

Eligibility for a Preservation Program

Supporting Social Impact Investment in South Australia

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Disclaimer

The views expressed here do not necessarily reflect those of our government partners.

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Who we are

The *BetterStart Health and Development Research* comprises inter-disciplinary researchers from epidemiology, public health, criminology, paediatrics, biostatistics, and psychology who are trying to better understand how to ensure infants and children have the best start in life that will enhance their health, development and human capability formation over the life course.

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Objective

This report was developed to inform Social Impact Investing (SII) in South Australia for the Preservation Cohort.

The report is presented in 8 parts:

Part 1: Cohort eligibility;

Part 2: Characteristics of the cohort;

Part 3: Counterfactual estimates of preservation;

Part 4: Trends in cohort composition;

Part 5: Selected examples of SA government service use;

Part 6: Risk prediction for OOHC for the 1+ investigation group;

Part 7: Developmental vulnerability at school entry and school achievement; and

Part 8: Commonwealth welfare outcomes.

Note: We were also originally asked to explore potential comparison groups but this work is not possible until final eligibility criteria have been defined by the Joint Working Group.

Population

The primary analysis is based on children unborn to 9 years or less in the financial year 2016/2017, with temporal analysis covering the years 2013/2014 to 2018/2019.

The Key Numbers

Cohort Eligibility

Eligibility was defined as:

1. Child aged unborn to age 9 years or less; AND
2. At intake date (child protection notification) lived in one of the following Southern Local Government Area's (LGA's): Mitcham, Holdfast Bay, Marion, Onkaparinga, Mount Barker, Murray Bridge; AND
3. Were in one of the following 3 groups;
 - UCC report
 - 3+ notification not investigated
 - Investigation but not removed into out-of-home care.

All analyses are presented according to these 3 groups.

Appendices include 1) comparative analyses on the northern and western regions; and 2) numbers of children eligible for the preservation cohort aged less than 6 years in the Southern region.

Our interpretation of the main findings

1. Preservation rates are high at ~85% in all but the UCC cohort which are at about 75%. These high preservation rates may represent “ceiling effects” where any intervention may find it difficult to improve on 85%.
2. We find no compelling patterns of differences in preservation by characteristics such as parent age and risk factors.
3. The only exception to this is those who had prior OOHC (before the defined financial year) have lower preservation rates. However, this a very small number of children.
4. The general findings for looking at child hospitalisations and ED presentations is that they do not appear that much higher than population averages.

About this report

This final report responds to a request from SA Department of Treasury and Finance to provide background data to inform Social Impact Investing (SII) in South Australia for the preservation cohort.

Data sources

Data comes from the Better Evidence Better Outcomes Linked Data platform (BEBOLD) using information from:

- SA Department for Child Protection;
- Integrated South Australian Activity Collection (ISAAC) Data, SA Health;
- Emergency Department Data Collection (EDDC), SA Health;
- Perinatal data, SA Health;
- Births data, Consumer and Business Services;
- Birth registration derived family file;
- Australian Early Development Census (AEDC) data, Commonwealth Department of Education, Skills and Employment
- National Assessment Program – Literacy and Numeracy (NAPLAN) data, Department for Education; and
- Commonwealth DOMINO data.

The aim of the reports that we deliver to government is to provide an evidence base from which decisions can be made that will lead to improved outcomes for families and children experiencing different forms of disadvantage. However, as these reports primarily focus on data analysis, this can appear to depersonalise the real-life experiences that underlie these data. We would like to acknowledge the data in these reports represent serious experiences that can have a lifelong impact on children and families.

Using data in this way is only one way to tell important stories, however, we hope that this work contributes to ensuring South Australia is able to make more informed decisions about how best to support children and families.

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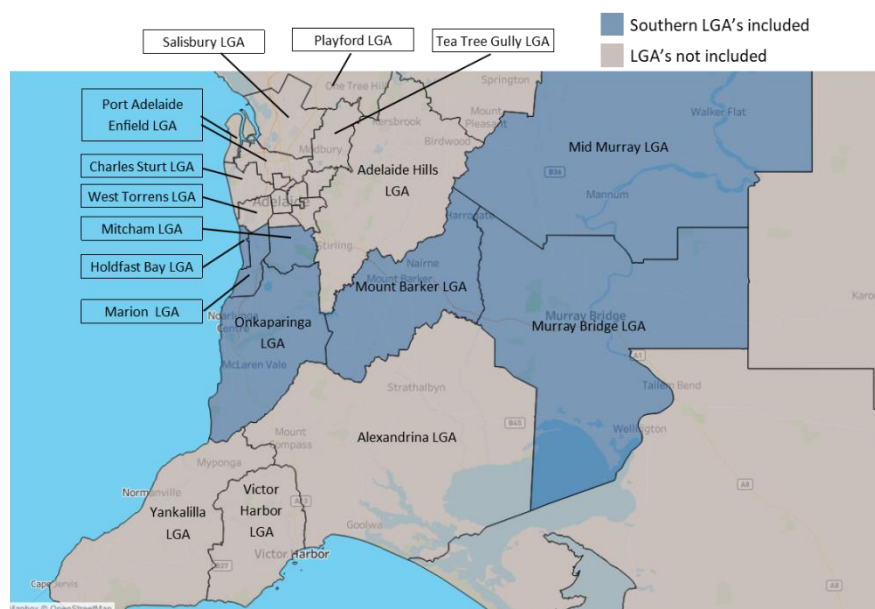
Part 1. Cohort eligibility

There were 3 eligibility criteria for the preservation cohort:

1. Child aged unborn to age 9 years or less; AND
2. At intake date (child protection notification) lived in one of the following Southern Local Government Area's (LGA's): Mitcham, Holdfast Bay, Marion, Onkaparinga, Mount Barker, Murray Bridge; AND
3. Were in one of the following 3 groups;

1	UCC	Child was the subject of an unborn care concern during a defined 12 month period
2	3 or more notifications with no investigation	Child was the subject of 3 or more notifications of alleged abuse and/or neglect but no investigation during a defined 12 month period
3	At least one investigation	<p>Child had at least one investigation during a defined 12 month period and were not placed on an Investigation and Assessment (I&A) order during investigation</p> <p>Or</p> <p>Child had at least one investigation during a defined 12 month period and were placed on an I&A order during investigation but did not transition to any order that extended their time in care</p> <p>Exclusion criteria: children were excluded if during or following investigation they were placed on a care and protection order and into out-of-home care</p>

Figure 1: Eligible Southern LGAs for the preservation cohort



Number potentially eligible and excluded for the whole of South Australia

There were 5,062 children eligible for the preservation cohort in 2016/2017.

Table 1: Number of eligible and excluded for the preservation cohort, 2016/2017

	n	col %
Eligible		
Unborn care concern during 2016/2017	855	16.8
3 or more notifications and no investigation during 2016/2017	2,663	52.6
At least one investigation during 2016/2017 and not placed on an Investigation and Assessment (I&A) order during investigation	1,513	29.9
At least one investigation during 2016/2017 and placed on an I&A order during investigation but didn't transition to a VCA, GOM12 or GOM 18 order	31	0.6
Total eligible	5,062	100.0
Excluded		
At least one investigation during 2016/2017 and placed on an I&A Order during investigation and was placed on a VCA, GOM12 or GOM 18 order and in OOHC	238	
At least one investigation during 2016/2017 and placed on a care and protection order and in OOHC	97	

Number eligible by region

Of the 5,062 children eligible for the preservation cohort in 2016/2017, 1,148 (22.7%) lived in the Southern region.

Table 2: Number eligible by region for the preservation cohort 2016/2017

	UCC		3 or more notifications no investigation		At least one investigation		Total	
	n	col %	n	col %	n	col %	n	col %
Region								
Southern	159	18.6	645	24.2	344	22.3	1,148	22.7
Western	116	13.6	409	15.4	143	9.3	668	13.2
Northern	259	30.3	866	32.5	218	14.1	1,343	26.5
Other SA	277	32.4	733	27.5	821	53.2	1,831	36.2
Interstate/ Address unknown	44	5.1	10	0.4	18	1.2	72	1.4
Total	855	100.0	2,663	100.0	1,544	100.0	5,062	100.0

Note: Southern regions included Mitcham, Holdfast Bay, Marion, Onkaparinga, Mount Barker and Murray Bridge.

LGA's included in the West were West Torrens, Charles Sturt, and Port Adelaide Enfield. LGA's included in the North were Salisbury, Playford and Tea Tree Gully LGA.

Part 2. Characteristics of the cohort (n=1,148)

Proportion of children eligible in each Southern LGA

Using Australian Bureau of Statistics (ABS) 2016 Census data the proportion of all 0-9 year olds in the Southern region is presented in Table 3. It illustrates that the preservation cohort is a relatively larger proportion (6.3%) of all 0-9 year olds in Murray Bridge, compared to for example Mitcham, which is only 0.7% of the 0-9 year olds. This concentration of eligible population may mean that preservation needs are higher for some communities than others.

Table 3: Proportion of all children 0 to 9 years living in the Southern region who are eligible for the preservation cohort – 2016/17

Eligible for preservation cohort	Number of children aged 0 to 9 years living in LGA at ABS 2016 Census n	Number of children eligible for preservation cohort n	% of the total population in these regions that are eligible in these LGAs %
Southern region			
Mitcham LGA	7,471	52	0.7
Holdfast Bay LGA	3,144	29	0.9
Marion LGA	10,050	205	2.0
Onkaparinga LGA	21,036	618	2.9
Mount Barker LGA	4,515	55	1.2
Murray Bridge LGA	2,443	155	6.3
Mid Murray LGA	730	34	4.7
Total	49,389	1,148	2.3

Characteristics of children (n=1,148)

Of the 1,148 children eligible for the preservation cohort in 2016/17 living in the Southern region:

- 618 (53.8%) lived in Onkaparinga LGA.
- 732 (63.8%) were aged 5 years or less with 159 of those being Unborn reports.
- 283 (24.7%) were Aboriginal and/or Torres Strait Islander.

Interpretation

For the investigation group, almost 40% are aged 2 years or less compared to 23% of the 3+ notification not investigated group. With almost 40% under 2 and the large number of UCC's (n=159), this has implications for system costs if these young children are not preserved.

Table 4: Characteristics of the preservation cohort, 2016/2017 Southern region

Eligible for preservation cohort	UCC		3 or more notifications no investigation		At least one investigation		Total	
	n	col %	n	col %	n	col %	n	col %
Southern region								
Mitcham LGA	11	6.9	33	5.1	8	2.3	52	4.5
Holdfast Bay LGA	5	3.1	19	2.9	5	1.5	29	2.5
Marion LGA	31	19.5	150	23.3	24	7.0	205	17.9
Onkaparinga LGA	79	49.7	391	60.6	148	43.0	618	53.8
Mount Barker LGA	6	3.8	24	3.7	25	7.3	55	4.8
Murray Bridge LGA	22	13.8	24	3.7	109	31.7	155	13.5
Mid Murray LGA	5	3.1	4	0.6	25	7.3	34	3.0
Age at first contact in 2016/2017								
Unborn	159	100.0					159	13.9
Less than 1 year			32	5.0	54	15.7	86	7.5
1 year			67	10.4	39	11.3	106	9.2
2 years			50	7.8	35	10.2	85	7.4
3 years			73	11.3	34	9.9	107	9.3
4 years			61	9.5	25	7.3	86	7.5
5 years			71	11.0	32	9.3	103	9.0
6 years			69	10.7	33	9.6	102	8.9
7 years			75	11.6	28	8.1	103	9.0
8 years			71	11.0	40	11.6	111	9.7
9 years			76	11.8	24	7.0	100	8.7
Gender								
Male	69	43.4	350	54.3	168	48.8	587	51.1
Female	65	40.9	295	45.7	176	51.2	536	46.7
Indeterminate	25	15.7					25	2.2
Aboriginal and/or Torres Strait Islander								
Yes	52	32.7	151	23.4	80	23.3	283	24.7
No	88	55.3	480	74.4	249	72.4	817	71.2
Don't know	19	11.9	14	2.2	15	4.4	48	4.2
Total	159	100.0	645	100.0	344	100.0	1,148	100.0

Parental age

Table 5 presents the age structure of parents using the DCP relationships file. Note that between 20% to 45% of the data is not available on father's age. Therefore, the available data on parental age may not be reliable to inform how parental age may be applied as an eligibility criterion in practice.

Table 5: Parental age of children eligible for the preservation cohort 2016/2017 living in the Southern region

Eligible for preservation cohort	UCC		3 or more notifications no investigation		At least one investigation		Total	
	n	col %	n	col %	n	col %	n	col %
Mothers age at 2016/17								
Less than 23 years	41	25.8	27	4.2	25	7.3	93	8.1
23 -24 years	16	10.1	41	6.4	24	7.0	81	7.1
25-29 years	29	18.2	110	17.1	57	16.6	196	17.1
30 -34 years	44	27.7	162	25.1	69	20.1	275	24.0
35 years or more	17	10.7	161	25.0	69	20.1	247	21.5
Unknown	12	7.5	144	22.3	100	29.1	256	22.3
Fathers age at 2016/17								
<25 years-old	19	11.9	36	5.6	23	6.7	78	6.8
25-29 years	26	16.4	86	13.3	42	12.2	154	13.4
30 -34 years	26	16.4	118	18.3	64	18.6	208	18.1
35 years or more	19	11.9	242	37.5	108	31.4	369	32.1
Unknown	69	43.4	163	25.3	107	31.1	339	29.5
Mother aged <23 years-old AND/OR father aged <25 years-old at 2016/17								
Yes	47	29.6	52	8.1	42	12.2	141	12.3
No	100	62.9	514	79.7	248	72.1	862	75.1
Unknown	12	7.5	79	12.2	54	15.7	145	12.6
Mother aged <23 years-old AND father aged <25 years-old at 2016/17								
Yes	13	8.2	11	1.7	6	1.7	30	2.6
No	77	48.4	406	62.9	185	53.8	668	58.2
Unknown^	69	43.4	228	35.3	153	44.5	450	39.2
Total	159	100.0	645	100.0	344	100.0	1,148	100.0

^ Note: the large number of "unknown" is because both mothers and fathers age had to be available in the child protection data. The data we have available may not represent the real distribution of mother aged <23 AND father aged <25 among this group due to the large amount of missing data.

Previous child protection contact

We have removed UCC's because in general the UCC is their first child protection contact (n=159).

Of the 989 children in '3 or more notifications no investigation' or 'at least one investigation' groups in 2016/17:

- 810 (81.9%) were known to child protection prior to 2016/2017 (i.e. first ever child protection contact occurred prior to 2016/2017);
- 416 (42.1%) had at least one investigation prior to 2016/2017;
- 33 (3.3%) had at least one OOHC placement prior to 2016/2017;
- Also note that in the at least one investigation group, 6% have already had an OOHC placement.

Table 6: Previous child protection contact for the PRESERVATION COHORT 2016/2017 living in the Southern region

Eligible for Preservation cohort	3 or more notifications no investigation		At least one investigation		Total	
	n	col %	n	col %	n	col %
Ever had child protection (CP) contact prior to 2016/2017						
Had CP contact prior to 2016/2017	534	82.8	276	80.2	810	81.9
First CP contact 2016/2017	111	17.2	68	19.8	179	18.1
Ever had an investigation prior to 2016/2017						
Yes	247	38.3	169	49.1	416	42.1
No	398	61.7	175	50.9	573	57.9
Ever had an OOHC placement prior to 2016/2017						
Yes	12	1.9	21	6.1	33	3.3
No	633	98.1	323	93.9	956	96.7
Total	645	100.0	344	100.0	989	100.0

Primary alleged grounds - At least one investigation group

Data on the primary alleged abuse or neglect are only available for screened-in notifications provided by the notifier. These grounds may or may not be substantiated following an investigation by a child protection work or they could be substantiated on different grounds.

Of those in the 'at least one investigation' group, 15.1% had domestic violence as their primary alleged grounds. This is an underestimation of domestic violence as it only includes the primary ground.

Table 7: Primary alleged grounds for abuse or neglect for the PRESERVATION COHORT 2016/2017 living in the Southern region

	At least one investigation	
	n	col %
Inadequate basic care	48	14.0
Inadequate supervision	28	8.1
No caregiver available/willing/able to provide care	19	5.5
Significant risk of emotional abuse/ neglect/ physical abuse due to – domestic violence	52	15.1
Significant risk of emotional abuse/ neglect/ physical abuse due to – mental health	25	7.3
Substance use or Significant risk of emotional abuse/neglect/physical abuse due to substance use	15	4.4
Alcohol use or Significant risk of emotional abuse/neglect/physical abuse due to alcohol use	16	4.7
Alleged serious inflicted injury, Alleged other inflicted injury, Serious injury due to neglect, Excessive discipline/other violent behaviour directed towards child, Dangerous behaviour involving child, Threats to kill/injure, Unexplained injury	46	13.4
Significant risk of sexual abuse, Sexual act or exploitation, Suspicious indicators consistent with sexual abuse	53	15.4
Other grounds*	42	12.2
Total	344	100.0

*Other grounds includes child has significant symptoms of emotional distress, failure to protect from others, significant risk of neglect / physical abuse due to intellectual disability, significant risk of emotional abuse/ neglect/ physical abuse due to young age of guardian, physical abuse due to serious prior abuse/neglect and other.

Primary grounds for substantiated abuse or neglect

We have included the 'at least one investigation' group as they are the only group that can be substantiated.

Those who are in the at least one investigation group, only half were substantiated (50.9%). Of those who were substantiated, 70% were substantiated for emotional abuse or neglect.

Of those substantiated, 24% of those in the at least one investigation group had domestic violence as their primary grounds for substantiation. This is an underestimation of domestic violence as it only includes the primary ground.

Table 8: Primary grounds for substantiated abuse or neglect for the PRESERVATION COHORT 2016/2017 living in the Southern region

	At least one investigation	
	n	col % of substantiated (col % of investigated)
Inadequate basic care	23	13.1
Inadequate supervision	11	6.3
No caregiver available/willing/able to provide care	6	3.4
Significant risk of emotional abuse/ neglect/ physical abuse due to – domestic violence	42	24.0
Significant risk of emotional abuse/ neglect/ physical abuse due to – mental health	12	6.9
Substance use or Significant risk of emotional abuse/neglect/physical abuse due to substance use	7	4.0
Alcohol use or Significant risk of emotional abuse/neglect/physical abuse due to alcohol use	16	9.1
Alleged serious inflicted injury, Alleged other inflicted injury, Serious injury due to neglect, Excessive discipline/other violent behaviour directed towards child, Dangerous behaviour involving child, Threats to kill/injure, Unexplained injury	30	17.1
Significant risk of sexual abuse, Sexual act or exploitation, Suspicious indicators consistent with sexual abuse	10	5.7
Other grounds*	18	10.3
Total substantiated	175	100.0 (50.9)
<i>(Not substantiated)</i>	<i>(169)</i>	<i>(49.1)</i>
Total	344	100.0

*Other grounds includes child has significant symptoms of emotional distress, failure to protect from others, significant risk of neglect / physical abuse due to intellectual disability, significant risk of emotional abuse/ neglect/ physical abuse due to young age of guardian, physical abuse due to serious prior abuse/neglect and other.

Significant risk factors

These data on significant risk factors were recorded by DCP case workers but this is not mandatory. For instance, Table 9 shows only half of the 'at least one investigation' group had a significant risk factor recorded. There were no significant risk factors recorded for the 'UCC' and the '3 or more notifications no investigation' group.

Interpretation

This analysis has been requested as this represents some of the only information that may speak to complexity and risk factors. However, these data are likely to underestimate complexity. For example, almost 80% of this group had no or one significant risk factors recorded.

Table 9: Significant risk factors (not mutually exclusive groups) for the Preservation cohort 2016/2017 living in the Southern region

	At least one investigation	
	n	col %
Had at least one significant risk factor recorded		
No	164	47.7
Yes	180	52.3
Significant risk factor ^		
Alcohol use	32	9.3
Other substance use	41	11.9
Caregiver lacks insight into impact on child	20	5.8
Caregiver not accepting responsibility for behaviour	20	5.8
Domestic violence	71	20.6
Homelessness	2	0.6
Inadequate housing	19	5.5
Inadequate income	0	0.0
Intellectual disability	2	0.6
Lack of capacity to protect	16	4.7
Mental health	49	14.2
Physical health/disability of caregiver	2	0.6
Poor attachment	8	2.3
Poor financial management (incl. gambling)	6	1.7
Significant gaps or severe deficits in parenting skill	33	9.6
Number of significant risk factors		
None	164	47.7
1	104	30.2
2	30	8.7
3	24	7.0
4	17	4.9
5	5	1.5
Total	344	100.0

^ not mutually exclusive groups

Part 3. Counterfactual estimates of preservation

Defining the primary outcome: preservation rate for the Southern region

Our data does not allow us to know if the child was preserved in their caring environment. All we can identify in the data is that the:

- Index child was not in out-of-home care (OOHC); or
- Index child only had emergency OOHC placements. In this case they were not classified as in OOHC, as the Preservation cohort program would still continue to work with the families during this time.

Follow-up period

The follow-up periods for the family preservation outcome were 4, 8, 12, 24 and 36 months post commencement of a child protection notification (intake date). We used intake date as the best representation of when the child would become eligible for the intervention.

Preservation rates can be interpreted to mean the child was “preserved” for that entire period (i.e. they are cumulative). For example, a child preserved at 4-months means they were never in OOHC at any time during that period. A higher proportion preserved is a better outcome.

Preservation at 4, 8, 12, 24 and 36 months

Interpretation

1. Look at the first row of purple numbers. Up to 4 months post-eligibility there were 482 (95.8%) children who were preserved during that 4 month period.
2. Now look at the last row of purple numbers. Up to 36 months post-eligibility there were 1,003 (87.4%) children who were preserved during the 36 month period of follow-up.
3. Therefore, at 36 months of follow-up, 87.4% of the eligible cohort could be characterised as preserved.
4. Now look at the 3+ notifications group. You can see from the column % in purple that this group does not experience very much OOHC. In other words, the majority of the group is “preserved” over time so may not be a good target for a family preservation intervention.
5. Now look at the UCC group. You can see from the column % that this group has the highest prevention potential where 78.6% of the eligible never experienced OOHC in 36 months.
6. Also note that this group of UCC’s includes children who are removed at-birth and it is worth considering if the intervention is intended to work during pregnancy or only postnatally.

Table 10: Children not in OOHC from eligibility date to 4, 8, 12, 24 and 36 months follow-up, Southern Region

	UCC		3 or more notifications no investigation		At least one investigation		Total	
	n	col %	n	col %	n	col %	n	col %
Spent time in OOHC from eligibility to 4 months								
No	151	95.0			331	96.2	482	95.8
Yes	8	5.0			13	3.8	21	4.2
Spent time in OOHC from eligibility to 8 months								
No	140	88.1			326	94.8	466	92.6
Yes	19	11.9			18	5.2	37	7.4
Total	159	100.0			344	100.0	503	100.0
Spent time in OOHC from eligibility to 12 months								
No	137	86.2	632	98.0	323	93.9	1,092	95.1
Yes	22	13.8	13	2.0	21	6.1	56	4.9
Spent time in OOHC from eligibility to 24 months								
No	127	79.9	608	94.3	300	87.2	1,035	90.2
Yes	32	20.1	37	5.7	44	12.8	113	9.8
Spent time in OOHC from eligibility to 36 months								
No	125	78.6	591	91.6	287	83.4	1,003	87.4
Yes	34	21.4	54	8.4	57	16.6	145	12.6
Total	159	100.0	645	100.0	344	100.0	1,148	100.0

Note: For the follow-up time period - 4 months and 8 months post-eligibility we have only included children in the ‘UCC’ or ‘at least one investigation’ group (n=503) due to small numbers in the ‘3 or more notifications no investigation’ group.

Preservation rate by characteristics – ‘UCC group’

Interpretation

1. Look at the row for Marion LGA. You will see that 71% of the UCC eligible cohort in Marion were preserved by 36 months.
2. Look at the row for Males. You will see that 65.2% of the UCC eligible male cohort were preserved by 36 months. This was 84.6% for females.
3. Look at the row for Aboriginal and/or Torres Strait Islander children. You will see that 80.8% of the UCC eligible Aboriginal cohort were preserved by 36 months. This was 72.7% for non-Aboriginal children.
4. Look at the row for parental age. There are no differences in preservation by parental age by 36 months.

