NSW GOVERNMENT | Their Futures Matter

Forecasting Future Outcomes

Stronger Communities Investment Unit — 2018 Insights Report

TAYLOR FRY

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Key terms and acronyms

ACRONYM / TERM	DEFINITION
Aboriginal	Aboriginal and/or Torres Strait Islander
AIHW	Australian Institute for Health and Welfare
AOD	Alcohol and other drugs
CHeReL	Centre for Health Record Linkage
Concern report	Child wellbeing concern or child protection report
CP	Child Protection
CYP	Children and Young People
DAC	NSW Data Analytics Centre
Estimated future cost	Estimated future fiscal costs to the NSW and Commonwealth Governments associated with the provision of key government services
FACS	NSW Department of Family and Community Services
FACSIAR	FACS Insights, Analysis and Research
HSC	Higher School Certificate
MBS	Medicare Benefits Schedule
MH	Mental Health services funded by the NSW Government
NAPLAN	National Assessment Program — Literacy and Numeracy
NAPLAN band	NAPLAN results for an individual are summarised as the lowest band awarded across reading and numeracy
Next gen OOHC	Refers to children of the study population entering out-of-home-care (OOHC) in the future and associated intergenerational costs
OOHC	Out-of-home-care refers to children and young people who, for their safety, need to live at a different place and with a different caregiver OOHC placements can be emergency, short-term or long-term[1]
Parental risk factors	Indicators associated with parental domestic violence, mental health, AOD and interactions with the justice system See *Section 3.3 — Approach to modelling social outcomes and service use* (p 35)
Pathway	The pattern of service use and outcomes, summarised on a quarterly basis, for an individual up to age 40
PBS	Pharmaceutical Benefits Scheme
Perinatal risk factors	Risk factors present immediately before and/or after birth See *Section 3.2 — Approach to modelling social outcomes and service use* (p 33)

1 https://www facs nsw gov au/resources/statistics/glossary

ACRONYM / TERM	DEFINITION
PIA	Priority Investment Approach
PRA	Private Rental Assistance provides financial assistance for eligible clients to help them set up or maintain a tenancy in the private rental market
RAM	Resource Allocation Model for NSW Government schools[2]
Restoration	Restoration occurs when a child or young person returns to live in the care of their parents permanently
ROSH	Risk of Significant Harm: A child or young person is assessed as at ROSH if the circumstances that are causing concern for the safety, welfare or wellbeing of the child or young person are present to a significant extent This means it is sufficiently serious to warrant a response by a statutory authority, irrespective of a family's consent [3]
ROSH+	A person who has been assessed at ROSH and has undergone a SARA and/or has entered OOHC
SARA	Safety Assessment, Risk Assessment and Risk Reassessment represent three distinct tools used by the caseworkers:[4] • **the safety assessment tool is used to determine whether there are any immediate dangers of significant harm to a child and what interventions should be put in place to provide immediate protection** • **the risk assessment tool is used to classify families into low, moderate, high and very high-risk groups to determine the likelihood of future abuse or neglect of a child. This information is used to guide decisions about whether cases should be opened for ongoing services or not** • **the risk reassessment is used periodically to assess any changes to the family's risk level in order to guide decisions about whether the case can be closed or if services should continue** Where the term SARA is used it also includes Secondary Assessment Stage 2 (SAS2)
Social housing	In NSW social housing refers to public, community and Aboriginal housing However, where referenced in this report it includes Public Housing and Aboriginal Housing Office tenancies but excludes Community Housing due to data availability
Socio-economic decile	References to socio-economic decile are based on the Socio-Economic Indexes for Areas (SEIFA) deciles produced by the Australian Bureau of Statistics (ABS) at the postcode level
Study population	All NSW children and young people aged under 25 at 30 June 2017
SURE	Secure Unified Research Environment, provided by the Sax Institute — a platform for accessing Department of Social Services data
TFM	Their Futures Matter
Unexpected government school move	Moves between government schools excluding transitions from infants to primary, and from primary to secondary

2 https://data cese nsw gov au/data/data set/resource-allocation-model
3 https://www facs nsw gov au/resources/statistics/glossary
4 https://www facs nsw gov au/resources/statistics/glossary

ACRONYM / TERM	DEFINITION
Welfare	The following categories of welfare payments are included in the estimated future cost projection:[5] • **Disability Support Pension** • **Family Tax Benefit** • **Working age payments, predominantly Newstart Allowance and Youth Allowance** • **Carer Payment and allowances** • **Other family payments, including child care and parental leave** • **Parenting Payment** • **Student payments, including Austudy, ABSTUDY and Youth Allowance**
Young adolescents	People aged 10 to 14
Young children	People aged 5 or younger
Young mother	Females who give birth aged 21 or younger
Young people	People aged between 16 and 24

5 https://www dss gov au/review-of-australias-welfare-system/australian-priority-investment-approach-to-welfare/australian-seri-investment-approach-to-welfare-infographic

Section 1

Executive Summary

1.1 Background

Modelling to support an investment approach in NSW

In November 2015, the NSW Government commissioned Mr David Tune to conduct an independent review of the out of home care (OOHC) system, in response to the growth of the OOHC population and continuing poor outcomes for the most vulnerable children and their families The NSW Government released its response to the Tune Review in November 2016, termed Their Futures Matter

Their Futures Matter is a landmark reform of the NSW Government to deliver improved outcomes for vulnerable children, young people and their families The vision of Their Futures Matter is to create a service system that delivers coordinated, wrap-around[6] and evidence-based supports for children and families to transform their social outcomes

Central to this vision is an investment approach that will direct and prioritise whole-of-government funding to deliver prioritised solutions that achieve measurable and meaningful outcomes An actuarial model of future outcomes and costs of providing key government services to children and young people in NSW underpins the investment approach Their Futures Matter (TFM) has commissioned Taylor Fry to build this actuarial model (TFM Investment Model or the model) and to assist with the identification of vulnerable groups who are likely to have poorer outcomes Vulnerable groups will be prioritised through the implementation of coordinated, wrap-around and evidence-based supports

1.2 Purpose of this report

This report, which was authored by Taylor Fry with support from TFM and stakeholder agencies, presents key results and insights from the TFM Investment Model

The purpose of the report is to define groups of vulnerable children and young people and highlight the poor social outcomes and high government service and support costs needed to address the needs of these groups The report examines the personal and family characteristics that drive the social outcomes of individuals in these groups, and points out the interdependencies between service use

The report is an important input into the work of Their Futures Matter It is intended to support business cases for new policies and interventions aimed at improving outcomes for vulnerable children Subsequent work by Their Futures matter will begin to analyse root causes of vulnerability and analyse the potential policy implications of this analysis

6 Wrap-around is a method of engaging with children and youth with the highest levels of mental health needs, and their families, so that they can live in their homes and communities and realize their dreams For further information, visit the National Wraparound Initiative website at https://nwi pdx edu/

In this report, the estimated future cost of delivering government services for each of the identified vulnerable groups is analysed against those of a comparison group However, the differences in the costs of services seen in these comparisons should not be interpreted as savings to be realised in full if new policies or interventions are introduced to target these groups Identifying and assessing the expected impact of potential policies and interventions is beyond the scope of this report In addition, while the necessity of delivering government services to vulnerable groups is acknowledged, the question of whether the costs incurred by vulnerable groups are appropriate is not assessed

1.3 Data and modelling limitations

The model and the insights presented in this report should only be used for the purposes described in *Section 1.2* and *Section 3.3.*

We have relied on the accuracy and completeness of the data, as provided by the various government departments and agencies, and released to Taylor Fry after record linkage by the Centre for Health Record Linkage (CHeReL) This means our model may be biased to the extent that the data is not accurate and complete

There is inherent uncertainty in models based on past data to predict the future There are some data limitations in this study which have added to this uncertainty In particular:

- Historical data on past service use was only available for individuals up to age 27. Service use from age 27 to 40 was based on an approximate extrapolation method.
- Individual linked data for Commonwealth services was unavailable and so projections for these services include additional uncertainty.

The service use, outcome and cost estimates in this report are inherently uncertain and will be impacted by government policy and operations and individual behavioural changes in the future However, the differences in service use that we have forecast for the groups presented in this report are based on statistically significant differences in historical service use patterns As such, our estimates provide an evidence-based view of relative outcomes and cost of services, if the current government policy and operational environments remains unchanged

For this analysis, all next generation OOHC costs have been fully attributed to the mother and not the father as the identity of the father is not known for many vulnerable children This decision makes it easier to compare outcomes across groups, however it does not mean that fathers should be ignored when developing targeted solutions to tackle the intergenerational transmission of vulnerability

Further details in relation to data and modelling limitations can be found in *Section 10.* The full report, and *Section 10* in particular, should be read before using the results of this report

1.4 About the TFM Investment Model

What are the main uses for the TFM Investment Model?

