

Early Childhood Supports in NSW

Summary of NDDA pilot findings

December 2021



National
Disability
Data Asset

The information gap

For children with disability and developmental vulnerability, receiving supports early in life can build skills and independence, and reduce the need for supports later in life. However, understanding the nature and course of disabilities and developmental vulnerabilities over time, and the supports and systems accessed during particular periods of development is incredibly complex. This test case used data from the National Disability Data Asset (NDDA) pilot to examine participation in early childhood education, mainstream and targeted services accessed before 7 years of age, and a range of developmental and educational outcomes for all children in NSW.

Key findings from the NDDA Pilot for New South Wales (NSW) children

- By 7 years of age, **13%** of children in this test case were identified **with a disability**.
- More than **1 in 4** of these children identified had **multiple disabilities**.
- More than **55%** with disability were identified with 'Intellectual/Learning' disability.
- The GP is an important touchpoint almost universally accessed by children with disability (>99%).
- **1 in 3 children** with a placement in **out-of-home-care** have a disability. Children with disability were over-represented in the child protection system.
- More children with disability (**80%**) and developmental vulnerability (**60%**) accessed early childhood education services than children with no disability (**56%**).
- The proportion of children with below National Minimum Standard on the Grade 3 NAPLAN was higher among children with disability and/or developmental vulnerability.
- Attendance at community preschool improved the likelihood of obtaining National Minimum Standard for Grade 3 NAPLAN, compared to other service types.
- Children with disability had a higher average number of days absent from school and more than **2x the rate of school suspensions** than children with no disability.

Implications and actions

- Early childhood education is well accessed by children with disability and developmental vulnerability and is associated with better educational outcomes in middle childhood for all NSW children.
- Additional supports are required in NSW to boost literacy and numeracy particularly among developmentally vulnerable children.
- Access to NDIS is lower in NSW children with a language background other than English. Further work is required to understand the barriers to access for this cohort.
- Greater supports are required for families to prevent contact with the NSW child protection system and high placement in out-of-home-care.

1 Background

Comprehensive understanding of the nature and course of disabilities and developmental vulnerabilities over time, as well as the use of available support systems, has always been the core of data-driven policy development and program planning¹. Through the linkage of data at a person-centred level across service systems and jurisdictions, this NSW test case presents a comprehensive overview of the disability and service landscape among children aged <7 years (i.e., up to the age of school entry) living in NSW. This better picture allows us to plan for timely delivery of early childhood early intervention supports and services.

“These kids need help quickly. The quicker they get help, the quicker you can turn around an abnormal trajectory, because there are critical periods in development and once you go too far beyond those critical periods, you don't get it back again.

~Dr John Boffa, Chief Medical Officer Public Health, Central Australian Aboriginal Congress - Disability Royal Commission Public Hearing~²

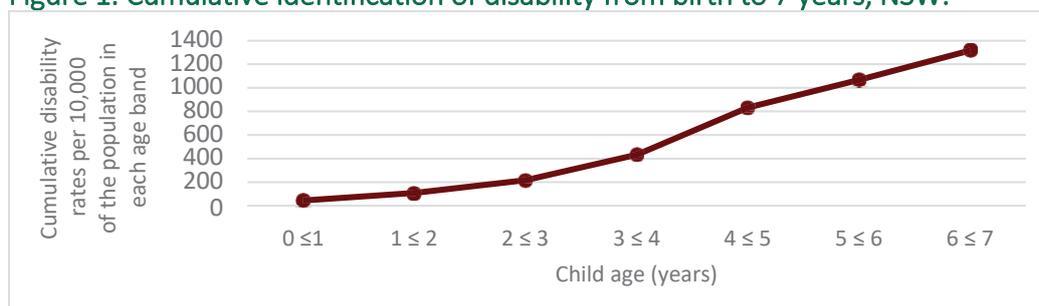
It is also imperative to understand the use of early childhood supports and their impact on child development and educational outcomes, where findings can be used to inform program planning^{3,4}. This test case explores the effects of early childhood education on educational outcomes in early and middle childhood for children with disability and developmental vulnerability.

2 Key Findings from the NDDA Pilot

2.1 Prevalence of disability identified in childhood

A population of 2.33 million NSW children born between 2003 and 2019 were included in this test case (see Appendix for subcohort definitions). We identified 13% of this cohort with any type of disability (using all available record sets) and 10% of the eligible population (i.e., those with valid AEDC data) were identified with developmental vulnerability (defined as scoring in the lowest 10th percentile [‘vulnerable’ range] on 2 or more domains of the AEDC, as more robust definition of developmental vulnerability than scoring ‘vulnerable’ on a single domain). Figure 1 shows the cumulative rate of disability identified, by age band, for 306,982 children in this Test Case.

