation in Tables A48 and A50 respectively. The number and proportion of children suspended in Primary and Secondary School are presented for children with Low, Medium and High functional limitation in Table A52, and the differences between groups of children with Medium and High functional limitation (relative to those with Low functional limitation) are presented in Table A49 for absences, Table A51 for suspensions among children with a recorded suspension, and Table A53 for any likelihood of suspension.

Table A48. Mean days absent (per year) for children with a recorded absence for children with a NDIS plan by level of functional limitation.

	Primary School		Secondary School	
	N	mean (SD)	N	mean (SD)
Days absent:				
Low Functional Limitation	9,513	15.29 (13.00)	2,370	22.53 (22.59)
Medium Functional Limitation	8,919	17.28 (15.02)	3,372	24.95 (23.60)
High Functional Limitation	2,579	20.92 (18.96)	1,583	25.30 (24.32)

Table A49. Differences in mean days absent from school (per year) according to level of functional limitation (compared to low functional limitation).

Functional Limitation level	Primary School Absences				Secondary School Absences			
	t	df	p-value	Cohen D	t	df	p-value	Cohen D
Medium	9.595	17671.79	<0.001	0.142	3.926	5233.11	<0.001	0.105
High	14.202	3262.07	<0.001	0.346	3.612	3217.61	<0.001	0.118

Note: the reference groups for all levels of functional disability was ‘Low functional limitation’

Table A50. Mean days suspended (per year) for children who had a recorded suspension according to level of functional limitation.

	Primary School		Secondary School	
	N	mean (std)	N	mean (std)
Days Suspended:				
Low Functional Limitation	910	14.11 (20.03)	567	20.45 (27.98)
Medium Functional Limitation	1,371	17.49 (24.31)	954	20.38 (25.70)
High Functional Limitation	306	18.76 (27.03)	362	20.07 (24.74)

Table A51. Differences in mean days suspended from school (per year) according to level of functional limitation (compared to low functional limitation).

Functional Limitation level	Primary School Suspensions				Secondary School Suspensions			
	t	df	p-value	Cohen D	t	df	p-value	Cohen D
Medium	3.618	2175.35	<0.001	0.1517	-0.05	1109.99	0.960	-0.003
High	2.765	423.25	0.0059	0.1955	-0.218	835.89	0.828	-0.014

Note: the reference groups for all levels of functional disability was ‘Low functional limitation’

Table A52. Any likelihood of suspension for children with a NDIS plan by level of functional limitation.

Any Suspensions:	Primary School		Secondary School	
	N	n (Row %)	N	n (Row %)
Low Functional Limitation	9,638	910 (9.44)	2,411	567 (23.52)
Medium Functional Limitation	9,004	1,371 (15.23)	3,429	954 (27.82)
High Functional Limitation	2,620	306 (11.68)	1,614	362 (22.43)

Table A53. Chi-square and odds ratio (95% Confidence Interval) for the likelihood of being suspended from school for children with a NDIS plan according to level of functional limitation (compared to low functional limitation).

Functional Limitation Level	Level of Functional Limitation vs. Low Functional limitation					
	Primary School Suspensions			Secondary School Suspensions		
	χ^2	p	OR (95%CI)	χ^2	p	OR (95%CI)
Medium	145.060	<0.001	1.72 (1.58, 1.88)	13.617	<0.001	1.25 (1.11, 1.41)
High	0.645	0.422	0.94 (0.81, 1.09)	11.542	<0.001	1.27 (1.11, 1.46)

Note: the reference groups for all levels of functional disability was 'Low functional limitation'.

We next examined the associations between levels of functional limitation and school attendance outcomes in the context of covariates, for a subsample of children with full covariate data (i.e., the same six covariates as described in Section 8.2).

Sample: A subsample of 11,443 children was selected for analyses according to exclusion criteria detailed in Figure A7. Descriptive statistics for this sample are provided in Table A54.

Methods:

Covariates: Six covariates were considered, as described in Section 8.2.

Analyses: Unadjusted and adjusted models are presented separately for primary and secondary school levels, to determine the associations between disability functional limitation and the three Attendance outcomes (Mean days absent, Total days suspended, and Any suspension) in Tables A55, A56, & A57, respectively.

Figure A7: Sample selection flowchart.

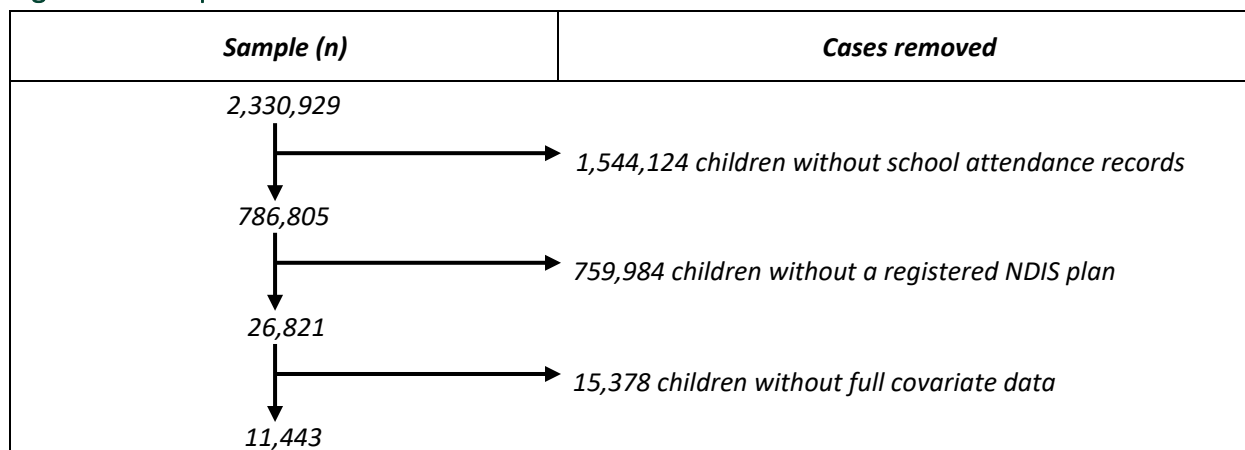


Table A54. Descriptive statistics for the selected study sample (n=11,443).

		Study Population (n=11,443)	
		n	% (column)
Disability Type	Intellectual/Learning	4,245	37.10
	Physical/Diverse	8,645	75.55
	Sensory/Speech	3,763	32.88
	Psychosocial	5,463	47.74
	Other	3,179	27.78
Disability Severity	Low Functional Limitation	5,071	44.32
	Medium Functional Limitation	4,878	42.63
	High Functional Limitation	1,494	13.06
Developmental Vulnerability	Yes	1,187	10.37
	No	6,127	53.54
School Attendance Records	All School Levels	11,443	100.00
	Primary	9,455	82.63
	Secondary	2,637	23.04
School Absences	All School Levels	11,329	99.00
	Primary	9,368	81.87
	Secondary	2,596	22.69
School Suspensions	All School Levels	1,778	15.54
	Primary	1,113	9.73
	Secondary	648	5.66
Sex	Male	8,209	71.74
	Female (Reference)	3,234	28.26
Remoteness	Major Cities	7,548	65.96
	Inner and Outer Regional and Remote and Very Remote (Reference)	3,895	34.04
Language background other than English	Yes	528	4.61
	No (Reference)	10,915	95.39
Socioeconomic disadvantage	SEIFA Quintile 1 (most disadvantaged)	3,282	28.68
	SEIFA Quintiles 2-5 (least disadvantaged) (Reference)	8,161	71.32
Low birthweight	Yes	1,258	10.99
	No (Reference)	10,185	89.01
Preterm birth	Yes	1,451	12.68
	No (Reference)	9,992	87.32
Prenatal smoking exposure	Yes	2,401	20.98
	No (Reference)	9,042	79.02

8.2.5.1 Disability functional limitation and school absences

Table A55. Unadjusted ($u\beta$) and Adjusted ($a\beta$) regression parameter estimates and 95% confidence intervals (CI) for mean days absent according to medium and high functional limitation (vs. low functional limitation), when accounting for other covariates.

	Mean Days Absent (Primary School) (n=9,368)		Mean Days Absent (Secondary School) (n=2,596)	
	$u\beta$ (95% CI)	$a\beta$ (95% CI)	$u\beta$ (95% CI)	$a\beta$ (95% CI)
Medium Functional Limitation	1.87 (1.26,2.48)	2.01 (1.41,2.61)	2.18 (0.09,4.26)	2.19 (0.13,4.25)
High Functional Limitation	5.78 (4.83,6.72)	5.60 (4.68,6.53)	2.35 (-0.28,4.98)	2.86 (0.28,5.45)
Male Sex	-0.41 (-1.05,0.24)	-0.48 (-1.11,0.15)	-1.89 (-3.89,0.11)	-2.38 (-4.34,-0.41)
Remoteness (major cities)	-2.85 (-3.46,-2.24)	-1.80 (-2.41,-1.18)	-4.64 (-6.56,-2.71)	-2.96 (-4.89,-1.03)
LBOTE	-1.35 (-2.67,-0.02)	-0.44 (-1.75,0.88)	-6.90 (-12.71,-1.09)	-5.19 (-10.98,0.59)
Socioeconomic disadvantage	4.01 (3.38,4.65)	2.97 (2.34,3.61)	5.94 (3.93,7.95)	4.72 (2.70,6.74)
Low birthweight	0.63 (-0.30,1.57)	-0.25 (-1.44,0.95)	-0.90 (-3.72,1.93)	-4.04 (-7.81,-0.26)
Preterm birth	0.49 (-0.38,1.36)	0.24 (-0.87,1.35)	1.12 (-1.64,3.88)	2.88 (-0.78,6.54)
Prenatal smoking exposure	5.39 (4.68,6.10)	4.50 (3.78,5.23)	8.51 (6.41,10.61)	7.49 (5.35,9.63)

8.2.5.2 Level of functional limitation and school suspensions

Table A56. Unadjusted ($u\beta$) and Adjusted ($a\beta$) regression parameter estimates and 95% confidence intervals (CI) for the Total number of days suspended according to medium and high functional limitation (vs. low functional limitation), when accounting for other covariates.