The TFM Investment Model has three key uses:

1. to help define vulnerable groups that are expected to require a high level of government services and supports in the future and are therefore likely to have a high level of future costs for key government services. High estimated future costs of government services for these vulnerable groups tend to be associated with poor social outcomes and provide a good indication or proxy of vulnerability. Note that this analysis has limitations, as it is possible that some vulnerable people are missed by government service data (for example, those who have limited or no engagement with government services) and other indicators will be required to capture them
2. to provide Their Futures Matter with long-term cost of services estimates to support the business cases for new policies and interventions aimed at improving outcomes for vulnerable children
3. to allow Their Futures Matter to monitor and evaluate the effectiveness of the new approach to service delivery.

What does the model do?

The model uses the TFM Human Services Data Set to forecast social outcomes and future service use pathways The TFM Human Services Data Set is a NSW Government linked administrative data set

The model also estimates the future cost of government service use

Which services and supports are included in the TFM Investment Model?

At a high level, the service streams included in the model are child protection, housing, justice, health, education, mental health, alcohol and other drugs and those concerning parental risk factors Commonwealth services included are welfare, MBS (Medical Benefits Schedule) and PBS (Pharmaceutical Benefits Scheme) Refer to p 37 for a full list of services and supports that have been included in the TFM Investment Model

Who is included in the TFM Investment Model?

All NSW residents that were aged under 25 on 30 June 2017 are included in the TFM Investment Model This includes all people born in NSW, and those born out of NSW whose service use history indicates they have been NSW residents at some time

By projecting the whole population of young people, we can define who is most vulnerable, compare them to the rest of the young people of NSW, and evaluate outcomes of new approaches

Future new entrants into the system have not been included in our projection

Representation of Aboriginal people

Their Futures Matter acknowledges and honours Aboriginal people as our First Nations People of New South Wales and is committed to working with its government partners and a newly established Aboriginal Consultative Committee to ensure that Aboriginal children, young people, families and communities are supported and empowered to improve their life outcomes The information in this report will be used to improve how services and supports are designed and delivered in partnership with Aboriginal people and communities

This report quantifies data in terms of size of populations, and average and future projected service usage costs to Government based on the current Government policy and operational settings

In the vulnerable groups defined in this report, Aboriginal people are over-represented in comparison to the relative population It should be noted that the data presented does not take into account the broader contributing factors, such as cultural, social or economic impacts and injustices, and historical impacts of past laws, policies and practices enforced upon Aboriginal people

What is meant by 'estimated future costs'?

Estimated future costs are estimated future fiscal costs to the NSW and Commonwealth Governments associated with the provision of key government services It does not include personal financial costs or intangible costs

The estimates cover the cost of key government services provided by different human services departments and agencies including:

- NSW Department of Family and Community Services
- NSW Department of Justice
- Legal Aid NSW
- NSW Ministry of Health
- NSW Ambulance
- NSW Department of Education
- Australian Government, Department of Social Services
- Australian Government, Department of Health.

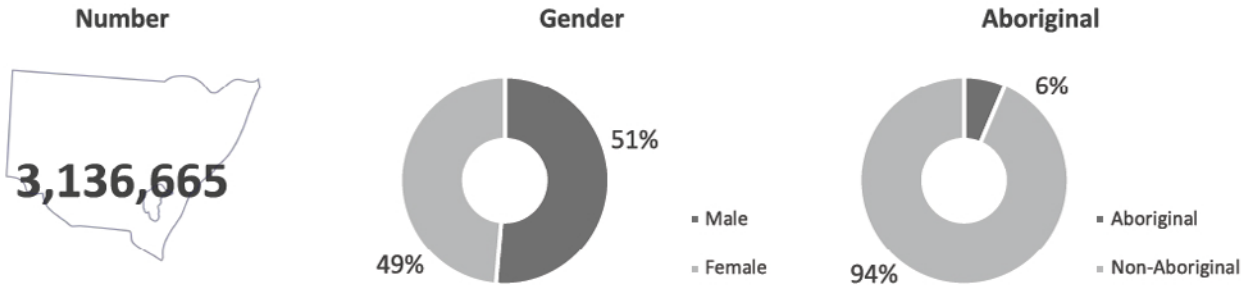
The specific government services in scope are detailed in *Section 3.3.*

This report focuses on estimated future costs, as these are the costs that can be influenced by future government policy Costs (as well as service use and social outcomes) are projected from an individual's current age up to age 40 This means that depending on their current age, the services and support accessed by each individual will have a different number of years of projected costs So, in general, the average future costs of younger groups will be higher than those of older groups, all other things being equal Because of this, the estimated future costs of each vulnerable group are always compared to a comparison group that is age-matched

Further information around costs can be found in the technical appendices which may be available on request

1.5 Population-level results

Our study population is all NSW children and young people aged under 25 as at 30 June 2017

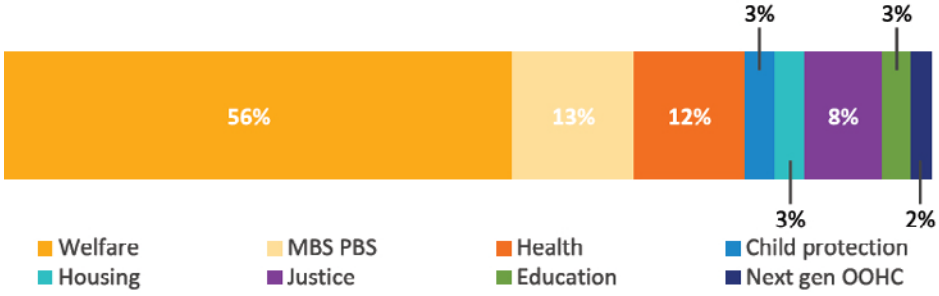


The model forecasts this group will cost the NSW and Commonwealth governments $428B for key human services they use up to age 40

The estimates cover the cost of many government services provided by different departments However, the model is not intended to include all government human services costs, but rather those costs that the government can influence or reduce in the future through appropriate prevention programs For example, most education costs are not included because these costs would be considered investments themselves rather than costs that can be avoided through appropriate prevention programs These are also costs for services received by the majority of residents across NSW regardless of their circumstances

	NSW Born[7]	Migrated[8]	Everyone
Total number of people	2.3M	0.8M	3.1M
Total estimated future cost	$332B	$96B	$428B
Average estimated future cost	$143k	$117k	$136k

Welfare is the largest component of estimated future cost[9]



MBS PBS = Medicare Benefits Scheme and Pharmaceutical Benefits Scheme
Next gen OOHC = Next generation out-of-home-care

7 Some of this group of people are no longer NSW residents, but are still included for modelling purposes

8 The costs for those who have migrated to NSW are lower than NSW-born individuals This is for two reasons:
- people who migrate to NSW have a lower average level of service use compared to those born in NSW
- our estimates are too low for those who have migrated, as we are missing their full administrative data history

9 Health costs relate to key NSW Government funded services

1.6 Concentration of estimated future cost in the NSW population

Estimated future cost for NSW services is highly concentrated in the study population[10]

7% of the study population make up

50% of the estimated future cost for key NSW services

Estimated future cost is particularly concentrated in some sectors

1% of the study population make up

32% of the estimated future cost for NSW justice services

1% of children currently aged 5 and under make up

45% of the estimated future cost for NSW child protection services for children currently aged 5 and under

5% of females make up

Almost 100% of the estimated future cost for next generation out-of-home-care[11]

Early education outcomes can have lasting impacts on future outcomes

Of the children in the lowest Year 3 NAPLAN band, **47%** are expected to complete their Higher School Certificate[12]

This compares to **89%** of the children in the highest Year 3 NAPLAN band

10 Based on NSW born population only

11 For this analysis all next generation OOHC costs have been fully attributed to the mother and not the father as the identity of the father is not known for many vulnerable children

12 NAPLAN results for an individual are summarised as the lowest band awarded across reading and numeracy, only

1.7 Introducing the vulnerable groups in the NSW population

Defining the vulnerable groups

Of those born in NSW, Taylor Fry has defined six vulnerable groups for TFM to prioritise in the design and implementation of new support systems:

- these groups have been chosen to cover a wide range of vulnerable people
- they have also been chosen based around a person's life stage — because the needs of an individual and the agencies with which they interact can vary significantly by life stage
- the vulnerable groups are forecast to have high cost of services in the future. High estimated future costs tend to be associated with poor social outcomes and hence provide a good indication of vulnerability
- individuals can be in more than one group (for example, a *Vulnerable young person transitioning to adulthood could also be a Young person affected by mental illness*).