Figure 1. Cumulative identification of disability from birth to 7 years, NSW.



Intellectual/Learning disabilities were the most common in this age group

The types of disability recorded for NSW children in all available records were classified according to four broad categories used by the NSW Department of Education. A child could be allocated to more than one disability category if multiple types of disability were recorded prior to 7 years of age. The non-mutual exclusivity of these groups must be considered when interpreting findings associated with disability subtypes.

Of the 306,982 NSW children identified with a disability:

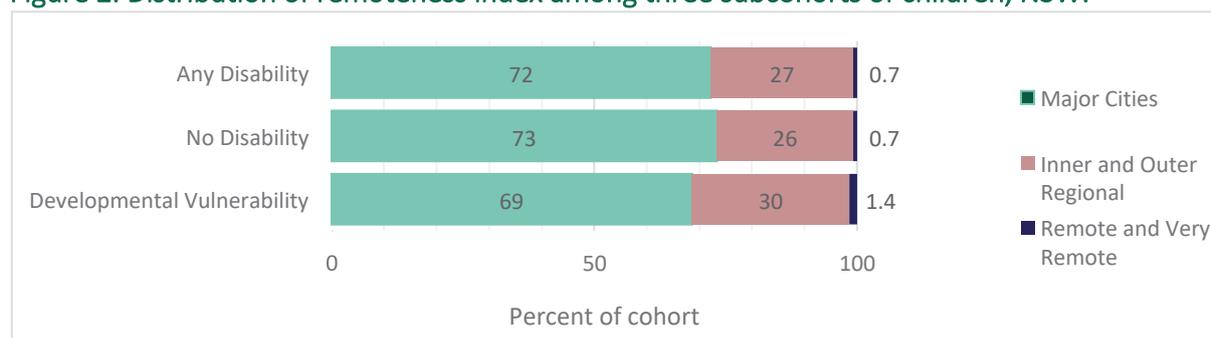
- 15% had a disability characterised as ‘Physical/Diverse’
- 55% had a disability characterised as ‘Intellectual/Learning’
- 19% had a disability characterised as ‘Sensory/Speech’
- 40% had a disability characterised as ‘Psychosocial’
- **27% of children were identified to have multiple disabilities.**

2.2 Supports and services accessed by NSW children with disability

Geographical access to supports and services

The population distribution of children living in major cities, rural and remote areas according to the Accessibility/Remoteness Index of Australia (ARIA; Figure 2) was similar among the subgroups of children identified with disability, no disability, and developmental vulnerability. This suggests no geographical bias in access to support services among these subgroups. Of course, children in all three groups living in outer regional and remote areas may nevertheless lack access to some services and supports, and this could be investigated in an enduring asset.

Figure 2. Distribution of remoteness index among three subcohorts of children, NSW.

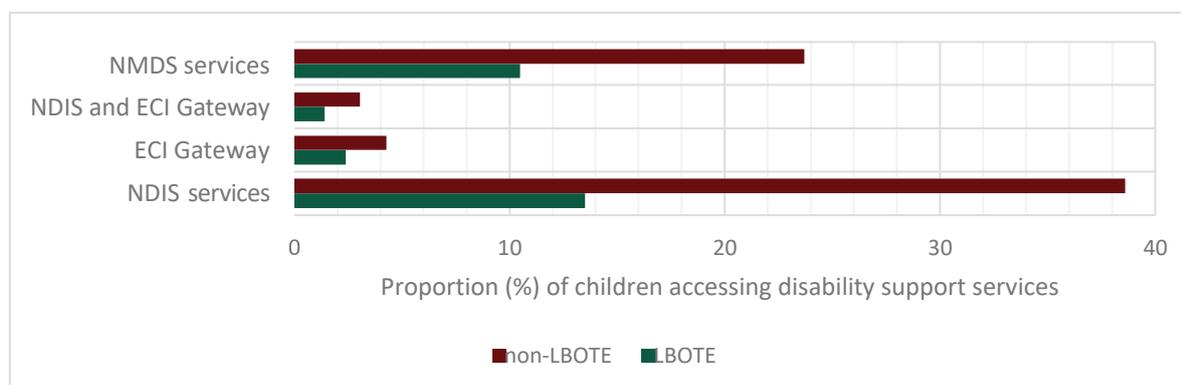


Targeted Disability and Early Childhood Early Intervention supports were not well accessed by NSW children with a language background other than English.