Table 11: Children preserved (not in OOHC) from eligibility date to 4, 8, 12, 24 and 36 months by characteristics, among UCC's (n=159) 2016/17 Southern Region

	Number of children not in OOHC (% preservation rate) by										Total	
	4 months		8 months		12 months		24 months		36 months		n	Row %
	n	Row %	n	Row %	n	Row %	n	Row %	n	Row %		
Southern region												
Mitcham LGA	11	100.0	10	90.9	10	90.9	10	90.9	10	90.9	11	100.0
Holdfast Bay LGA	5	100.0	4	80.0	4	80.0	4	80.0	4	80.0	5	100.0
Marion LGA	26	83.9	25	80.6	25	80.6	23	74.2	22	71.0	31	100.0
Onkaparinga LGA	77	97.5	71	89.9	68	86.1	63	79.7	62	78.5	79	100.0
Mount Barker LGA	6	100.0	6	100.0	6	100.0	5	83.3	5	83.3	6	100.0
Murray Bridge LGA	21	95.5	19	86.4	19	86.4	17	77.3	17	77.3	22	100.0
Mid Murray LGA	5	100.0	5	100.0	5	100.0	5	100.0	5	100.0	5	100.0
Gender												
Male	64	92.8	55	79.7	53	76.8	47	68.1	45	65.2	69	100.0
Female	62	95.4	60	92.3	59	90.8	55	84.6	55	84.6	65	100.0
Indeterminate	25	100.0	25	100.0	25	100.0	25	100.0	25	100.0	25	100.0
Aboriginal and/or Torres Strait Islander												
Yes	48	92.3	47	90.4	46	88.5	43	82.7	42	80.8	52	100.0
No	84	95.5	74	84.1	72	81.8	65	73.9	64	72.7	88	100.0
Don't know	19	100.0	19	100.0	19	100.0	19	100.0	19	100.0	19	100.0
Total	151	95.0	140	88.1	137	86.2	127	79.9	125	78.6	159	100.0

Table 11: Children preserved (not in OOHC) from eligibility date to 4, 8, 12, 24 and 36 months by characteristics, among UCC's (n=159) 2016/17 Southern Region

	Number of children not in OOHC (% preservation rate) by										Total	
	4 months		8 months		12 months		24 months		36 months		n	Row %
	n	Row %	n	Row %	n	Row %	n	Row %	n	Row %		
Mother aged <23 years-old AND/OR father aged <25 years-old at 2016/17												
Yes	46	97.9	42	89.4	42	89.4	39	83.0	37	78.7	47	100.0
No	95	95.0	88	88.0	86	86.0	79	79.0	79	79.0	100	100.0
Unknown	10	83.3	10	83.3	9	75.0	9	75.0	9	75.0	12	100.0
Total	151	95.0	140	88.1	137	86.2	127	79.9	125	78.6	159	100.0

Preservation rate by characteristics – ‘3 or more notifications no investigation group’

Interpretation

1. Look at the row for Marion LGA. You will see that 85.3% of the ‘3 or more notifications no investigation’ eligible cohort in Marion were preserved during the 36 month period of follow-up.

Table 12: Children preserved (not in OOHC) from eligibility date to 4, 8, 12, 24 and 36 months by characteristics, ‘3 or more notifications no investigation’ group (n=645), 2016/17 Southern Region

	Number of children not in OOHC (% preservation rate) by										Total	
	4 months		8 months		12 months		24 months		36 months		n	Row %
	n	Row %	n	Row %	n	Row %	n	Row %	n	Row %		
Southern region												
Mitcham LGA	33	100.0	33	100.0	33	100.0	29	87.9	29	87.9	33	100.0
Holdfast Bay LGA	18	94.7	18	94.7	17	89.5	14	73.7	14	73.7	19	100.0
Marion LGA	149	99.3	148	98.7	143	95.3	138	92.0	128	85.3	150	100.0
Onkaparinga LGA	391	100.0	391	100.0	387	99.0	375	95.9	369	94.4	391	100.0
Mount Barker LGA	24	100.0	24	100.0	24	100.0	24	100.0	24	100.0	24	100.0
Murray Bridge LGA	24	100.0	24	100.0	24	100.0	24	100.0	23	95.8	24	100.0
Mid Murray LGA	4	100.0	4	100.0	4	100.0	4	100.0	4	100.0	4	100.0
Age at first contact in 2016/2017												
Less than 1 year	31	96.9	31	96.9	31	96.9	29	90.6	26	81.3	32	100.0
1 year	67	100.0	67	100.0	64	95.5	62	92.5	60	89.6	67	100.0
2 years	49	98.0	49	98.0	48	96.0	43	86.0	41	82.0	50	100.0
3 years	73	100.0	73	100.0	73	100.0	71	97.3	69	94.5	73	100.0
4 years	61	100.0	60	98.4	58	95.1	58	95.1	56	91.8	61	100.0
5 years	71	100.0	71	100.0	69	97.2	67	94.4	66	93.0	71	100.0
6 years	69	100.0	69	100.0	69	100.0	66	95.7	64	92.8	69	100.0
7 years	75	100.0	75	100.0	75	100.0	70	93.3	69	92.0	75	100.0
8 years	71	100.0	71	100.0	69	97.2	68	95.8	68	95.8	71	100.0
9 years	76	100.0	76	100.0	76	100.0	74	97.4	72	94.7	76	100.0
Total	643	99.7	642	99.5	632	98.0	608	94.3	591	91.6	645	100.0

Preservation rate by characteristics – ‘3 or more notifications no investigation group’

Interpretation

Look at the row for Aboriginal and/or Torres Strait Islander children. You will see that 92.7% of the ‘3 or more notifications no investigation’ eligible Aboriginal cohort were preserved during the 36 month period of follow-up. This was 91% for non-Aboriginal children.

1. Look at the row for parental age. There are no differences in preservation by parental age by 36 months.

Table 13: Children preserved (not in OOHC) from eligibility date to 4, 8, 12, 24 and 36 months by characteristics, ‘3 or more notifications no investigation’ group (n=645), 2016/17 Southern Region

	Number of children not in OOHC (% preservation rate) by										Total	
	4 months		8 months		12 months		24 months		36 months		n	Row %
	n	Row %	n	Row %	n	Row %	n	Row %	n	Row %		
Gender												
Male	349	99.7	348	99.4	343	98.0	333	95.1	324	92.6	350	100.0
Female	294	99.7	294	99.7	289	98.0	275	93.2	267	90.5	295	100.0
Aboriginal and/or Torres Strait Islander												
Yes	150	99.3	149	98.7	146	96.7	141	93.4	140	92.7	151	100.0
No	479	99.8	479	99.8	472	98.3	453	94.4	437	91.0	480	100.0
Don't know	14	100.0	14	100.0	14	100.0	14	100.0	14	100.0	14	100.0
Mother aged <23 years-old AND/OR father aged <25 years-old at 2016/17												
Yes	51	98.1	51	98.1	49	94.2	49	94.2	48	92.3	52	100.0
No	513	99.8	512	99.6	505	98.2	481	93.6	466	90.7	514	100.0
Unknown	79	100.0	79	100.0	78	98.7	78	98.7	77	97.5	79	100.0
Total	643	99.7	642	99.5	632	98.0	608	94.3	591	91.6	645	100.0

Preservation rate by child protection contact – ‘3 or more notifications no investigation group’

Interpretation

1. Look at the investigation row. You will see that 93.2% of the children who did not have an investigation prior to 2016/2017 were preserved at 36 months. This was 89.1% for the children who had an investigation prior to 2016/2017.
2. Look at the OOHC prior placement row. Children who were in OOHC prior to 2016/17 are preserved at 75% vs 92% for those without prior OOHC but this is a very small group.

Table 14: Children preserved (not in OOHC) from eligibility date to 4, 8, 12, 24 and 36 months by child protection contact, among the ‘3 or more notifications no investigation’ group (n=645), 2016/17 Southern Region

	Number of children not in OOHC (% preservation rate) by										Total	
	4 months		8 months		12 months		24 months		36 months		n	Row %
	n	Row %	n	Row %	n	Row %	n	Row %	n	Row %		
Child protection contact prior to 2016/17												
No	533	99.8	532	99.6	524	98.1	502	94.0	488	91.4	534	100.0
Yes	110	99.1	110	99.1	108	97.3	106	95.5	103	92.8	111	100.0
Investigation prior to 2016/17												
No	397	99.7	397	99.7	391	98.2	378	95.0	371	93.2	398	100.0
Yes	246	99.6	245	99.2	241	97.6	230	93.1	220	89.1	247	100.0
OOHC placement prior to 2016/2017												
No	631	99.7	630	99.5	621	98.1	599	94.6	582	91.9	633	100.0
Yes	12	100.0	12	100.0	11	91.7	9	75.0	9	75.0	12	100.0
Total	643	99.7	642	99.5	632	98.0	608	94.3	591	91.6	645	100.0

Preservation rate by characteristics – ‘At least one investigation group’

Interpretation

1. Look at the row for Marion LGA. You will see that 79.2% of the ‘at least one investigation’ eligible cohort in Marion were preserved during the 36 month period of follow-up.
2. Look at the rows for preservation by age, it is hard to see a consistent pattern. They range between 69.2% for those aged 1 year, 77.5% for those aged 8 years, to 95.8% for those aged 9 years.

Table 15: Children preserved (not in OOHC) from eligibility date to 4, 8, 12, 24 and 36 months by characteristics, among the ‘at least one investigation’ group (n=344), 2016/17 Southern Region

	Number of children not in OOHC (% preservation rate) by										Total	
	4 months		8 months		12 months		24 months		36 months		n	Row %
	n	Row %	n	Row %	n	Row %	n	Row %	n	Row %		
Southern region												
Mitcham LGA	8	100.0	8	100.0	8	100.0	8	100.0	8	100.0	8	100.0
Holdfast Bay LGA	5	100.0	5	100.0	5	100.0	5	100.0	5	100.0	5	100.0
Marion LGA	22	91.7	22	91.7	22	91.7	20	83.3	19	79.2	24	100.0
Onkaparinga LGA	139	93.9	136	91.9	135	91.2	126	85.1	116	78.4	148	100.0
Mount Barker LGA	25	100.0	23	92.0	21	84.0	17	68.0	17	68.0	25	100.0
Murray Bridge LGA	109	100.0	109	100.0	109	100.0	104	95.4	102	93.6	109	100.0
Mid Murray LGA	23	92.0	23	92.0	23	92.0	20	80.0	20	80.0	25	100.0
Age at first contact in 2016/2017												
Less than 1 year	52	96.3	50	92.6	49	90.7	44	81.5	43	79.6	54	100.0
1 year	36	92.3	36	92.3	36	92.3	30	76.9	27	69.2	39	100.0
2 years	35	100.0	34	97.1	34	97.1	32	91.4	31	88.6	35	100.0
3 years	33	97.1	32	94.1	32	94.1	29	85.3	28	82.4	34	100.0
4 years	24	96.0	24	96.0	24	96.0	24	96.0	22	88.0	25	100.0
5 years	31	96.9	31	96.9	30	93.8	27	84.4	26	81.3	32	100.0
6 years	32	97.0	32	97.0	32	97.0	31	93.9	30	90.9	33	100.0
7 years	28	100.0	27	96.4	27	96.4	26	92.9	26	92.9	28	100.0
8 years	36	90.0	36	90.0	35	87.5	33	82.5	31	77.5	40	100.0
9 years	24	100.0	24	100.0	24	100.0	24	100.0	23	95.8	24	100.0
Total	331	96.2	326	94.8	323	93.9	300	87.2	287	83.4	344	100.0

Preservation rate by characteristics – ‘At least one investigation group’

Interpretation

1. Look at the row for Aboriginal and/or Torres Strait Islander children. You will see that 87.5% of the ‘at least one investigation’ eligible Aboriginal cohort were preserved during the 36 month period of follow-up. This was 81.5% for non-Aboriginal children.
2. Look at the parental age row. Younger parents had a lower preservation rate of 73.8% by 36 months.

Table 16: Children preserved (not in OOHC) from eligibility date to 4, 8, 12, 24 and 36 months by characteristics, among the ‘at least one investigation’ group (n=344), 2016/17 Southern Region

	Number of children not in OOHC (% preservation rate) by										Total	
	4 months		8 months		12 months		24 months		36 months		n	Row %
	n	Row %	n	Row %	n	Row %	n	Row %	n	Row %		
Gender												
Male	164	97.6	161	95.8	159	94.6	144	85.7	138	82.1	168	100.0
Female	167	94.9	165	93.8	164	93.2	156	88.6	149	84.7	176	100.0
Aboriginal and/or Torres strait Islander												
Yes	77	96.3	77	96.3	77	96.3	71	88.8	70	87.5	80	100.0
No	239	96.0	235	94.4	232	93.2	215	86.3	203	81.5	249	100.0
Don't know	15	100.0	14	93.3	14	93.3	14	93.3	14	93.3	15	100.0
Mother aged <23 years-old AND/OR father aged <25 years-old at 2016/17												
Yes	40	95.2	38	90.5	38	90.5	32	76.2	31	73.8	42	100.0
No	240	96.8	239	96.4	237	95.6	222	89.5	210	84.7	248	100.0
Unknown	51	94.4	49	90.7	48	88.9	46	85.2	46	85.2	54	100.0
Total	331	96.2	326	94.8	323	93.9	300	87.2	287	83.4	344	100.0

Preservation rate by child protection contact – ‘At least one investigation group’

Interpretation

1. Look at the row for ‘Ever had an investigation’ prior to 2016/2017. You will see that 90.3% of the children who did not have an investigation prior to 2016/2017 were preserved by 36 months. This was 76.3% for the children who had an investigation prior to 2016/2017.
2. Look at the OOHC prior placement row. Children who were in OOHC prior to 2016/17 are preserved at 66.7% vs 84.5% for those without prior OOHC but this is a very small group. This is the lowest preservation rate we have seen, but again it is only 14 children.

Table 17: Children preserved (not in OOHC) from eligibility date to 4, 8, 12, 24 and 36 months follow-up by child protection contact, among the ‘at least one investigation’ group (n=344), 2016/17 Southern Region

	Number of children not in OOHC (% preservation rate) by										Total	
	4 months		8 months		12 months		24 months		36 months		n	Row %
	n	Row %	n	Row %	n	Row %	n	Row %	n	Row %		
Ever had child protection (CP) contact prior to 2016/2017												
No	267	96.7	262	94.9	260	94.2	240	87.0	227	82.2	276	100.0
Yes	64	94.1	64	94.1	63	92.6	60	88.2	60	88.2	68	100.0
Ever had an investigation prior to 2016/17												
No	169	96.6	169	96.6	167	95.4	159	90.9	158	90.3	175	100.0
Yes	162	95.9	157	92.9	156	92.3	141	83.4	129	76.3	169	100.0
Ever had an OOHC placement prior to 2016/17												
No	314	97.2	309	95.7	306	94.7	286	88.5	273	84.5	323	100.0
Yes	17	81.0	17	81.0	17	81.0	14	66.7	14	66.7	21	100.0
Substantiated in 2016/2017												
No	166	98.2	162	95.9	160	94.7	145	85.8	140	82.8	169	100.0
Yes	165	94.3	164	93.7	163	93.1	155	88.6	147	84.0	175	100.0
Total	331	96.2	326	94.8	323	93.9	300	87.2	287	83.4	344	100.0

Preservation rate by significant risk factors – ‘At least one investigation group’

NOTE ON DATA QUALITY AROUND RISK FACTORS

These data on significant risk factors were recorded by DCP case workers but this is not mandatory. For instance, Table 16 shows that almost half (47.6%; 164/344) of the ‘at least one investigation’ group had no significant risk factors recorded, so reliability of these prevalence estimates is unknown.

Interpretation

- If you look at the 36 months column, preservation where alcohol use was listed as a significant risk factor was 71.9%. For other substance use preservation was 95.1%, domestic violence 81.7% and mental health 77.6%.
- If you consider a count of the number of risk factors there was no clear pattern of preservation, reducing with the number of risk factors up to 36 months, but if you consider only up to 24 months then preservation generally goes down with the number of risk factors.
- For instance at 24 months, preservation among those with 3 or more risk factors was 80.4% which was only slightly lower than the overall preservation rate of 87.2% at 24 months.

Table 18: Children preserved (not in OOHC) from eligibility date to 4, 8, 12, 24 and 36 months by significant risk factors, among the ‘at least one investigation’ group

	Number of children not in OOHC (% preservation rate) by										Total	
	4 months		8 months		12 months		24 months		36 months		n	Row %
	n	Row %	n	Row %	n	Row %	n	Row %	n	Row %		
Number of significant risk factors recorded												
None	163	99.4	159	97.0	157	95.7	146	89.0	141	86.0	164	100.0
1	100	96.2	100	96.2	99	95.2	90	86.5	82	78.8	104	100.0
2	29	96.7	28	93.3	28	93.3	27	90.0	27	90.0	30	100.0
3 or more	39	84.8	39	84.8	39	84.8	37	80.4	37	80.4	46	100.0
Significant risk factor ^												
Alcohol use	30	93.8	30	93.8	30	93.8	27	84.4	23	71.9	32	100.0
Other substance use	41	100.0	41	100.0	41	100.0	39	95.1	39	95.1	41	100.0
Domestic violence	62	87.3	62	87.3	62	87.3	60	84.5	58	81.7	71	100.0
Mental health	47	95.9	47	95.9	47	95.9	40	81.6	38	77.6	49	100.0
Caregiver not accepting responsibility for behaviour	16	80.0	16	80.0	16	80.0	15	75.0	15	75.0	20	100.0
Caregiver lacks insight into impact on child	26	92.9	25	89.3	24	85.7	23	82.1	23	82.1	28	100.0
Lack of capacity to protect	14	87.5	13	81.3	13	81.3	13	81.3	13	81.3	16	100.0

Table 18: Children preserved (not in OOHC) from eligibility date to 4, 8, 12, 24 and 36 months by significant risk factors, among the ‘at least one investigation’ group (continued)

	Number of children not in OOHC (% preservation rate) by										Total	
	4 months		8 months		12 months		24 months		36 months		n	Row %
	n	Row %	n	Row %	n	Row %	n	Row %	n	Row %		
Poor attachment	7	87.5	7	87.5	7	87.5	7	87.5	7	87.5	8	100.0
Significant gaps or severe deficits in parenting skill	30	90.9	30	90.9	30	90.9	29	87.9	29	87.9	33	100.0
Inadequate housing &/or Homelessness	18	90.0	18	90.0	18	90.0	18	90.0	18	90.0	20	100.0
Total	331	96.2	326	94.8	323	93.9	300	87.2	287	83.4	344	100.0

^ Not mutually exclusive groups. Significant risk factors: Inadequate income, Intellectual disability, Physical health/disability of caregiver and Poor financial management (incl. gambling) not reported due to insufficient numbers

Preservation rate by primary alleged grounds– ‘At least one investigation group’

Note the data on the primary nature of the suspected abuse or neglect are provided by the notifier at the time of notification and, these grounds may or may not be substantiated following an investigation by a child protection work or they could be substantiated on different grounds. There also may not be enough evidence to substantiate these grounds.

Interpretation

If you look at the 36 months column, preservation where alcohol use was the primary alleged grounds of suspected abuse or neglect was 37.5%. However, we would not over interpret this number given a notifier report of alcohol issues is not likely to be a highly reliable measure and the numbers are very small. Preservation for other primary alleged grounds was 80.4% for serious inflicted injury, 73.0% for substance use, 75.0% for inadequate supervision, 76.0% for mental health, 92.3% for domestic violence and 96.2% for alleged significant risk of sexual abuse.

Table 19: Children preserved (not in OOHC) from eligibility date to 4, 8, 12, 24 and 36 months by primary alleged grounds of suspected abuse or neglect, among the ‘at least one investigation’ group

	Number of children not in OOHC (% preservation rate) by										Total	
	4 months		8 months		12 months		24 months		36 months			
	n	Row %	n	Row %	n	Row %	n	Row %	n	Row %	n	Row %
Primary alleged grounds of suspected abuse or neglect												
Inadequate basic care	48	100.0	44	91.7	44	91.7	42	87.5	42	87.5	48	100.0
Inadequate supervision	25	89.3	25	89.3	23	82.1	21	75.0	21	75.0	28	100.0
No caregiver available/willing/able to provide care	19	100.0	19	100.0	19	100.0	17	89.5	17	89.5	19	100.0
Significant risk of emotional abuse/ neglect/ physical abuse due to – domestic violence	52	100.0	52	100.0	52	100.0	50	96.2	48	92.3	52	100.0
Significant risk of emotional abuse/ neglect/ physical abuse due to – mental health	25	100.0	25	100.0	25	100.0	22	88.0	19	76.0	25	100.0
Substance use or Significant risk of emotional abuse/neglect/physical abuse due to substance use	15	100.0	15	100.0	15	100.0	12	80.0	11	73.3	15	100.0
Alcohol use or Significant risk of emotional abuse/neglect/physical abuse due to alcohol use	13	81.3	13	81.3	13	81.3	10	62.5	6	37.5	16	100.0
Total	331	96.2	326	94.8	323	93.9	300	87.2	287	83.4	344	100.0

Table 19: Children preserved (not in OOHC) from eligibility date to 4, 8, 12, 24 and 36 months by primary alleged grounds of suspected abuse or neglect, among the ‘at least one investigation’ group (continued)

	Number of children not in OOHC (% preservation rate) by										Total	
	4 months		8 months		12 months		24 months		36 months		n	Row %
	n	Row %	n	Row %	n	Row %	n	Row %	n	Row %		
Alleged serious inflicted injury, Alleged other inflicted injury, Serious injury due to neglect, Excessive discipline/other violent behaviour directed towards child, Dangerous behaviour involving child, Threats to kill/injure, Unexplained injury	43	93.5	43	93.5	43	93.5	38	82.6	37	80.4	46	100.0
Significant risk of sexual abuse, Sexual act or exploitation, Suspicious indicators consistent with sexual abuse	52	98.1	51	96.2	51	96.2	51	96.2	51	96.2	53	100.0
Other	39	92.9	39	92.9	38	90.5	37	88.1	35	83.3	42	100.0
Total	331	96.2	326	94.8	323	93.9	300	87.2	287	83.4	344	100.0

Alleged harm groups

There can be more than one type of alleged harm grounds recorded for each notification and there are 70 different alleged harm grounds. EIRD has grouped these 70 alleged harm grounds into 11 alleged harm groups. Table 20 shows the 11 alleged harm grounds created by EIRD and the 70 alleged harm grounds in those groups.

Table 20: Alleged harm grounds grouped into alleged harm categories

EIRD Alleged Harm	Alleged harm grounds at intake
Neglect	Serious injury due to neglect, Serious illness due to neglect, Inadequate supervision, No carer available/willing/able to provide ongoing care, Inadequate basic care, Failure to protect from others, Serious injury due to neglect, Serious illness due to neglect, Inadequate supervision, No carer available/willing/able to provide ongoing care, Inadequate basic care, Failure to protect from others, Neglect, Significant risk of neglect - serious prior abuse/neglect, Significant risk of neglect - other
Domestic violence	Domestic violence, Injury resulting from domestic violence incident, Injury resulting from domestic violence incident, Significant risk of emotional abuse - domestic violence, Significant risk of neglect - Domestic violence, Significant risk of physical abuse - domestic violence
Physical harm	Alleged serious inflicted injury, Alleged other inflicted injury, Unexplained injury, Violent behaviour directed toward child, Dangerous behaviour involving child, Threats to kill/injure child, Excessive discipline/other violent behaviour directed towards child, Dangerous behaviour involving child, Female genital mutilation, Physical Abuse, Significant risk of physical abuse - Serious prior abuse/neglect.
Alcohol/ Substance use	Alcohol use, Substance use, Significant risk of emotional abuse - alcohol use/ substance use, Significant risk of neglect - alcohol use/substance use, Significant risk of physical abuse - alcohol use/ substance use
Sexual harm	Likelihood of sexual harm, Sexual act or exploitation, Suspicious indicators consistent with sexual harm, Significant risk of sexual abuse, Sexual Abuse
Parent mental health	Mental health, Significant risk of emotional abuse - mental health, Significant risk of neglect - mental health, Significant risk of physical abuse - mental health
Emotional harm	Child has significant impaired (eg anxiety, depression,), Child has significant symptoms of emotional distress, Child is significant impaired (eg anxiety, depression), Child has significant symptoms of emotional distress, Emotional Abuse, Significant risk of emotional abuse - Serious prior abuse/neglect, Significant risk of emotional abuse - other
Homelessness	Homelessness, Significant risk of emotional abuse - homelessness, Significant risk of neglect - homelessness, Significant risk of physical abuse - homelessness
Risk young guardian	Significant risk of emotional abuse - young age of guardian, Significant risk of neglect - young age of guardian, Significant risk of physical abuse - young age of guardian
Absenteeism	Chronic school absenteeism, Persistent absenteeism
Lack of attachment/ Intellectual Disability/ Other	Infant at risk - two previous consecutive notifications assess as Notifier Concern, Intellectual disability, A child is residing with a parent who has been found guilty of a qualifying offence, A child resides or will reside with a person (not their parent), found guilty of a qualifying offence, Significant risk of emotional abuse - intellectual disability, Significant risk of emotional abuse - lack of attachment, Significant risk of neglect - intellectual disability, Significant risk of neglect - lack of attachment, Significant risk of physical abuse - intellectual disability, Significant risk of physical abuse - lack of attachment, Risk - policy override, Risk - discretionary override, Include sibling on intake

Preservation rate by number of alleged harm groups – ‘At least one investigation group’

Interpretation

- The more alleged harm groups recorded at intake the less likely to be preserved at 8, 12, 24 and 36 months, 74.3% of children with three or more alleged harm groups recorded at intake were preserved at 36 months compared to 83.9% with two and 84.7% with one.
- Only 10.2% (35/344) of children had three or more alleged harm groups recorded at intake.
- The general conclusion is that preservation declines faster if you have 3 or more alleged harm groups.