Within each vulnerable group Taylor Fry has identified the characteristics of those individuals who are likely to have the highest estimated future cost of service provision and support and the poorest social outcomes This will allow the prioritisation of individuals or groups with particular characteristics within each vulnerable group *Section 6* (p 59) to *Section 9* (p 169) show how estimated future costs and social outcomes can vary within each vulnerable group

Who are the vulnerable groups?

Vulnerable young children aged 0–5	Children born in NSW aged 5 or younger at 30 June 2017 with any of the following risk factors: • **one or more parental risk factors** [13] • **two or more perinatal risk factors** [14] • **assessment at ROSH+**
Vulnerable young adolescents	Anyone born in NSW who was aged between 10 and 14 at 30 June 2017 with any of the following risk factors in the five years prior: • **one or more parental risk factors** • **interactions with the justice system**[15] • **assessment at ROSH+**
Vulnerable young people transitioning to adulthood	Anyone born in NSW who was aged between 16 and 18 at 30 June 2017 with any of the following risk factors in the five years prior: • **interactions with the justice system** • **assessment at ROSH+**
Young mothers and their children	Females born in NSW aged 21 or younger at 30 June 2017 with at least one child, and their children
Children and young people affected by mental illness	Anyone born in NSW who was aged 18 or younger at 30 June 2017 with any of the following risk factors in the five years prior: • **use of NSW mental health services (hospital or ambulatory)** • **parents use of NSW mental health services (hospital or ambulatory)**
1,000 individuals with highest estimated service cost	The 1,000 individuals born in NSW with the highest estimated future cost

13 There are five parental risk factors that flag interaction with the justice system AOD issues, domestic violence, or mental illness They include parent in custody, parent interaction with justice, proven AOD related offence or AOD hospital admission, and proven domestic violence related offence or victim of domestic violence, treatment for mental health in NSW hospital or ambulatory services

14 Perinatal risk factors include: Flag for maternal smoking during pregnancy, flag for admitted to Special care Nursery or Neonatal Intensive Care, flag for admitted to Special care Nursery or Neonatal Intensive Care due to a birth defect, gestational age was between 0 and 36 weeks (inclusive) or greater than 41 weeks, birth weight was less than 2500g, APGAR score at 5 minutes was between 0 and 6 (inclusive), first visit to antenatal care was later than 14 weeks into pregnancy

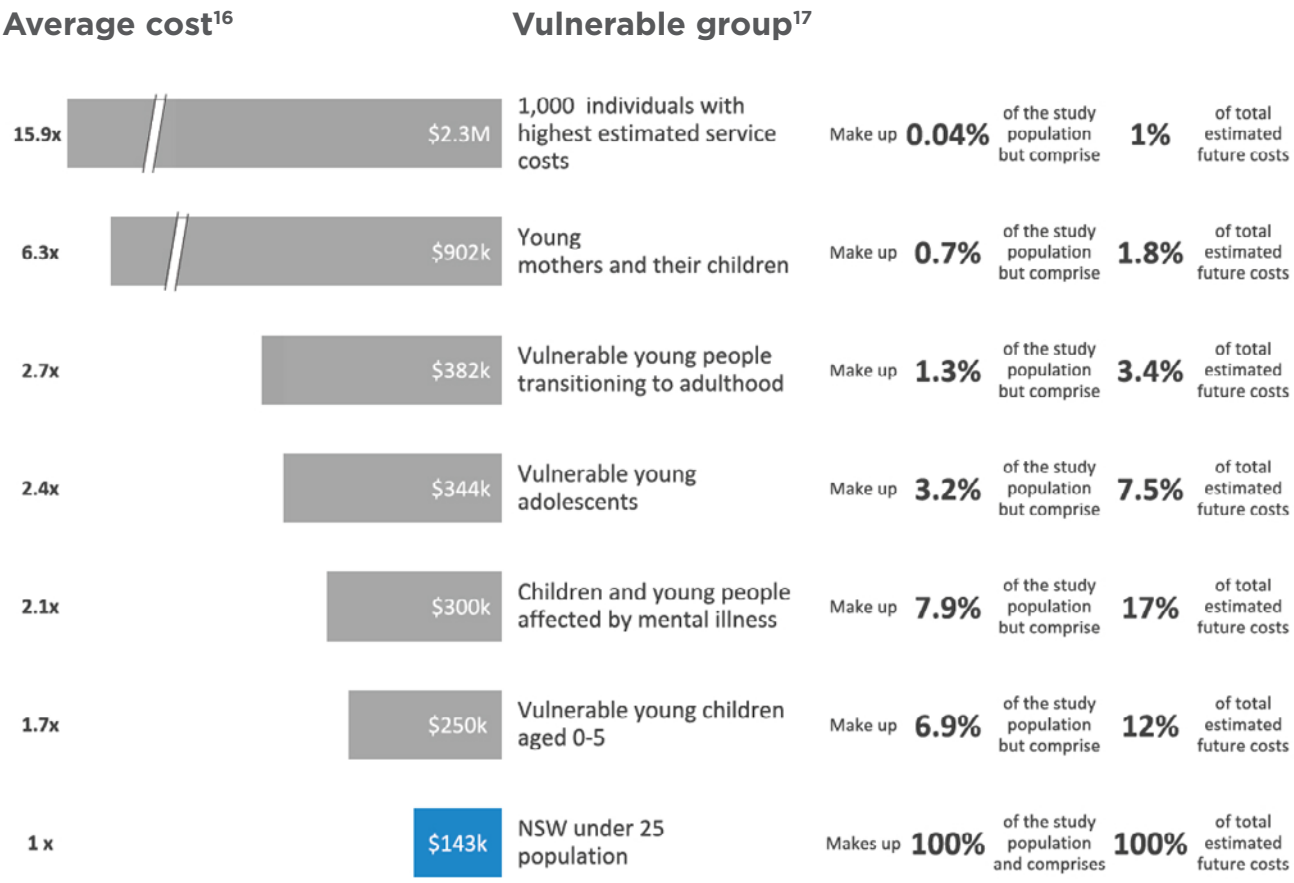
15 Interaction with the justice system includes having an episode of custody, a recorded court finalisation for an offence, a juvenile caution or participating in a youth justice conference

1.8 Vulnerable groups — the spread of estimated future cost

Vulnerable groups have a high average estimated future cost relative to the NSW under 25 population

The following figure illustrates that the vulnerable groups have a high average estimated future cost relative to the NSW under 25 population Each bar represents the average cost of individuals in each group and the multipliers on the left of the figure show the average cost relative to the NSW under 25 population For example, the 1,000 individuals with highest service costs have an average estimated future cost of $2 3M which is 15 9x the average estimated future cost of the under 25 population

In this figure, the average estimated future cost of each vulnerable group is compared to the NSW under 25 population for simplicity and to make the simple point that the vulnerable groups have a high average estimated future cost In *Section 6* (p 59) to *Section 9* (p 169) the average cost of services of each vulnerable group is compared to an age and gender matched NSW population group in order to provide a more appropriate comparison



16 The average cost of 'Young mothers and their children' includes the service use costs of the young mothers and their current children, as well as the OOHC costs of their future children Estimates of average cost for other vulnerable groups allow for the OOHC costs of the current and future children of those in the group