NSW fully transitioned to NDIS in 2018. Approximately 13% of children identified with disability in NSW had an approved NDIS plan, and 3% had participated in the NDIS Early Childhood Education Intervention (ECEI) gateway, which facilitates quick access to NDIS support for children under the age of 7 years. More than half (53%) of the children who participated in the NDIS ECEI pathway were subsequently given an NDIS approved plan. Prior to the roll-out of NDIS, 6% of the children identified with disability accessed early childhood interventions through Disability Services.

From a subsample of 177,987 children living in NSW, those with language background other than English were less likely to receive any disability support services than children from an English-only speaking background (Figure 3).

Figure 3. Proportion of children with disability who accessed support services according to language background other than English (LBOTE), NSW.



Around **14%** of NSW children with language background other than English received NDIS support services relative to **39%** of children from an English-only speaking background. Access to support services available prior to the NDIS (i.e., NMDS) showed a similar pattern, with 11% of children with language background other than English receiving NMDS support services relative to 24% of children from an English-only speaking background. **This is despite almost universal access (>99%) to GP services in all children.**

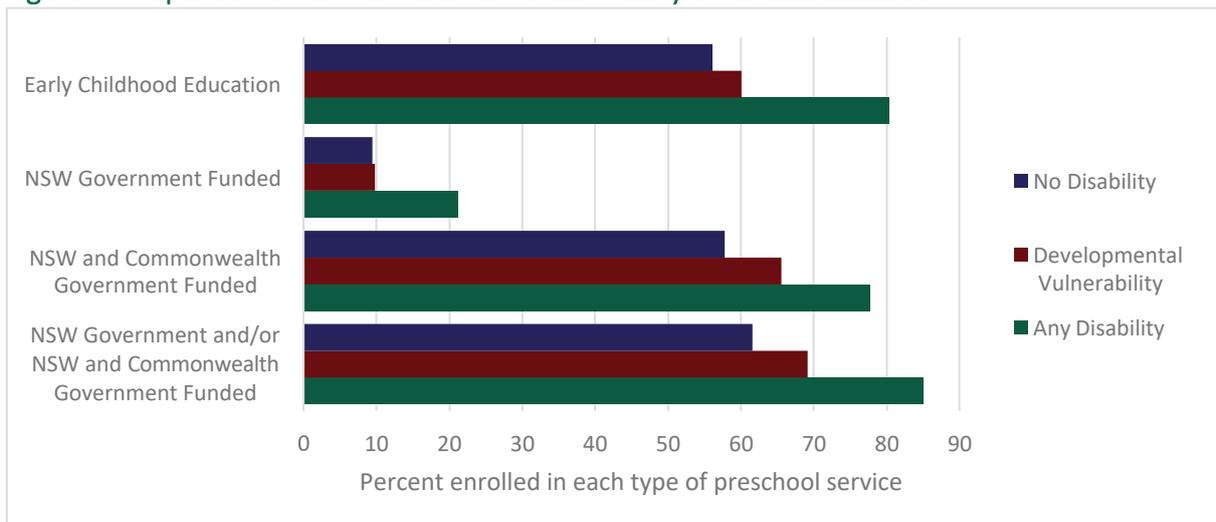
Children living in NSW with disability have good access to early childhood education services

Receiving support early in life can also potentially reduce the impacts of disability or developmental vulnerability, build skills and independence, as well as reduce the extent of supports needed later in life. Early intervention can be provided in mainstream early childhood settings. Supports enable children with disability and additional needs to participate in a quality early childhood education program on the same basis as all children.

This was the **first time NSW Government-run preschools, NSW Government-funded community and mobile preschools and Commonwealth-funded centre-based day care services delivering a preschool program could be viewed together in such rich detail**, due to the complexity of Australia's early childhood education funding arrangements. Proportionally, there were more children with disability and developmental vulnerability who attended early childhood education services than children with no disability (Figure 4).

Approximately 80% of NSW children with disability and 60% of children with developmental vulnerability were enrolled in early childhood education (community preschool, Government preschool or centre-based day care) compared with 56% of children with no disability. Over 20% of children with disability were enrolled in NSW Government funded preschools, and 78% were enrolled in NSW and Commonwealth Government funded preschools.

Figure 4. Proportion of NSW children enrolled in early childhood education.



NOTE: These figures are not directly comparable to published NSW ECE participation rate as some children in the cohort are younger than preschool age.