	Total Days Suspended (Primary School) (n=1,113)		Total Days Suspended (Secondary School) (n=648)	
	$u\beta$ (95% CI)	$a\beta$ (95% CI)	$u\beta$ (95% CI)	$a\beta$ (95% CI)
Medium Functional Limitation	3.37 (0.38,6.36)	3.67 (0.70,6.65)	-3.05 (-7.59,1.50)	-3.39 (-7.97,1.20)
High Functional Limitation	2.63 (-1.91,7.17)	3.14 (-1.36,7.65)	-1.30 (-7.10,4.49)	-1.79 (-7.63,4.05)
Male Sex	5.58 (1.17,9.99)	5.37 (0.96,9.79)	3.50 (-1.66,8.67)	3.64 (-1.57,8.86)
Remoteness (major cities)	-1.57 (-4.39,1.26)	-0.63 (-3.50,2.24)	-2.58 (-6.67,1.50)	-2.27 (-6.41,1.87)
LBOTE	-5.34 (-14.88,4.21)	-5.74 (-15.27,3.80)	1.54 (-13.11,16.19)	4.66 (-10.12,19.43)
Socioeconomic disadvantage	4.11 (1.31,6.91)	3.79 (0.92,6.66)	1.60 (-2.45,5.66)	0.63 (-3.48,4.75)
Low birthweight	-5.76 (-10.47,-1.04)	-6.68 (-12.49,-0.88)	-0.61 (-7.02,5.79)	-5.14 (-13.75,3.47)
Preterm birth	-2.41 (-6.77,1.95)	1.59 (-3.77,6.94)	3.65 (-2.62,9.93)	6.20 (-2.19,14.59)
Prenatal smoking exposure	3.48 (0.59,6.37)	3.02 (0.07,5.97)	4.19 (0.08,8.29)	3.98 (-0.24,8.19)

Table A57. Unadjusted (uOR) and Adjusted (aOR) Odds Ratios and 95% confidence intervals (CI) for being suspended according to medium and high functional limitation (vs. low functional limitation), when accounting for other covariates

	Any Suspension (Primary School) (n=9,455)		Any Suspension (Secondary School) (n=2,637)	
	uOR (95% CI)	aOR (95% CI)	uOR (95% CI)	aOR (95% CI)
Medium Functional Limitation	1.58 (1.38,1.81)	1.57 (1.36,1.80)	1.27 (1.04,1.56)	1.21 (0.98,1.49)
High Functional Limitation	1.40 (1.14,1.71)	1.38 (1.12,1.70)	1.09 (0.84,1.41)	1.13 (0.87,1.48)
Male Sex	3.50 (2.89,4.26)	3.52 (2.90,4.30)	2.48 (2.00,3.11)	2.49 (1.99,3.13)
Remoteness (major cities)	0.74 (0.65,0.84)	0.94 (0.82,1.07)	0.91 (0.75,1.09)	1.08 (0.89,1.32)
LBOTE	0.39 (0.25,0.57)	0.44 (0.28,0.65)	0.64 (0.33,1.16)	0.70 (0.35,1.30)
Socioeconomic disadvantage	1.99 (1.75,2.27)	1.80 (1.57,2.06)	1.75 (1.45,2.11)	1.67 (1.38,2.03)
Low birthweight	0.86 (0.69,1.06)	0.86 (0.65,1.14)	0.84 (0.63,1.11)	0.95 (0.64,1.39)
Preterm birth	0.88 (0.72,1.07)	0.95 (0.72,1.22)	0.82 (0.62,1.08)	0.77 (0.53,1.12)
Prenatal smoking exposure	2.54 (2.22,2.91)	2.31 (2.00,2.66)	2.04 (1.68,2.47)	1.98 (1.62,2.43)

8.3 Academic Achievement (National Assessment Program – Literacy and Numeracy)

8.3.1 Grade 3 NAPLAN achievement

This section examines associations between disability and developmental vulnerability on achievement in the Grade 3 NAPLAN and is therefore restricted to data from children with complete data on all five domains of the Grade 3 NAPLAN assessment.

Sample: A sample of 518,310 children were selected for analyses according to the exclusion criteria shown in Figure A8. Descriptive information for this sample is presented in Table A58.

Figure A8: Sample selection flowchart.

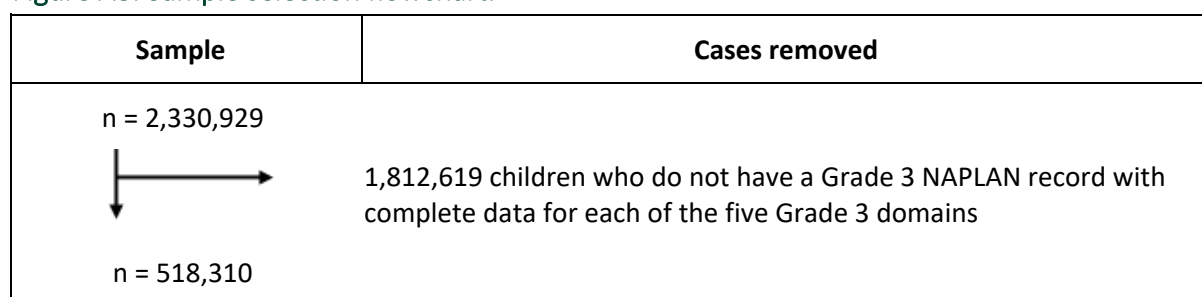


Table A58: Descriptive statistics for the selected study sample (n=518,310).

	Study Population (n=518,310)	
	n	% (column)
Disability		
No Disability (Reference)	450,479	86.91
Any Disability	6,7831	13.09
Disability Type		
Physical/Diverse	7,700	1.49
Intellectual/Learning	25,324	4.89
Sensory/Speech	13,818	2.67
Psychosocial	33,106	6.39
Other	4,062	0.78
Developmental Vulnerability		
Yes	159,265	30.73
No (Reference)	16,573	3.20
Sex*		
Male	>263,680	>50.00
Female (Reference)	>254,620	>49.00
Other	n.p	n.p
Remoteness		
Major Cities	386,922	74.65
Inner and Outer Regional and Remote and Very Remote (Reference)	131,012	25.28

* Note: As minimum cell size rule is triggered, perturbation has been applied to the reporting of sex.

Methods.

Exposures: Exposures included Any Disability, Disability Type, Developmental Vulnerability, as summarised in Section/s 8.2.1.

Outcomes: *NAPLAN achievement below NMS* (Band 1) on any of the five NAPLAN domains on the Grade 3 assessment (REF=scores in Bands 2 to 6 on all five domains) *or* on the Numeracy or Reading domains of the Grade 3 assessment (REF=scores in Bands 2 to 6 on these respective domains).

Analyses: Achievement below NMS on Any domain, or on the Numeracy and Reading domains of the Grade 3 NAPLAN are presented in Table A59 according to Any Disability, Disability Type, Developmental Vulnerability, and the Odds ratios for achieving below NMS for each of these groups is presented in table A60.

Table A59. Achieving below the National Minimum Standard (NMS) on the Grade 3 NAPLAN, according to disability status, types of disability, and developmental vulnerability.

	Sample Size	Below NMS (Any domain)		Below NMS (Numeracy domain)		Below NMS (Reading domain)	
		N	%(row)	N	%(row)	N	%(row)
Disability	518,310						
Any Disability	67,831	15,660	23.09	5,799	8.55	6,156	9.08
No Disability	450,479	44,840	9.95	14,576	3.24	16,924	3.76
Disability Type							
Physical/Diverse	7,700	2,410	31.30	1,023	13.29	1,000	12.99
Intellectual/Learning	25,324	7,652	30.22	2,940	11.61	3,014	11.90
Sensory/Speech	13,818	3,382	24.48	1,359	9.83	1,367	9.89
Psychosocial	33,106	6,521	19.70	2,208	6.67	2,490	7.52
Other	4,062	1,346	33.14	623	15.34	594	14.62
Developmental Vulnerability	175,838						
Yes	16,573	5,894	35.56	2,438	14.71	2,536	15.30
No	159,265	15,397	9.67	4,989	3.13	5,682	3.57

Table A60. Odds Ratios (95% CI) for achievement below NMS on the Grade 3 NAPLAN for children with any disability, five disability types, and developmental vulnerability.

	Below NMS (Any)	Below NMS (Numeracy)	Below NMS (Reading)
Disability			
Any Disability	2.72 (2.66,2.77)	2.80 (2.71,2.89)	2.56 (2.48,2.64)
Disability Type			
Physical/Diverse	4.12 (3.92,4.33)	4.58 (4.28,4.09)	3.82 (3.57,4.09)
Intellectual/Learning	3.92 (3.81,4.03)	3.93 (3.77,4.10)	3.46 (3.32,3.61)
Sensory/Speech	2.93 (2.82,3.05)	3.26 (3.08,3.46)	2.81 (2.65,2.98)
Psychosocial	2.22 (2.16,2.28)	2.14 (2.04,2.24)	2.08 (1.99,2.18)
Other	4.48 (4.02,4.79)	5.42 (4.97,5.91)	4.39 (4.02,4.79)
Developmental Vulnerability			
Yes	5.16 (4.98,5.35)	5.33 (5.07,5.61)	4.88 (4.65,5.13)

We then examined these associations in the context of a range of covariate factors, in a sub-sample of 192,910 children with Grade 3 NAPLAN records and all necessary covariate data. Descriptive information for this sample is presented in Table A61.