Table 21: Children preserved (not in OOHC) from eligibility date to 4, 8, 12, 24 and 36 months by number alleged harm groups of suspected abuse or neglect, among the ‘at least one investigation’ group

	Number of children not in OOHC (% preservation rate) by										Total	
	4 months		8 months		12 months		24 months		36 months		n	Row %
Number of alleged harm groups	n	Row %	n	Row %	n	Row %	n	Row %	n	Row %		
One	216	97.3	213	95.9	213	95.9	199	89.6	188	84.7	222	100.0
Two	82	94.3	82	94.3	81	93.1	75	86.2	73	83.9	87	100.0
Three or more	33	94.3	31	88.6	29	82.9	26	74.3	26	74.3	35	100.0
Total	331	96.2	326	94.8	323	93.9	300	87.2	287	83.4	344	100.0

Part 4. Trends in cohort composition

Interpretation

1. Look at the row for 2013/2014. You will see that there were 1,068 eligible children living the Southern Area in the 2013/2014 financial year. This was 1,458 for 2018/2019.
2. The focus here should be on the absolute numbers and not the proportions because the absolute numbers represent real-time cohort eligibility.
3. Look at the UCC column. This means the eligible UCC cohort has increased over time from 163 to 207.
4. Look at the 3+ notifications group. Absolute numbers have increased from 224 to 907.
5. For the at least one investigation column, the absolute numbers have declined from 681 to 344. This may be because children who were removed following an investigation are excluded from the preservation cohort.

Table 22: Number of children eligible for the preservation cohort over time in the Southern region

	UCC		3 or more notifications no investigation		At least one investigation		Total	
	n	Row %	n	Row %	n	Row %	n	Row %
2013/2014	163	15.3	224	21.0	681	63.8	1,068	100.0
2014/2015	184	16.6	459	41.3	468	42.1	1,111	100.0
2015/2016	166	14.1	616	52.4	393	33.4	1,175	100.0
2016/2017	159	13.9	645	56.2	344	30.0	1,148	100.0
2017/2018	164	12.9	774	60.8	334	26.3	1,272	100.0
2018/2019	207	14.2	907	62.2	344	23.6	1,458	100.0

Eligibility for preservation cohort in previous years

Table 23 shows the 1,458 eligible children in 2018/19 according to prior eligibility in the previous financial year (2017/18) and from 2013/14 to 2016/17.

Interpretation

- There are only a very small number of UCCs eligible in a previous financial year because pregnancy lasts 9 months and can run over a financial year.
- For the 'at least one investigation' group (n=344), 45.1% were newly eligible in 2018/19 and 35.5% were eligible in the previous financial year 2017/18.

Table 23: First became eligible for preservation cohort over time in the Southern region, 2018/19 Southern Region (n=1,458)

	UCC		3 or more notifications no investigation		At least one investigation		Total
	n	Col %	n	Col %	n	Col %	n
Eligible preservation cohort 2018/2019							
First eligible in 2018/19	196	94.7	387	42.7	155	45.1	738
Eligible in the previous financial year, i.e. 2017/18	11	5.3	339	37.4	122	35.5	472
Eligible in 2013/14 to 2016/17			181	20.0	67	19.5	248
Total	207	100.0	907	100.0	344	100.0	1,458

Preservation rates for the preservation cohort over time

Interpretation

1. Look at the 6 year column. By 6 years, 73% of the UCC group was preserved (never in OOHC), compared to 85.3% of the 3+notification group and 84.6% of the at least one investigation group.
2. Focus on the UCC group. The largest reduction in preservation rates occurs prior to 8 months. For instance, for the 2013/14 group 27% (44 children) were removed. This is calculated by subtracting 119 from 163=44. Of these 44 removals, 55% (24 children) had occurred by 8 months. This is calculated by subtracting 139 from 163=24.
3. It is difficult to come to a straightforward interpretation of this pattern for the UCC group. It may represent a higher background risk, it may also involve complex combinations of risk factors that present during pregnancy, and it may reflect that younger children are more likely to be assessed as at imminent risk and be removed. It is also worth noting that for the UCC group we observe close to the true change in age from birth to age 6 (e.g. by 4 months they will be close to 4 months in age), whereas the other cohorts are a mix of ages.

Table 24: Southern Region – Children preserved (not in OOHC) from eligibility date to 4, 8, 12, 24 and 36 months for the preservation cohort over time

	Number of children not in OOHC (% preservation rate) by												Total	
	4 months		8 months		12 months		24 months		36 months		6 years		n	Row %
	n	Row %	n	Row %	n	Row %	n	Row %	n	Row %	n	Row %	n	Row %
<i>Among the ‘UCC’ group</i>														
2013/2014	151	92.6	139	85.3	135	82.8	128	78.5	125	76.7	119	73.0	163	100.0
2014/2015	170	92.4	155	84.2	153	83.2	145	78.8	142	77.2			184	100.0
2015/2016	148	89.2	129	77.7	126	75.9	118	71.1	113	68.1			166	100.0
2016/2017	151	95.0	140	88.1	137	86.2	127	79.9	125	78.6			159	100.0
2017/2018	152	92.7	137	83.5	130	79.3	122	74.4					164	100.0
2018/2019	190	91.8	169	81.6	165	79.7							207	100.0
<i>Among the ‘3 or more notifications no investigation’ group</i>														
2013/2014	224	100.0	222	99.1	222	99.1	212	94.6	208	92.9	191	85.3	224	100.0
2014/2015	459	100.0	455	99.1	454	98.9	443	96.5	434	94.6			459	100.0
2015/2016	615	99.8	611	99.2	600	97.4	584	94.8	571	92.7			616	100.0
2016/2017	643	99.7	642	99.5	632	98.0	608	94.3	591	91.6			645	100.0
2017/2018	772	99.7	762	98.4	756	97.7	732	94.6					774	100.0
2018/2019	905	99.8	904	99.7	895	98.7							907	

**Table 24: Southern Region – Children preserved (not in OOHC) from eligibility date to 4, 8, 12, 24 and 36 months for the preservation cohort over time
(Continued)**

	Number of children not in OOHC (% preservation rate) by										Total			
	4 months		8 months		12 months		24 months		36 months		6 years		n	Row %
	n	Row %	n	Row %	n	Row %	n	Row %	n	Row %	n	Row %		
<i>Among the ‘at least one investigation’ group</i>														
2013/2014	679	99.7	679	99.7	676	99.3	635	93.2	607	89.1	576	84.6	681	100.0
2014/2015	462	98.7	462	98.7	458	97.9	422	90.2	411	87.8			468	100.0
2015/2016	377	95.9	377	95.9	377	95.9	357	90.8	346	88.0			393	100.0
2016/2017	331	96.2	326	94.8	323	93.9	300	87.2	287	83.4			344	100.0
2017/2018	323	96.7	319	95.5	310	92.8	290	86.8					334	100.0
2018/2019	342	99.4	342	99.4	342	99.4							344	100.0

Part 5. Selected examples of SA government service use

Hospital Admissions for children

Note: The numbers presented in this table are slightly different from the totals in previous tables. Because we are now using CP data linked to hospital data, out of the 1,148 who were eligible for the cohort only 1,129 could be linked.

Interpretation

- 13% of the eligible cohort had one or more hospitalisations, but this is likely to be a small underestimate due to data limitations on hospitalisations that limited our ability to follow the entire cohort for 24 months. The median follow-up was about 16 months. For reference, the average hospitalisation rate over a 24-month period in the general population of children aged <9 is 14.8%.
- Only 3.5% of the cohort had 2 or more hospitalisations, so it does not appear that there are large cost implications related to hospitalisations.
- Only 5.8% of the cohort had at least 1 paediatric potentially preventable hospitalisations (PPH).
- The bottom line for hospitalisations is that they do not appear to be markedly higher than what is average for the population. Nor do the hospitalisations rates differ across the 3 groups that make up the eligible cohort.

Table 25: Child ever admitted to a hospital from eligible date to June 2018 (12 to 24-month period)

	UCC		3 or more notifications no investigation		At least one investigation		Total	
	n	col %	n	col %	n	col %	n	col %
At least one hospitalisation								
No	124	87.9	563	87.3	294	85.7	981	86.9
Yes	17	12.1	82	12.7	49	14.3	148	13.1
Number of hospitalisations								
0	124	87.9	563	87.3	294	85.7	981	86.9
1	10	7.1	66	10.2	32	9.3	108	9.6
2 or more	7	5.0	16	2.5	17	5.0	40	3.5
At least one hospitalisation for paediatric PPH								
No	133	94.3	611	94.7	320	93.3	1,064	94.2
Yes	8	5.7	34	5.3	23	6.7	65	5.8
Number of hospitalisations for paediatric PPH								
0	133	94.3	611	94.7	320	93.3	1,064	94.2
1	#	#	#	#	16	4.7	52	4.6
2 or more	#	#	#	#	7	2.0	13	1.2
Total	141	100.0	645	100.0	343	100.0	1,129	100.0

To understand paediatric PPHs see references:

Craig E, Anderson P, Jackson G, et al. Measuring potentially avoidable and ambulatory care sensitive hospitalisations in New Zealand children using a newly developed tool. *N Z Med J* 2012;125:38–50.

Procter A, Pilkington M, Lynch J, Smithers L, Chittleborough C. Potentially preventable hospitalisations in children: a comparison of definitions. *Archives of Disease in Childhood* 2020; 105:375-381 doi:10.1136/archdischild-2019-316945

Emergency Department Presentations for children

Interpretation

- 35% of the eligible cohort had one or more presentations to an emergency department, but this is likely to be a small underestimate due to data limitations on ED presentations that limited our ability to follow the entire cohort for 24 months. The median follow-up was about 16 months. For reference, the average presentation rate in the general population of children aged <9 is 43.0%.
- 18% presented to ED 2 or more times.
- ED presentations reflect the pattern seen for hospital admissions. There is little evidence that the eligible cohort has markedly higher hospitalisation or ED presentations.

Table 26: Children emergency department presentations from eligible date to June 2018 (12 to 24-month period)

	UCC		3 or more notifications no investigation		At least one investigation		Total	
	n	col %	n	col %	n	col %	n	col %
At least one emergency department presentations								
No	118	83.7	416	64.5	203	59.2	737	65.3
Yes	23	16.3	229	35.5	140	40.8	392	34.7
Number of emergency department presentations								
0	118	83.7	416	64.5	203	59.2	737	65.3
1	8	5.7	112	17.4	66	19.2	186	16.5
2 or more	15	10.6	117	18.1	74	21.6	206	18.2
At least one emergency department presentation for paediatric potentially preventable conditions								
No	126	89.4	544	84.3	291	84.8	961	85.1
Yes	15	10.6	101	15.7	52	15.2	168	14.9
Number of emergency department presentations for paediatric potentially preventable conditions								
0	126	89.4	544	84.3	291	84.8	961	85.1
1	6	4.3	72	11.2	28	8.2	106	9.4
2 or more	9	6.4	29	4.5	24	7	62	5.5
Total	141	100.0	645	100.0	343	100.0	1,129	100.0

Parental hospital admissions and emergency department presentations

Identifying parents in the family file – 2016/17

The analysis of parent hospital admissions and emergency department presentations required linking children to the birth registration family file. Not all eligible children were in the birth registration family file, as this information was only available up to the end of 2016. For the 2016/17 preservation cohort, out of the n=1,129 eligible children, n=765 (67.8%) could be identified in our family files.

For these 765 children, there were 532 mothers and 595 co-parents. For simplicity, the following analyses assumed each child had a different mother and co-parent, even though in reality the cohort includes groups of siblings. An analysis that accounts for sibling structure is extremely complex and cannot be completed under the timelines for this report.

This assumption means that there is double counting of a small number of parents is because some parents could have children within the same cohort group and across different cohort groups (UCC, 3 or more notifications no investigation, At least one investigation). For example, a mother could have 2 children in the 'At least one investigation' group or the mother could have 1 child in the 'UCC' group and another child in the 'At least one investigation' group. Assigning the parent to one of these groups would mean that while you would get the correct count for UCCs you would not get the correct count for the At least one investigation group. Therefore, the results should be interpreted as an upper bound of the number of hospital admissions and emergency department presentations.

Table 27: Children identified in the Birth Registration Family File

	UCC		3 or more notifications no investigation		At least one investigation		Total	
	n	col %	n	col %	n	col %	n	col %
Yes	30	21.3	486	75.4	249	72.6	765	67.8
No	111	78.7	159	24.6	94	27.4	383	32.4
Total	141	100.0	645	100.0	343	100.0	1,129	100.0

Hospital admissions for [mothers](#)

Note: The “UCC” group is not included due to small numbers.

Interpretation

- 38.0% of mothers had at least one hospitalisation

Table 28: Maternal hospital admissions from eligibility date in 2016/17 to June 2018 (12 to 24 month period)

	3 or more notifications no investigation		At least one investigation		Total	
	n	col %	n	col %	n	col %
At least one hospitalisation						
No	308	63.4	148	59.4	456	62.0
Yes	178	36.6	101	40.6	279	38.0
Total	486	100.0	249	100.0	735	100.0

Drug and Alcohol related hospital admissions for mothers

We used three definitions for drug and alcohol related admissions provided by DASSA, AIHW (primary diagnosis only) and AIHW (primary and secondary diagnoses).

Interpretation

- The more comprehensive definitions suggest about 10% of mothers of the cohort had at least one hospitalisation for a drug and alcohol condition.

Table 29: Maternal drug and alcohol related hospital admissions from eligibility date in 2016/17 to June 2018 (12 to 24 month period)

	3 or more notifications no investigation		At least one investigation		Total	
	n	col %	n	col %	n	col %
At least one hospitalisation for drug and alcohol (DASSA definition, including secondary diagnoses) ^b						
No	448	92.2	214	85.9	662	90.1
Yes	38	7.8	35	14.1	73	9.9
At least one hospitalisation for drug and alcohol (AIHW definition, primary diagnosis only) ^c						
No	469	96.5	234	94.0	703	95.6
Yes	17	3.5	15	6.0	32	4.4
At least one hospitalisation for drug and alcohol (AIHW definition, including secondary diagnoses) ^d						
No	449	92.4	211	84.7	660	89.8
Yes	37	7.6	38	15.3	75	10.2
Total	486	100.0	249	100.0	735	100.0

Note:

b: Drug-related hospitalisations includes admissions to hospital for any ICD-10-AM codes across principal and secondary diagnoses related to:

- Mental or Behaviour Disorders due to use of alcohol and other specified drugs (F10, F11, F12, F13, F14, F15, F16, F17, F18, F19); *or*
- External causes related to
 - Assault by drugs, medicaments of biological substances (X85); *or*
 - Accidental poisoning by and exposure to specific drugs (X41, X42, X44); *or*
 - Intentional self-harm from poisoning, including suicide (X61, X62, X64); *or*
 - Event of undetermined intent involving poisoning by and exposure to specific drugs (Y11, Y12, Y14); *or*
- Poisoning by drugs (T40.0- T40.9, T42.3, T42.4, T42.6, T42.7, T43.3, T43.5, T43.6, T43.8, T43.9)

c: Includes a principal diagnosis of: (F170–179, T652, Z587, Z716, F150–159, T406, T436, T460, T463, F550, T430–435, F180–189, T520–529, T530–9, T590, T598, F190–199, F551, F553–6, F558, F559, N141–3, T387, T438–9, T501–3, T507, Z715, P042–4, Q860). Available at <https://www.aihw.gov.au/reports/alcohol-other-drug-treatment-services/drug-related-hospitalisations/contents/content>.

d: Includes a principal or secondary diagnosis listed in “C”.

Mental health related hospital admissions for mothers

We used three definitions for mental health related admissions provided by AIHW (primary diagnosis only), AIHW (primary and secondary diagnoses) and AIHW (that considers procedure codes).

Interpretation

- The more comprehensive definition suggests about 13% of mothers of the cohort had at least one hospitalisation for a mental health condition.

Table 30: Maternal mental health related hospital admissions from eligibility date in 2016/17 to June 2018 (12 to 24 month period)

	3 or more notifications no investigation		At least one investigation		Total	
	n	col %	n	col %	n	col %
At least one hospitalisation for mental health (AIHW definition, primary diagnosis only) ^e						
No	452	93.0	224	90.0	676	92.0
Yes	34	7.0	25	10.0	59	8.0
At least one hospitalisation for mental health (AIHW definition, including secondary diagnoses) ^f						
No	432	88.9	206	82.7	638	86.8
Yes	54	11.1	43	17.3	97	13.2
At least one ambulatory equivalent mental health-related hospitalisation (AIHW definition, including all procedure codes) ^g						
No	414	85.2	193	77.5	607	82.6
Yes	72	14.8	56	22.5	128	17.4
Total	486	100.0	249	100.0	735	100.0

Note:

e: Includes a principal diagnosis of:

- Major Diagnostic Categories (MDC) 19 (Mental diseases and disorders) (F20-F52 (excluding F52.5), F54, F59-F69, F80-F84 (excluding F84.2), F88-F95, F98-F99 (excluding F98.5 and F98.6), G47.0, G47.1, G47.2, G47.8, G47.9, R44.0, R44.2, R44.3, R44.8, R45.0, R45.1, R45.4, R48.0, R48.1, R48.2, R48.8, Z03.2); *or*
- MDC 20 (Alcohol/drug use and alcohol/drug induced organic mental disorders) (F10-F19, F55)

f: Includes any principal or secondary diagnosis listed in "E"

g: This includes the AIHW definition of ambulatory-equivalent mental health-related hospital separations which are obtained using the Australian Classification of Health Interventions (ACHI) for blocks and procedure codes. Examples of these procedures include psychosocial counselling and alcohol and drug rehabilitation and detoxification. Block codes included were: 1822, 1823, 1867, 1868, 1869, 1872, 1873, 1875, 1878, 1916 (Procedure codes 95550-01, 95550-02 and 95550-1).

Hospital admissions for [co-parents](#)

Interpretation

- 19.3% of co-parents had at least one hospitalisation

Table 31: Co-parent hospital admissions from eligibility date in 2016/17 to June 2018 (12 to 24 month period)

	3 or more notifications no investigation		At least one investigation		Total	
	n	col %	n	col %	n	col %
At least one hospitalisation						
No	393	80.9	200	80.3	593	80.6
Yes	93	19.1	49	19.7	142	19.3
Total	486	100	249	100.0	735	100.0

Drug and alcohol related hospital admissions for co-parents

We used three definitions for drug and alcohol related admissions provided by DASSA, AIHW (primary diagnosis only) and AIHW (primary and secondary diagnoses).

Interpretation

- The more comprehensive definitions suggest about 7% of co-parents of the cohort had at least one hospitalisation for a drug and alcohol condition.

Table 32: Co-parent drug and alcohol related hospital admissions from eligibility date in 2016/17 to June 2018 (12 to 24 month period)

	3 or more notifications no investigation		At least one investigation		Total	
	n	col %	n	col %	n	col %
At least one hospitalisation for drug and alcohol (DASSA definition, including secondary diagnoses) ^b						
No	455	93.6	228	91.6	683	92.9
Yes	31	6.4	21	8.4	52	7.1
At least one hospitalisation for drug and alcohol (AIHW definition, primary diagnosis only) ^c						
No	465	95.7	239	96.0	704	95.8
Yes	21	4.3	10	4.0	31	4.2
At least one hospitalisation for drug and alcohol (AIHW definition, including secondary diagnoses) ^d						
No	456	93.8	228	91.6	684	93.1
Yes	30	6.2	21	8.4	51	6.9
Total	486	100	249	100.0	735	100.0

Note: **b**: Drug-related hospitalisations includes admissions to hospital for any ICD-10-AM codes across principal and secondary diagnoses related to:

- Mental or Behaviour Disorders due to use of alcohol and other specified drugs (F10, F11, F12, F13, F14, F15, F16, F17, F18, F19); *or*
- External causes related to
 - Assault by drugs, medicaments of biological substances (X85); *or*
 - Accidental poisoning by and exposure to specific drugs (X41, X42, X44); *or*
 - Intentional self-harm from poisoning, including suicide (X61, X62, X64); *or*
 - Event of undetermined intent involving poisoning by and exposure to specific drugs (Y11, Y12, Y14); *or*
- Poisoning by drugs (T40.0- T40.9, T42.3, T42.4, T42.6, T42.7, T43.3, T43.5, T43.6, T43.8, T43.9)

c: Includes a principal diagnosis of: (F170–179, T652, Z587, Z716, F150–159, T406, T436, T460, T463, F550, T430–435, F180–189, T520–529, T530–9, T590, T598, F190–199, F551, F553–6, F558, F559, N141–3, T387, T438–9, T501–3, T507, Z715, P042–4, Q860). Available at <https://www.aihw.gov.au/reports/alcohol-other-drug-treatment-services/drug-related-hospitalisations/contents/content>.

d: Includes a principal or secondary diagnosis in “C”.

Mental health related hospital admissions for [co-parents](#)

We used three definitions for mental health related admissions provided by AIHW (primary diagnosis only), AIHW (primary and secondary diagnoses) and AIHW (that considers procedure codes).

Interpretation

- The more comprehensive definition suggests about 9% of co-parents of the cohort had at least one hospitalisation for a mental health condition.

Table 33: Co-parent mental health related hospital admissions from eligibility date in 2016/17 to June 2018 (12 to 24 month period)

	3 or more notifications no investigation		At least one investigation		Total	
	n	col %	n	col %	n	col %
At least one hospitalisation for mental health (AIHW definition, primary diagnosis only) ^f						
No	452	93.0	240	96.4	692	94.1
Yes	34	7.0	9	3.6	43	5.9
At least one hospitalisation for mental health (AIHW definition, including secondary diagnoses) ^f						
No	445	91.6	226	90.8	671	91.3
Yes	41	8.4	23	9.2	64	8.7
At least one ambulatory equivalent mental health-related hospitalisation (AIHW definition, including all procedure codes) ^g						
No	450	92.6	230	92.4	680	92.5
Yes	36	7.4	19	7.6	55	7.5
Total	486	100	249	100.0	735	100.0

Note:

e: Includes a principal diagnosis of:

- Major Diagnostic Categories (MDC) 19 (Mental diseases and disorders) (F20-F52 (excluding F52.5), F54, F59-F69, F80-F84 (excluding F84.2), F88-F95, F98-F99 (excluding F98.5 and F98.6), G47.0, G47.1, G47.2, G47.8, G47.9, R44.0, R44.2, R44.3, R44.8, R45.0, R45.1, R45.4, R48.0, R48.1, R48.2, R48.8, Z03.2); or
- MDC 20 (Alcohol/drug use and alcohol/drug induced organic mental disorders) (F10-F19, F55)

f: Includes any principal or secondary diagnosis listed in "E"

g: This includes the AIHW definition of ambulatory-equivalent mental health-related hospital separations which are obtained using the Australian Classification of Health Interventions (ACHI) for blocks and procedure codes. Examples of these procedures include psychosocial counselling and alcohol and drug rehabilitation and detoxification. Block codes included were: 1822, 1823, 1867, 1868, 1869, 1872, 1873, 1875, 1878, 1916 (Procedure codes 95550-01, 95550-02 and 95550-1).

Emergency department presentations for mothers

We used two definitions for drug and alcohol related admissions provided by DASSA and AIHW.

Note: The “UCC” group is not included due to small numbers.

Interpretation

- 58.8% of mothers had at least one ED presentation, with about 5% for drug and alcohol and about 13% for a mental health condition.