Across the four disability types, the proportion of children with disability enrolled in NSW Government funded and NSW Commonwealth Government funded early childhood education services was similar.

Children with disability and developmental vulnerability were over-represented in the NSW child protection system.

In this test case, **more than 25% of children with disability were brought to the attention of NSW child protection services** by the age of 17 years, compared to 12% of children with no disability. One third of children with early childhood developmental vulnerability were brought to the attention of child protection services.

“Disability contributes to a higher level of need and a child with disability requires a higher level of supervision. If a family does not have the resources or access to supports, this may be perceived as neglect and increase the risk of removal.”

~Dr John Boffa, Chief Medical Officer Public Health, Central Australian Aboriginal Congress, Disability Royal Commission Public²

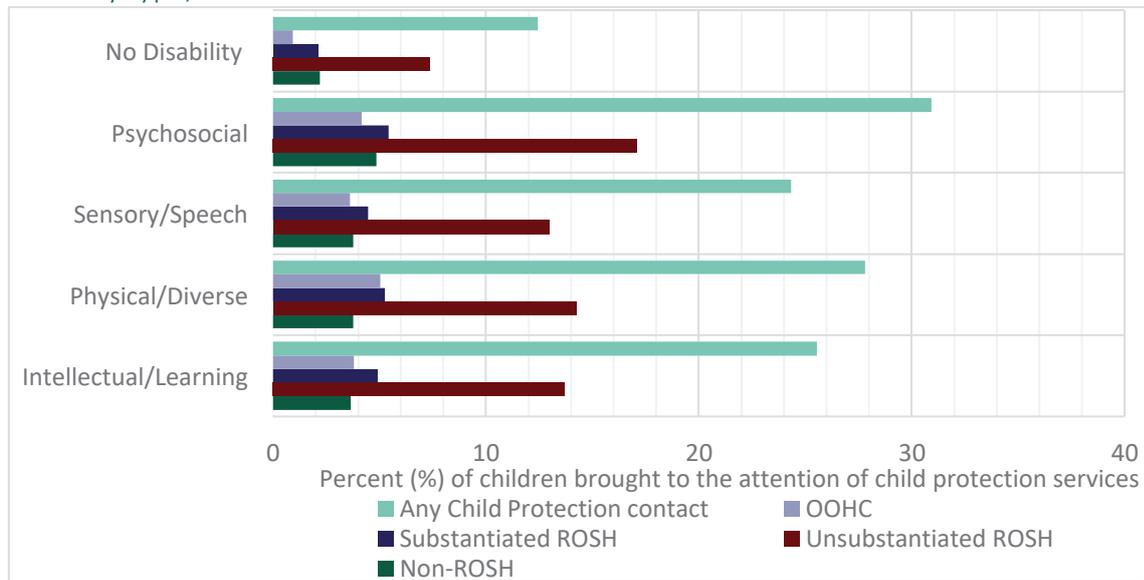


More than 1 in 3 children (37%) who have been placed in out-of-home-care were identified with a disability.

Of NSW children who had been placed in out-of-home-care **22% had intellectual/learning disability and 17% had psychosocial disability**. These were also the most highly represented disability types in the child protection system.

The overall pattern of children brought to the attention of NSW child protection services were similar across disability types (Figure 5).

Figure 5. Children brought to the attention of child protection services as a proportion of disability type, NSW.



ROSH: risk of significant harm; OOHC: out-of-home-care. *Any child protection contact* represents a combination of the four levels of contact.

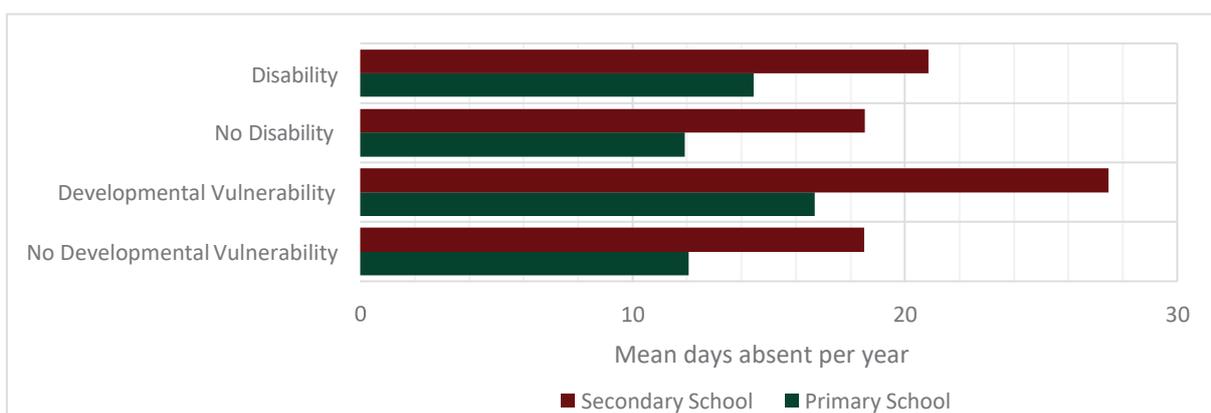
2.3 Selected educational outcomes for NSW children with disability and developmental vulnerability