Covariates: Six covariates were considered, as described in Section 8.2.

Analyses: Unadjusted and adjusted models are presented separately for NAPLAN achievement below NMS on Any domain, or on the Numeracy and Reading domains, to determine their association with Disability (Table A62) and Disability Type (Tables A63-A67).

Table A61: Descriptive statistics for the selected study sample with full covariate data (n=192,910).

	Study Population (n=192,910)	
	n	% (column)
Disability		
Any Disability	30,808	15.97
No Disability (Reference)	162,102	84.03
Disability Type		
Physical/Diverse	3,686	1.91
Intellectual/Learning	11,363	5.89
Sensory/Speech	5,951	3.08
Psychosocial	14,088	7.30
Other	2,069	1.07
Developmental Vulnerability		
Yes	13,859	7.18
No	137,535	71.29
Sex		
Male	98,318	50.97
Female (Reference)	94,592	49.03
Remoteness		
Major Cities	138,549	71.82
Inner and Outer Regional and Remote and Very Remote (Reference)	54,361	28.18
Language background other than English		
Yes	41,043	21.28
No (Reference)	151,867	78.72
Socioeconomic disadvantage		
SEIFA Quintile 1 (most disadvantaged)	43,137	22.36
SEIFA Quintiles 2-5 (least disadvantaged) (Reference)	149,773	77.64
Low birthweight		
Yes	10,534	5.46
No (Reference)	182,376	94.54
Preterm birth		
Yes	12,436	6.45
No (Reference)	180,474	93.55
Prenatal smoking exposure		
Yes	28,532	14.79
No (Reference)	164,378	85.21

8.3.1.1 Associations between Any Disability and Grade 3 NAPLAN achievement

Table A62. Unadjusted (uOR) and Adjusted (aOR) Odds Ratios and 95% confidence intervals (CIs) of achieving below National Minimum Standard (NMS) on the Grade 3 NAPLAN for children with Any Disability (n=30,808) relative to children with no disability (n=162,102).

	Below NMS (Any domain)		Below NMS (Numeracy)		Below NMS (Reading)	
	uOR (95% CI)	aOR (95% CI)	uOR (95% CI)	aOR (95% CI)	uOR (95% CI)	aOR (95% CI)
Any Disability	2.87 (2.78,2.96)	2.55 (2.47,2.64)	2.76 (2.63,2.9)	2.48 (2.35,2.61)	2.69 (2.57,2.83)	2.27 (2.16,2.39)
Male Sex	1.69 (1.64,1.74)	1.64 (1.59,1.69)	1.18 (1.13,1.24)	1.10 (1.05,1.16)	1.90 (1.81,1.99)	1.82 (1.73,1.90)
Remoteness (major cities)	0.51 (0.49,0.52)	0.64 (0.62,0.66)	0.06 (0.57,0.63)	0.74 (0.07,0.78)	0.50 (0.48,0.52)	0.65 (0.62,0.68)
LBOTE	0.71 (0.69,0.74)	0.92 (0.88,0.96)	0.92 (0.87,0.98)	1.16 (1.09,1.24)	0.67 (0.63,0.71)	0.88 (0.82,0.94)
Socioeconomic disadvantage	2.65 (2.57,2.73)	2.14 (2.07,2.21)	2.74 (2.61,2.87)	2.14 (2.03,2.25)	2.60 (2.49,2.72)	2.06 (1.97,2.17)
Low birthweight	1.79 (1.70,1.88)	1.40 (1.30,1.49)	1.97 (1.82,2.13)	1.40 (1.26,1.56)	1.76 (1.63,1.90)	1.33 (1.20,1.47)
Preterm birth	1.54 (1.47,1.62)	1.10 (1.03,1.17)	1.68 (1.55,1.81)	1.17 (1.05,1.29)	1.57 (1.46,1.70)	1.13 (1.03,1.25)
Prenatal smoking exposure	3.11 (3.01,3.21)	2.33 (2.25,2.41)	2.97 (2.83,3.13)	2.24 (2.12,2.36)	2.97 (2.83,3.12)	2.16 (2.05,2.27)

8.3.1.2 Associations between Type of Disability and Grade 3 NAPLAN achievement

Table A63. Unadjusted (uOR) and Adjusted (aOR) Odds Ratios and 95% confidence intervals (CI) of achieving below National Minimum Standard (NMS) on the Grade 3 NAPLAN for children with Physical/Diverse disability (n=3,686) relative to children with no disability (n=162,102).

	Below NMS (Any domain)		Below NMS (Numeracy)		Below NMS (Reading)	
	uOR (95% CI)	aOR (95% CI)	uOR (95% CI)	aOR (95% CI)	uOR (95% CI)	aOR (95% CI)
Physical/Diverse Disability	4.14 (3.85,4.45)	3.56 (3.3,3.85)	3.91 (3.51,4.35)	3.36 (3.0,30.75)	3.72 (3.34,4.12)	2.94 (2.63,3.27)
Male Sex	1.67 (1.62,1.73)	1.70 (1.65,1.76)	1.16 (1.10,1.22)	1.14 (1.08,1.21)	1.91 (1.81,2.02)	1.92 (1.82,2.03)
Remoteness (major cities)	0.50 (0.49,0.52)	0.64 (0.62,0.67)	0.61 (0.57,0.64)	0.76 (0.71,0.81)	0.50 (0.47,0.53)	0.66 (0.62,0.70)
LBOTE	0.71 (0.68,0.74)	0.90 (0.86,0.94)	0.94 (0.87,1.00)	1.15 (1.07,1.24)	0.66 (0.62,0.71)	0.84 (0.78,0.91)
Socioeconomic disadvantage	2.71 (2.62,2.81)	2.21 (2.13,2.29)	2.87 (2.71,3.03)	2.28 (2.15,2.41)	2.72 (2.58,2.87)	2.19 (2.07,2.31)
Low birthweight	1.81 (1.70,1.92)	1.37 (1.27,1.49)	2.01 (1.83,2.21)	1.36 (1.20,1.54)	1.84 (1.67,2.01)	1.33 (1.18,1.50)
Preterm birth	1.60 (1.51,1.69)	1.17 (1.08,1.26)	1.78 (1.62,1.95)	1.28 (1.14,1.45)	1.68 (1.54,1.83)	1.23 (1.10,1.38)
Prenatal smoking exposure	3.18 (3.06,3.29)	2.44 (2.34,2.53)	3.09 (2.91,3.28)	2.41 (2.26,2.56)	3.07 (2.91,3.25)	2.28 (2.15,2.42)

Table A64. Unadjusted (uOR) and Adjusted (aOR) Odds Ratios and 95% confidence intervals (CI) of achieving below National Minimum Standard (NMS) on the Grade 3 NAPLAN for children with Intellectual/Learning disability (n=11,363) relative to children with no disability (n=162,102).

	Below NMS (Any domain)		Below NMS (Numeracy)		Below NMS (Reading)	
	uOR (95% CI)	aOR (95% CI)	uOR (95% CI)	aOR (95% CI)	uOR (95% CI)	aOR (95% CI)
Intellectual/Learning	4.21 (4.03,4.39)	3.36 (3.21,3.51)	3.75 (3.51,4.01)	3.03 (2.82,3.24)	3.69 (3.46,3.93)	2.73 (2.56,2.92)
Male Sex	1.70 (1.65,1.75)	1.65 (1.60,1.71)	1.19 (1.13,1.25)	1.12 (1.06,1.18)	1.91 (1.81,2.01)	1.83 (1.74,1.93)
Remoteness (major cities)	0.50 (0.48,0.51)	0.65 (0.63,0.67)	0.59 (0.56,0.62)	0.76 (0.72,0.81)	0.49 (0.47,0.52)	0.67 (0.63,0.70)
LBOTE	0.69 (0.67,0.72)	0.90 (0.86,0.94)	0.91 (0.86,0.97)	1.15 (1.07,1.23)	0.65 (0.61,0.70)	0.85 (0.79,0.91)
Socioeconomic disadvantage	2.68 (2.60,2.77)	2.14 (2.07,2.21)	2.82 (2.68,2.97)	2.18 (2.06,2.30)	2.70 (2.57,2.83)	2.12 (2.01,2.24)
Low birthweight	1.81 (1.72,1.92)	1.36 (1.26,1.47)	2.00 (1.83,2.18)	1.39 (1.24,1.56)	1.78 (1.63,1.94)	1.28 (1.14,1.43)
Preterm birth	1.60 (1.52,1.69)	1.15 (1.07,1.23)	1.72 (1.58,1.88)	1.20 (1.07,1.34)	1.65 (1.51,1.79)	1.20 (1.08,1.34)
Prenatal smoking exposure	3.18 (3.07,3.29)	2.35 (2.26,2.44)	3.05 (2.88,3.22)	2.26 (2.13,2.40)	3.03 (2.87,3.19)	2.15 (2.03,2.28)

Table A65. Unadjusted (uOR) and Adjusted (aOR) Odds Ratios and 95% confidence intervals (CI) of achieving below National Minimum Standard (NMS) on the Grade 3 NAPLAN for children with Sensory/Speech disability (n=5,951) relative to children with no disability (n=162,102).