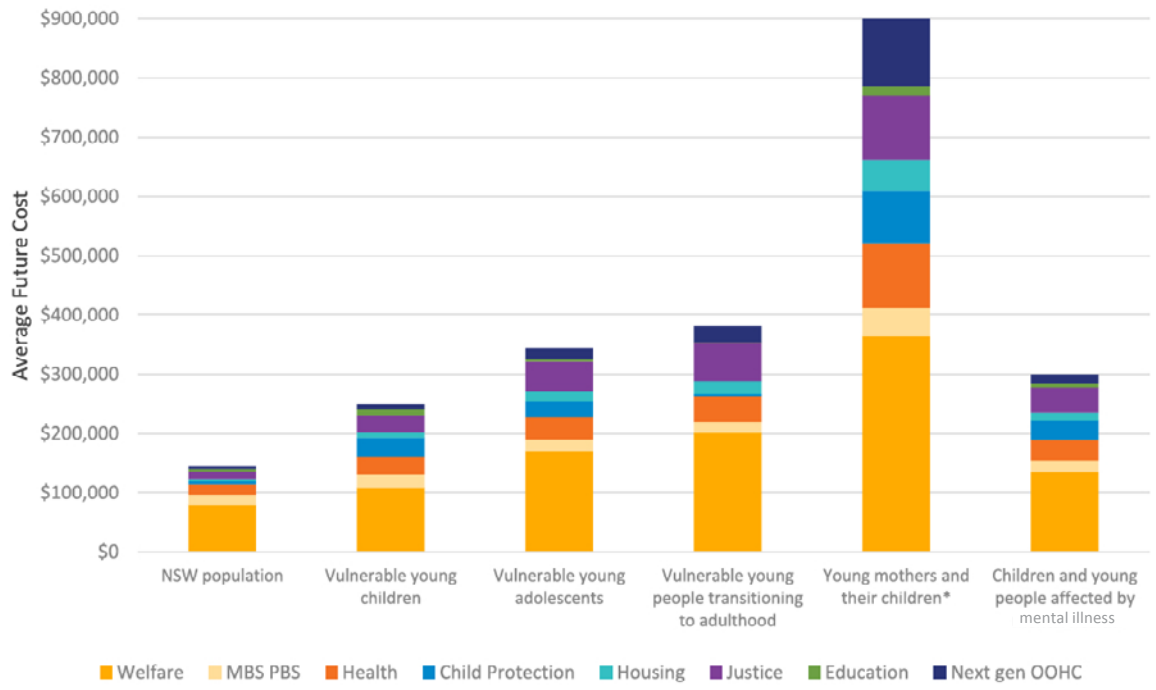
17 Vulnerable groups based on those born in NSW only

1.9 Vulnerable groups — the spread of service use across agencies

Relative to the NSW average, vulnerable groups exhibit high service use across all service types

The precise mix of future service use in these groups depends on the age profile, gender profile, and other characteristics within the group

For example, the group Young mothers and their children shows a particularly high cost of services related to next generation OOHC, reflecting the fact that the mothers are vulnerable young parents, but also in part due to the fact that all next generation OOHC cost of services have been attached to the mother (and not the father)



* The average cost of the group, Young mothers and their children includes the service use costs of the young mothers and their current children, as well as the OOHC costs of their future children Estimates of average cost for other vulnerable groups allow for the OOHC costs of the current and future children of those in the group

Comparison of total estimated future cost of each vulnerable group to its comparison group

GROUP	COST	COMPARISON	DIFFERENCE
Children and young people affected by mental illness	**$55B**	**$32B**	**$23B**
Vulnerable young children aged 0–5	**$40B**	**$24B**	**$16B**
Vulnerable young adolescents	**$25B**	**$12B**	**$14B**
Vulnerable young people transitioning to adulthood	**$11.5B**	**$4.4B**	**$7.1B**
Young mothers and their children	**$6.1B**	**$3.7B**	**$2.4B**
1,000 individuals with highest estimated service costs	**$2.3B**	**$0.4B**	**$1.9B**

1.10 Social outcomes across the vulnerable groups

Along with forecasting the estimated future cost, the model also projects future social outcomes

In addition to estimated future costs, the model also uses the TFM Human Services Data Set to forecast social outcomes and future service use pathways under current policy and operational settings
The service streams which are included in our model include:

- Child Protection
- Housing (including homelessness services)
- Justice
- Health
- Education
- Mental Health
- Alcohol and other drugs
- Parental risk factors
- Commonwealth services (welfare, MBS and PBS).

The following two pages show projected future social outcomes for each vulnerable group, relative to their comparison group

For each vulnerable group, their projected future outcomes are compared to those of a matched NSW population comparison group to provide context to the results The comparison groups for each vulnerable group have been randomly selected to have the same number and distribution of individuals by age, gender, Aboriginality and socio-economic status (based on birth location) Details of the comparison groups can be found in *Section 6* (p 59) to *Section 9* (p 169). The results over the next two pages are presented in a standard format For each vulnerable group, the results consist of:

- the wellbeing domain headings from the proposed outcomes framework *(See Section 2.2 — TFM's application of the NSW Human Services Outcomes Framework)*
- a selection of social outcomes presented under the domain headings to provide high level insights into each group[18].

Multipliers show how the projected social outcomes for each vulnerable group compare to their comparison group For example:

- those in the 'vulnerable young adolescents' group are 3.4x more likely to use social housing as adults
- those in the 'vulnerable young people transitioning into adulthood' group are 2x more likely to be welfare recipients
- young mothers in the 'young mothers and their children' group are 15x more likely to have children placed in OOHC
- young mothers in the 'young mothers and their children' group are 0.3x as likely to complete the Higher School Certificate (HSC).

18 The social outcomes presented here are based on the data used in the modelling and do not include all the outcomes sought for residents in NSW under the NSW Human Services Outcomes Framework

Projected future outcomes[19] for each vulnerable group relative to a comparison group

WELLBEING DOMAIN	SOCIAL OUTCOME	VULNERABLE YOUNG CHILDREN AGED 0–5	VULNERABLE YOUNG ADOLESCENTS	VULNERABLE YOUNG PEOPLE TRANSITIONING TO ADULTHOOD
SOCIAL & COMMUNITY	Proportion expected to have an OOHC placement	**12x**	**>50x**	**>50x**
	Proportion whose children expected to require OOHC	**3.9x**	**5.4x**	**12x**
SAFETY	Proportion expected to enter custody	**2.5x**	**3.8x**	**8.1x**
HOME	Proportion expected to use social housing as adults	**2.5x**	**3.4x**	**3.6x**
EDUCATION & SKILLS	Proportion completed or expected to complete the HSC	**0.8x**	**0.8x**	**0.6x**
HEALTH	Proportion expected to be admitted to hospital for Alcohol and other drugs (AOD)	**1.7x**	**2.5x**	**4.3x**
ECONOMIC	Proportion expected to be supported by welfare	**1.4x**	**1.8x**	**2.0x**

19 Up to age 27

Projected future outcomes for each vulnerable group relative to a comparison group

WELLBEING DOMAIN	SOCIAL OUTCOME	YOUNG MOTHERS AND THEIR CHILDREN[20]	CHILDREN AND YOUNG PEOPLE AFFECTED BY MENTAL ILLNESS	HIGHEST 1,000 COST INDIVIDUALS
SOCIAL & COMMUNITY	Proportion expected to have an OOHC placement	**N/A**	**5.8x**	**10x**
	Proportion whose children expected to require OOHC	**15x**	**3.0x**	**25x**
SAFETY	Proportion expected to enter custody	**4.0x**	**2.4x**	**5.9x**
HOME	Proportion expected to use social housing as adults	**4.2x**	**2.2x**	**3.7x**
EDUCATION & SKILLS	Proportion completed or expected to complete the HSC	**0.3x**	**0.8x**	**0.2x**
HEALTH	Proportion expected to be admitted to hospital for AOD	**2.9x**	**1.9x**	**5.1x**
ECONOMIC	Proportion expected to be supported by welfare	**1.4x**	**1.4x**	**1.3x**

20 All outcomes relate to that of the young mother

Section 2

Background & Context

2.1 Background

As part of the Their Futures Matter whole-of-government reform, the NSW Government has committed to implementing an investment approach to NSW Government service delivery. Modelling of future outcomes and service use is a core building block of this approach.

The Tune Review and Their Futures Matter

In November 2015, the NSW Government commissioned Mr David Tune to conduct an independent review of the out of home care (OOHC) system, in response to the growth of the OOHC population and continuing poor outcomes for the most vulnerable children and their families The NSW Government released its response to the Tune Review in November 2016, termed Their Futures Matter

Their Futures Matter is a landmark reform of the NSW Government to deliver improved outcomes for vulnerable children, young people and their families The vision of Their Futures Matter is to create a service system that delivers coordinated, wrap-around and evidence-based supports for children and families to transform their life outcomes

Central to this vision is an investment approach that will direct and prioritise whole-of-government funding to deliver prioritised solutions that achieve measurable and meaningful outcomes

An investment approach in NSW

The investment approach is built on whole-of-government data, best available evidence, outcomes monitoring and continuous improvement The approach aims to improve life outcomes for vulnerable children and families in NSW It will ensure that the efforts of Government are directed to areas of greatest need, with the services and resources required for the best outcomes for vulnerable people The three core principles are:

- **Prioritised intervention —** Investment will often mean targeting the interventions to provide additional support to keep children safe and families together. By moving away from a crisis-driven system, this investment approach is expected to improve life outcomes for vulnerable children and families and increase the efficiency of investment across government.
- **Based on evidence —** The integration of evidence into practice will help determine where the greatest impact can be made. Strong and robust evidence will direct funds to where they are most needed, and will be used to support the scaling up of interventions, which demonstrate success in improving outcomes.