NSW children with disability and developmental vulnerability had more days absent from school in both primary school and secondary school.

Regular attendance at school is essential to assist students to maximise their potential⁵.

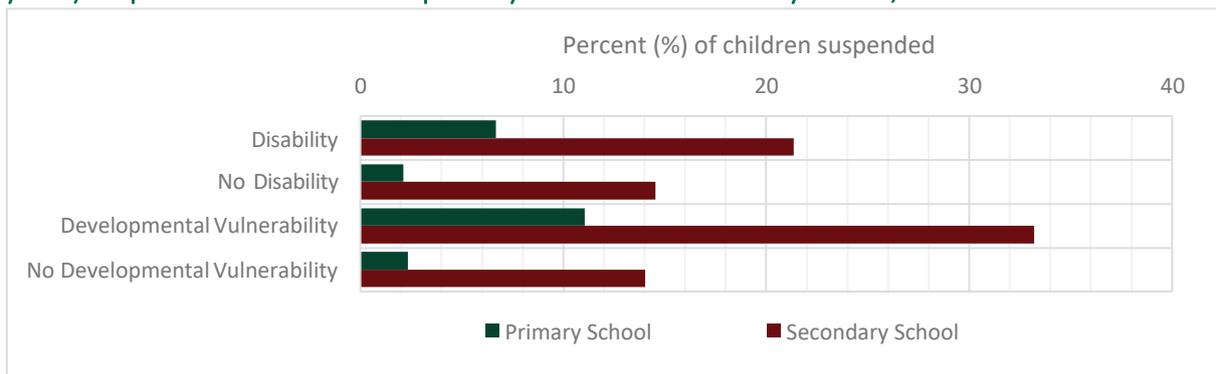
NSW children with disability and developmental vulnerability had more days absent from school in both primary school and secondary school compared to their peers with no disability and no developmental vulnerability (Figure 6).

Figure 6. Mean days absent from school in primary school and secondary school for children identified with disability and developmental vulnerability (<7 years) with recorded absences, NSW.



When attendance was examined according to disability type, the mean days absent from primary school (~15 days) and secondary school (~20 days) were similar across the disability types. Among the test case school age population, 8% of children had been suspended at least once. Children with disability and developmental vulnerability were also more likely to be suspended at any school level, compared to children with no disability (Figure 7). Future work with this valuable data asset should examine incidents of repeat suspensions which may be over-represented among students with disability and particular disability types.

Figure 7. Proportion of children identified with disability and developmental vulnerability (<7 years) suspended from school in primary school and secondary school, NSW.



NSW children with disability were not achieving the same educational outcomes as children without disability by Grade 3.

National Assessment Program – Literacy and Numeracy (NAPLAN) is an annual assessment for all students in Grades 3, 5, 7 and 9. It tests the types of skills that are essential for every child to progress through school and life. Adjustments are provided to students with disability to enable an equivalent learner experience during NAPLAN testing and to encourage maximum participation⁶.