	Below NMS (Any domain)		Below NMS (Numeracy)		Below NMS (Reading)	
	uOR (95% CI)	aOR (95% CI)	uOR (95% CI)	aOR (95% CI)	uOR (95% CI)	aOR (95% CI)
Sensory/Speech Disability	3.11 (2.93,3.31)	2.80 (2.62,2.98)	3.19 (2.90,3.50)	2.82 (2.56,3.11)	2.92 (2.66,3.19)	2.47 (2.25,2.71)
Male Sex	1.67 (1.61,1.72)	1.69 (1.63,1.75)	1.16 (1.09,1.22)	1.13 (1.07,1.20)	1.91 (1.81,2.02)	1.91 (1.81,2.02)
Remoteness major city	0.51 (0.49,0.52)	0.63 (0.61,0.66)	0.61 (0.57,0.64)	0.74 (0.70,0.79)	0.50 (0.47,0.52)	0.64 (0.60,0.68)
LBOTE	0.73 (0.70,0.76)	0.90 (0.86,0.94)	0.96 (0.90,1.03)	1.14 (1.06,1.22)	0.68 (0.64,0.73)	0.84 (0.78,0.91)
Socioeconomic disadvantage	2.75 (2.66,2.85)	2.23 (2.16,2.32)	2.92 (2.77,3.09)	2.30 (2.17,2.44)	2.75 (2.61,2.90)	2.20 (2.08,2.33)
Low birthweight	1.79 (1.68,1.89)	1.38 (1.27,1.49)	1.94 (1.76,2.13)	1.37 (1.21,1.54)	1.83 (1.67,2.01)	1.36 (1.21,1.53)
Preterm birth	1.58 (1.49,1.67)	1.17 (1.09,1.26)	1.69 (1.54,1.85)	1.24 (1.10,1.39)	1.66 (1.52,1.82)	1.23 (1.09,1.37)
Prenatal smoking exposure	3.18 (3.07,3.30)	2.44 (2.34,2.53)	3.10 (2.93,3.29)	2.42 (2.27,2.58)	3.10 (2.94,3.28)	2.30 (2.17,2.44)

Table A66. Unadjusted (uOR) and Adjusted (aOR) Odds Ratios and 95% confidence intervals (CI) for achievement below National Minimum Standard (NMS) on the Grade 3 NAPLAN for children with Psychosocial disability (n=14,088), relative to children with no disability (n=162,102).

	Below NMS (Any domain)		Below NMS (Numeracy)		Below NMS (Reading)	
	uOR (95% CI)	aOR (95% CI)	uOR (95% CI)	aOR (95% CI)	uOR (95% CI)	aOR (95% CI)
Psychosocial Disability	2.40 (2.30,2.51)	2.26 (2.16,2.37)	2.17 (2.01,2.33)	2.08 (1.93,2.24)	2.19 (2.04,2.35)	1.95 (1.82,2.10)
Male Sex	1.69 (1.64,1.74)	1.70 (1.65,1.76)	1.18 (1.12,1.24)	1.16 (1.10,1.22)	1.93 (1.83,2.03)	1.93 (1.83,2.03)
Remoteness (major cities)	0.51 (0.49,0.53)	0.64 (0.61,0.66)	0.61 (0.58,0.64)	0.75 (0.70,0.79)	0.50 (0.47,0.52)	0.64 (0.61,0.68)
LBOTE	0.71 (0.68,0.74)	0.92 (0.88,0.97)	0.94 (0.88,1.00)	1.17 (1.09,1.26)	0.67 (0.62,0.71)	0.87 (0.80,0.93)
Socioeconomic disadvantage	2.67 (2.58,2.76)	2.21 (2.14,2.29)	2.82 (2.67,2.98)	2.27 (2.15,2.40)	2.67 (2.54,2.81)	2.18 (2.07,2.30)
Low birthweight	1.76 (1.66,1.86)	1.40 (1.30,1.51)	1.97 (1.79,2.15)	1.44 (1.28,1.62)	1.78 (1.62,1.94)	1.37 (1.22,1.54)
Preterm birth	1.53 (1.44,1.61)	1.13 (1.05,1.21)	1.67 (1.53,1.83)	1.20 (1.07,1.34)	1.59 (1.46,1.73)	1.17 (1.05,1.31)
Prenatal smoking exposure	3.12 (3.02,3.23)	2.39 (2.30,2.48)	3.04 (2.87,3.22)	2.35 (2.21,2.50)	3.00 (2.84,3.17)	2.21 (2.09,2.35)

Table A67. Unadjusted (uOR) and Adjusted (aOR) Odds Ratios and 95% confidence intervals (CI) for achievement below National Minimum Standard (NMS) on the Grade 3 NAPLAN for children with Other Disability (n=2,069), relative to children with No Disability (n=162,102).

	Below NMS (Any domain)		Below NMS (Numeracy)		Below NMS (Reading)	
	uOR (95% CI)	aOR (95% CI)	uOR (95% CI)	aOR (95% CI)	uOR (95% CI)	aOR (95% CI)
Other Disability	4.90 (4.47,5.38)	3.76 (3.41,4.15)	5.10 (4.48,5.79)	4.03 (3.52,4.60)	4.81 (4.24,5.44)	3.35 (2.93,3.81)
Male Sex	1.66 (1.61,1.72)	1.70 (1.65,1.76)	1.17 (1.10,1.23)	1.15 (1.09,1.22)	1.91 (1.81,2.02)	1.92 (1.82,2.03)
Remoteness (major cities)	0.49 (0.48,0.51)	0.64 (0.62,0.66)	0.60 (0.57,0.64)	0.76 (0.71,0.81)	0.49 (0.46,0.52)	0.65 (0.62,0.69)
LBOTE	0.71 (0.68,0.74)	0.91 (0.87,0.95)	0.94 (0.88,1.01)	1.17 (1.08,1.26)	0.66 (0.61,0.71)	0.85 (0.79,0.92)
Socioeconomic disadvantage	2.74 (2.64,2.83)	2.22 (2.14,2.30)	2.89 (2.73,3.06)	2.28 (2.15,2.42)	2.75 (2.61,2.90)	2.20 (2.08,2.33)
Low birthweight	1.79 (1.68,1.90)	1.38 (1.27,1.49)	1.96 (1.78,2.15)	1.38 (1.21,1.56)	1.81 (1.64,1.98)	1.32 (1.17,1.49)
Preterm birth	1.59 (1.50,1.69)	1.17 (1.09,1.27)	1.72 (1.56,1.89)	1.24 (1.10,1.40)	1.67 (1.53,1.83)	1.24 (1.11,1.39)
Prenatal smoking exposure	3.21 (3.10,3.33)	2.45 (2.35,2.54)	3.11 (2.93,3.30)	2.41 (2.26,2.57)	3.13 (2.96,3.31)	2.30 (2.17,2.45)

8.3.1.3 Developmental Vulnerability and Grade 3 NAPLAN achievement

This section examines associations between developmental vulnerability and Grade 3 NAPLAN achievement. Therefore, the sample was restricted to children who complete data on all five Grade 3 NAPLAN domains and complete covariate information, as well as an AEDC record (Figure A9).

Sample: A sample of 151,394 children was selected for analysis according to the exclusion criteria in Figure A9. Descriptive statistics for this sample are presented in Table 68.

Figure A9: Sample selection flowchart.

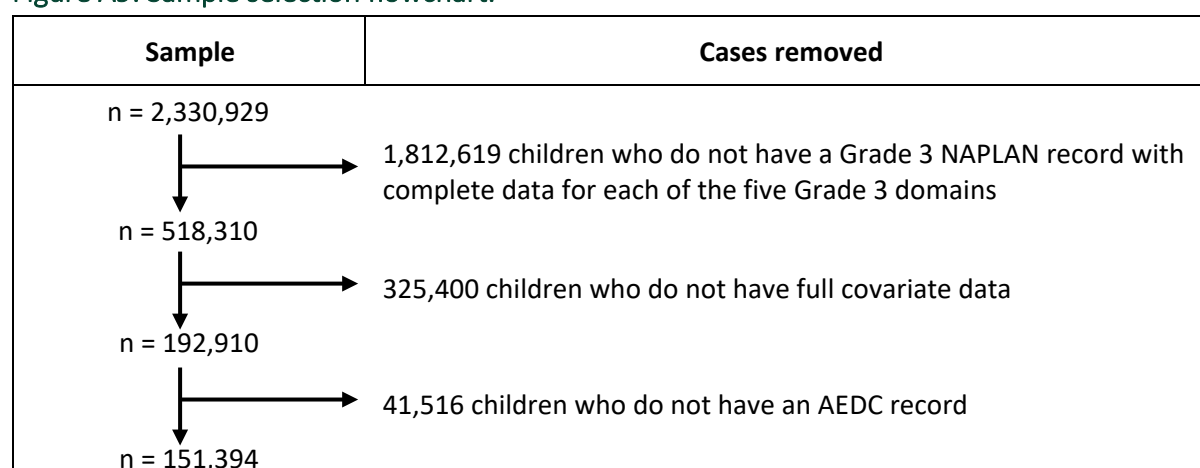


Table A68. Descriptive statistics for the selected study sample (n=151,394).

	Study Population (n=151,394)	
	n	% (column)
Developmental Vulnerability		
Yes	13,859	9.15
No	137,535	90.85
Sex		
Male	77,099	50.93
Female (Reference)	74,295	49.07
Remoteness		
Major Cities	113,423	74.92
Regional and Remote (Reference)	37,971	25.08
Language background other than English		
Yes	34,790	22.98
No (Reference)	116,604	77.02
Socioeconomic disadvantage		
SEIFA Quintile 1 (most disadvantaged)	35,530	23.47
SEIFA Quintiles 2-5 (least disadvantaged) (Reference)	115,864	76.53
Low birthweight		
Yes	8,493	5.61
No (Reference)	142,901	94.39
Preterm birth		
Yes	9,863	6.51
No (Reference)	141,531	93.49
Prenatal smoking exposure		
Yes	23,452	15.49
No (Reference)	127,942	84.51

Covariates: Six covariates were considered, as described in Section 8.2.