Table 34: Maternal emergency department presentation from eligibility date in 2016/17 to June 2018 (12 to 24 month period)

	3 or more notifications no investigation		At least one investigation		Total	
	n	col %	n	col %	n	col %
At least one ED presentation						
No	220	45.3	83	33.3	303	41.2
Yes	266	54.7	166	66.7	432	58.8
At least one ED presentation for drug and alcohol (DASSA definition) ^a						
No	470	96.7	228	91.6	698	95.0
Yes	16	3.3	21	8.4	37	5.0
At least one ED presentation for drug and alcohol (AIHW definition) ^b						
No	471	96.9	230	92.4	701	95.4
Yes	15	3.1	19	7.6	34	4.6
At least one ED presentation for mental health (AIHW definition) ^c						
No	439	90.3	202	81.1	641	87.2
Yes	47	9.7	47	18.9	94	12.8
Total	486	100.0	249	100.0	735	100.0

Note:

a: Drug-related hospitalisations includes ED presentations for any ICD-10-AM codes related to:

- Mental or Behaviour Disorders due to use of alcohol and other specified drugs (F10, F11, F12, F13, F14, F15, F16, F17, F18, F19); *or*
- External causes related to
 - Assault by drugs, medicaments of biological substances (X85); *or*
 - Accidental poisoning by and exposure to specific drugs (X41, X42, X44); *or*
 - Intentional self-harm from poisoning, including suicide (X61, X62, X64); *or*
 - Event of undetermined intent involving poisoning by and exposure to specific drugs (Y11, Y12, Y14); *or*
- Poisoning by drugs (T40.0- T40.9, T42.3, T42.4, T42.6, T42.7, T43.3, T43.5, T43.6, T43.8, T43.9)

b: Includes a diagnosis of: (F170–179, T652, Z587, Z716, F150–159, T406, T436, T460, T463, F550, T430–435, F180–189, T520–529, T530–9, T590, T598, F190–199, F551, F553–6, F558, F559, N141–3, T387, T438–9, T501–3, T507, Z715, P042–4, Q860). Available at <https://www.aihw.gov.au/reports/alcohol-other-drug-treatment-services/drug-related-hospitalisations/contents/content>.

c: Includes a diagnosis of:

- Major Diagnostic Categories (MDC) 19 (Mental diseases and disorders) (F20-F52 (excluding F52.5), F54, F59-F69, F80-F84 (excluding F84.2), F88-F95, F98-F99 (excluding F98.5 and F98.6), G47.0, G47.1, G47.2, G47.8, G47.9, R44.0, R44.2, R44.3, R44.8, R45.0, R45.1, R45.4, R48.0, R48.1, R48.2, R48.8, Z03.2); *or*
- MDC 20 (Alcohol/drug use and alcohol/drug induced organic mental disorders) (F10-F19, F55)

Emergency department presentations for co-parents

We used two definitions for drug and alcohol related admissions provided by DASSA and AIHW.

Note: The “UCC” group is not included due to small numbers.

Interpretation

- 36.5% of mothers had at least one ED presentation, with about 4% for drug and alcohol and about 8% for a mental health condition.

Table 35: Co-parent emergency department presentations from eligibility date in 2016/17 to June 2018 (12 to 24 month period)

	3 or more notifications no investigation		At least one investigation		Total	
	n	col %	n	col %	n	col %
At least one ED presentation						
No	318	65.4	149	59.8	467	63.5
Yes	168	34.6	100	40.2	268	36.5
At least one ED presentation for drug and alcohol (DASSA definition) ^a						
No	465	95.7	243	97.6	708	96.3
Yes	21	4.3	6	2.4	27	3.7
At least one ED presentation for drug and alcohol (AIHW definition) ^b						
No	464	95.5	243	97.6	707	96.2
Yes	22	4.5	6	2.4	28	3.8
At least one ED presentation for mental health (AIHW definition) ^c						
No	440	90.5	239	96.0	679	92.4
Yes	46	9.5	10	4.0	56	7.6
Total	486	100.0	249	100.0	735	100.0

Note:

a: Drug-related hospitalisations includes ED presentations for any ICD-10-AM codes related to:

- Mental or Behaviour Disorders due to use of alcohol and other specified drugs (F10, F11, F12, F13, F14, F15, F16, F17, F18, F19); *or*
- External causes related to
 - Assault by drugs, medicaments of biological substances (X85); *or*
 - Accidental poisoning by and exposure to specific drugs (X41, X42, X44); *or*
 - Intentional self-harm from poisoning, including suicide (X61, X62, X64); *or*
 - Event of undetermined intent involving poisoning by and exposure to specific drugs (Y11, Y12, Y14); *or*
- Poisoning by drugs (T40.0- T40.9, T42.3, T42.4, T42.6, T42.7, T43.3, T43.5, T43.6, T43.8, T43.9)

b: Includes a diagnosis of: (F170–179, T652, Z587, Z716, F150–159, T406, T436, T460, T463, F550, T430–435, F180–189, T520–529, T530–9, T590, T598, F190–199, F551, F553–6, F558, F559, N141–3, T387, T438–9, T501–3, T507, Z715, P042–4, Q860). Available at <https://www.aihw.gov.au/reports/alcohol-other-drug-treatment-services/drug-related-hospitalisations/contents/content>.

c: Includes a diagnosis of:

- Major Diagnostic Categories (MDC) 19 (Mental diseases and disorders) (F20-F52 (excluding F52.5), F54, F59-F69, F80-F84 (excluding F84.2), F88-F95, F98-F99 (excluding F98.5 and F98.6), G47.0, G47.1, G47.2, G47.8, G47.9, R44.0, R44.2, R44.3, R44.8, R45.0, R45.1, R45.4, R48.0, R48.1, R48.2, R48.8, Z03.2); *or*
- MDC 20 (Alcohol/drug use and alcohol/drug induced organic mental disorders) (F10-F19, F55)

Hospital Admissions and Emergency Department presentations for parents in the 2015/16 preservation cohort (n=1,175)

We present parent hospitalisations and emergency department presentations for a 2015/16 eligible cohort so that we can increase the proportion of children identified in the birth registration family file. Out of the 1,175 children eligible for the 2015/16 cohort, 930 (79.1%) were identified in our family files, compared to 66.6% of the 2016/17 cohort.

We limited hospitalisations to June 2017, so that the estimates are comparable to the results presented for the 2016/17 cohort.

Table 36: Eligible children for the 2015/16 cohort identified in the Birth Registration Family File

	UCC		3 or more notifications no investigation		At least one investigation		Total	
	n	col %	n	col %	n	col %	n	col %
Yes	137	82.5	499	81.0	294	74.8	930	79.1
No	29	17.5	117	19.0	99	25.2	245	20.9
Total	166	100.0	616	100.0	393	100.0	1,175	100.0

Overall interpretation of the series of analyses that follow:

- To save you reading through each of the separate tables below, the general pattern observed for the 2016/17 cohort that you have seen above is maintained for the 2015/16 cohort where we were able to link about 80% of the children.
- One point worth noting is that by using the 2015/16 cohort we can now see some results for the UCC group. We cannot compare this to the 2016/17 cohort because it was not possible there, but the impression is that there are some differences between the UCCs and the other two groups that make up the eligible cohort. For example, hospitalisations for drug and alcohol and mental health are somewhat higher for the UCC group. This pattern seems clearer for mothers than for co-parents.

Hospital admissions for mothers - 2015/16

Due to small numbers the 'UCC' group was not presented.

Table 37: Maternal hospitalisations from eligibility date in 2015/16 to June 2017 (12 to 24-month period)

	3 or more notifications no investigation		At least one investigation		Total	
	n	col %	n	col %	n	col %
At least one hospitalisation						
No	299	59.9	144	49.0	443	55.9
Yes	200	40.1	150	51.0	350	44.1
Total	499	100.0	294	100.0	793	100.0

Notes:

a: PPHs are hospitalisations thought to have been avoidable if timely and adequate non-hospital care had been provided, either to prevent the condition occurring, or to prevent the hospitalisation for the condition. Australian Institute of Health and Welfare. National healthcare agreement: Pi 18-Selected potentially preventable hospitalisations, 2015, 2016.

Available: <http://meteor.aihw.gov.au/content/index.phtml/itemId/559032>.

Drug and alcohol related hospital admissions for mothers - 2015/16

Table 38: Maternal drug and alcohol related hospitalisations from eligibility date in 2015/16 to June 2017 (12 to 24-month period)

	UCC		3 or more notifications no investigation		At least one investigation		Total	
	n	col %	n	col %	n	col %	n	col %
At least one hospitalisation for drug and alcohol (DASSA definition, including secondary diagnoses) ^b								
No	111	81.0	449	90.0	250	85.0	810	87.1
Yes	26	19.0	50	10.0	44	15.0	120	12.9
At least one hospitalisation for drug and alcohol (AIHW definition, primary diagnosis only) ^c								
No	131	95.6	475	95.2	260	88.4	866	93.1
Yes	6	4.4	24	4.8	34	11.6	64	6.9
At least one hospitalisation for drug and alcohol (AIHW definition, including secondary diagnoses) ^d								
No	111	81.0	448	89.8	250	85.0	809	87.0
Yes	26	19.0	51	10.2	44	15.0	121	13.0
Total	137	100.0	499	100.0	294	100.0	930	100.0

Notes:

b: Drug-related hospitalisations includes admissions to hospital for any ICD-10-AM codes across principal and secondary diagnoses related to:

- Mental or Behaviour Disorders due to use of alcohol and other specified drugs (F10, F11, F12, F13, F14, F15, F16, F17, F18, F19); *or*
- External causes related to
 - Assault by drugs, medicaments of biological substances (X85); *or*
 - Accidental poisoning by and exposure to specific drugs (X41, X42, X44); *or*
 - Intentional self-harm from poisoning, including suicide (X61, X62, X64); *or*
 - Event of undetermined intent involving poisoning by and exposure to specific drugs (Y11, Y12, Y14); *or*
- Poisoning by drugs (T40.0- T40.9, T42.3, T42.4, T42.6, T42.7, T43.3, T43.5, T43.6, T43.8, T43.9)

c: Includes a principal diagnosis of: (F170–179, T652, Z587, Z716, F150–159, T406, T436, T460, T463, F550, T430–435, F180–189, T520–529, T530–9, T590, T598, F190–199, F551, F553–6, F558, F559, N141–3, T387, T438–9, T501–3, T507, Z715, P042–4, Q860). Available at <https://www.aihw.gov.au/reports/alcohol-other-drug-treatment-services/drug-related-hospitalisations/contents/content>.

d: Includes a principal or secondary diagnosis listed in “C”.

Mental health related hospital admissions for mothers - 2015/16

Table 39: Maternal mental health related hospitalisations from eligibility date in 2015/16 to June 2017 (12 to 24-month period)

	UCC		3 or more notifications no investigation		At least one investigation		Total	
	n	col %	n	col %	n	col %	n	col %
At least one hospitalisation for mental health (AIHW definition, primary diagnosis only) ^f								
No	123	89.8	462	92.6	248	84.4	833	89.6
Yes	14	10.2	37	7.4	46	15.6	97	10.4
At least one hospitalisation for mental health (AIHW definition, including secondary diagnoses) ^f								
No	97	70.8	436	87.4	230	78.2	763	82.0
Yes	40	29.2	63	12.6	64	21.8	167	18.0
At least one ambulatory equivalent mental health-related hospitalisation (AIHW definition, including all procedure codes) ^g								
No	26	19.0	387	77.6	219	74.5	632	68.0
Yes	111	81.0	112	22.4	75	25.5	298	32.0
Total	137	100.0	499	100.0	294	100.0	930	100.0

Notes:

e: Includes a principal diagnosis of:

- Major Diagnostic Categories (MDC) 19 (Mental diseases and disorders) (F20-F52 (excluding F52.5), F54, F59-F69, F80-F84 (excluding F84.2), F88-F95, F98-F99 (excluding F98.5 and F98.6), G47.0, G47.1, G47.2, G47.8, G47.9, R44.0, R44.2, R44.3, R44.8, R45.0, R45.1, R45.4, R48.0, R48.1, R48.2, R48.8, Z03.2); *or*
- MDC 20 (Alcohol/drug use and alcohol/drug induced organic mental disorders) (F10-F19, F55)

f: Includes any principal or secondary diagnosis listed in "E"

g: This includes the AIHW definition of ambulatory-equivalent mental health-related hospital separations which are obtained using the Australian Classification of Health Interventions (ACHI) for blocks and procedure codes. Examples of these procedures include psychosocial counselling and alcohol and drug rehabilitation and detoxification. Block codes included were: 1822, 1823, 1867, 1868, 1869, 1872, 1873, 1875, 1878, 1916 (Procedure codes 95550-01, 95550-02 and 95550-1).

Hospital admissions for [co-parents](#) - 2015/16

Table 40: Co-parent hospitalisations from eligibility date in 2015/16 to June 2017 (12 to 24-month period)

	UCC		3 or more notifications no investigation		At least one investigation		Total	
	n	col %	n	col %	n	col %	n	col %
At least one hospitalisation								
No	117	85.4	427	85.6	231	78.6	775	83.3
Yes	20	14.6	72	14.4	63	21.4	155	16.7
Total	137	100.0	499	100.0	294	100.0	930	100.0

Drug and alcohol related hospital admissions for co-parents - 2015/16

Table 41: Co-parent drug and alcohol related hospitalisations from eligibility date in 2015/16 to June 2017 (12 to 24-month period)

	UCC		3 or more notifications no investigation		At least one investigation		Total	
	n	col %	n	col %	n	col %	n	col %
At least one hospitalisation for drug and alcohol (DASSA definition, including secondary diagnoses) ^b								
No	129	94.2	463	92.8	270	91.8	862	92.7
Yes	8	5.8	36	7.2	24	8.2	68	7.3
At least one hospitalisation for drug and alcohol (AIHW definition, primary diagnosis only) ^c								
No	#	#	#	#	280	95.2	898	96.6
Yes	#	#	#	#	14	4.8	32	3.4
At least one hospitalisation for drug and alcohol (AIHW definition, including secondary diagnoses) ^d								
No	130	94.9	464	93.0	270	91.8	864	92.9
Yes	7	5.1	35	7.0	24	8.2	66	7.1
Total	137	100.0	499	100.0	294	100.0	930	100.0

Note:

b: Drug-related hospitalisations includes admissions to hospital for any ICD-10-AM codes across principal and secondary diagnoses related to:

- Mental or Behaviour Disorders due to use of alcohol and other specified drugs (F10, F11, F12, F13, F14, F15, F16, F17, F18, F19); *or*
- External causes related to
 - Assault by drugs, medicaments of biological substances (X85); *or*
 - Accidental poisoning by and exposure to specific drugs (X41, X42, X44); *or*
 - Intentional self-harm from poisoning, including suicide (X61, X62, X64); *or*
 - Event of undetermined intent involving poisoning by and exposure to specific drugs (Y11, Y12, Y14); *or*
- Poisoning by drugs (T40.0- T40.9, T42.3, T42.4, T42.6, T42.7, T43.3, T43.5, T43.6, T43.8, T43.9)

c: Includes a principal diagnosis of: (F170–179, T652, Z587, Z716, F150–159, T406, T436, T460, T463, F550, T430–435, F180–189, T520–529, T530–9, T590, T598, F190–199, F551, F553–6, F558, F559, N141–3, T387, T438–9, T501–3, T507, Z715, P042–4, Q860). Available at <https://www.aihw.gov.au/reports/alcohol-other-drug-treatment-services/drug-related-hospitalisations/contents/content>.

d: Includes a principal or secondary diagnosis in “C”.

Mental health related hospital admissions for co-parents - 2015/16

Table 42: Co-parent mental health related hospitalisations from eligibility date in 2015/16 to June 2017 (12 to 24-month period)

	UCC		3 or more notifications no investigation		At least one investigation		Total	
	n	col %	n	col %	n	col %	n	col %
At least one hospitalisation for mental health (AIHW definition, primary diagnosis only) ^e								
No	132	96.4	473	94.8	278	94.6	883	94.9
Yes	5	3.6	26	5.2	16	5.4	47	5.1
At least one hospitalisation for mental health (AIHW definition, including secondary diagnoses) ^f								
No	127	92.7	462	92.6	265	90.1	854	91.8
Yes	10	7.3	37	7.4	29	9.9	76	8.2
At least one ambulatory equivalent mental health-related hospitalisation (AIHW definition, including all procedure codes) ^g								
No	128	93.4	464	93.0	269	91.5	861	92.6
Yes	9	6.6	35	7.0	25	8.5	69	7.4
Total	137	100.0	499	100.0	294	100.0	930	100.0

Note:

e: Includes a principal diagnosis of:

- Major Diagnostic Categories (MDC) 19 (Mental diseases and disorders) (F20-F52 (excluding F52.5), F54, F59-F69, F80-F84 (excluding F84.2), F88-F95, F98-F99 (excluding F98.5 and F98.6), G47.0, G47.1, G47.2, G47.8, G47.9, R44.0, R44.2, R44.3, R44.8, R45.0, R45.1, R45.4, R48.0, R48.1, R48.2, R48.8, Z03.2); *or*
- MDC 20 (Alcohol/drug use and alcohol/drug induced organic mental disorders) (F10-F19, F55)

f: Includes any principal or secondary diagnosis listed in "E"

g: This includes the AIHW definition of ambulatory-equivalent mental health-related hospital separations which are obtained using the Australian Classification of Health Interventions (ACHI) for blocks and procedure codes. Examples of these procedures include psychosocial counselling and alcohol and drug rehabilitation and detoxification. Block codes included were: 1822, 1823, 1867, 1868, 1869, 1872, 1873, 1875, 1878, 1916 (Procedure codes 95550-01, 95550-02 and 95550-1).

Emergency Department presentations for mothers - 2015/16

Table 43: Maternal Emergency Department presentations from eligibility date in 2015/16 to June 2017 (12 to 24-month period)

	UCC		3 or more notifications no investigation		At least one investigation		Total	
	n	col %	n	col %	n	col %	n	col %
At least one ED presentation								
No	43	31.4	209	41.9	122	41.5	374	40.2
Yes	94	68.6	290	58.1	172	58.5	556	59.8
At least one ED presentation for drug and alcohol (DASSA definition) ^a								
No	131	95.6	475	95.2	275	93.5	881	94.7
Yes	6	4.4	24	4.8	19	6.5	49	5.3
At least one ED presentation for drug and alcohol (AIHW definition) ^b								
No	130	94.9	474	95.0	272	92.5	876	94.2
Yes	7	5.1	25	5.0	22	7.5	54	5.8
At least one ED presentation for mental health (AIHW definition) ^c								
No	116	84.7	435	87.2	246	83.7	797	85.7
Yes	21	15.3	64	12.8	48	16.3	133	14.3
Total	137	100.0	499	100.0	294	100.0	930	100.0

Note:

a: Drug-related hospitalisations includes ED presentations for any ICD-10-AM codes related to:

- Mental or Behaviour Disorders due to use of alcohol and other specified drugs (F10, F11, F12, F13, F14, F15, F16, F17, F18, F19); *or*
- External causes related to
 - Assault by drugs, medicaments of biological substances (X85); *or*
 - Accidental poisoning by and exposure to specific drugs (X41, X42, X44); *or*
 - Intentional self-harm from poisoning, including suicide (X61, X62, X64); *or*
 - Event of undetermined intent involving poisoning by and exposure to specific drugs (Y11, Y12, Y14); *or*
- Poisoning by drugs (T40.0- T40.9, T42.3, T42.4, T42.6, T42.7, T43.3, T43.5, T43.6, T43.8, T43.9)

b: Includes a diagnosis of: (F170–179, T652, Z587, Z716, F150–159, T406, T436, T460, T463, F550, T430–435, F180–189, T520–529, T530–9, T590, T598, F190–199, F551, F553–6, F558, F559, N141–3, T387, T438–9, T501–3, T507, Z715, P042–4, Q860). Available at <https://www.aihw.gov.au/reports/alcohol-other-drug-treatment-services/drug-related-hospitalisations/contents/content>.

c: Includes a diagnosis of:

- Major Diagnostic Categories (MDC) 19 (Mental diseases and disorders) (F20-F52 (excluding F52.5), F54, F59-F69, F80-F84 (excluding F84.2), F88-F95, F98-F99 (excluding F98.5 and F98.6), G47.0, G47.1, G47.2, G47.8, G47.9, R44.0, R44.2, R44.3, R44.8, R45.0, R45.1, R45.4, R48.0, R48.1, R48.2, R48.8, Z03.2); *or*
- MDC 20 (Alcohol/drug use and alcohol/drug induced organic mental disorders) (F10-F19, F55)

Emergency Department presentations for co-parents - 2015/16

Table 44: Co-parent Emergency Department presentations from eligibility date in 2015/16 to June 2017 (12 to 24-month period)

	UCC		3 or more notifications no investigation		At least one investigation		Total	
	n	col %	n	col %	n	col %	n	col %
At least one ED presentation								
No	74	54.0	292	58.5	186	63.3	552	59.4
Yes	63	46.0	207	41.5	108	36.7	378	40.6
At least one ED presentation for drug and alcohol (DASSA definition) ^a								
No	129	94.2	477	95.6	281	95.6	887	95.4
Yes	8	5.8	22	4.4	13	4.4	43	4.6
At least one ED presentation for drug and alcohol (AIHW definition) ^b								
No	129	94.2	477	95.6	277	94.2	883	94.9
Yes	8	5.8	22	4.4	17	5.8	47	5.1
At least one ED presentation for mental health (AIHW definition) ^c								
No	121	88.3	469	94.0	270	91.8	860	92.5
Yes	16	11.7	30	6.0	24	8.2	70	7.5
Total	137	100.0	499	100.0	294	100.0	930	100.0

Note:

a: Drug-related hospitalisations includes ED presentations for any ICD-10-AM codes related to:

- Mental or Behaviour Disorders due to use of alcohol and other specified drugs (F10, F11, F12, F13, F14, F15, F16, F17, F18, F19); *or*
- External causes related to
 - Assault by drugs, medicaments of biological substances (X85); *or*
 - Accidental poisoning by and exposure to specific drugs (X41, X42, X44); *or*
 - Intentional self-harm from poisoning, including suicide (X61, X62, X64); *or*
 - Event of undetermined intent involving poisoning by and exposure to specific drugs (Y11, Y12, Y14); *or*
- Poisoning by drugs (T40.0- T40.9, T42.3, T42.4, T42.6, T42.7, T43.3, T43.5, T43.6, T43.8, T43.9)

b: Includes a diagnosis of: (F170–179, T652, Z587, Z716, F150–159, T406, T436, T460, T463, F550, T430–435, F180–189, T520–529, T530–9, T590, T598, F190–199, F551, F553–6, F558, F559, N141–3, T387, T438–9, T501–3, T507, Z715, P042–4, Q860). Available at <https://www.aihw.gov.au/reports/alcohol-other-drug-treatment-services/drug-related-hospitalisations/contents/content>.

c: Includes a diagnosis of:

- Major Diagnostic Categories (MDC) 19 (Mental diseases and disorders) (F20-F52 (excluding F52.5), F54, F59-F69, F80-F84 (excluding F84.2), F88-F95, F98-F99 (excluding F98.5 and F98.6), G47.0, G47.1, G47.2, G47.8, G47.9, R44.0, R44.2, R44.3, R44.8, R45.0, R45.1, R45.4, R48.0, R48.1, R48.2, R48.8, Z03.2); *or*
- MDC 20 (Alcohol/drug use and alcohol/drug induced organic mental disorders) (F10-F19, F55)

Part 6. Predicting the risk of out-of-home care – ‘At least one investigation group’

Note: Our task was to use available characteristics to predict out-of-home care (OOHC) among children eligible for the preservation cohort in the “At least one investigation group”.

Eligible children

Children were considered eligible if they were in the ‘1 or more investigations group’ in 2014/2015 and/or 2015/2016, and lived in a Southern, Western or Northern LGA. There were 1,579 eligible children, out of which 1,197 (76%) could be linked to our family files because not all children are born in South Australia and therefore do not have family information at birth.

Data

The risk prediction models includes information on:

- Birth registrations;
- Perinatal Statistics;
- SA Department for Child Protection;
- Integrated South Australian Activity Collection Data (hospital admissions), SA Health; and
- Birth registration derived family file.

The risk prediction models

To identify children at risk of OOHC we used a logistic regression model to predict the probability of a child being in care by 36 months post eligibility, based on several predictors collected from the data sources listed above. In order to conduct the risk prediction modelling, the analysis was restricted to children with complete information on all predictors included in each model.

The outcome included in the prediction model

- Child placed in OOHC by 36 months post eligibility (NOT preserved).