- **A whole of family view —** The construction of a comprehensive model, including parental factors, to identify patterns of service use and long-term outcomes for vulnerable people. With a better understanding of the drivers of vulnerability and associated outcomes, Government effort can be re-directed to prioritise support, with funding linked directly to improved life outcomes.

2.2 TFM's application of the NSW Human Services Outcomes Framework

The modelling is based on longitudinal administrative data, which cannot provide a comprehensive view of wellbeing for vulnerable NSW residents. The modelling is complemented by an outcomes framework, which uses a range of other indicators to better capture wellbeing. The framework also guides the reporting of social outcomes.

TFM's application of the NSW Human Services Outcomes Framework

The TFM outcomes framework translates TFM's vision — for a service system that delivers coordinated, wrap-around and evidence-based support for children and families to transform their social outcomes[21] — into a quantifiable set of outcomes and indicators drawn from multiple sources This helps TFM and other agencies to track whether their combined efforts are improving outcomes for vulnerable children and families in NSW over time

The outcomes framework:

- provides a transparent approach to monitoring and reporting progress in TFM's efforts to improve the lives of vulnerable children and families in NSW
- aims to provide a clear sense of direction for TFM and other agencies and stakeholders on what needs to be achieved in the longer-term
- guides how to calibrate and improve efforts towards achieving change
- provides a mechanism for reporting and monitoring of inequalities between population groups such as Aboriginal and/or Torres Strait Islander children and families, culturally and linguistically diverse communities, and by geographic locations
- helps prioritise and assist efforts to ensure that children and families have access to timely supports.

The proposed outcome domains of *Home, Health, Education and Skills, Social and Community, Empowerment, Economic,* and *Safety* are the same as the domains included in the NSW Human Services Outcomes Framework

Together, the outcomes framework and the lifetime outcomes modelling:

- provide a comprehensive view of both the current state and predicted trajectories of vulnerable children and families in NSW
- identify plausible opportunities for intervention to positively affect these trajectories
- frame an analysis of these interventions where costs and benefits are considered from both a fiscal and a social perspective to improve the pathways for vulnerable children and families.

21 The social outcomes presented here are based on the data used in the modelling and do not include all the outcomes sought for residents in NSW under the NSW Human Services Outcomes Framework

Using the outcomes framework to guide reporting

In *Section 6* (p 59) to *Section 9* (p 169) of this report Taylor Fry looks at vulnerability among the NSW population by analysing six vulnerable groups The first page on each vulnerable group provides an overview of projected future social outcomes and costs of services

Taylor Fry has mapped projected social outcomes and associated costs to each of the domain headings of the outcomes framework, as follows:

- **Home —** social housing and homelessness service use and costs
- **Health —** NSW health related service use and costs (including alcohol and drugs, and mental health)
- **Education and Skills —** education service use and costs
- **Social and Community —** child protection service use and costs
- **Economic —** welfare service use and costs
- **Safety —** justice sector interactions and costs
- **Empowerment —** N/A.

Taylor Fry is not able to provide any comment under the *Empowerment* domain based on the administrative data This serves to highlight the importance of the outcomes framework in providing a more comprehensive picture of wellbeing than that allowed by projecting future interactions with government

Section 3

Overview of Approach

3.1 About the approach

The analysis presented in this report depends on three key components:

- The TFM Human Services Data Set which provides linked administrative data for all people born on or after 1 January 1990
- a microsimulation model which forecasts social outcomes — including educational attainment — and future service pathways for all individuals under 25 years
- assumptions for the expected unit costs of future government service units developed with assistance from the Government agencies that provide those services

3.2 TFM Human Services Data Set

The TFM Human Services Data Set underpins all analysis. It has been brought about by generous co-operation and collaboration between numerous Government departments and agencies. Without it, the analysis presented here would not have been possible.

It is an extremely rich data set and promises to be a valuable research asset for understanding more about the most vulnerable in our society and for developing interventions to improve their social outcomes

It is also central to the investment approach as it will be used to measure the effectiveness of interventions in improving outcomes for vulnerable children and young people across NSW

What is the TFM Human Services Data Set?

The TFM Human Services Data Set has been created by combining data collected through the administration of different NSW Government services It provides a cross-agency view of how families have interacted with government agencies over their life, that is, their service use pathways

Individuals captured by the data set can be categorised into two population groups:

- **Primary population group —** those born on or after 1 January 1990
- **Secondary population group —** those who are related to anyone in the primary population group, such as birth parents, other family members, guardians or carers.

The departments and agencies central to managing the creation of the data set include:

- Their Futures Matter
- The NSW Data Analytics Centre
- The Centre for Health Record Linkage (CHeReL).

The data underlying the TFM Human Services Data Set were supplied by the following departments and agencies:

- NSW Department of Family and Community Services
- NSW Department of Justice (including NSW Bureau of Crime Statistics and Research and NSW Registry of Births Deaths and Marriages)
- Legal Aid NSW
- NSW Police Force
- NSW Ministry of Health
- NSW Ambulance
- NSW Department of Education
- NSW Education Standards Authority
- Department of Finance Services and Innovation (Revenue NSW)
- NSW Department of Industry

How was the data linked?

A key feature of the data set is that it provides a view of cross-agency service use pathways To enable this, all data was first submitted to CHeReL for record linkage CHeReL has used probabilistic matching which produces better results in cases where an individual's personal information (e g name) is inconsistent across different data sets This can happen due to input error or changes over time

To protect privacy, the data sets that CHeReL releases after linkage do not contain core identifying information such as name and address The exact data fields released for analysis have been approved by each of the data providers

The data sets released by CHeReL can only be accessed through a protected and isolated environment owned by TFM

How was the data analysed?

Central to Taylor Fry's analysis was the creation of a 'pathway view' of social outcomes and government service use for each individual born on or after 1 January 1990 By pathway view we mean, for each individual, creating a summary of key outcomes and service use that occurred in each quarter of a year from birth until the end of the 2016–17 financial year

In this process we were assisted greatly by the departments and agencies listed above, who helped us understand and interpret the data they had each contributed to the TFM Human Services Data Set

After Taylor Fry completed the data analysis, documented their interpretation and processing of each data source and prepared summary statistics, they shared these items with each of the major departments and agencies that had contributed data to seek agreement that the data had been used appropriately

Can individuals be identified in the data?

The TFM Human Services Data Set does not contain any personal identifiers such as name and address This means that while we have produced figures for the estimated future cost for each individual in the data set, we cannot identify these individuals in the community When we refer to the model being able to identify individuals with high service and support costs, we mean that we can identify the personal and family circumstances of these individuals

3.3 Approach to modelling social outcomes and service use

Key features of our model:

- **projects all NSW residents under age 25 —** this gives an ability to compare vulnerable children to the rest of the NSW population and evaluate implementation outcomes
- **is at an individual level —** taking into account individual and family characteristics This makes it easier to define vulnerable groups for prioritising interventions
- **simulates realistic pathways of cross-agency service use and related outcomes —** this allow an understanding of the interdependencies between service use
- **provides a 'family view' —** parents' outcomes interact with their children's pathways recognising that changes to the parents' situations can profoundly affect the pathways of their children

What are the main uses for the model?

The model has three key uses:

- to help define groups that are likely to have either high or low government services costs up to the age of 40. – High estimated future costs tend to be associated with poor social outcomes and hence provide a good indication of vulnerability. Note this has limitations, as it is possible that some vulnerable people are missed by government service data and other indicators will be required to capture them
- to provide TFM with long-term cost estimates to support the business cases for new Government policies and interventions aimed at improving outcomes for vulnerable children
- to allow TFM to monitor the effectiveness of the new approach to service delivery.

Which children and young people are included in the model?

- The study population is all children and young people aged under 25 on 30 June 2017.
- Future new entrants into the system have not been included.
- The study population includes all people born in NSW (as identified in the NSW Registry of Births) as well as those who were born out of NSW but through their service use history appear to be NSW residents at some time between birth and 30 June 2017.
- The study population contains 0.6M more people than the resident NSW population estimated by the Australian Bureau of Statistics (ABS). There are more people in the study population because it includes those who are born or resident in NSW but have since emigrated.
- Our model implicitly allows for the reduction in service use due to emigration.