Analyses: Unadjusted and adjusted models are presented separately for NAPLAN achievement below NMS on Any domain, or on the Numeracy and Reading domains, to determine the associations between achieving below NMS and Developmental Vulnerability (Table A69).

Table A69. Unadjusted (uOR) and Adjusted (aOR) Odds Ratios and 95% confidence intervals (CI) for achievement below National Minimum Standard (NMS) on the Grade 3 NAPLAN assessment for children with Developmental Vulnerability (n=13,859) relative to children with no developmental vulnerability (n=137,535).

	Below NMS (Any domain)		Below NMS (Numeracy)		Below NMS (Reading)	
	uOR (95% CI)	aOR (95% CI)	uOR (95% CI)	aOR (95% CI)	uOR (95% CI)	aOR (95% CI)
Developmental Vulnerability	5.23 (5.03,5.44)	4.23 (4.06,4.41)	5.32 (5.03,5.63)	4.35 (4.10,4.61)	4.87 (4.61,5.14)	3.71 (3.50,3.93)
Male Sex	1.70 (1.65,1.76)	1.57 (1.52,1.63)	1.18 (1.12,1.24)	1.02 (0.97,1.07)	1.88 (1.79,1.98)	1.70 (1.61,1.79)
Remoteness (major cities)	0.51 (0.05,0.53)	0.67 (0.65,0.70)	0.59 (0.56,0.62)	0.76 (0.72,0.81)	0.51 (0.48,0.53)	0.69 (0.65,0.73)
LBOTE	0.75 (0.72,0.78)	0.83 (0.79,0.86)	0.96 (0.91,1.02)	1.05 (0.98,1.12)	0.71 (0.66,0.75)	0.79 (0.74,0.85)
Socioeconomic disadvantage	2.64 (2.56,2.73)	2.10 (2.03,2.17)	2.72 (2.59,2.87)	2.04 (1.93,2.16)	2.62 (2.49,2.75)	2.02 (1.92,2.14)
Low birthweight	1.81 (1.71,1.91)	1.42 (1.32,1.54)	1.92 (1.76,2.09)	1.36 (1.21,1.53)	1.75 (1.60,1.90)	1.31 (1.17,1.47)
Preterm birth	1.55 (1.47,1.64)	1.11 (1.03,1.20)	1.64 (1.50,1.79)	1.18 (1.05,1.32)	1.56 (1.44,1.70)	1.15 (1.03,1.28)
Prenatal smoking exposure	2.94 (2.84,3.05)	2.05 (1.97,2.13)	2.78 (2.63,2.93)	1.90 (1.79,2.02)	2.81 (2.67,2.96)	1.86 (1.76,1.97)

8.3.2 Early Childhood Education and Grade 3 NAPLAN achievement

This section examines the effect of Early Childhood Education enrolment on achieving or achieving below the National Minimum Standard (NMS) on the NAPLAN. Therefore, the sample was restricted to those children with a Grade 3 NAPLAN record who also had a mutually exclusive record of enrolment in Early Childhood Education in the year before school.

Sample: A sample of 488,354 children was selected for analysis according to the exclusion criteria in Figure A10. Descriptive statistics for this sample are presented in Table A70.

Figure A10. Sample selection flowchart.

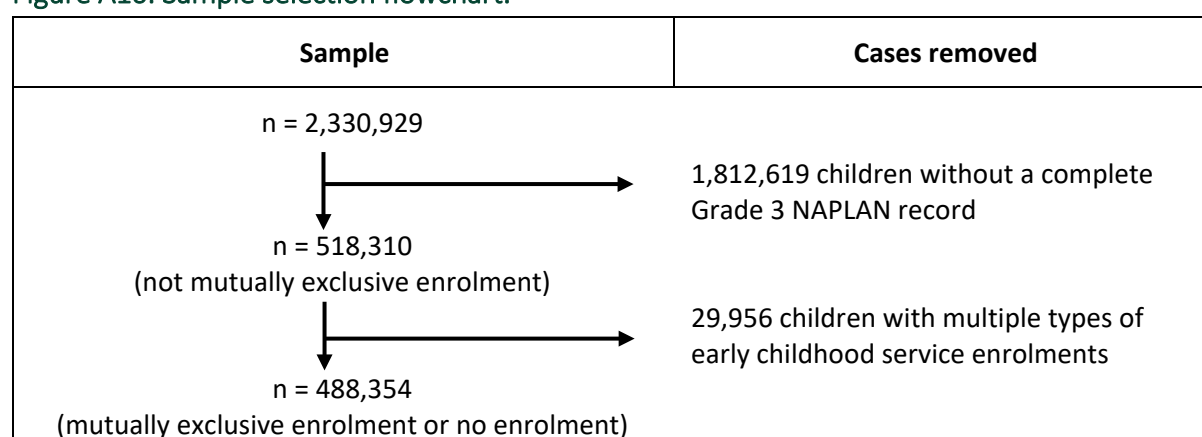


Table A70. Descriptive statistics for the selected study sample (n=488,354).

	Study Population (n=488,354)	
	n	% (column)
Early Childhood Education		
Centre-based Day Care	204,945	41.97
Other CCS/CCB	11,262	2.31
Government Preschool	2,430	0.50
Community Preschool	36,103	7.39
No Early Childhood Education enrolment	233,614	47.84
Disability		
No Disability	426,897	87.42
Any Disability	61,457	12.58
Disability Type		
Physical/Diverse	6,800	1.39
Intellectual/Learning	22,683	4.64
Sensory/Speech	12,597	2.58
Psychosocial	29,901	6.12
Other	3,609	0.74
Developmental Vulnerability		
Yes	15,726	3.22
No	150,758	30.87

Descriptive statistics and crude (unadjusted ORs) for achieving below NMS on at least one domain of the Grade 3 NAPLAN for children with Any Disability or Developmental Vulnerability are presented in the main report for this sample of 488,354 children).

We then examined these associations in the context of a range of covariate factors, in a sub-sample of 174,334 children with Grade 3 NAPLAN records and all necessary covariate data.

Covariates: Covariates included the child’s sex, language background other than English, socioeconomic disadvantage, remoteness, low birthweight, preterm birth, and prenatal smoking exposure as described in Section 8.1.2 and 8.2.1.

Sample: A sample of 174,334 children was selected for analysis according to the exclusion criteria in Figure A11. The number and proportion of children with each outcome and covariate examined are presented in Table A71 for the sample examined.

Analyses: Unadjusted and adjusted models are presented separately for children with and without disability, with the association between achieving below NMS on Any domain and Early Childhood Enrolment type presented for children with disability in Table A72 and without disability in Table A73.

Figure A11: Sample selection flowchart.

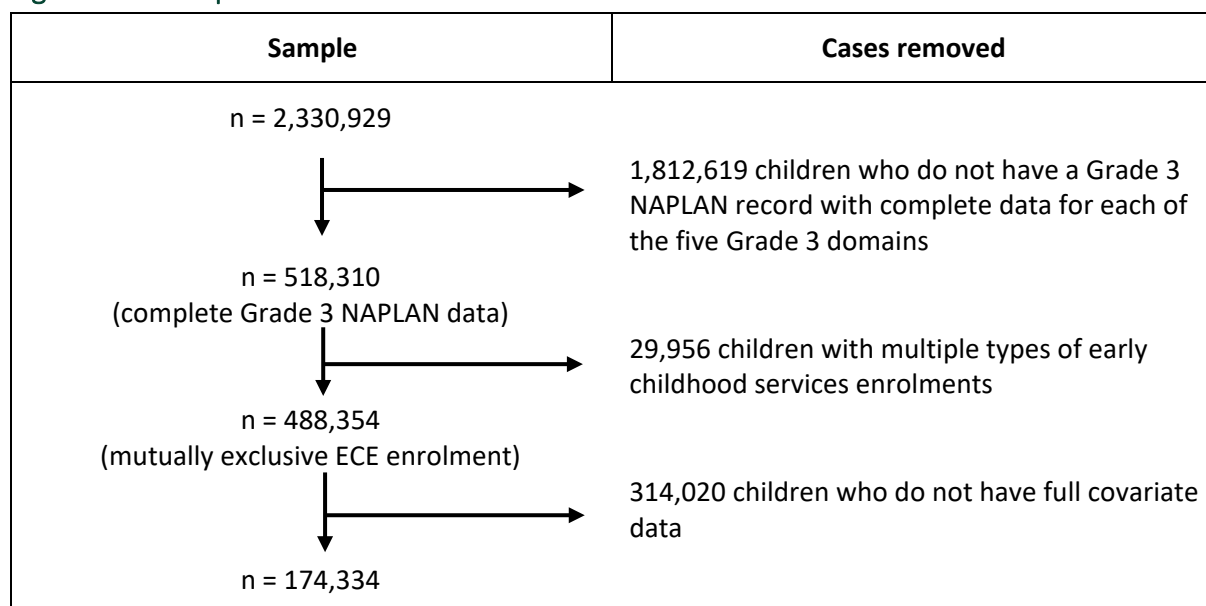


Table A71. Descriptive statistics for the selected study sample with all covariates (n=174,334).