Why “accuracy” of risk prediction is hard to assess

There is no one number that completely summaries the ability of the model to accurately predict risk. Understanding prediction model results requires a nuanced consideration of several factors to do with model performance such as discrimination, calibration, sensitivity, specificity, and positive and negative predictive values.

Accuracy in risk prediction is a complex judgement involving several, often competing views of what a risk assessment system has as its priorities. For instance; do we want the risk prediction model to identify most cases of those children who end up in OOHC (i.e., maximise sensitivity)? Do we want to avoid unnecessarily labelling individuals as being at high risk (i.e., minimising false positives)? These questions can’t be answered unless the goals of the risk assessment are clear and that the specific details of the interventions that are likely to be deployed among those at high risk are known. You can’t know the ‘cost’ of a false positive unless you know the potential negative effects of being labelled at high risk unnecessarily.

Understanding risk prediction

Sensitivity and specificity are directly concerned with identifying true cases and non-cases in the whole population. In a sense, this is like “looking backwards” after we know the answer. Of all the true cases of OOHC we actually observe, how many did our model predict as being at risk?

Positive and negative predictive values take a “forward looking” view and ask, among those the model predicted as being ‘at high risk’, how many went on to experience OOHC.

So, sensitivity and specificity are concerned with how many true cases and non-cases are identified by the model, while positive and negative predictive values are concerned with model performance once true cases are known. These concepts can be confusing but they relate to the mathematical fact that conditional probabilities are not symmetrical ($\text{Probability of A|B} \neq \text{Probability of B|A}$).

Table 45Table 45: Metrics to help assess a model’s predictive ability

Metric	Description
Area under the receiver operating curve (AUROC)	<p>The AUROC or the concordance statistic – the so-called ‘C-Statistic’ summarises the overall capacity of the model to discriminate between higher and lower risk individuals. If a C statistics is in the range of 0.80 to 0.85 or higher, it is often considered in health and medical sciences to be a potentially useful screening tool.</p> <p>For examples, the C statistic indicates the probability that a randomly selected child who is placed in OOHC (case) will have a higher predicted risk compared to a randomly selected child not placed in OOHC (non-case).</p>
Sensitivity (Se)	<p>The focus of sensitivity is on quantifying the identification of case-load in the whole population. It answers the question: of the true case that exist in the whole population. How many does the model correctly identify as a case?</p> <p>This may be a concern if the cost of a false negative (not identifying true case as ‘at high risk’, or if the aim is to screen as many cases as possible into an intervention.</p> <p>For example, if the sensitivity was 90, this would mean that of the 100 children who experienced OOHC, 90 would be identified by the model as a case at the specific risk threshold that has been set. If the risk threshold is set low, it is much more likely that the sensitivity will be very high.</p>

Metric	Description
Specificity (Sp)	<p>The focus of specificity is on quantifying the correct identification of those in the whole population who will truly not become cases. It answers the question of the true non-cases, how many does the model correctly identify as non-cases?</p> <p>This may be a concern if the cost of a false-positive is high. In other words, if social or financial costs of incorrectly identifying an individual as a case are deemed unjustifiable than this metric is relevant.</p> <p>For example, If the specificity was 7, this would mean that of the 100 children who did not experience OOHC, 70 would be identified by the model as a non-case at the specific risk threshold that had been set, but 30 would be identified as false positives. If the risk threshold is set high, it is much more likely that the specificity will be very high.</p>
Positive Predictive Value (PPV)	<p>The focus of the PPV is on quantifying how many of the individuals classified as 'at high risk' by the model are actually true cases. It answers the question: of all the individuals identified by the model as being 'at high risk', what proportion actually experienced OOHC.</p> <p>This may be a concern if the program cost is only justified if for example, over 5 of individuals identified by the model, as 'at high risk' would actually go on to be notified.</p>
Negative Predictive Value (NPV)	<p>The focus of the NPV is on quantifying how many individuals classified as not 'at high risk' by the model are true non-cases. It answers the question: of all individuals identified by the model as being a non-case, what proportion truly did not experience OOHC.</p> <p>This may be a concern if the aim is to minimize false negatives (missing out on true cases).</p> <p>For example, If the NPV was 6, this would mean that of 100 children who are identified by the model as not 'at high risk', 60 of them will truly never have been placed in OOHC.</p>

Setting a risk threshold

Sensitivity and specificity depend on setting a specific threshold that defines 'at high risk' (e.g., the top 1 or the top 2 of risk). Setting a risk threshold depends on model performance and the 'costs' of making different kinds of mistakes such as the cost of a false positives or the cost of a false negatives. These costs could include social costs such as stigma, or direct financial costs of services. These costs can only be considered in light of what intervention would be offered to those deemed "at high risk". If it is likely the intervention may do harm then the costs of false positives are higher than for a different intervention that is more benign.

Interpreting risk prediction models

The purpose of multi-variable risk prediction models is to use the association of various risk factors with the outcome to generate a predicted probability of the event for every individual. This probability is based on the individual's level of the various risk factors. The predicted probabilities then rank every individual from highest to lowest risk of the outcome.

Being among the highest risk doesn't mean you necessarily have all the risk factors. It depends on the particular combination of the risk factors that any individual has.

The essence of the risk prediction model is how the risk factors combine together to predict the probability of the outcome. So, whilst it is tempting to want to interpret the mutually adjusted coefficients in a way that leads to a conclusion around which are the strongest risk factors, it is better to use the unadjusted effects in that regard. The mutually adjusted coefficients are more consistent with trying to understand causal effects of the risk factors rather than their predictive ability. If there was a desire to select the four or five strongest risk factors then this should be done on the basis of their unadjusted associations because they better reflect the real world information content of the risk factor, rather than an artificial statistical world where the effect of 1 risk factor is mutually adjusted for all other risk factors.

Implementing a risk prediction tool in practice means that levels of risk factors for any individual would need to be entered into an algorithm that is based on the risk prediction model. For an example, see this website <https://w3.abdn.ac.uk/clsm/opis/tool/ivf1> for how a risk prediction model sits behind a simple set of questions about risk factors for pregnancy success from IVF.

Eligible cohort

Children were considered eligible if they were in the '1 or more investigations group' in 2014/2015 and/or 2015/2016, and lived in a Southern, Western or Northern LGA. There were 1,579 eligible children, out of which 1,197 (76%) could be linked to our family files.

Outcome

Outcome included in the prediction models:

- Child was placed in OOHC by 36 months post eligibility in 2014/2015 and/or 2015/2016.

Table 46: Prevalence of OOHC by 36 months post-eligibility

	N	%
No	1,051	87.8
Yes	146	12.2
Total	1,197	100.0

Key Message:

Of the 1,197 eligible children, 146 (12.2%) were in OOHC by 36 months of becoming eligible for the cohort.

The models that follow assess how well available characteristics are able to predict the 146 children who were placed in OOHC versus those who were not.

The prediction models

We examined 4 different logistic regression models to predict the probability of a child being placed in OOHC at 36 months of becoming eligible for the cohort containing different sets of characteristics.

Table 47 displays the characteristics used in the 4 different models:

- Model 1 includes sociodemographic characteristics of children and their parents;
- Model 2 includes model 1 plus the index child's child protection history;
- Model 3 includes model 2 plus family child protection history;
- Model 4 includes model 3 plus parental hospitalizations due to mental health, drug and alcohol and assault/domestic violence.

Table 47: Characteristics included in each model

	Model 1	Model 2	Model 3	Model 4
Sociodemographic characteristics				
Child age at eligibility	Yes	Yes	Yes	Yes
Gender	Yes	Yes	Yes	Yes
Aboriginal and or Torres Strait Islander	Yes	Yes	Yes	Yes
Jobless family at birth	Yes	Yes	Yes	Yes
Smoking in pregnancy	Yes	Yes	Yes	Yes
Number of antenatal visits	Yes	Yes	Yes	Yes
Maternal marital status at birth	Yes	Yes	Yes	Yes
Mother's age at eligibility	Yes	Yes	Yes	Yes
Father's age at eligibility	Yes	Yes	Yes	Yes
Young parents at eligibility	Yes	Yes	Yes	Yes
Mother's age at first birth	Yes	Yes	Yes	Yes
Father's age at first birth	Yes	Yes	Yes	Yes
Young parents at first birth	Yes	Yes	Yes	Yes
Family size at eligibility	Yes	Yes	Yes	Yes
Index child's CP history				
Ever notified prior to eligibility		Yes	Yes	Yes
Ever investigated prior to eligibility		Yes	Yes	Yes
Ever substantiated prior to eligibility		Yes	Yes	Yes
Ever OOHC prior to eligibility		Yes	Yes	Yes
Number of recorded alleged grounds		Yes	Yes	Yes
Number of recorded significant risk factors		Yes	Yes	Yes
Family CP history				
Sibling ever in OOHC prior to eligibility			Yes	Yes
Mother ever in OOHC			Yes	Yes
Father ever in OOHC			Yes	Yes
Parental hospitalisation				
Mother mental health hospitalisation				Yes
Mother drug & alcohol hospitalisation				Yes
Father mental health hospitalisation				Yes
Father drug & alcohol hospitalisation				Yes
Maternal hospitalisation: assault				Yes
Maternal hospitalisation: domestic violence-related				Yes
Number of characteristics	14	20	23	29

Additional data needs

The table above includes all the relevant characteristics currently available to us. However, it should be noted that in addition to the characteristics above, it would be beneficial to have data on the following:

- Domestic abuse;
- Contact with community based mental health services;
- Contact with community based drug and alcohol services;
- Child disability;
- Parent criminal justice contact.

Use of Aboriginal and Torres Strait Islander indicator in the risk prediction models

All models included an indicator for Aboriginal and Torres Strait Islander. The use of such indicators has been criticised as being racist.

We have repeated all analyses not using Aboriginal and Torres Strait Islander. The overall model performance and conclusions are unchanged.

These models are available on request and can replace the models presented in this report.

Characteristics used to predict risk of OOHC at 36 months post eligibility

Interpretation

Table 48 and Table 49 present all the characteristics that were included in the prediction models. To interpret the tables look at the row that contains 'Smoking in pregnancy'. Among all children in the eligible cohort, 46.1% had mothers who smoked in pregnancy. The unadjusted risk ratio for experiencing OOHC at 36 months post eligibility was 2.52 times (18.1%/7.2%) higher among those whose mother smoked during pregnancy.

Note: Table 48 contains characteristics that were dichotomised and Table 49 contains the distribution of characteristics that were continuous.

Table 48: Characteristics for children placed and not placed in OOHC at 36 months post eligibility

	OOHC at 36 months				Total			Unadjusted RR (95% CI)
	No		Yes		N	Row %	Col %	
	N	Row %	N	Row %				
Gender								
Male	556	86.7	85	13.3	641	100.0	53.6	1.00
Female	495	89.0	61	11.0	556	100.0	46.4	0.82 (0.61; 1.13)
Aboriginal and/or Torres Strait Islander								
No	872	89.3	104	10.7	976	100.0	81.5	1.00
Yes	179	81.0	42	19.0	221	100.0	18.5	1.78 (1.28; 2.47)
Jobless family at birth								
No	655	91.9	58	8.1	713	100.0	60.7	1.00
Yes	379	82.0	83	18.0	462	100.0	39.3	2.21 (1.61; 3.02)
Smoking in pregnancy								
No	592	92.8	46	7.2	638	100.0	53.9	1.00
Yes	447	81.9	99	18.1	546	100.0	46.1	2.52 (1.81; 3.50)
Number of antenatal visits								
7 or more	755	89.8	86	10.2	841	100.0	73.5	1.00
Less than 7	253	83.2	51	16.8	304	100.0	26.6	1.64 (1.19; 2.26)
Mother marital status at birth								
Partner	699	89.0	86	11.0	785	100.0	65.6	1.00
No partner	352	85.4	60	14.6	412	100.0	34.4	1.33 (0.98; 1.81)
Young mother (<23y) or Young father at elig								
No	820	89.2	99	10.8	919	100.0	83.9	1.00
Yes	148	84.1	28	15.9	176	100.0	16.1	1.48 (1.00; 2.18)
Young mother (<23y) or Young father at 1 st birth								
No	279	93.3	20	6.7	299	100.0	25.7	1.00
Yes	745	86.2	119	13.8	864	100.0	74.3	2.06 (1.31; 3.25)
Family size at eligibility								
3 children or less	755	89.9	85	10.1	840	100.0	70.2	1.00
>4 children	296	82.9	61	17.1	357	100.0	29.8	1.69 (1.24; 2.29)
Total	1,051	87.8	146	12.2	1,197	100.0	100.0	

Table 48 (cont): Characteristics for children placed and not placed in OOHC at 36 months post eligibility.

	OOHC at 36 months				Total			Unadjusted RR (95% CI)
	No		Yes		N	Row %	Col %	
	N	Row %	N	Row %				
Ever notified								
No	257	96.3	10	3.7	267	100.0	22.3	1.00
Yes	794	85.4	136	14.6	930	100.0	77.7	3.90 (2.01; 7.32)
Ever investigated								
No	706	91.1	69	8.9	775	100.0	64.8	1.00
Yes	345	81.8	77	18.2	422	100.0	35.2	2.05 (1.51; 2.77)
Ever substantiated								
No	848	90.5	89	9.5	937	100.0	78.3	1.00
Yes	203	78.1	57	21.9	260	100.0	21.7	2.31 (1.70; 3.12)
Ever OOHC								
No	1,025	88.1	139	11.9	1,164	100.0	97.2	1.00
Yes	26	78.8	7	21.2	33	100.0	2.8	1.78 (0.90; 3.49)
Sibling ever in OOHC								
No	972	88.3	129	11.7	1,101	100.0	92.0	1.00
Yes	79	82.3	17	17.7	96	100.0	8.0	1.51 (0.95; 2.40)
Mother's ever OOHC								
No	945	88.5	123	11.5	1,068	100.0	89.2	1.00
Yes	106	82.2	23	17.8	129	100.0	10.8	1.55 (1.03; 2.32)
Father's ever OOHC								
No	869	90.7	89	9.3	958	100.0	92.6	1.00
Yes	56	73.7	20	26.3	76	100.0	7.4	2.83 (1.85; 4.33)
Mother mental health hospitalisation								
No	880	88.7	112	11.3	992	100.0	82.8	1.00
Yes	171	83.4	34	16.6	205	100.0	17.1	1.47 (1.03; 2.09)
Mother drug & alcohol hospitalisation								
No	947	88.8	119	11.2	1,066	100.0	94.1	1.00
Yes	104	79.4	27	20.6	131	100.0	5.9	1.85 (1.27; 2.69)
Father mental health hospitalisation								
No	993	88.2	133	11.8	1,126	100.0	89.1	1.00
Yes	58	81.7	13	18.3	71	100.0	10.9	1.55 (0.92; 2.60)
Father drug & alcohol hospitalisation								
No	1,003	88.3	133	11.7	1,136	100.0	94.9	1.00
Yes	48	78.7	13	21.3	61	100.0	5.1	1.82 (1.10; 3.03)
Maternal assault hosp								
No	1,019	88.1	137	11.9	1,156	100.0	96.6	1.00
Yes	32	78.0	9	22.0	41	100.0	3.4	1.72 (0.87; 3.40)
Maternal DV hosp								
No	1,024	88.0	139	12.0	1,163	100.0	97.2	1.00
Yes	27	79.4	7	20.6	34	100.0	2.8	1.85 (1.02; 3.37)
Total	1,051	87.8	146	12.2	1,197	100.0	100.0	

Table 49: Characteristics (continuous) for children placed and not placed in OOHC at 36 months post eligibility

	OOHC at 36 months				Total	
	No		Yes			
	N	Median	N	Median	N	Median
Child age at eligibility	1,051	3	146	3	1,197	3
Mother's age at eligibility	1,051	29	146	28	1,197	29
Father's age at eligibility	1,051	33	115	33	1,063	33
Mother's age at 1st birth	1,051	20	146	20	1,197	20
Father's age at 1^s birth	950	25	115	24	1,065	25
N of recorded alleged grounds	1,051	1	146	1	1,197	1
N of recorded sig risk factors	1,051	0	146	0.5	1,197	0

Note: Not all young people had a significant risk factor recorded. Therefore, they were assigned a value of 0.

Model discrimination – the Area Under the Receiver Operator Curve (AUROC)

The AUROC indicates the ability for various combinations of characteristics to discriminate between children who are and are not placed in OOHC at 36 months. The AUROC is a summary of the relationship between sensitivity (true positives) versus 1-specificity (false negatives). While this represents the most commonly used assessment of overall model performance, other judgements about overall model performance such as Precision Recall Curves are also possible.

The AUROC or the “C statistic” is interpreted as, on a random draw of a case and a non-case, the C statistic is the probability that the randomly selected case of OOHC has a higher predicted risk than a child not placed in OOHC.

In general, there is no ‘magic’ number for an AUROC, only general guidelines. An AUROC of 1.00 is said to have perfect discrimination, whilst a model with an AUROC of 0.50 would indicate that the characteristics have no ability to discriminate (e.g., the ability of the model to discriminate is no better than chance, might as well flip a coin). An AUROC between 0.50 and 0.70 is considered to have poor discrimination (not much better than a coin toss), between 0.70 and 0.80, acceptable discrimination, between 0.80 and 0.90 excellent discrimination and an AUROC 0.90 or greater considered to have outstanding discrimination.

Interpretation

Table 50 shows the AUROC for all four models ranged from 0.72 to 0.82. The characteristics included in these models demonstrated acceptable discrimination to predict those children who experienced OOHC at 36 months post eligibility.

Note: N’s for models 1 to 4 differ due to missing characteristics data.

Table 50: Model discrimination measured using the Area Under the Receiver Operator Curve (AUROC)

Model	N	Number of characteristics	AUROC	95% CI
Model 1	1,007	14	0.72	0.69 - 0.77
Model 2	1,007	20	0.78	0.74 - 0.82
Model 3	978	23	0.80	0.76 - 0.85
Model 4	978	29	0.82	0.78 – 0.85

Key Message:

On a random draw of a case of OOHC and a non-case of OOHC, an AUROC of 0.82 means that 82% of the time the child who has been truly placed in OOHC at 36 months has a higher predicted risk than the child not placed in OOHC.

Model calibration

Another aspect of how well the model works is risk calibration. Calibration is assessed by comparing the number of observed cases to predicted cases over deciles of predicted risk. There is a column 'Ratio P/O' this is the ratio of predicted cases over observed cases, a ratio close to 1 indicates the model is performing well. We present Calibration for Model 1 and Model 4.

Table 51: Calibration statistics for Model 1 within deciles of probabilities

Decile	Probability	Cases – Number of observed and predicted children who experience OOHC			Non-cases – Number of observed and predicted children who didn't experience OOHC		
		Observed cases	Predicted cases	Ratio P/O	Observed Non-cases	Predicted Non-cases	Ratio P/O
Lowest decile 1 st	0.0325	2	2.5	1.3	99	98.5	1.0
2 nd	0.0421	4	3.8	1.0	97	97.2	1.0
3 rd	0.0535	3	4.7	1.6	98	96.3	1.0
4 th	0.0669	6	6.0	1.0	94	94.0	1.0
5 th	0.0889	8	7.8	1.0	93	93.2	1.0
6 th	0.1074	8	9.8	1.2	93	91.2	1.0
7 th	0.1270	15	11.7	0.8	85	88.3	1.0
8 th	0.1644	13	14.6	1.1	88	86.4	1.0
9 th	0.2256	28	19.4	0.7	73	81.6	1.1
Highest decile 10 th	0.5531	23	29.6	1.3	77	70.4	0.9

Table 52: Calibration statistics for Model 4 within deciles of probabilities

Decile	Probability	Cases – Number of observed and predicted children who experience OOHC			Non-cases – Number of observed and predicted children who didn't experience OOHC		
		Observed cases	Predicted cases	Ratio P/O	Observed Non-cases	Predicted Non-cases	Ratio P/O
Lowest decile 1 st	0.0054	1	0.4	0.4	97	97.6	1.0
2 nd	0.0137	0	0.8	-	98	97.2	1.0
3 rd	0.0245	4	1.9	0.5	94	96.1	1.0
4 th	0.0435	2	3.3	1.7	96	94.7	1.0
5 th	0.0613	4	5.1	1.3	93	91.9	1.0
6 th	0.0879	5	7.1	1.4	93	90.9	1.0
7 th	0.1227	14	10.3	0.7	84	87.7	1.0
8 th	0.1785	15	14.3	1.0	83	83.7	1.0
9 th	0.2710	20	21.2	1.1	78	76.8	1.0
Highest decile 10 th	0.8201	39	39.6	1.0	58	57.4	1.0

Performance of the risk prediction models used to predict OOHC 36 months post eligibility

Sensitivity, Specificity, PPV, NPV

We used a range of measures including Area Under the Receiver Operator Curve (AUROC), model calibration, Sensitivity, Specificity and Positive Predictive Value (PPV) to understand how well the model predicts children at risk of the outcome (OOHC). To calculate these quantities requires setting a risk threshold at which things like sensitivity can be calculated. Table 53 is based on setting a risk threshold at the top 20%.

Table 53: Sensitivity, Specificity, PPV, NPV

	N	AUROC (95% CI)	Probability cut	Probability or risk threshold	Sensitivity %	Specificity %	Positive Predictive Value %	Negative Predictive value %
Model 1	1,007	0.72 (0.69 - 0.77)	Top 20%	≥ 0.1645	46.4	83.3	25.4	92.7
Model 2	1,007	0.79 (0.74 - 0.83)	Top 20%	≥ 0.1823	52.8	84.1	28.5	93.4
Model 3	978	0.81 (0.77 - 0.85)	Top 20%	≥ 0.1798	55.8	84.3	29.7	94.1
Model 4	978	0.82 (0.78 - 0.85)	Top 20%	≥ 0.1734	56.7	84.4	30.3	94.3

Interpretation

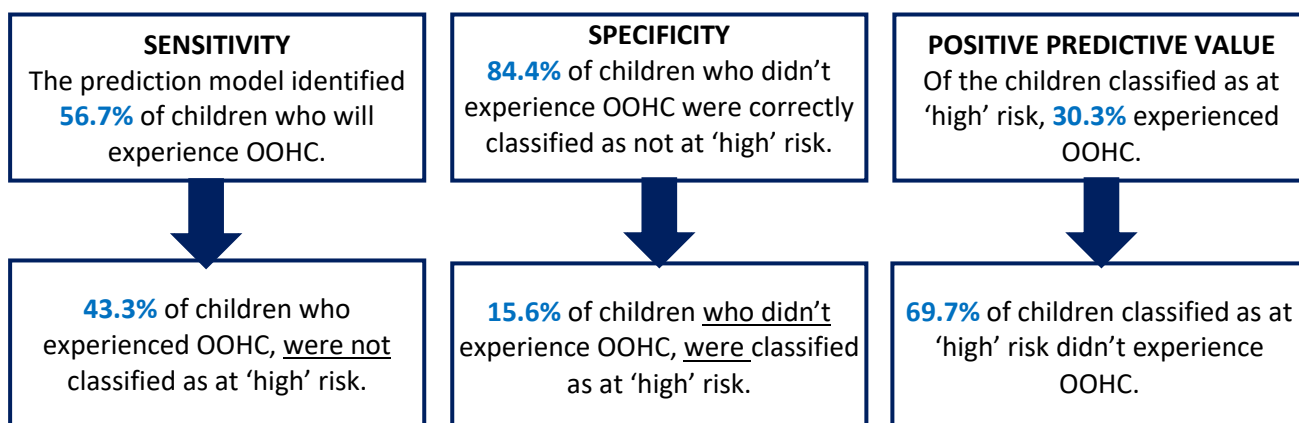
We provide an interpretation of Model 4, which had the highest AUROC (0.82).

Model 4 with the risk threshold set at top 20% of risk

	N	AUROC (95% CI)	Sensitivity %	Specificity %	Positive Predictive Value %
Model 4	978	0.82 (0.78 - 0.85)	56.7	84.4	30.3

Key Message:

On a random draw of a case of OOHC and a non-case of OOHC, an AUROC of 0.82 means that 82% of the time the child who has been truly placed in OOHC has a higher predicted risk than the child not placed in OOHC.



Key Message:

For model 4, if the risk threshold cut at the top 20% of risk, the model predicts:

- 56.7% of all children who were placed in OOHC by 36 months of becoming eligible for the cohort were classified as at 'high' risk by the model (sensitivity);
- 84.4% of children who weren't placed in OOHC by 36 months of becoming eligible for the cohort were correctly classified as not at 'high' risk by the model (specificity); and
- 12.2% of the eligible cohort will experience OOHC. If you use this risk prediction model and used a threshold at the top 20% of risk then 30.3% of this top 20 risk group will experience OOHC.
- Even so you will still misclassify almost 70% of the children in that top 20 risk group. The costs of misclassification need to be considered.