1 in 10 children with no disability achieved below National Minimum Standard*

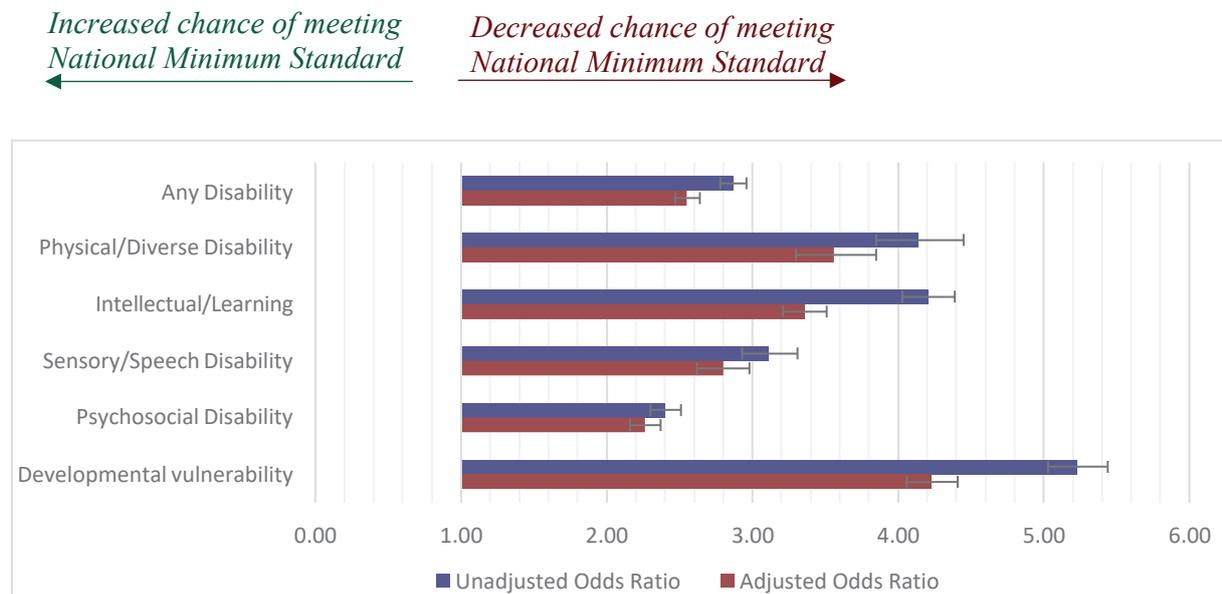
1 in 4 children with disability achieved below National Minimum Standard

1 in 3 children with developmental vulnerability achieved below National Minimum Standard

*The tests cover skills in reading, writing, spelling, grammar and punctuation, and numeracy; these statistics indicate the proportion of NSW children who achieved below the National Minimum Standard in at least one domain.

NSW children with disability were over 2.5x less likely to reach the National Minimum Standard across any domain assessed in Grade 3 NAPLAN, after accounting for socioeconomic background, perinatal experiences, early childhood education, English language background, gender, and geographic remoteness (Figure 8).

Figure 8. Examining disability type and developmental vulnerability on the likelihood of meeting National Minimum Standard on any Grade 3 NAPLAN domain, NSW.



Unadjusted and adjusted associations (odds ratio and 95% confidence intervals) for achieving below National Minimum Standard on any Grade 3 NAPLAN domain, according to disability type and/or early developmental vulnerability. Adjusted models examined each disability type in separate models, each including the covariates: male sex, remoteness, Language Background other than English, socioeconomic disadvantage, low birthweight, preterm birth, and prenatal smoking exposure.

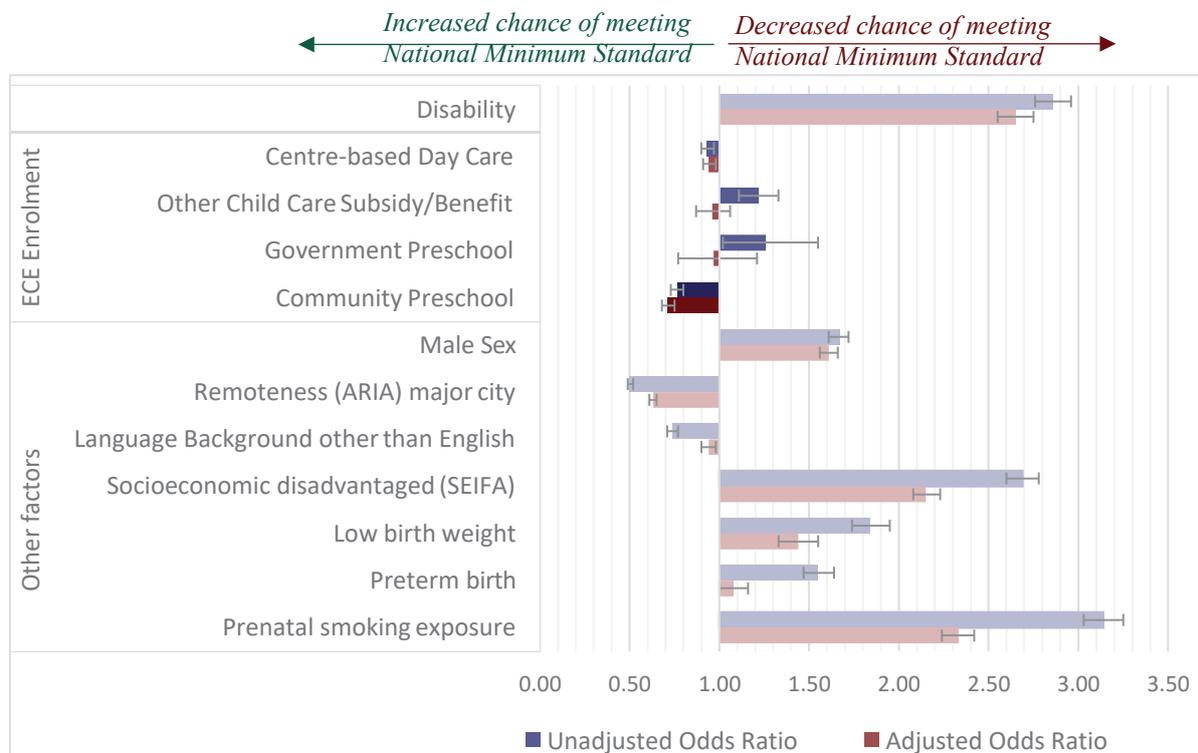
NSW children with intellectual/learning or physical/diverse disability were over 3 times less likely (than children with no disability) to achieve the National Minimum Standard, while NSW children with developmental vulnerability were over 4 times less likely to achieve the National Minimum Standard than their peers without developmental vulnerability, taking groups of children with similar circumstances and characteristics into account.