	Study Population (n=174,334)	
	n	% (column)
Early Childhood Education Enrolment		
Community Preschool	31,268	17.94
Government Preschool	1,120	0.64
Centre-based Day Care	63,813	36.60
Other CCS/CCB	4,027	2.31
No Early Childhood Education enrolment (Reference)	74,106	42.51
Disability		
Any Disability	26,691	15.31
No Disability (Reference)	147,643	84.69
Disability Type		
Physical/Diverse	3,083	1.77
Intellectual/Learning	9,686	5.56
Sensory/Speech	5,175	2.97
Psychosocial	12,066	6.92
Other	1,736	1.00
Developmental Vulnerability		
Yes	13,123	7.53
No (Reference)	130,097	74.63
Sex		
Male	88,711	50.89
Female (Reference)	85,623	49.11
Remoteness		
Major Cities	127,446	73.10
Inner and Outer Regional and Remote and Very Remote (Reference)	46,888	26.90
Language background other than English		
Yes	37,191	21.33
No (Reference)	137,143	78.67
Socioeconomic disadvantage		
SEIFA Quintile 1 (most disadvantaged)	38,978	22.36
SEIFA Quintiles 2-5 (least disadvantaged) (Reference)	135,356	77.64
Low birthweight		
Yes	9,609	5.51
No (Reference)	164,725	94.49
Preterm birth		
Yes	11,282	6.47
No (Reference)	163,052	93.53
Prenatal smoking exposure		
Yes	26,362	15.12
No (Reference)	147,972	84.88

Table A72. Adjusted and unadjusted Odds Ratios (95% CI) for achievement below NMS on the Grade 3 NAPLAN for children with disability with different ECE enrolment, accounting for various covariates; ratios are relative to children with No ECE enrolment.

	Below NMS (Any domain)	
	uOR (95% CI)	aOR (95% CI)
<i>ECE Enrolment</i>		
No ECE enrolment	Reference	Reference
Community Preschool	0.66 (0.60,0.71)	0.68 (0.63,0.74)
Government Preschool	1.08 (0.83,1.40)	1.04 (0.78,1.36)
Centre-based Day Care	0.87 (0.81,0.93)	0.98 (0.91,1.05)
Other CCS/CCB	1.17 (0.98,1.38)	1.06 (0.89,1.26)
Male Sex	1.70 (1.65,1.76)	1.39 (1.31,1.48)
Remoteness (major cities)	0.51 (0.50,0.53)	0.61 (0.57,0.66)
LBOTE	0.75 (0.72,0.78)	0.92 (0.85,1.00)
Socioeconomic disadvantage	2.64 (2.56,2.73)	1.86 (1.74,1.98)
Low birthweight	1.81 (1.71,1.91)	1.42 (1.24,1.62)
Preterm birth	1.55 (1.47,1.64)	0.92 (0.81,1.05)
Prenatal smoking exposure	2.94 (2.84,3.05)	1.93 (1.80,2.07)

Table A73. Adjusted and unadjusted Odds Ratios (95% CI) for achievement below NMS on the Grade 3 NAPLAN for children with no disability with different ECE enrolment, accounting for various covariates; ratios are relative to children with No ECE enrolment.

	Below NMS (Any domain)	
	uOR (95% CI)	aOR (95% CI)
<i>ECE Enrolment</i>		
No ECE enrolment	Reference	Reference
Community Preschool	0.62 (0.59,0.66)	0.69 (0.65,0.72)
Government Preschool	1.11 (0.90,1.37)	1.08 (0.86,1.33)
Centre-based Day Care	0.78 (0.75,0.81)	0.91 (0.87,0.95)
Other CCS/CCB	1.11 (1.00,1.24)	0.96 (0.86,1.07)
Male Sex	1.70 (1.65,1.76)	1.70 (1.64,1.76)
Remoteness (major cities)	0.51 (0.50,0.53)	0.62 (0.59,0.64)
LBOTE	0.75 (0.72,0.78)	0.92 (0.87,0.96)
Socioeconomic disadvantage	2.64 (2.56,2.73)	2.23 (2.15,2.32)
Low birthweight	1.81 (1.71,1.91)	1.41 (1.29,1.53)
Preterm birth	1.55 (1.47,1.64)	1.18 (1.08,1.27)
Prenatal smoking exposure	2.94 (2.84,3.05)	2.44 (2.34,2.54)

8.3.3 Early Childhood Education enrolment hours and Grade 3 NAPLAN achievement

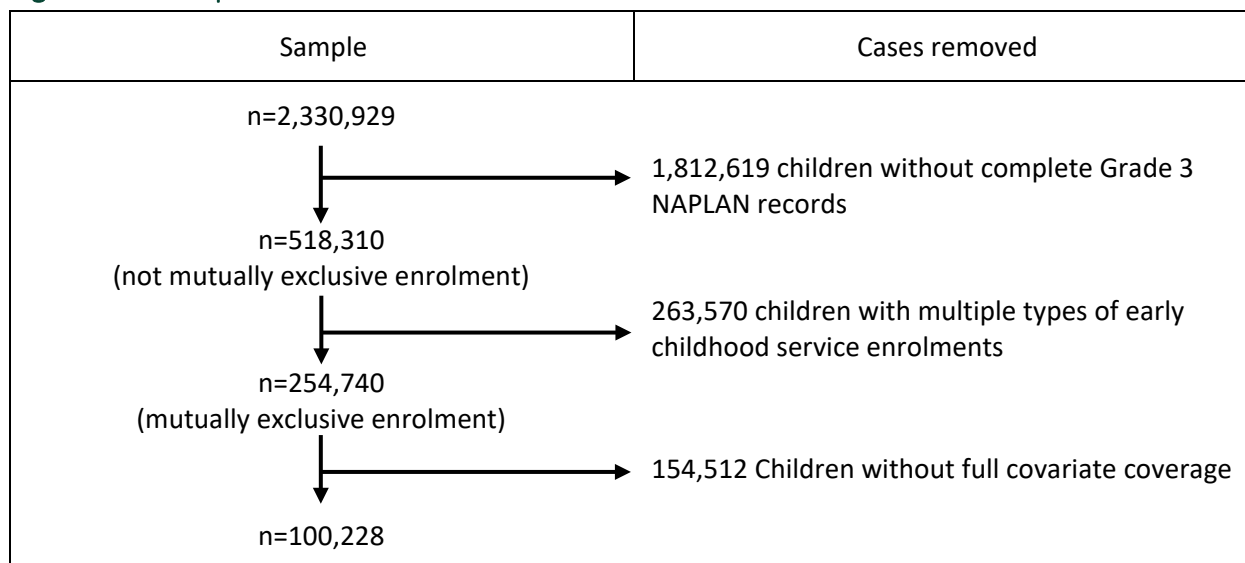
This section examines the effect of Early Childhood Education enrolment hours on achieving or achieving below the National Minimum Standard (NMS) on the NAPLAN. Therefore, the sample was restricted to those children with a Grade 3 NAPLAN record who also had a mutually exclusive record of enrolment in Early Childhood Education in the year before school and full covariate data.

Sample: A sample of 100,228 children was selected for analysis according to the exclusion criteria in Figure A12. Descriptive statistics for this sample are presented in Table A74.

Table A74. Descriptive statistics for the selected study sample with all covariates (n=100,228).

	Study Population (n=100,228)	
	n	% (column)
Early Childhood Education Enrolment		
Community Preschool	31,268	31.20
Government Preschool	1,120	1.12
Centre-based Day Care	63,813	63.67
Other CCS/CCB	4,027	4.02
Disability		
Any Disability	19,157	19.11
No Disability (Reference)	81,071	80.89
Disability Type		
Physical/Diverse	2,493	2.49
Intellectual/Learning	7,401	7.38
Sensory/Speech	3,503	3.50
Psychosocial	9,146	9.13
Other	1,200	1.20
Developmental Vulnerability		
Yes	6,263	6.25
No (Reference)	67,475	67.32
Sex		
Male	50,930	50.81
Female (Reference)	49,298	49.19
Remoteness		
Major Cities	73,946	73.78
Inner and Outer Regional and Remote and Very Remote (Reference)	26,282	26.22
Language background other than English		
Yes	21,039	20.99
No (Reference)	79,189	79.01
Socioeconomic Disadvantage		
SEIFA Quintile 1 (most disadvantaged)	20,057	20.01
SEIFA Quintiles 2-5 (least disadvantaged) (Reference)	80,171	79.99
Low birthweight		
Yes	5,335	5.32
No (Reference)	94,893	94.68
Preterm birth		
Yes	6,444	6.43
No (Reference)	93,784	93.57
Prenatal smoking exposure		
Yes	13,358	13.33
No (Reference)	86,870	86.67

Figure A12: Sample selection flowchart.



Covariates: Six covariates were considered, as described in Section 8.2.

Analyses: Unadjusted and adjusted models are presented separately for children with and without disability and each Early Childhood Education Type, with the association between achieving below NMS on Any domain and Early Childhood Enrolment of ≥ 600 hours (reference group: < 600 hours) presented for Centre-base Day Care (Table A75), Other Childcare Benefit/Subsidy (Table A76), Community Preschool (Table A77), and Government Preschool (Table A78) enrolments.

Table A75. Adjusted and unadjusted Odds Ratios (95% CI) of achieving below NMS on the Grade 3 NAPLAN for children with and without disability who were enrolled in ≥ 600 hours of Centre based day care in the year before school.