Part 7. Developmental vulnerability and academic achievement

Note: Developmental vulnerability and academic achievement are only presented for the “At least one investigation group”.

Developmental vulnerability at school entry

Table 55 shows the prevalence of developmental vulnerability. We report vulnerability on one or more of the Australian Early Development Census (AEDC) domains (physical health and wellbeing, social competence, emotional maturity, communication and general knowledge, and language and cognitive skills) consistent with national reporting, according to child preservation by 36 months.

Children identified with special needs do not have domain scores calculated and are not included in the indicator of developmental vulnerability – 12.8% of children were special needs. Children identified with special needs, require special assistance because of chronic medical, physical, or intellectually disabling conditions (e.g. Autism, Cerebral palsy, Down syndrome) based on a medical diagnosis or diagnoses.

Table 54: Prevalence special needs, children eligible for preservation cohort in the ‘At least one investigation group’ by preservation by 36 months

	Preserved by 36 months				Total	
	Yes		No			
	N	col %	N	col %	N	col %
Special needs status						
Not special needs	3,097	87.8	256	80.5	3,353	87.2
Special needs	429	12.2	62	19.5	491	12.8
Total	3,526	100.0	318	100.0	3,844	100.0

Interpretation

- 52.2% of children in the ‘at least one investigation group’ were developmentally vulnerable on one or more domains of the AEDC, which is more than 2 times higher than average for South Australia. In 2018, 23.9% of children in South Australia were developmentally vulnerable on one or more domains of the AEDC.
- 61.1% of children who had at least one OOHC placement by 36 months were developmentally vulnerable on one or more domains of the AEDC compared 51.4% of children who didn’t have an OOHC placement 36 months post eligibility.

Table 55: Prevalence vulnerable on one or more domains of the AEDC, children eligible for preservation cohort in the ‘At least one investigation group’ by preservation by 36 months

	Preserved by 36 months				Total	
	Yes		No			
	N	col %	N	col %	N	col %
Developmentally vulnerable on 1+ AEDC domains						
No	1,470	48.6	98	38.9	1,568	47.8
Yes	1,557	51.4	154	61.1	1,711	52.2
Total	3,027	100.0	252	100.0	3,279	100.0

Academic achievement at age 8

Table 56 shows the prevalence of children performing at or below the national minimum standard (NMS) as measured by the NAPLAN at Year 3 (age ~8 years).

Interpretation

- On all NAPLAN domains measured at age 8, children who were not preserved by 36 months were at higher risk of being at or below NMS.
- For example, 50.0% of children who were not preserved by 36 months were at or below the NMS in reading compared to 41.9% of children who were preserved.

Table 56: Prevalence of children at or below the national minimum standard for Year 3 NAPLAN, children eligible for preservation cohort in the 'at least one investigation group' by preservation by 36 months

	Preserved by 36 months				Total	
	Yes		No			
	N	col %	N	col %	N	col %
Achievement of Year 3 Students in Reading						
Above NMS	3,868	58.1	293	50.0	4,161	57.4
At or below NMS	2,793	41.9	293	50.0	3,086	42.6
Total	6,661	100.0	586	100.0	7,247	100.0
Writing						
Above NMS	4,535	68.8	360	62.7	4,895	68.3
At or below NMS	2,061	31.2	214	37.3	2,275	31.7
Total	6,596	100.0	574	100.0	7,170	100.0
Spelling						
Above NMS	3,777	56.4	316	53.6	4,093	56.2
At or below NMS	2,922	43.6	274	46.4	3,196	43.8
Total	6,699	100.0	590	100.0	7,289	100.0
Grammar & punctuation						
Above NMS	3,860	57.6	309	52.4	4,169	57.2
At or below NMS	2,839	42.4	281	47.6	3,120	42.8
Total	6,699	100.0	590	100.0	7,289	100.0
Numeracy						
Above NMS	3,659	54.9	271	45.9	3,930	54.2
At or below NMS	3,000	45.1	319	54.1	3,319	45.8
Total	6,659	100.0	590	100.0	7,249	100.0

NMS – National Minimum Standard

Academic achievement at age 10

Table 57 shows the prevalence of children performing at or below the national minimum standard (NMS) as measured by the NAPLAN at Year 5 (age ~10 years).

Interpretation

- The patterns evident at age 8 are mirrored at age 10.
- On all NAPLAN domains measured at age 10, children who were not preserved by 36 months were at higher risk of being at or below NMS.
- For example, 63.7% of children who were not preserved by 36 months were at or below the NMS in numeracy compared to 52.9% of children who were preserved.

Table 57: Prevalence of children at or below the national minimum standard for Year 5 NAPLAN, children eligible for preservation cohort in the 'At least one investigation group' by preservation by 36 months

	Preserved by 36 months				Total	
	Yes		No			
	N	col %	N	col %	N	col %
Achievement of Year 5 Students in Reading						
Above NMS	2,745	52.8	202	43.8	2,947	52.0
At or below NMS	2,458	47.2	259	56.2	2,717	48.0
Total	5,203	100.0	461	100.0	5,664	100.0
Writing						
Above NMS	2,613	50.6	187	41.4	2,800	49.8
At or below NMS	2,555	49.4	265	58.6	2,820	50.2
Total	5,168	100.0	452	100.0	5,620	100.0
Spelling						
Above NMS	2,854	54.7	225	49.6	3,079	54.3
At or below NMS	2,362	45.3	229	50.4	2,591	45.7
Total	5,216	100.0	454	100.0	5,670	100.0
Grammar & punctuation						
Above NMS	2,685	51.5	194	42.7	2,879	50.8
At or below NMS	2,531	48.5	260	57.3	2,791	49.2
Total	5,216	100.0	454	100.0	5,670	100.0
Numeracy						
Above NMS	2,421	47.1	166	36.3	2,587	46.3
At or below NMS	2,714	52.9	291	63.7	3,005	53.7
Total	5,135	100.0	457	100.0	5,592	100.0

NMS – National Minimum Standard

Academic achievement at age 12

Table 58 shows the prevalence of children performing at or below the national minimum standard (NMS) as measured by the NAPLAN at Year 7 (age ~12 years).

Interpretation

- The patterns evident at age 8 and 10 are mirrored at age 12.
- On all NAPLAN domains measured at age 12, children who were not preserved by 36 months were at higher risk of being at or below NMS.
- For example, 58.8% of children who were not preserved by 36 months were at or below the NMS in numeracy compared to 50.4% of children who were preserved.

Table 58: Prevalence of children at or below the national minimum standard for Year 7 NAPLAN, children eligible for preservation cohort in the 'At least one investigation group' by preservation at 36 months

	Preserved by 36 months				Total	
	Yes		No			
	N	col %	N	col %	N	col %
Achievement of Year 7 Students in Reading						
Above NMS	1,933	57.6	136	47.4	2,069	56.8
At or below NMS	1,423	42.4	151	52.6	1,574	43.2
Total	3,356	100.0	287	100.0	3,643	100.0
Writing						
Above NMS	1,340	40.1	85	30.2	1,425	39.3
At or below NMS	2,003	59.9	196	69.8	2,199	60.7
Total	3,343	100.0	281	100.0	3,624	100.0
Spelling						
Above NMS	1,986	59.1	149	52.5	2,135	58.5
At or below NMS	1,377	40.9	135	47.5	1,512	41.5
Total	3,363	100.0	284	100.0	3,647	100.0
Grammar & punctuation						
Above NMS	1,774	52.8	125	44.0	1,899	52.1
At or below NMS	1,589	47.2	159	56.0	1,748	47.9
Total	3,363	100.0	284	100.0	3,647	100.0
Numeracy						
Above NMS	1,637	49.6	115	41.2	1,752	48.9
At or below NMS	1,666	50.4	164	58.8	1,830	51.1
Total	3,303	100.0	279	100.0	3,582	100.0

NMS – National Minimum Standard

Academic achievement at age 14

Table 58 shows the prevalence of children performing at or below the national minimum standard (NMS) as measured by the NAPLAN at Year 9 (age ~14 years).

Interpretation

- The patterns evident at age 8, 10 and 12 are mirrored at age 14.
- On all NAPLAN domains measured at age 14, children who were not preserved by 36 months were at higher risk of being at or below NMS.
- For example, 61.9% of children who were not preserved by 36 months were at or below the NMS in numeracy compared to 53.7% of children who were preserved.

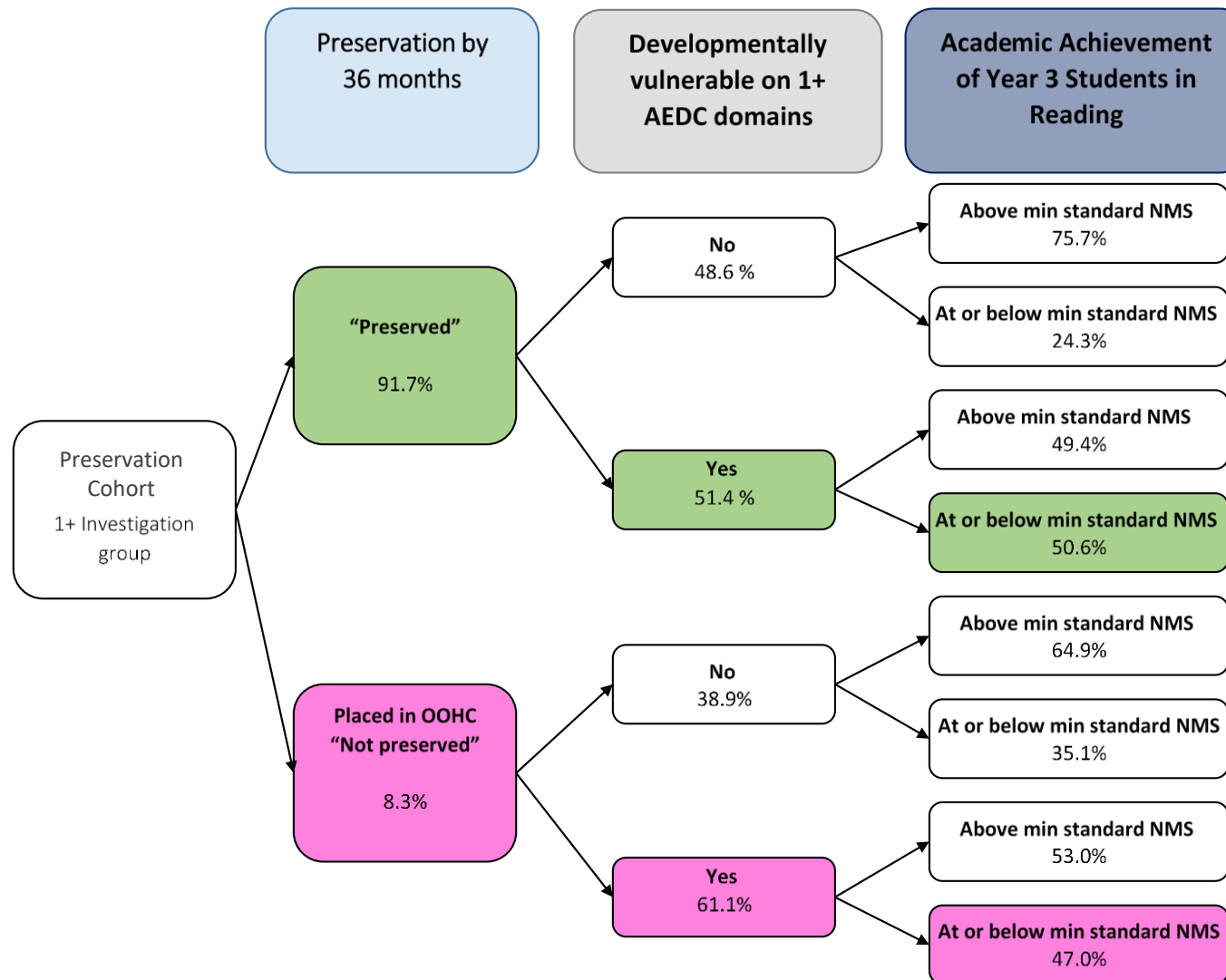
Table 59: Prevalence of children at or below the national minimum standard for Year 9 NAPLAN, children eligible for preservation cohort in the 'At least one investigation group' by preservation by 36 months

	Preserved by 36 months				Total	
	Yes		No			
	N	col %	N	col %	N	col %
Achievement of Year 9 Students in Reading						
Above NMS	645	48.0	40	37.0	685	47.1
At or below NMS	700	52.0	68	63.0	768	52.9
Total	1,345	100.0	108	100.0	1,453	100.0
Writing						
Above NMS	436	32.0	23	20.9	459	31.2
At or below NMS	925	68.0	87	79.1	1,012	68.8
Total	1,361	100.0	110	100.0	1,471	100.0
Spelling						
Above NMS	741	54.0	55	50.0	796	53.7
At or below NMS	630	46.0	55	50.0	685	46.3
Total	1,371	100.0	110	100.0	1,481	100.0
Grammar & punctuation						
Above NMS	567	41.4	28	25.5	595	40.2
At or below NMS	804	58.6	82	74.5	886	59.8
Total	1,371	100.0	110	100.0	1,481	100.0
Numeracy						
Above NMS	609	46.3	43	38.1	652	45.6
At or below NMS	707	53.7	70	61.9	777	54.4
Total	1,316	100.0	113	100.0	1,429	100.0

NMS – National Minimum Standard

Transition from preservation status to AEDC to Year 3 Reading (NAPLAN) (~n=1,500)

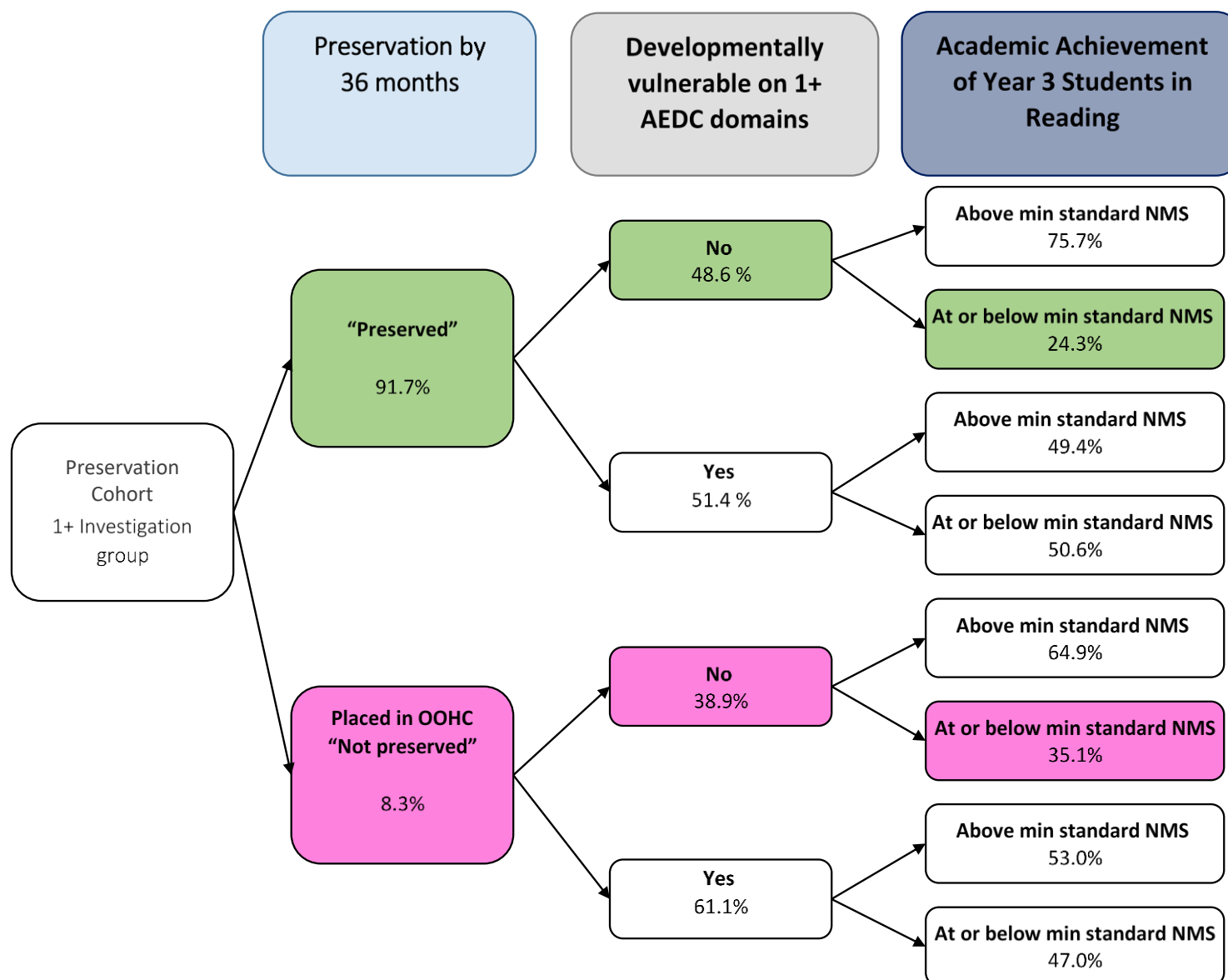
It is not possible to follow any cohort of children from AEDC at age 5 through to year 9 NAPLAN at age 14 because the oldest AEDC cohort is now only 12 years old. Therefore we present transitions for the eligible cohort from AEDC to year 3 NAPLAN (reading and numeracy) and transitions for the eligible cohort from year 5 to year 9 NAPLAN (reading and numeracy).



Interpretation

- IF the child was developmentally vulnerable at age 5, there is little difference in the proportion at or below NMS in year 3 reading (50.6% vs 47.0%) between preserved and not preserved.
- There is no benefit in terms of year 3 reading of being preserved if the child is developmentally vulnerable at age 5.

Figure 2: Transition from preservation status to AEDC to Year 3 Reading (NAPLAN), children eligible for preservation cohort in the 'At least one investigation group' by preservation by 36 months

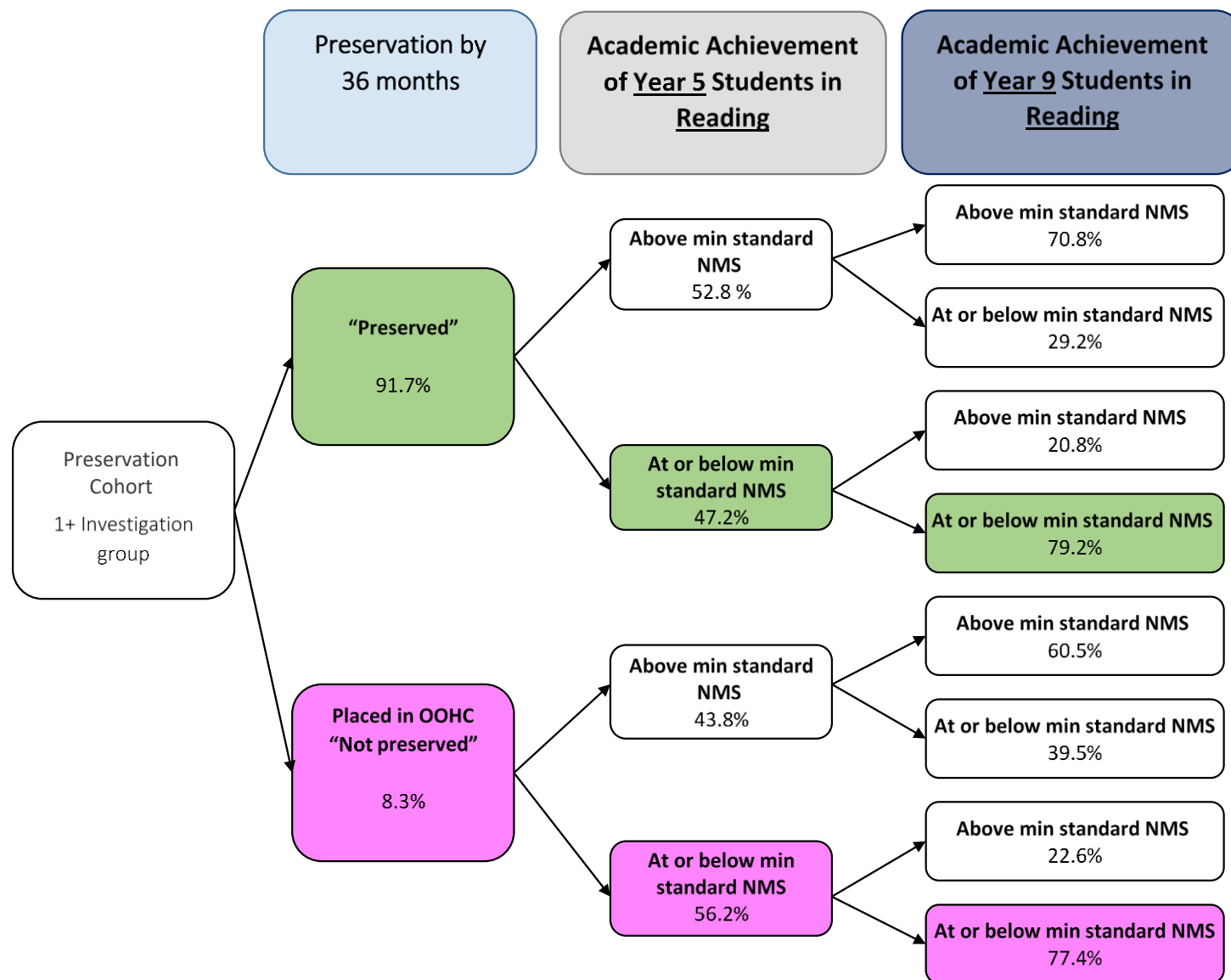


Interpretation

- IF the child was not developmentally vulnerable at age 5, being at or below NMS in year 3 reading was about 10 percentage points higher among those not preserved (35.1% vs 24.3%).
- There is some benefit in terms of year 3 reading of being preserved if the child is **NOT** developmentally vulnerable at age 5.

Figure 2: Transition from preservation status to AEDC to Year 3 Reading (NAPLAN), children eligible for preservation cohort in the 'At least one investigation group' by preservation by 36 months

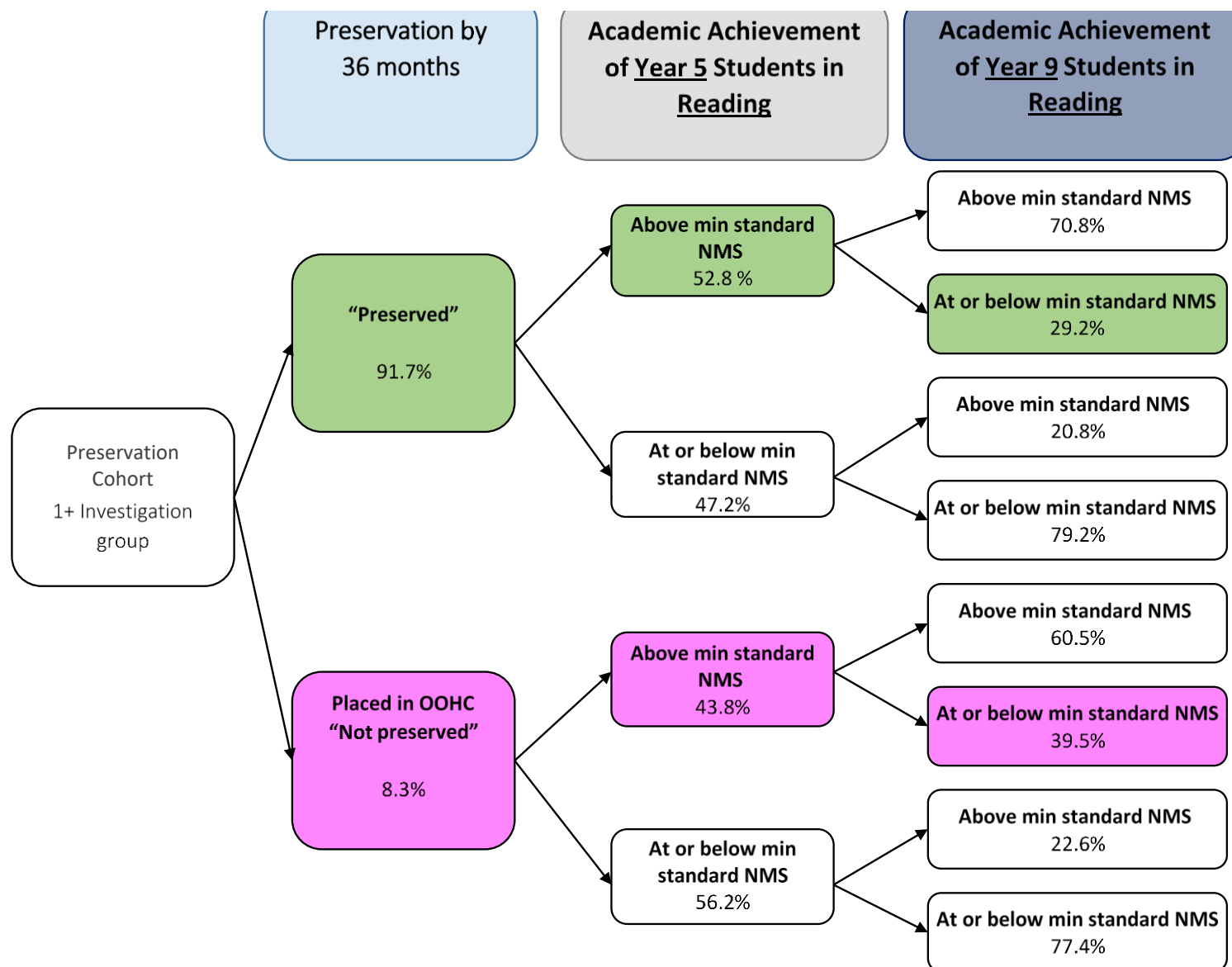
Transition from preservation status to Year 5 reading to Year 9 NAPLAN (~n=1,200)



Interpretation

- **IF** the child was at or below NMS in year 5 reading, there is little difference in the proportion at or below NMS in year 9 reading (79.2% vs 77.4%) between preserved and not preserved.
- There is no benefit in terms of year 9 reading of being preserved if the child at or below NMS in year 5 reading.