Attending community preschool improved the likelihood of NSW children achieving better educational outcomes by year 3.

Interestingly, attendance at community preschool was associated with increased likelihood of achieving at or above the National Minimum Standard, while other Early Childhood Education services had no significant effect on NAPLAN outcomes when all other factors were considered (Figure 9).

Known demographic, perinatal and socioeconomic risk factors were also associated with poor NAPLAN outcomes: being male, living in an area with high socio-economic disadvantage, being born with low birthweight and exposed to prenatal smoking were all associated with increased likelihood of achieving below the National Minimum Standard on at least one domain in the Grade 3 NAPLAN assessment, while living in a major city and having a language background other than English *decreased* the odds of achieving below National Minimum Standard on Grade 3 NAPLAN (Figure 9).

Figure 9. Examining disability and other factors on the likelihood of meeting the National Minimum Standard across the range of domains assessed in Grade 3 NAPLAN, NSW.



Unadjusted and adjusted odds (Odds ratios and 95% confidence intervals) of achieving below National Minimum Standard on any Grade 3 NAPLAN domain. These show the increased or decreased odds (likelihood) of achieving below National Minimum Standard on the Grade 3 NAPLAN according to a range of indicators available in linked data. The association between each indicator and the outcome (scoring below National Minimum Standard) is expressed as an Odds Ratio (OR) that provides an estimate of effect size, alongside a 95% confidence interval (CI) surrounding that estimate. An association is considered significant if the CI of an OR do not cross one. Unadjusted ORs (purple bars) represent the association between each factor and NAPLAN achievement without consideration of other factors. Adjusted ORs (red bars) represent the association between each factor and the outcome after taking into account the effect of all other factors included in the model together.

APPENDIX: Overview of methodology

Study design: The NSW Early Childhood Test Case population is represented in 23 Commonwealth and NSW record sets providing information on mainstream health, education, social, and targeted disability supports and services, that together span the years of 2003-2019.

Study period: Data was analysed from March 2021 to November 2021.

Cohort definition: The Test Case population comprises 2.33 million NSW children born between 2003-2019. This test case identified disability and developmental vulnerability before the age of 7 years (i.e., the children’s first year of formal schooling).

Baseline characteristics

Indicators of disability and developmental vulnerability. Ten record sets were used to determine three sub-cohorts of NSW children, as follows: ‘any’ disability (representing 13% of the test case cohort, identified using all available record sets); ‘medically verified’ disability (11%), and; early childhood developmental vulnerability (representing 10% of eligible children among 462,067 AEDC records; see Table 1). Around 13% of NSW children with disability were identified in the NDIS, and around 20% were identified in NCCD, whereas around 73% were identified through the MBS. These contributions to identification are governed by policy changes and data availability (e.g., NDIS is a recent scheme).

Table 1. Record sets used to identify NSW children with disability and/or developmental vulnerability.