	Any Disability		No Disability	
	Below NMS (Any domain)		Below NMS (Any domain)	
	uOR (95% CI)	aOR (95% CI)	uOR (95% CI)	aOR (95% CI)
Centre-based Day Care (≥ 600 hours)	0.81 (0.72,0.91)	0.91 (0.81,1.02)	0.68 (0.63,0.73)	0.79 (0.74,0.86)
Male Sex	1.45 (1.32,1.59)	1.50 (1.37,1.65)	1.55 (1.46,1.65)	1.61 (1.51,1.71)
Remoteness (major cities)	0.55 (0.50,0.61)	0.67 (0.60,0.74)	0.54 (0.50,0.57)	0.72 (0.67,0.78)
LBOTE	0.78 (0.70,0.88)	0.88 (0.78,0.99)	0.75 (0.69,0.80)	0.82 (0.75,0.89)
Socioeconomic disadvantage	2.09 (1.90,2.30)	1.85 (1.67,2.04)	2.91 (2.73,3.11)	2.46 (2.30,2.64)
Low birthweight	1.51 (1.03,1.76)	1.65 (1.35,2.03)	1.64 (1.45,1.83)	1.32 (1.13,1.53)
Preterm birth	1.09 (0.94,1.27)	0.76 (0.62,0.92)	1.49 (1.33,1.66)	1.18 (1.02,1.36)
Prenatal smoking exposure	2.13 (1.92,2.36)	1.73 (1.55,1.93)	2.85 (2.65,3.06)	2.08 (1.92,2.24)

Table A76. Adjusted and unadjusted Odds Ratios (95% CI) of achieving below NMS on the Grade 3 NAPLAN for children who were enrolled in ≥600 hours of Other subsidised childcare in the year before school.

	Any Disability Below NMS (Any domain)		No Disability Below NMS (Any domain)	
	uOR (95% CI)	aOR (95% CI)	uOR (95% CI)	aOR (95% CI)
Other CCS/CCB ≥600 hours	1.01 (0.73,1.41)	0.95 (0.67,1.33)	1.33 (1.08,1.65)	1.26 (1.01,1.58)
Male Sex	1.12 (0.80,1.57)	1.22 (0.86,1.72)	1.70 (1.38,2.11)	1.81 (1.46,2.26)
Remoteness (major cities)	1.01 (0.72,1.41)	1.08 (0.74,1.60)	0.86 (0.70,1.06)	0.94 (0.73,1.21)
LBOTE	1.12 (0.78,1.61)	1.17 (0.75,1.82)	0.95 (0.73,1.22)	0.99 (0.73,1.35)
Socioeconomic disadvantage	1.78 (1.28,2.47)	1.63 (1.16,2.31)	2.15 (1.74,2.66)	1.97 (1.57,2.46)
Low birthweight	1.58 (0.83,2.94)	1.15 (0.51,2.53)	1.97 (1.32,2.86)	1.43 (0.86,2.32)
Preterm birth	1.62 (0.93,2.80)	1.43 (0.71,2.85)	1.80 (1.24,2.55)	1.49 (0.93,2.35)
Prenatal smoking exposure	1.87 (1.31,2.68)	1.84 (1.25,2.71)	2.73 (2.17,3.42)	2.49 (1.95,3.16)

Table A77. Adjusted and unadjusted Odds Ratios (95% CI) of achieving below NMS on the Grade 3 NAPLAN for those who were enrolled in ≥600 hours Government preschool in the year before school.

	Any Disability Below NMS (Any domain)		No Disability Below NMS (Any domain)	
	uOR (95% CI)	aOR (95% CI)	uOR (95% CI)	aOR (95% CI)
Government Preschool ≥600 hours	0.55 (0.33,0.94)	0.54 (0.31,0.93)	0.98 (0.65,1.49)	0.83 (0.53,1.3)
Male Sex	1.31 (0.78,2.22)	1.32 (0.76,2.29)	2.56 (1.68,3.96)	2.86 (1.83,4.53)
Remoteness (major cities)	0.91 (0.45,1.95)	1.06 (0.49,2.42)	0.28 (0.17,0.49)	0.49 (0.27,0.90)
LBOTE	0.77 (0.44,1.32)	0.73 (0.38,1.36)	0.28 (0.17,0.45)	0.32 (0.19,0.55)
Socioeconomic disadvantage	2.25 (1.29,4.05)	2.20 (1.23,4.06)	1.77 (1.16,2.73)	1.81 (1.14,2.89)
Low birthweight	0.95 (0.26,2.88)	0.60 (0.14,2.14)	2.17 (1.03,4.26)	1.74 (0.67,4.26)
Preterm birth	2.78 (0.92,8.38)	3.09 (0.89,11.16)	2.01 (0.96,3.92)	1.23 (0.47,2.94)
Prenatal smoking exposure	1.99 (1.10,3.54)	1.52 (0.79,2.89)	2.44 (1.52,3.86)	1.53 (0.90,2.55)

Table A78. Adjusted and unadjusted Odds Ratios (95% CI) of achieving below NMS on the Grade 3 NAPLAN for children who were enrolled in ≥600 hours Community preschool in the year before school.

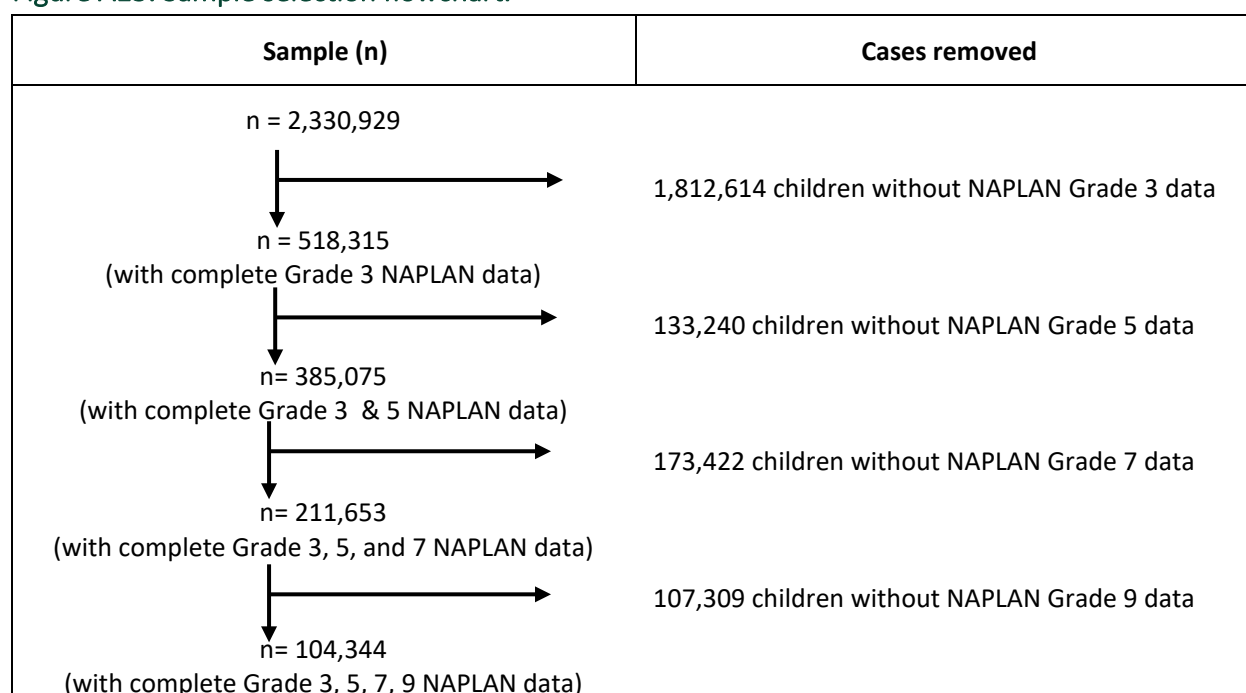
	Any Disability Below NMS (Any domain)		No Disability Below NMS (Any domain)	
	uOR (95% CI)	aOR (95% CI)	uOR (95% CI)	aOR (95% CI)
Community Preschool ≥600 hours	0.88 (0.78,1.00)	0.97 (0.85,1.1)	0.8 (0.72,0.88)	0.97 (0.87,1.08)
Male Sex	1.23 (1.08,1.40)	1.34 (1.17,1.54)	1.56 (1.41,1.72)	1.66 (1.50,1.84)
Remoteness (major cities)	0.34 (0.30,0.39)	0.48 (0.42,0.55)	0.3 (0.27,0.33)	0.42 (0.38,0.47)
LBOTE	0.46 (0.36,0.58)	0.69 (0.54,0.88)	0.37 (0.3,0.44)	0.62 (0.50,0.75)
Socioeconomic disadvantage	2.69 (2.35,3.06)	1.91 (1.66,2.20)	2.71 (2.43,3.00)	1.84 (1.65,2.06)
Low birthweight	1.73 (1.39,2.15)	1.4 (1.04,1.87)	1.44 (1.16,1.76)	1.17 (0.90,1.51)
Preterm birth	1.39 (1.13,1.71)	1.11 (0.84,1.45)	1.30 (1.07,1.57)	1.10 (0.86,1.39)
Prenatal smoking exposure	3.38 (2.94,3.89)	2.26 (1.94,2.63)	4.21 (3.76,4.70)	2.87 (2.55,3.23)

8.3.4 Grades 3, 5, 7, and 9 NAPLAN achievement

These analyses set out to determine the likelihood of achieving below national minimum standard on at least one domain of the NAPLAN in Grades 5, 7, or 9 following achievement below NMS in the Grade 3 NAPLAN assessment, for children with and without disability (examined separately).

Sample: The analyses this section included four subsamples of children with available data on the Grade 3 NAPLAN (n=518,315), the grade 5 NAPLAN (n= 385,075), the Grade 7 NAPLAN (n=211,653) and the Grade 9 NAPLAN (n=104,344) assessments respectively (Figure A13). Descriptive statistics for these subsamples are presented in Table A79. There were no covariates used in these analyses.