For how long are their service use and outcome pathways projected?

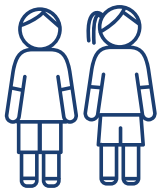
Service use and outcome pathways have been projected up to age 40 for all people in the study population

- There are **practical elements** to this decision. For example, the Primary Population Group in the TFM Human Services Data Set only includes people born in 1990 and later. So, the oldest person in that data set at the time of preparing the analysis was 28 and so Taylor Fry had no service use history beyond age 27 that they could use to calibrate the model. Taylor Fry was able to obtain service use data up to age 40 from earlier work, which allowed them to extrapolate their results from age 28 to 40. Extrapolation beyond age 40 was considered highly speculative.
- There are also **conceptual reasons** for this decision. Beyond age 65, there is a transition away from costs associated with poor social outcomes (e.g. child protection or justice costs) to costs that are dominated by age effects (particularly health). Including such costs would lead to a much higher estimated future cost, but one much less meaningful in terms of preventable cost and clear identification of high-risk groups.
- The role of the **discounting assumption** is also relevant. As discussed on *page 40*, Taylor Fry has assumed a real discount rate of 1%. This means a $1 cashflow in 20 years' time is worth $0.82 and in 40 years is worth $0.67. So the materiality of older cash flows in Taylor Fry's cost estimates declines.

However, for some more vulnerable groups in the population, next generation child protection costs are still substantial at age 40, so this should be born in mind when interpreting the results

What services and outcomes are in scope?

The service streams and outcomes (or events) included in the model are as follows:



CHILD PROTECTION

- Concern reports
- Risk of Significant Harm (ROSH) reports
- Safety Assessment, Risk Assessment and Risk Reassessment (SARA)
- OOHC episodes (own and next generation)
- Number of placements in out-of-home-care (OOHC)
- OOHC placement type
- Primary issue given as reason for concern report and SARA
- Restoration

HOUSING

- Social housing tenancies[22]
- Private rental assistance
- Homelessness services

JUSTICE

- Custody
- Community supervision
- Court finalisations
- Juvenile cautions[23]
- Youth conferences
- Legal Aid

HEALTH

- Public hospital admissions
- Private hospital admissions
- Emergency department presentations
- Ambulance patient contact events
- Childbirth
- Opiate treatment programme

EDUCATION

- National Assessment Program — Literacy and Numeracy (NAPLAN) year 3 results[24]
- NAPLAN year 7 results
- HSC completion
- Unexpected government school moves
- Resource Allocation Model (RAM) equity loadings

MENTAL HEALTH[25]

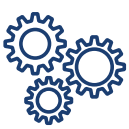
- Hospital admission for mental health
- NSW Ambulatory mental health

ALCOHOL AND OTHER DRUGS (AOD)

- Hospital admission for AOD
- Proven AOD offences

PARENTAL RISK FACTORS

- Parent in custody
- Parent interaction with justice
- Proven AOD related offence or AOD hospital admission
- Proven domestic violence related offence or victim of domestice violence
- Treatment for mental health in NSW hospital or ambulatory services



COMMONWEALTH SERVICES

- Welfare
- Medical Benefits Scheme (MBS)
- Pharmaceutical Benefits Scheme (PBS)

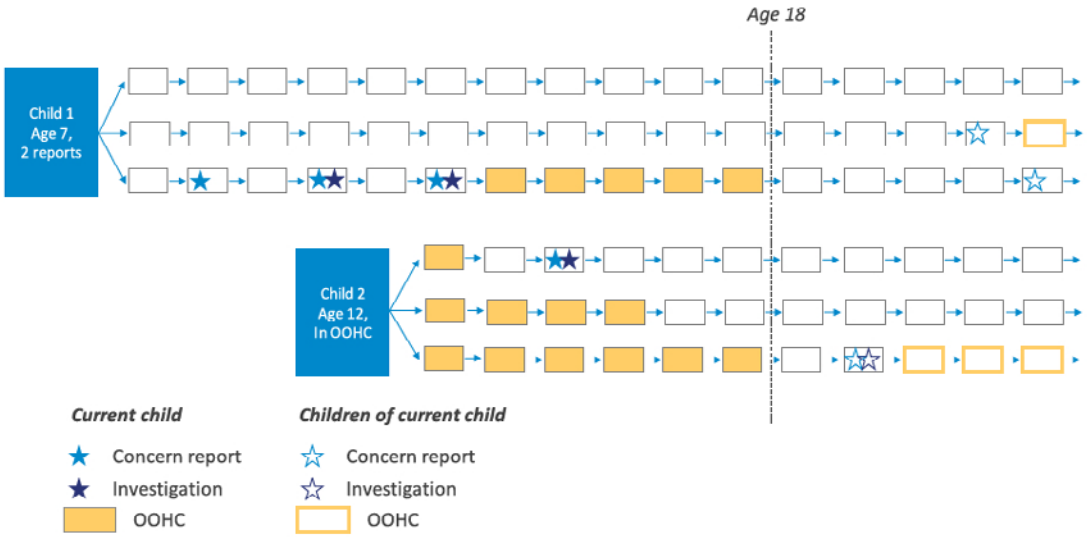
22 Our data includes public housing and AHO tenancies and excludes Community Housing
23 These are police cautions given only to those aged under 18
24 NAPLAN results for an individual are summarised as the lowest band awarded across reading and numeracy
25 Only includes NSW funded services

What was the technical approach?

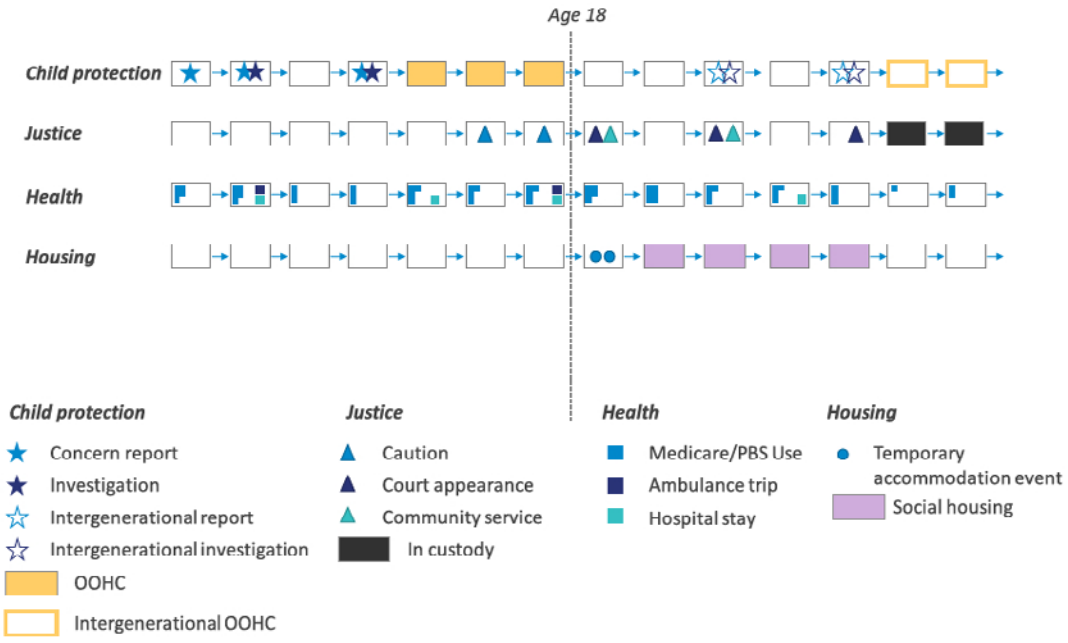
The model used to forecast future social outcomes and service use is an individual-level simulation (microsimulation) that projects pathways through childhood and adulthood up to age 40:

- by **individual level** — it means that Taylor Fry has created forecasts for each individual in the NSW population aged less than 25. This is distinct from some actuarial approaches that look at service use of a group, which obscures individual pathways. Taylor Fry's individualised approach adds flexibility in segmentation and targeting.
- by **simulating pathways** — it means that the forecasts predict plausible patterns of actual service use. For example, someone entering prison is much more likely to continue interacting with the justice system. This means that predicted service use is dependent on prior history.