Cohort		Record sets used to identify cohort
Any Disability 306,982 children	Medically Verified Disability 258,183 children	National Disability Insurance Scheme incl Early Childhood Early Intervention pathway Medicare Benefits Schedule Disability Services-National Minimum Data Set
		Australian Early Development Census – Special Needs Status Nationally Consistent Collection Data on School Students with Disability NSW Disability and Inclusion Program – Higher Learning Support Needs NSW Preschool Disability Support Program NSW DoE Student Disability Data collection: Integrated Funding Support and Support Class NSW Annual (Community) Preschool Census NSW Mid-Year Census: Government Preschools and Early Intervention
Developmental Vulnerability 45,147 children		Australian Early Development Census – vulnerability on at least 2 domains (note that children with <i>special needs</i> are not included within AEDC domain categories because of the already identified substantial developmental needs of this group)

Indicators of Health, Education, Social, and targeted Disability support services. A range of mainstream health, education and social supports, as well as targeted disability supports were accessed by the children identified with disability (Table 2). **More than 99% of NSW children identified with disability received at least one mainstream or targeted support service.**

Notably, services and supports from education service systems were accessed at an older age (e.g., enrolment in early childhood education and school), affecting the proportion of the disability cohort enrolled in Government schools and accessing targeted disability supports at school.

Table 2. Number (%) of NSW children with disability (<7 years) who received supports.

Supports	N (%)
Any support services All of the below datasets	306,945 (99.9%)
Health supports Any MBS services (including GP and mental health services); NSW Hospital Admitted Patients Data Collection; NSW Emergency Department Data Collection	306,184 (99.7%)
Early childhood education enrolment Centre-based day care; Preschool attendance (NSW Annual (Community) preschool census and NSW Mid-Year Census: Government preschools) <i>Note only preschool age children are eligible for enrolment and attendance some of the children in the cohort are younger than preschool age.</i>	247,423 (80.6%)
Government School enrolment NSW School enrolment <i>Note only school age children are eligible to access this service and many children in the cohort are younger than school age.</i>	173,918 (56.7%)
Social supports (child protection services) Contact with NSW Department of Communities and Justice (child protection services, including out-of-home-care)	79,548 (25.9%)
Social supports (other types of child-care) Family day care, Out of school hours care, and In-home care	142,612 (46.5%)
Targeted disability supports Including: NSW Preschool Disability Support Program; NSW Disability and Inclusion Program-Higher Learning Support Needs; NSW Mid-Year Census: Early Intervention; NSW Department of Education Student Disability (Integrated Funding Support and Support Class); Nationally Consistent Collection Data on School Students with Disability; NDIS plan/Early Childhood Early Intervention pathway; Disability Services - National Minimum Dataset	147,364 (48.0%)

Outcomes

- **School Attendance:** Information regarding the number of days *absent* and *suspended* from school was obtained from the NSW Government School Attendance record set.
- **Grade 3 NAPLAN Achievement:** The National Assessment Program – Literacy and Numeracy (NAPLAN) is the yearly assessment administered to school students in Grades 3, 5, 7 and 9 at Government and Non-Government schools. The NAPLAN assesses academic attainment on five domains: *reading, writing, spelling, numeracy, and grammar and punctuation*. This report presents the NAPLAN achievement on the Grade 3 assessment in relation to achieving below National Minimum Standard (scoring in Band 1) on any of the five NAPLAN domains.

Covariates

- **Sex** (male/female) was defined as the most frequently occurring sex across multiple record sets: Register of Birth Deaths Marriages Birth Registrations; Perinatal Data Collection (PDC); Admitted Patients Data Collection (APDC); Emergency Department Data Collection (EDDC); School Enrolment Records (SCE); Medicare Consumer Directory; National Disability Insurance Scheme (NDIS).
- **Remoteness** (major cities vs regional/remote) was indexed by the Accessibility/Remoteness Index of Australia (ARIA) and defined as the most frequently occurring ARIA across multiple record sets: Australian Early Development Census (AEDC); Annual (Community) Preschool Census (APC); SCE. Where sample sizes allowed, ARIA for one timepoint was taken to capture the geographical change in residency.

- **Language Background Other than English (LBOTE)** was defined as the most frequently occurring LBOTE across multiple record sets (AEDC; APC; NDIS).
- **Socio-Economic Disadvantage:** Socioeconomic disadvantage was defined as the lowest quintile of the Socio-Economic Index for Areas (SEIFA), according to the Index of Relative Socio-economic Disadvantage (IRSD). Where multiple SEIFA indices were available, the most frequent SEIFA score across multiple record sets (e.g., AEDC; APC) was used.
- **Preterm Birth:** Born <37 weeks (PDC).
- **Low Birthweight:** Birthweight <2,500 grams (PDC).
- **Prenatal Smoking Exposure:** Maternal smoking during pregnancy (PDC).

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