Figure A13: Sample selection flowchart.



Analyses: NAPLAN achievement below NMS (Any Domain, Reading, Numeracy) at Grades 3, 5, 7 and 9 are presented in Table A80 according to Any Disability and Developmental Vulnerability, and the unadjusted odds ratios for achieving below NMS for Any Disability and Developmental Vulnerability are presented in Table A81.

For children with NAPLAN achievement below NMS at Grade 3 achievement below NMS (Any Domain, Reading, Numeracy) at Grades 5, 7 and 9 are presented in Table A82, and unadjusted odds ratios for achieving below NMS on the Grades 5, 7 and 9 NAPLANs in children who achieved below NMS in the Grade 3 NAPLAN are presented for Any Disability and Developmental Vulnerability in Table A83.

Table A79. Descriptive statistics for the selected study samples with all covariates.

	Study Population Grade 3 (n=518,315)		Study Population Grade 5 (n=385,075)		Study Population Grade 7 (n=211,653)		Study Population Grade 9 (n=104,344)	
	n	% (col)	n	% (col)	n	% (col)	n	% (col)
Disability								
No Disability	450,479	86.91	348,304	90.45	195,690	92.46	98,034	93.95
Any Disability (Reference)	67,831	13.09	36,767	9.55	15,961	7.54	6,309	6.05
Developmental Vulnerability								
Yes	16,573	3.20	10,870	2.82	8,562	4.05	4,022	3.85
No (Reference)	159,265	30.73	101,520	26.36	79,934	37.77	36,584	35.06
Sex*								
Male	263,680	>50.00	189,930	>49.00	107,250	>50.00	52,670	>50.00
Female (Reference)	254,620	>49.00	195,130	>50.00	104,390	>49.00	51,670	>49.00
Remoteness								
Major Cities	386,922	74.65	286,758	74.47	155,845	73.63	79,194	75.90
Regional and Remote (Reference)	131,012	25.28	97,940	25.43	55,560	26.25	24,968	23.93
LBOTE								
Yes	51,573	9.95	31,777	8.25	22,521	10.64	10,504	10.07
No (Reference)	180,493	34.82	116,624	30.29	68,785	32.50	31,203	29.90
Socioeconomic disadvantage								
SEIFA Quintile 1 (most disadvantaged)	50,069	9.66	32,960	8.56	23,891	11.29	10,836	10.38
SEIFA Quintiles 2-5 (least disadvantaged) (Reference)	173,568	33.49	108,911	28.28	64,411	30.43	29,608	28.38
Low birthweight								
Yes	24,376	4.70	18,129	4.71	10,129	4.79	4,705	4.51
No (Reference)	405,484	78.23	295,953	76.86	159,452	75.34	77,378	74.16
Preterm birth								
Yes	28,460	5.49	20,832	5.41	11,372	5.37	5,333	5.11
No (Reference)	401,470	77.46	293,311	76.17	158,236	74.76	76,761	73.57
Prenatal smoking exposure								
Yes	66,267	12.79	51,132	13.28	30,706	14.51	13,861	13.28
No (Reference)	363,710	70.17	263,053	68.31	138,919	65.64	68,238	65.40

* Note: As minimum cell size rule is triggered, perturbation has been applied to the reporting of sex.

A80. Descriptive statistics for outcomes in children with and without disability and developmental vulnerability before age 7 years.

		Below NMS (Any Domain)			Below NMS (Numeracy)		Below NMS (Reading)	
		Sample Size	N	%(row)	N	%(row)	N	%(row)
Any Disability								
Disability	Grade 3	67,831	15,660	23.90	5,799	8.55	6,156	9.08
	Grade 5	36,767	11,140	30.30	3,850	10.47	4,670	12.70
	Grade 7	15,961	5,510	34.52	1,595	9.99	2,203	13.80
	Grade 9	6,309	2,702	42.83	385	6.10	1,036	16.42
No Disability	Grade 3	450,479	44,840	9.95	14,576	3.24	16,924	3.76
	Grade 5	348,304	51,175	14.69	13,582	3.90	19,171	5.50
	Grade 7	195,690	35,931	18.36	7,138	3.65	11,922	6.09
	Grade 9	98,034	25,254	25.76	2,423	2.47	7,931	8.09
Developmental Vulnerability*								
DV	Grade 3	16,573	5,894	35.56	2,438	14.71	2,536	15.30
	Grade 5	10,870	4,839	44.52	1,811	16.66	2,095	19.27
	Grade 7	8,562	3,840	44.85	1,301	15.20	1,611	18.82
	Grade 9	4,022	2,189	54.43	372	9.25	821	20.41
No DV	Grade 3	159,265	15,397	9.67	4,989	3.13	5,682	3.57
	Grade 5	101,520	14,152	13.94	3,746	3.69	4,781	4.71
	Grade 7	79,934	12,565	15.72		3.80	3,958	4.95
	Grade 9	36,584	9,362	25.59	1,075	2.94	2,385	6.52

* Note: This sample is only for children who have an AEDC record to ensure no Developmental Vulnerability.

Table A81. Odds Ratios (95% CI) of achieving below NMS for Grades 3, 5, 7, and 9 NAPLAN assessment for children with Any Disability and Developmental Vulnerability (relative to their non-effected peers).

	Below NMS (Any)	Below NMS (Numeracy)	Below NMS (Reading)
	OR (95% CI)	OR (95% CI)	OR (95% CI)
Any Disability			
Grade 3	2.72 (2.66,2.77)	2.80 (2.71,2.89)	2.56 (2.48,2.64)
Grade 5	2.52 (2.46,2.59)	2.88 (2.78,2.99)	2.50 (2.41,2.58)
Grade 7	2.34 (2.26,2.43)	2.93 (2.77,3.10)	2.47 (2.35,2.59)
Grade 9	2.16 (2.05,2.27)	2.56 (2.30,2.86)	2.23 (2.08,2.40)
<i>No Disability*</i>	Reference	Reference	Reference
Developmental Vulnerability			
Grade 3	5.16 (4.98,5.35)	5.33 (5.07,5.61)	4.88 (4.65,5.13)
Grade 5	4.95 (4.75,5.16)	5.22 (4.91,5.54)	4.83 (4.57,5.11)
Grade 7	4.36 (4.16,4.57)	4.53 (4.23,4.86)	4.45 (4.18,4.74)
Grade 9	3.47 (3.25,3.71)	3.37 (2.98,3.81)	3.68 (3.37,4.01)
<i>No developmental vulnerability*</i>	Reference	Reference	Reference

*Reference group were corresponding cohorts for Grade 3,5,7,9 with no disability /developmental vulnerability.

Table A82. Rates of achieving below NMS for Grades 5, 7 and 9 NAPLAN assessment after achieving below NMS on Grade 3 NAPLAN assessment, for children with Any Disability and Developmental Vulnerability.

Cohort	NAPLAN Grade	Sample Size	Below NMS (Any)		Below NMS (Numeracy)		Below NMS (Reading)	
			N	%(row)	N	%(row)	N	%(row)
Any Disability								
Disability	Grade 5	25,488	3,868	15.18	813	3.19	1,006	3.95
	Grade 7	10,109	1,984	19.63	338	3.34	509	5.04
	Grade 9	3,999	1,181	29.53	103	2.58	275	6.88
No Disability	Grade 5	280,639	22,045	7.86	4,046	1.44	6,062	2.16
	Grade 7	142,729	15,608	10.94	2,148	1.50	3,636	2.55
	Grade 9	70,005	13,162	18.80	960	1.37	3,023	4.32
Developmental Vulnerability								
DV	Grade 5	6,276	1,483	23.63	373	5.94	399	6.36
	Grade 7	4,693	1,221	26.02	275	5.86	346	7.37
	Grade 9	2,256	901	39.94	108	4.79	212	9.40
No DV	Grade 5	85,193	6,670	7.83	1,219	1.43	1,570	1.84
	Grade 7	62,474	6,131	9.81	1,049	1.68	1,451	2.32
	Grade 9	28,371	5,649	19.91	509	1.79	1,005	3.54

Table A83. Odds Ratios (95% CI) for achieving below NMS Grades 5, 7 and 9 NAPLAN assessment for children who achieved below NMS on Grade 3 assessment (relative to children who achieved NMS in all domains in Grade 3), for children with Any Disability and Developmental Vulnerability (relative to their non-affected peers).

	Below NMS (Any)	Below NMS (Numeracy)	Below NMS (Reading)
	OR (95% CI)	OR (95% CI)	OR (95% CI)
Any Disability			
Grade 5	16.35 (15.34,17.43)	12.76 (11.7,13.92)	14.41 (13.3,15.60)
Grade 7	12.10 (10.97,13.34)	9.71 (8.46,11.15)	10.27 (9.13,11.55)
Grade 9	11.26 (9.39,13.50)	6.25 (4.78,8.17)	9.51 (7.96,11.37)
Developmental Vulnerability			
Grade 5	13.47 (12.14,14.96)	8.26 (7.27,9.38)	10.07 (8.91,11.39)
Grade 7	9.93 (8.84,11.16)	7.01 (6.03,8.14)	7.72 (6.73,8.85)
Grade 9	8.58 (7.07,10.41)	4.43 (3.45,5.70)	7.17 (5.93,8.66)

*Reference group achieved NMS on all domains in Grade 3 among the cohorts with data available in Grades 5, 7, 9.

9 Benefits and Limitations

No supplementary materials are associated with this section of the Final Report.

10 Recommendations

No supplementary materials are associated with this section of the Final Report.