Figure 3: Transition from preservation status to Year 5 reading to Year 9 reading (NAPLAN), children eligible for preservation cohort in the 'At least one investigation group' by preservation by 36 months

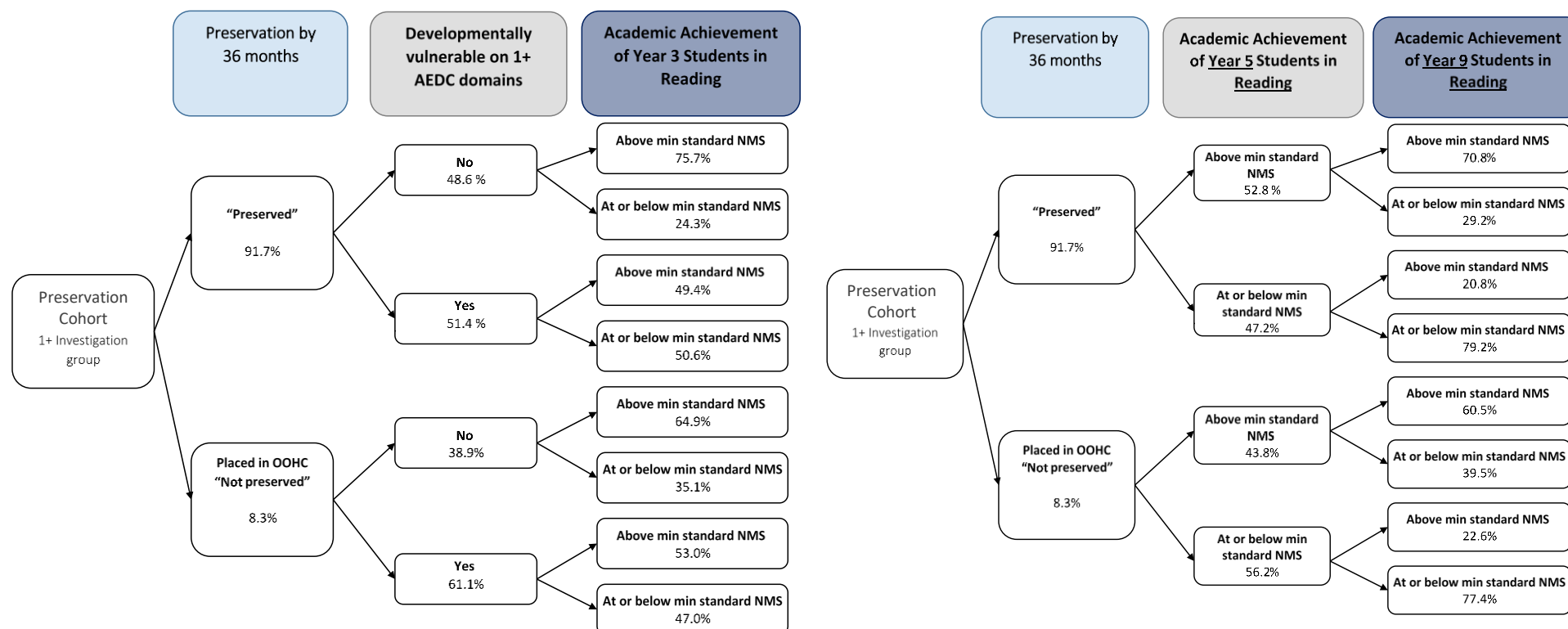


Interpretation

- IF the child was at or below NMS in year 5 reading, being at or below NMS in year 9 reading was about 10 percentage points higher among those not preserved (39.5% vs 29.2%).
- There is some benefit in terms of year 9 reading of being preserved if the child is **NOT** was at or below NMS in year 5 reading.

Figure 3: Transition from preservation status to Year 5 reading to Year 9 reading (NAPLAN), children eligible for preservation cohort in the 'At least one investigation group' by preservation by 36 months

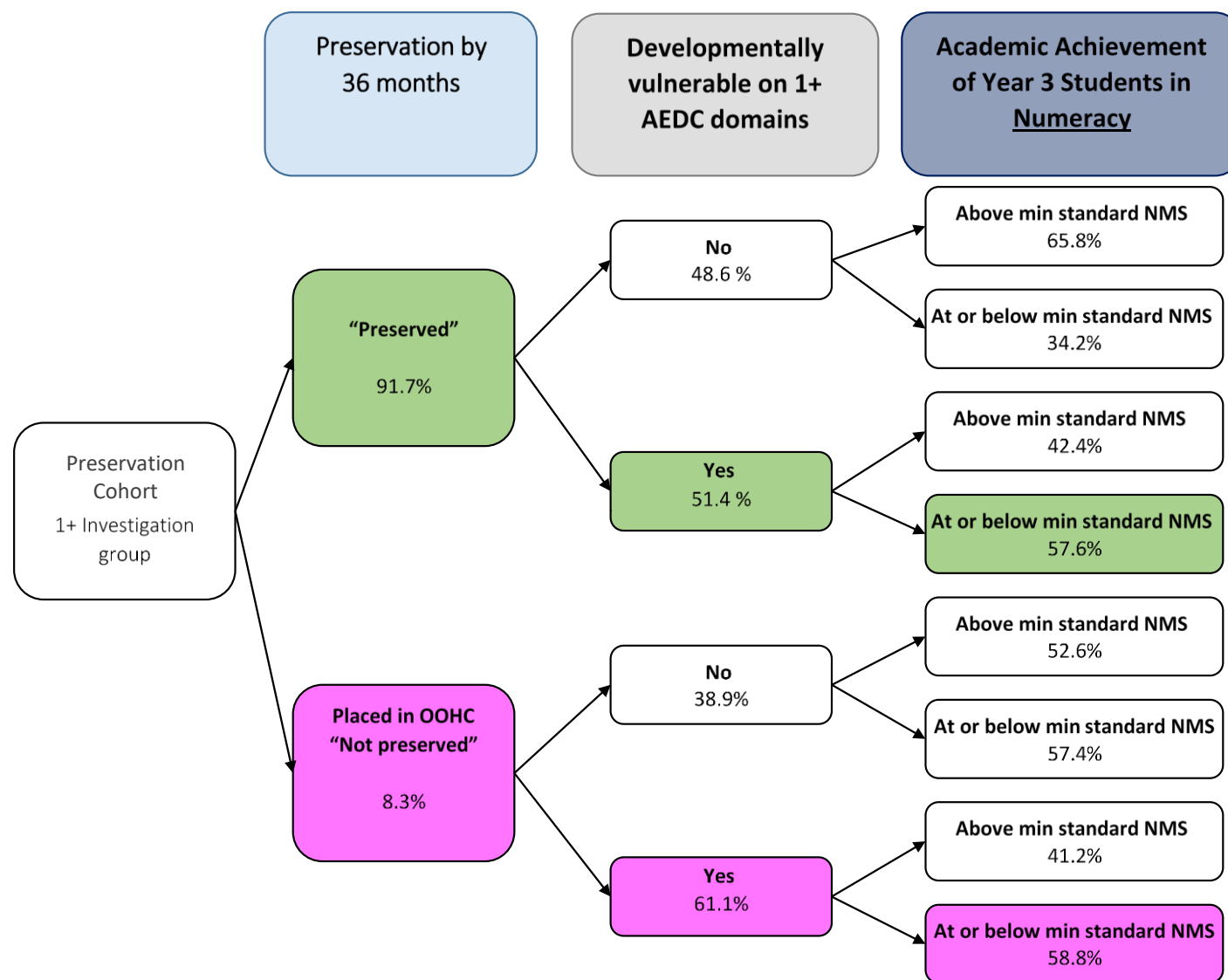
Transition from preservation status to AEDC to Year 3 Reading (NAPLAN) (~n=1,500) and
Transition from preservation status to Year 5 reading to Year 9 NAPLAN (~n=1,200)



Interpretation

- The primary outcome of the intervention is to shift from not preserved to preserved. The transition suggests that by shifting the not preserved to preserved (not preserved/vulnerable 61.1% to preserved/vulnerable 51.4%) would reduce developmental vulnerability at age 5 by ~10%.
- However, if an intervention was able to shift from not preserved/vulnerable to preserved/not vulnerable, then 75.7% of that preserved/not vulnerable group is above NMS in year 3 reading. The transitions from year 5 to 9 suggest that the starting point of academic achievement in year 3 is important in terms of subsequent years in NAPLAN.
- Given that 70% of the eligible cohort is under 3, the ideal preservation intervention should have a specific and measurable focus on ensuring appropriate levels of early childhood development are attained across cognitive, social, emotional and physical domains.

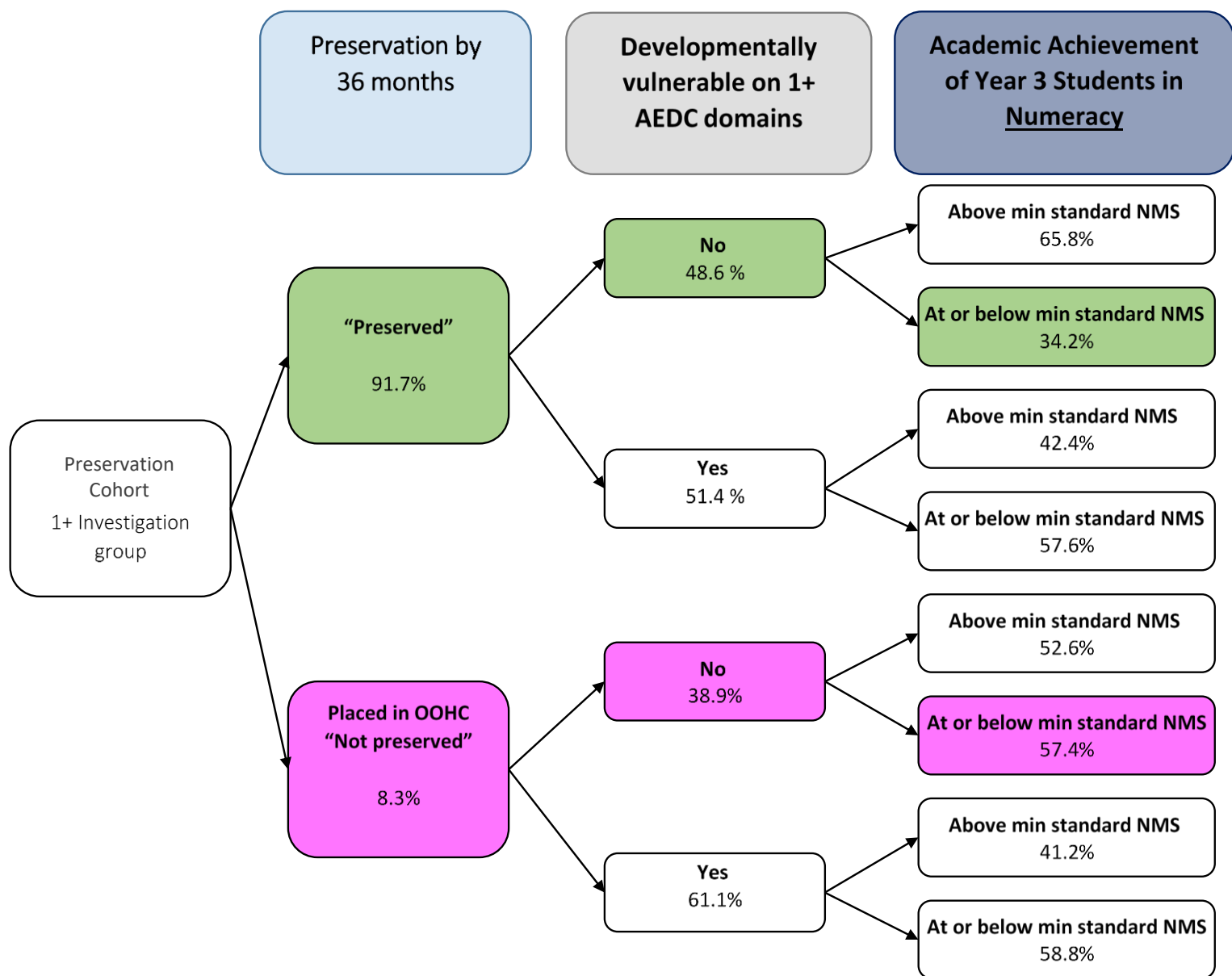
Transition from preservation status to AEDC to Year 3 Numeracy (NAPLAN) (~n=1,500)



Interpretation

- IF the child was developmentally vulnerable at age 5, there is little difference in the proportion at or below NMS in year 3 reading (50.6% vs 47.0%) between preserved and not preserved.
- There is no benefit in terms of year 3 reading of being preserved if the child is developmentally vulnerable at age 5.

Figure 4: Transition from preservation status to AEDC to Year 3 Numeracy (NAPLAN), children eligible for preservation cohort in the 'At least one investigation group' by preservation by 36 months

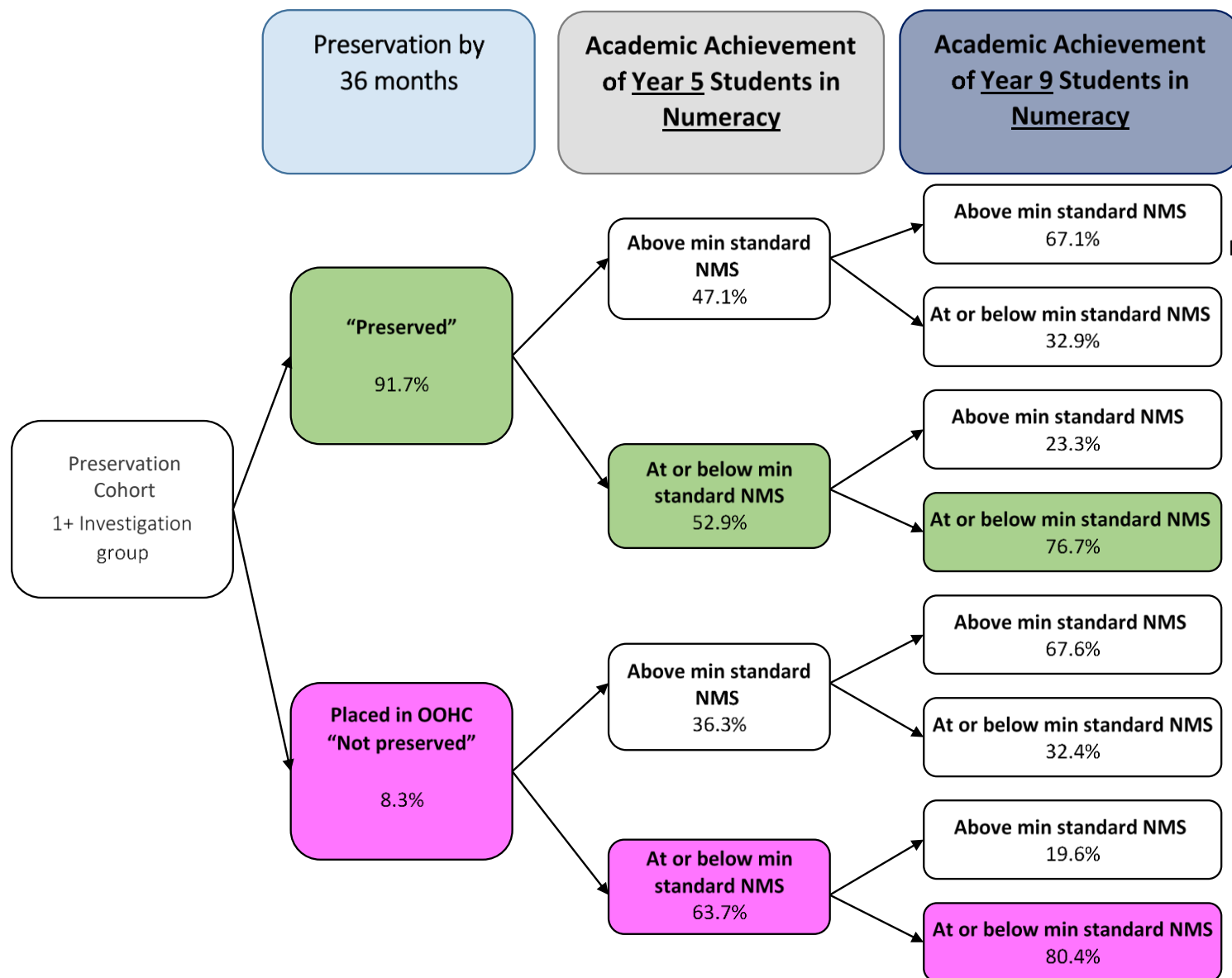


Interpretation

- IF the child was not developmentally vulnerable at age 5, being at or below NMS in year 3 numeracy was about 10 percentage points higher among those not preserved (35.1% vs 24.3%).
- There is some benefit in terms of year 3 numeracy of being preserved if the child is **NOT** developmentally vulnerable at age 5.

Figure 4: Transition from preservation status to AEDC to Year 3 Numeracy (NAPLAN), children eligible for preservation cohort in the 'At least one investigation group' by preservation by 36 months

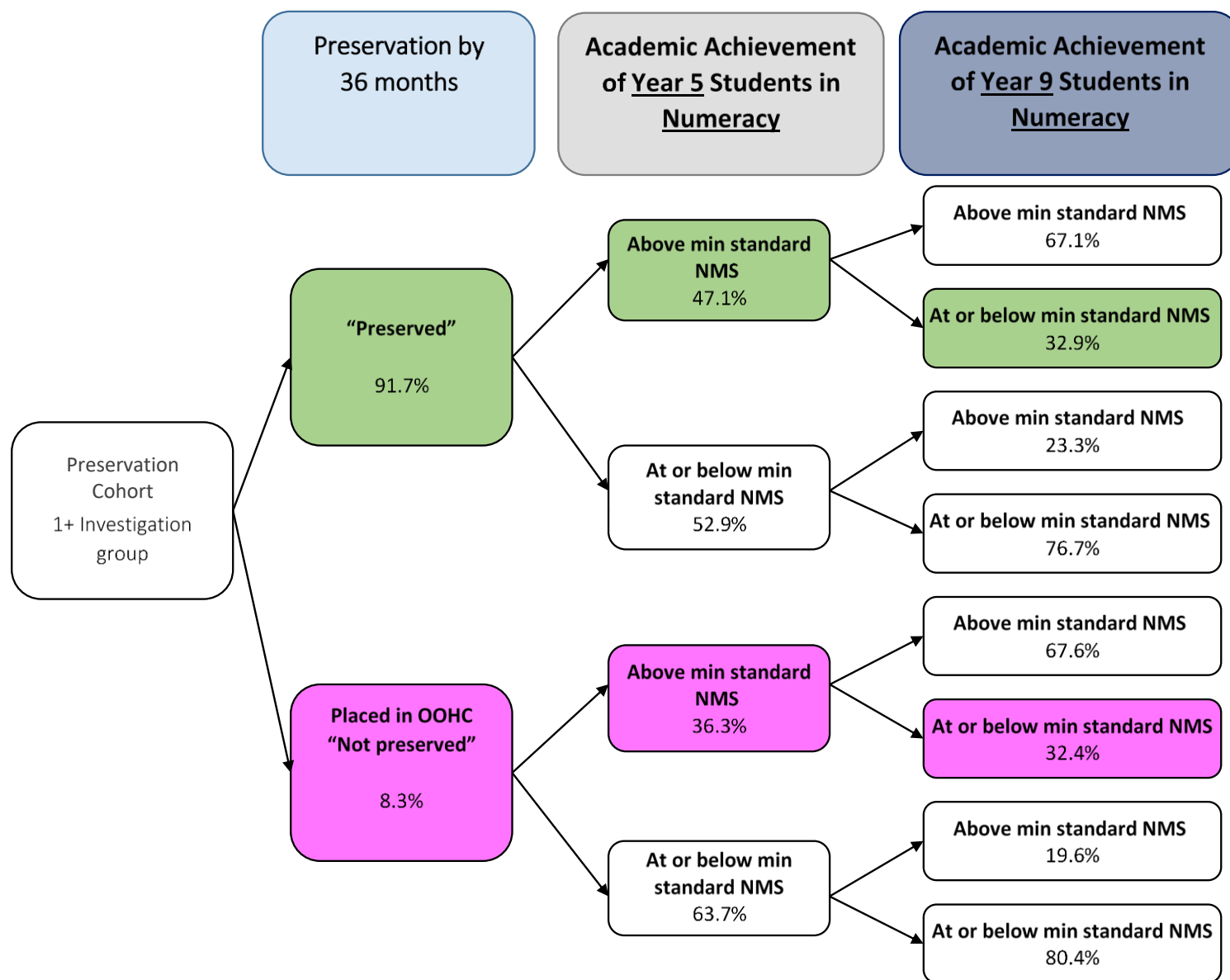
Transition from preservation status to Year 5 Numeracy to Year 9 Numeracy (~n=1,200)



Interpretation

- IF the child was at or below NMS in year 5 Numeracy, there is little difference in the proportion at or below NMS in year 9 numeracy (76.7% vs 80.4%) between preserved and not preserved.
- There is no benefit in terms of year 9 numeracy of being preserved if the child at or below NMS in year 5 numeracy.

Figure 5: Transition from preservation status to Year 5 Numeracy to Year 9 Numeracy (NAPLAN), children eligible for preservation cohort in the 'At least one investigation group' by preservation by 36 months

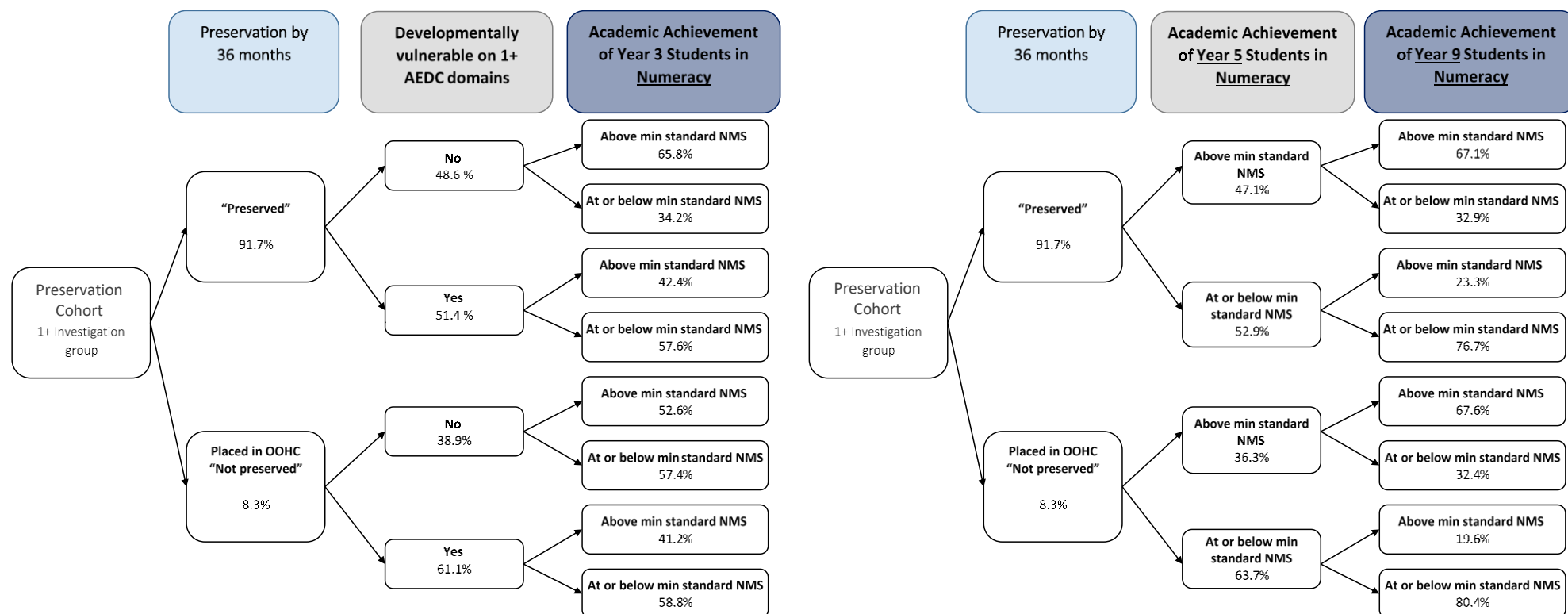


Interpretation

- IF the child was at or below NMS in year 5 numeracy, being at or below NMS in year 9 numeracy was about 10 percentage points higher among those not preserved (39.5% vs 29.2%).
- There is some benefit in terms of year 9 reading of being preserved if the child is **NOT** was at or below NMS in year 5 reading.