For illustrative purposes the following figure shows a schematic of three possible simulated pathways through the child protection system for two children in different situations The first child is 7 years old at the start of the projection and two concern reports have been made relating to them previously The second child is 12 years old at the start of the projection and already in OOHC



The next figure illustrates how each simulation incorporates multiple service types, and how use of one service type could affect use of others **The actual model includes additional service streams, events and outcomes not shown.**



The key observations from the single simulation for a 11 year old shown page 34, include:

- **Child protection —** A number of concern reports and investigations occur within the first few years of the projection. The person enters OOHC at age 15, and remains in care until reaching age 18. As an adult, concern reports and investigations occur relating to the child of the person being simulated. That child enters OOHC themselves when the person being simulated is 23 years old and in custody.
- **Justice —** Minor interactions with the justice system occur after the person enters OOHC, proceeding no further than cautions. As a young adolescent the person has more serious interactions with the justice system resulting in several court appearances, a community supervision, and entry into the prison system at age 23.
- **Health —** The person incurs Medicare and Pharmaceutical Benefits Scheme (PBS) costs at varying levels during every year shown. In addition, they have a number of ambulance trips and hospital stays.
- **Housing —** The person makes use of temporary accommodation services for the first year after leaving OOHC and enters social housing shortly after this, where they remain until entering prison.

Note that each of these service pathways has been simulated retaining dependencies on other service streams

What individual characteristics are used in the model?

Our model recognises that future outcomes and government services depend on individual and family characteristics and family circumstances The characteristics that drive differences in our model forecasts of outcomes and service use include:

- Age
- Gender
- Aboriginality
- Geographic area (and area's socio-economic factors)
- Detailed service use history and past outcomes such as issue reported to FACS and childbirth
- Educational attainment — NAPLAN results and HSC completion
- AOD risk indicators and mental health service use
- Parental risk factors measuring domestic violence, mental health issues, AOD issues, interactions with the justice sector, and being a young parent. These risk factors were defined on *p 37*. They only measure reported events and as such do not provide a complete picture of the underlying incidence of risk factors such as domestic violence which is under-reported.
- Perinatal risk factors
    - Flag for smoking during pregnancy
    - Flag for admitted to Special care Nursery or Neonatal Intensive Care
    - Flag for admitted to Special care Nursery or Neonatal Intensive Care due to a birth defect
    - Gestational age was between 0 and 36 weeks (inclusive) or greater than 41 weeks
    - Birth weight was less than 2500g
    - APGAR score at 5 minutes was between 0 and 6 (inclusive)
    - First visit to antenatal care was later than 14 weeks into pregnancy

Modelling Commonwealth service use

Individual linked data on Welfare, MBS and PBS was not available for this work and so assumptions for these services are less granular Our assumptions for service use in relation to these services are based on overall service use statistics by age, gender (and Aboriginality for welfare) for the average NSW population Taylor Fry has applied adjustment factors to these assumptions to allow for the increased likelihood of someone with a child protection and/or justice history receiving these services These factors

have been derived from analyses previously carried out on NSW OOHC leavers and welfare recipients in New Zealand

Approach to inflation and discounting

The estimated future costs presented in this report are the estimated future fiscal costs to the NSW and Commonwealth Governments associated with the provision of key government services to the NSW under 25 population — or some subsets of it — as at 30 June 2017 Although there is no legal obligation to pay these costs — the Government may change policies or service provisions in the future — for financial management and reporting purposes such future costs are often considered social benefit liabilities

There are currently no accounting or actuarial professional standards strictly applicable to the valuation and reporting of social benefit liabilities However, within Australia and NZ, where these social benefit liabilities are reported on, they tend to be valued in accordance with the standards applicable to the valuation of accident compensation liabilities To be consistent with the Australian standards applicable to the valuation of accident compensation liabilities, all future cost cash flows are discounted using the "risk free rate", which at the time of writing the report, was equivalent to inflating and discounted using a real discount rate of about 1% The term "real" refers to the rate of discount over and above inflation

1% is an approximation of the weighted average gap between inflation (in this case Consumer Price Index inflation) and the return on Government bonds over the projection duration This is approximately equivalent to assumptions of 2 5% p a for inflation and 3 5% p a for discounting

3.4 Approach to developing unit costs

One of the key aims of the model is to understand and forecast service use pathways for each individual in NSW who is a resident and aged under 25. By attaching costs to projected future services use the model is able to:

- help define groups that are likely to be either high cost or low cost over their lifetime
- provide long-term cost of services estimates to support the business cases for new policies and interventions aimed at improving outcomes for vulnerable children

Our approach to setting assumptions for the costs associated with service use has been chosen with these aims in mind.

Which broad cost categories are included?

- The focus of the service costing exercise has been on fiscal costs to the NSW and Commonwealth governments (although not all such costs, Taylor Fry has focused on costs associated with the core services they are forecasting).
- Personal financial costs or intangible costs have not been included.

What was the general approach used to cost services?

In general, to model the costs associated with service use, Taylor Fry has adopted a unit cost approach This means that the use of one unit of service attracts a unit cost In determining unit costs the aim has been to choose a unit cost that is reflective of the full cost of providing one unit of the service in 2017–18

The full cost unit cost is intended to be equivalent to the figure that the Government would charge service users if they were to fully cover the costs incurred in delivering the services As such they should include a reasonable allocation of corporate overheads It is also calculated from the perspective of the NSW Government as a whole This means that items such as payroll tax are excluded from the cost base because they are offset by payroll revenue received by the NSW Government

The unit cost is set in this way because it is intended to provide an indication of the amount of money, which could be saved or redirected in the long term if the quantity demanded for a particular service is reduced

Specifically, a unit cost that accounts for the full cost will necessarily include:

- the marginal cost of providing the service — primarily the salary and on costs associated with front-line workers
- an allocation of the costs associated with management and ancillary staff that oversee and support the front-line workers
- an allocation of non-salary operating expenses such as rent, utilities, and depreciation, associated with service delivery
- a contribution to corporate overheads.

How does this approach account for fixed costs and services that are rationed?

Because many expenses, such as lease expenses, are fixed in the short term, it will take time for the fixed expenses of the service provider to adjust to any reduction in the level of demand And as such, the expected savings from our unit cost model will be over-stated in the short term Our approach to unit costs deliberately focuses on the longer term because they are being used in a lifetime costs model, which has a time horizon of 40 years Attempts to complicate the model with short-term cost effects would not materially improve the model's ability to meet its aims But they would add to the model's complexity and reduce its transparency

In addition, many of the services Taylor Fry is forecasting are rationed In other words, the amount of services currently supplied is insufficient to meet current needs For these services, if the client population decreases there will not necessarily be cost savings at the overall level because the saved funds would be directed to other services to support other clients The TFM Investment Model makes no attempt to forecast the potential impacts of service rationing and unmet need

3.5 Costing information sources

Where did we get the information used to develop our cost assumptions?

Each of the unit cost assumptions applied in the model was derived from one of the following sources:

- some figures were provided directly by representatives from various NSW Government departments and agencies
- the Costing Manual for FACS Unit Costs 2018, prepared by the Department of Family and Community Services Insights, Analysis and Research (FACSIAR) unit

- the Report on Government Services 2018, published by the Productivity Commission[26]
- the National Hospital Cost Data Collection Cost Report 2015–16, published by the Independent Hospital Pricing Authority[27]
- the Review of Rent Models for Social and Affordable Housing report 2017, published by the Independent Pricing and Regulatory Tribunal NSW[28]
- the Justice Health & Forensic Mental Health Network 2016–17 Financial Statements[29]
- various academic studies relating to the provision of government services
- direct analysis of the data sets used to construct the model where they included costing information (this was the case for all Commonwealth services — welfare, Medicare, and the Pharmaceutical Benefits Scheme).

What role did NSW government departments and agencies play in developing the costing assumptions?

It would not have been possible to develop the unit costs that have been applied in the model without the generous assistance of representatives from numerous NSW Government departments and agencies Our engagement approach was as follows

- We began by undertaking a detailed review of publicly available information on the cost of providing government services.
- From this research Taylor Fry developed a proposed costing methodology for each service type, which was documented and shared with stakeholders from each relevant NSW government department and agency for feedback and signoff.
- In a small number of cases it was not possible to derive unit costs using only publicly available information. In these cases, we relied on unit cost information supplied directly by data, pricing, or finance representatives from the relevant departments and agencies.

The departments and agencies who were central to developing the unit cost assumptions include:

- Department of Family and Community Services
- NSW Department of Justice
- NSW Office of the Director of Public Prosecutions
- Legal Aid NSW
- NSW Police Force
- NSW Ministry of Health
- NSW Ambulance
- NSW Department of Education.