Figure 5: Transition from preservation status to Year 5 Numeracy to Year 9 Numeracy (NAPLAN), children eligible for preservation cohort in the 'At least one investigation group' by preservation by 36 months

Transition from preservation status to AEDC to Year 3 Numeracy (NAPLAN) (~n=1,500) and
 Transition from preservation status to Year 5 Numeracy to Year 9 Numeracy (~n=1,200)



Interpretation

- The primary outcome of the intervention is to shift from not preserved to preserved. The transition suggests that by shifting the not preserved to preserved (not preserved/vulnerable 61.1% to preserved/vulnerable 51.4%) would reduce developmental vulnerability at age 5 by ~10%.
- However, if an intervention was able to shift from not preserved/vulnerable to preserved/not vulnerable, then 65.8% of that preserved/not vulnerable group is above NMS in year 3 numeracy. The transitions from year 5 to 9 suggest that the starting point of academic achievement in year 3 is important in terms of subsequent years in NAPLAN.

Part 8. Commonwealth welfare outcomes

Table 60 shows welfare payments received before 18 years of age by preservation status by 36 months, including youth allowance, disability payment, or a parenting-related payment.

Interpretation

- 67.9% received any welfare payment before age 18.
- 84.4% of children who were not preserved received any welfare payment before age 18 compared to 66.5% of children who were preserved.
- 57.1% received a youth allowance payment before age 18.
- 69.9% of children who were not preserved received a youth allowance payment before age 18 compared to 56.0% of children who were preserved.
- Almost 1 in 10 of the eligible cohort have a parenting-related payment before age 18.

Table 60: Welfare payments before age 18, children eligible for preservation cohort in the 'At least one investigation group' by preservation by 36 months

	Preserved by 36 months				Total	
	Yes		No			
	N	col %	N	col %	N	col %
Any welfare payment before age 18						
No	2,893	33.5	115	15.6	3,008	32.1
Yes	5,734	66.5	622	84.4	6,356	67.9
Abstudy/Austudy payment before age 18						
No	7,566	87.7	587	79.6	8,153	87.1
Yes	1,061	12.3	150	20.4	1,211	12.9
Disability payment before age 18						
No	8,093	93.8	658	89.3	8,751	93.5
Yes	534	6.2	79	10.7	613	6.5
Parenting payment before age 18						
No	7,879	91.3	650	88.2	8,529	91.1
Yes	748	8.7	87	11.8	835	8.9
Youth allowance payment before age 18						
No	3,794	44.0	222	30.1	4,016	42.9
Yes	4,833	56.0	515	69.9	5,348	57.1
Total	8,627	100.0	737	100.0	9,364	100.0

Note:

Youth Allowance: Financial help for those aged 24 or younger and a student or Australian Apprentice, or 21 or younger and looking for work.

Abstudy - Financial assistance for Aboriginal or Torres Strait Islander students or apprentices.

Austudy - Financial help for those aged 25 or older and studying or an Australian Apprentice.

Disability Support Pension: Financial help if you have a permanent physical, intellectual or psychiatric condition that stops you from working.

Parenting related payments included: Baby Bonus, Child Care Benefit, Dad and Partner Pay, Family Tax Benefit, Maternity Payment, Parental Leave Pay, Parenting Payment Partnered and Parenting Payment Single

APPENDIX A - Northern Region

Eligible children for the preservation cohort

The number of children that would be eligible for the Preservation cohort living in the Northern area by financial year is presented in Table 61.

Table 61: Northern Region - Number of children eligible for the preservation cohort over time

	UCC		3 or more notifications no investigation		At least one investigation		Total	
	n	Row %	n	Row %	n	Row %	n	Row %
2013/2014	143	13.4	480	44.9	446	41.7	1,069	100.0
2014/2015	181	14.3	803	63.3	285	22.5	1,269	100.0
2015/2016	227	15.9	945	66.4	252	17.7	1,424	100.0
2016/2017	259	19.3	866	64.5	218	16.2	1,343	100.0
2017/2018	301	18.4	1,019	62.4	314	19.2	1,634	100.0
2018/2019	333	17.5	1,234	64.8	337	17.7	1,904	100.0

Characteristics of the preservation cohort - 2016/2017 Northern region (N=1,343)

Table 62: Northern region - Characteristics of children eligible for the preservation cohort 2016/2017

Eligible for preservation cohort	UCC		3 or more notifications no investigation		At least one investigation		Total	
	n	col %	n	col %	n	col %	n	col %
Northern region								
Salisbury LGA	94	36.3	287	33.1	69	31.7	450	33.5
Playford LGA	142	54.8	496	57.3	135	61.9	773	57.6
Tea Tree Gully LGA	23	8.9	83	9.6	14	6.4	120	8.9
Age at first contact in 2016/2017								
Unborn	259	100					259	19.3
Less than 1 year			71	8.2	35	16.1	106	7.9
1 year			89	10.3	16	7.3	105	7.8
2 years			86	9.9	30	13.8	116	8.6
3 years			82	9.5	16	7.3	98	7.3
4 years			75	8.7	30	13.8	105	7.8
5 years			93	10.7	15	6.9	108	8.0
6 years			100	11.5	24	11	124	9.2
7 years			106	12.2	15	6.9	121	9.0
8 years			74	8.5	18	8.3	92	6.9
9 years			90	10.4	19	8.7	109	8.1
Gender								
Male	111	42.9	437	50.5	113	51.8	661	49.2
Female	114	44	429	49.5	105	48.2	648	48.3
Indeterminate	34	13.1	0	0.0	0	0.0	34	2.5
Aboriginal and/or Torres Strait Islander								
Yes	64	24.7	245	28.3	59	27.1	368	27.4
No	151	58.3	#	#	#	#	917	68.3
Don't know	44	17.0	#	#	#	#	58	4.4
Total	259	100.0	866	100.0	218	100.0	1,343	100.0

Preservation rates for the preservation cohort over time – Northern region

Table 63: Northern Region - Children preserved (not in OOHC) from eligibility date to 4, 8, 12, 24 and 36 months for the preservation cohort over time

	Number of children not in OOHC (% preservation rate) by												Total	
	4 months		8 months		12 months		24 months		36 months		6 years		n	Row %
	n	Row %	n	Row %	n	Row %	n	Row %	n	Row %	n	Row %		
Among the ‘UCC’ group														
2013/2014	134	93.7	130	90.9	124	86.7	120	83.9	116	81.1	108	75.5	143	100.0
2014/2015	169	93.4	155	85.6	150	82.9	143	79.0	138	76.2			181	100.0
2015/2016	213	93.8	196	86.3	194	85.5	184	81.1	178	78.4			227	100.0
2016/2017	243	93.8	228	88.0	221	85.3	212	81.9	209	80.7			259	100.0
2017/2018	282	93.7	262	87.0	259	86.0	249	82.7					301	100.0
2018/2019	318	95.5	297	89.2	285	85.6							333	100.0
Among the ‘3 or more notifications no investigation’														
2013/2014	480	100.0	475	99.0	472	98.3	444	92.5	435	90.6	420	87.5	480	100.0
2014/2015	800	99.6	796	99.1	780	97.1	762	94.9	748	93.2			803	100.0
2015/2016	944	99.9	942	99.7	925	97.9	898	95.0	875	92.6			945	100.0
2016/2017	865	99.9	851	98.3	840	97.0	803	92.7	769	88.8			866	100.0
2017/2018	1,018	99.9	1,007	98.8	998	97.9	959	94.1					1,019	100.0
2018/2019	1,234	100.0	1,231	99.8	1,204	97.6							1,234	100.0
Among the ‘at least one investigation’ group														
2013/2014	446	100.0	446	100.0	446	100.0	432	96.9	413	92.6	373	83.6	446	100.0
2014/2015	278	97.5	278	97.5	278	97.5	253	88.8	244	85.6			285	100.0
2015/2016	239	94.8	239	94.8	239	94.8	224	88.9	221	87.7			252	100.0
2016/2017	197	90.4	195	89.4	189	86.7	181	83.0	181	83.0			218	100.0
2017/2018	303	96.5	294	93.6	278	88.5	273	86.9					314	100.0
2018/2019	336	99.7	336	99.7	336	99.7							337	100.0

APPENDIX B - Western Region

Eligible children for the preservation cohort

Table 64: Western region - Number of children eligible for the preservation cohort over time

	UCC		3 or more notifications no investigation		At least one investigation		Total	
	n	Row %	n	Row %	n	Row %	n	Row %
2013/2014	83	13.3	229	36.7	312	50.0	624	100.0
2014/2015	93	14.5	376	58.6	173	26.9	642	100.0
2015/2016	114	16.7	428	62.8	139	20.4	681	100.0
2016/2017	116	17.4	409	61.2	143	21.4	668	100.0
2017/2018	136	17.8	483	63.4	143	18.8	762	100.0
2018/2019	144	16.5	549	62.9	180	20.6	873	100.0

Characteristics of the preservation cohort - 2016/2017 Western region (N=668)

Table 65: Western region - Characteristics of children eligible for the preservation cohort 2016/2017

Eligible for preservation cohort	UCC		3 or more notifications no investigation		At least one investigation		Total	
	n	col %	n	col %	n	col %	n	col %
Western region								
West Torrens LGA	16	13.8	33	8.1	9	6.3	58	8.7
Charles Sturt LGA	33	28.4	167	40.8	73	51.0	273	40.9
Port Adelaide Enfield LGA	67	57.8	209	51.1	61	42.7	337	50.4
Age at first contact in 2016/2017								
Unborn	116	100					116	17.4
Less than 1 year			32	7.8	27	18.9	59	8.8
1 year			36	8.8	11	7.7	47	7.0
2 years			47	11.5	17	11.9	64	9.6
3 years			42	10.3	16	11.2	58	8.7
4 years			42	10.3	8	5.6	50	7.5
5 years			55	13.4	9	6.3	64	9.6
6 years			40	9.8	19	13.3	59	8.8
7 years			37	9.0	9	6.3	46	6.9
8 years			47	11.5	14	9.8	61	9.1
9 years			31	7.6	13	9.1	44	6.6
Gender								
Male	42	36.2	208	50.9	76	53.1	326	48.8
Female	50	43.1	201	49.1	67	46.9	318	47.6
Indeterminate	21	18.1					21	3.1
Aboriginal and/or Torres Strait Islander								
Yes	45	38.8	130	31.8	46	32.2	221	33.1
No	56	48.3	269	65.8	91	63.6	416	62.3
Don't know	15	12.9	10	2.4	6	4.2	31	4.6
Total	116	100.0	409	100.0	143	100.0	668	100.0

Preservation rates for the preservation cohort over time - Western region

Table 66: Western Region – Children preserved (not in OOHC) from eligibility date to 4, 8, 12, 24 and 36 months for the preservation cohort over time

	Number of children not in OOHC (% preservation rate) by												Total	
	4 months		8 months		12 months		24 months		36 months		6 years		n	Row %
	n	Row %	n	Row %	n	Row %	n	Row %	n	Row %	n	Row %		
Among the ‘UCC’ group														
2013/2014	80	96.4	75	90.4	73	88.0	65	78.3	63	75.9	56	67.5	83	100.0
2014/2015	90	96.8	86	92.5	84	90.3	81	87.1	79	84.9			93	100.0
2015/2016	105	92.1	97	85.1	92	80.7	88	77.2	81	71.1			114	100.0
2016/2017	108	93.1	101	87.1	97	83.6	90	77.6	85	73.3			116	100.0
2017/2018	125	91.9	114	83.8	111	81.6	110	80.9					136	100.0
2018/2019	135	93.8	112	77.8	109	75.7							144	100.0
Among the ‘3 or more notifications no investigation’														
2013/2014	228	99.6	228	99.6	226	98.7	219	95.6	217	94.8	199	86.9	229	100.0
2014/2015	376	100.0	375	99.7	374	99.5	363	96.5	355	94.4			376	100.0
2015/2016	427	99.8	426	99.5	420	98.1	408	95.3	391	91.4			428	100.0
2016/2017	408	99.8	406	99.3	404	98.8	382	93.4	374	91.4			409	100.0
2017/2018	482	99.8	472	97.7	467	96.7	453	93.8					483	100.0
2018/2019	542	98.7	532	96.9	524	95.4							549	100.0
Among the ‘at least one investigation’ group														
2013/2014	311	99.7	311	99.7	311	99.7	282	90.4	271	86.9	253	81.1	312	100.0
2014/2015	173	100.0	173	100.0	173	100.0	166	96.0	158	91.3			173	100.0
2015/2016	135	97.1	135	97.1	135	97.1	127	91.4	125	89.9			139	100.0
2016/2017	124	86.7	123	86.0	123	86.0	121	84.6	114	79.7			143	100.0
2017/2018	123	86.0	118	82.5	114	79.7	109	76.2					143	100.0
2018/2019	180	100.0	180	100.0	180	100.0							180	100.0

APPENDIX C - Southern region aged 5 years or less

Preservation rates for the preservation cohort children aged 5 years-old or less - 2016/2017 Southern region

Table 67: Children aged 5 years or less – Children preserved (not in OOHC) from eligibility date to 4, 8, 12, 24 and 36 months, 2016/17 Southern region

	UCC		3 or more notifications no investigation		At least one investigation		Total	
	n	col %	n	col %	n	col %	n	col %
Spent time in OOHC from eligibility to 4 months								
No	151	95.0			211	96.3	362	95.8
Yes	8	5.0			8	3.7	16	4.2
Spent time in OOHC from eligibility to 8 months								
No	140	88.1			207	94.5	347	91.8
Yes	19	11.9			12	5.5	31	8.2
Total	159	100.0			217	100.0	378	100.0
Spent time in OOHC from eligibility to 12 months								
No	137	86.2	343	96.9	237	94.0	685	93.6
Yes	22	13.8	11	3.1	15	6.0	47	6.4
Spent time in OOHC from eligibility to 24 months								
No	127	79.9	330	93.2	217	86.1	643	87.8
Yes	32	20.1	24	6.8	35	13.9	89	12.2
Spent time in OOHC from eligibility to 36 months								
No	125	78.6	318	89.8	207	82.1	620	84.7
Yes	34	21.4	36	10.2	45	17.9	112	15.3
Total	159	100.0	354	100.0	252	100.0	732	100.0

Note: For the follow-up time period - 4 months and 8 months post-eligibility we have only included children in the 'UCC' or 'at least one investigation' group (n=411) due to small numbers in the '3 or more notifications no investigation' group

Preservation rates by LGA for children aged 5 years-old or less in the preservation cohort - 2016/2017 Southern region

Please note given UCC's are all aged under 5, these results replicate those of the earlier analysis.

Table 68: Children aged 5 years or less – Children preserved (not in OOHC) from eligibility date to 4, 8, 12, 24 and 36 months by characteristics, 2016/17 Southern region

	Number of children not in OOHC (% preservation rate) by										Total	
	4 months		8 months		12 months		24 months		36 months		n	Row %
	n	Row %	n	Row %	n	Row %	n	Row %	n	Row %		
Among the 'UCC' group Southern region												
Mitcham LGA	11	100.0	10	90.9	10	90.9	10	90.9	10	90.9	11	100.0
Holdfast Bay LGA	#	#	#	#	#	#	#	#	#	#	#	#
Marion LGA	26	83.9	25	80.6	25	80.6	23	74.2	22	71.0	31	100.0
Onkaparinga LGA	77	97.5	71	89.9	68	86.1	63	79.7	62	78.5	79	100.0
Mount Barker LGA	6	100.0	6	100.0	6	100.0	5	83.3	5	83.3	6	100.0
Murray Bridge LGA	21	95.5	19	86.4	19	86.4	17	77.3	17	77.3	22	100.0
Mid Murray LGA	5	100.0	5	100.0	5	100.0	5	100.0	5	100.0	5	100.0
Total	151	95.0	140	88.1	137	86.2	127	79.9	125	78.6	159	100.0
Among the '3 or more notifications no investigation' Southern region												
Mitcham LGA	19	100.0	19	100.0	19	100.0	16	84.2	16	84.2	19	100.0
Holdfast Bay LGA	11	91.7	11	91.7	10	83.3	9	75.0	9	75.0	12	100.0
Marion LGA	79	98.8	78	97.5	74	92.5	73	91.3	66	82.5	80	100.0
Onkaparinga LGA	220	100.0	220	100.0	217	98.6	209	95.0	204	92.7	220	100.0
Mount Barker LGA	12	100.0	12	100.0	12	100.0	12	100.0	12	100.0	12	100.0
Murray Bridge LGA	#	#	#	#	#	#	#	#	#	#	#	#
Mid Murray LGA	#	#	#	#	#	#	#	#	#	#	#	#
Total	352	99.4	351	99.2	343	96.9	330	93.2	318	89.8	354	100.0

Table 69: Children aged 5 years or less – Children preserved (not in OOHC) from eligibility date to 4, 8, 12, 24 and 36 months by characteristics, 2016/17
Southern region

	Number of children not in OOHC (% preservation rate) by										Total	
	4 months		8 months		12 months		24 months		36 months		n	Row %
	n	Row %	n	Row %	n	Row %	n	Row %	n	Row %		
<i>Among the 'at least one investigation' group</i>												
Southern region												
Mitcham LGA	#	#	#	#	#	#	#	#	#	#	#	#
Holdfast Bay LGA	#	#	#	#	#	#	#	#	#	#	#	#
Marion LGA	18	90.0	18	90.0	18	90.0	16	80.0	15	75.0	20	100.0
Onkaparinga LGA	88	95.7	86	93.5	85	92.4	77	83.7	70	76.1	92	100.0
Mount Barker LGA	16	100.0	14	87.5	13	81.3	11	68.8	11	68.8	16	100.0
Murray Bridge LGA	67	100.0	67	100.0	67	100.0	63	94.0	62	92.5	67	100.0
Mid Murray LGA	17	89.5	17	89.5	17	89.5	14	73.7	14	73.7	19	100.0
Total	211	96.3	207	94.5	205	93.6	186	84.9	177	80.8	219	100.0

Cells redacted due to small cell sizes

3 or more notifications no investigation group n=354

Preservation rates by characteristics for children aged 5 years-old or less – 2016/17 Southern region

Table 70: Children aged 5 years or less – Children preserved (not in OOHC) from eligibility date to 4, 8, 12, 24 and 36 months by characteristics, 2016/17 Southern region

	Number of children not in OOHC (% preservation rate) by										Total	
	4 months		8 months		12 months		24 months		36 months		n	Row %
	n	Row %	n	Row %	n	Row %	n	Row %	n	Row %		
Southern region												
Mitcham LGA	19	100.0	19	100.0	19	100.0	16	84.2	16	84.2	19	100.0
Holdfast Bay LGA	11	91.7	11	91.7	10	83.3	9	75.0	9	75.0	12	100.0
Marion LGA	79	98.8	78	97.5	74	92.5	73	91.3	66	82.5	80	100.0
Onkaparinga LGA	220	100.0	220	100.0	217	98.6	209	95.0	204	92.7	220	100.0
Mount Barker LGA	12	100.0	12	100.0	12	100.0	12	100.0	12	100.0	12	100.0
Murray Bridge LGA	#	#	#	#	#	#	#	#	#	#	#	#
Mid Murray LGA	#	#	#	#	#	#	#	#	#	#	#	#
Age at first contact in 2016/2017												
Less than 1 year	31	96.9	31	96.9	31	96.9	29	90.6	26	81.3	32	100.0
1 year	67	100.0	67	100.0	64	95.5	62	92.5	60	89.6	67	100.0
2 years	49	98.0	49	98.0	48	96.0	43	86.0	41	82.0	50	100.0
3 years	73	100.0	73	100.0	73	100.0	71	97.3	69	94.5	73	100.0
4 years	61	100.0	60	98.4	58	95.1	58	95.1	56	91.8	61	100.0
5 years	71	100.0	71	100.0	69	97.2	67	94.4	66	93.0	71	100.0
Gender												100.0
Male	181	99.5	180	98.9	177	97.3	172	94.5	165	90.7	182	100.0
Female	171	99.4	171	99.4	166	96.5	158	91.9	153	89.0	172	100.0
Aboriginal and/or Torres Strait Islander												
Yes	82	98.8	81	97.6	78	94.0	75	90.4	75	90.4	83	100.0
No	258	99.6	258	99.6	253	97.7	243	93.8	231	89.2	259	100.0
Don't know	12	100.0	12	100.0	12	100.0	12	100.0	12	100.0	12	100.0
Total	352	99.4	351	99.2	343	96.9	330	93.2	318	89.8	354	100.0

At least one investigation group n=219

Preservation rates by characteristics for children aged 5 years-old or less (n=354) – 2016/17 Southern region

Table 71: Children aged 5 years or less – Children preserved (not in OOHC) from eligibility to 4, 8, 12, 24 and 36 months by characteristics, 2016/17 Southern region

	Number of children not in OOHC (% preservation rate) by										Total	
	4 months		8 months		12 months		24 months		36 months		n	Row %
	n	Row %	n	Row %	n	Row %	n	Row %	n	Row %		
Southern region												
Mitcham LGA	#	#	#	#	#	#	#	#	#	#	#	#
Holdfast Bay LGA	#	#	#	#	#	#	#	#	#	#	#	#
Marion LGA	18	90.0	18	90.0	18	90.0	16	80.0	15	75.0	20	100.0
Onkaparinga LGA	88	95.7	86	93.5	85	92.4	77	83.7	70	76.1	92	100.0
Mount Barker LGA	16	100.0	14	87.5	13	81.3	11	68.8	11	68.8	16	100.0
Murray Bridge LGA	67	100.0	67	100.0	67	100.0	63	94.0	62	92.5	67	100.0
Mid Murray LGA	17	89.5	17	89.5	17	89.5	14	73.7	14	73.7	19	100.0
Age at first contact in 2016/2017												
Less than 1 year	52	96.3	50	92.6	49	90.7	44	81.5	43	79.6	54	100.0
1 year	36	92.3	36	92.3	36	92.3	30	76.9	27	69.2	39	100.0
2 years	35	100.0	34	97.1	34	97.1	32	91.4	31	88.6	35	100.0
3 years	33	97.1	32	94.1	32	94.1	29	85.3	28	82.4	34	100.0
4 years	24	96.0	24	96.0	24	96.0	24	96.0	22	88.0	25	100.0
5 years	31	96.9	31	96.9	30	93.8	27	84.4	26	81.3	32	100.0
Gender												
Male	106	98.1	103	95.4	102	94.4	90	83.3	87	80.6	108	100.0
Female	105	94.6	104	93.7	103	92.8	96	86.5	90	81.1	111	100.0
Aboriginal and/or Torres strait Islander												
Yes	54	96.4	54	96.4	54	96.4	50	89.3	49	87.5	56	100.0
No	144	96.0	141	94.0	139	92.7	124	82.7	116	77.3	150	100.0
Don't know	13	100.0	12	92.3	12	92.3	12	92.3	12	92.3	13	100.0
Total	211	96.3	207	94.5	205	93.6	186	84.9	177	80.8	219	100.0

Cells redacted due to small cell numbers