Uncertainty in unit cost assumptions

The unit cost assumptions used in this report are uncertain and as such actual future costs could turn out to be materially different to those forecast in the report In particular there is considerable uncertainty about how unit costs may evolve over the 40-year period in which cost projections are made However, the cost projections in this report allow us to rank different groups from high cost to low cost under the assumption that the relative values of our current unit cost estimates remain roughly similar over the next 40 years

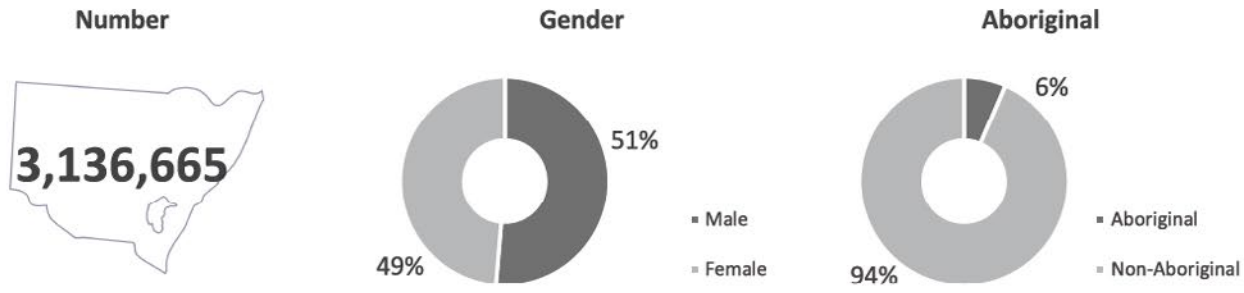
26 www pc gov au/research/ongoing/report-on-government-services/2018
27 www ihpa gov au/publications/national-hospital-cost-data-collection-public-hospitals-cost-report-round-20-0
28 www ipart nsw gov au/files/sharedassets/website/shared-files/pricing-reviews-section-9-publications-review-of-social-and-affordable-housing-rent-models/final-report-review-of-rent-models-for-social-and-affordable-housing-july-2017-[w172737] pdf
29 www justicehealth nsw gov au/publications/JHFMHNFinancialStatementJune2017IAR_1 PDF

Section 4

Population Level Results

4.1 NSW population at a glance

Our study population is all NSW children and young people aged under 25 as at 30 June 2017



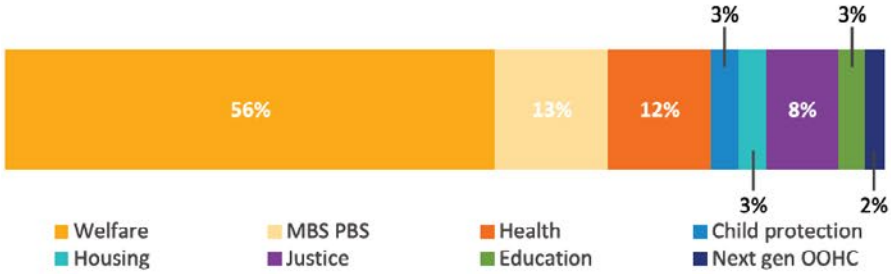
This group is forecast to cost the NSW and Commonwealth Governments $428B for the services they use up to age 40

	NSW born[30]	Migrated to NSW[31]	Everyone
Total number of people	2.3M	0.8M	3.1M
Total estimated future cost	**$332B**	**$96B**	**$428B**
Average estimated future cost	**$143k**	**$117k**	**$136k**

30 Some of this group of people are no longer NSW residents, but are still included for modelling purposes

31 The costs for those who have migrated to NSW are lower than NSW-born individuals This is for two reasons:
- People who migrate to NSW have a lower average level of service use compared to those born in NSW
- Our estimates are too low for this group because we are missing their full administrative data history

Welfare is the largest component of estimated future cost[32]



Average estimated future costs of key services varies significantly across the study population

	NSW born	Migrated to NSW	Everyone
Male average estimated future cost	$136k	$109k	$128k
Female average estimated future cost	$153k	$126k	$146k
Aboriginal average estimated future cost[33]	$474k	$388k	$455k
Non-Aboriginal average estimated future cost	$120k	$101k	$115k

4.2 The spread of estimated future cost across the NSW population

The remaining sections examine costs and services for the NSW-born population only. This is because our data have a much fuller picture of their service use history, and so the model can better capture their underlying circumstances. In contrast, our data have less service use history for individuals who migrated to NSW, which means the modelling results for this sub-group are understated, especially when we analyse in more detail at the group level.

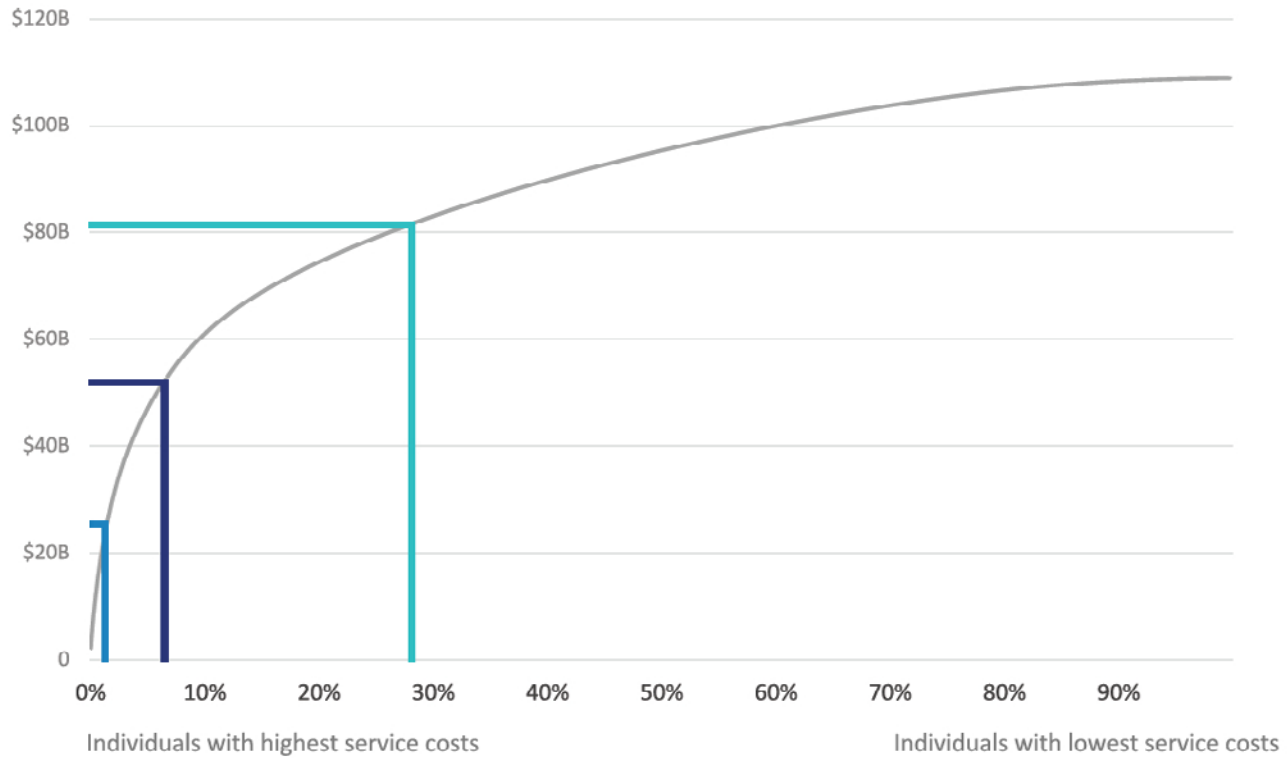
32 Note that health costs here relate to key NSW Government funded services

33 Aboriginal people are over-represented in comparison to the relative population It should be noted that the data presented does not take into account the broader contributing factors, such as cultural, social or economic impacts and injustices, and historical impacts of past laws, policies and practices enforced upon Aboriginal people

Estimated future cost is highly concentrated among groups within the NSW population

Our model allows TFM to rank individuals from highest to lowest projected estimated future cost based on their personal and family circumstances

The figure below shows that estimated future cost is highly concentrated, with half of estimated future costs associated with a small (7%) proportion of the study population Here, we have only shown costs associated with NSW government services as the TFM Human Services Data Set has allowed us to analyse this concentration in detail In contrast, the data relating to Commonwealth services has not been matched to individuals which means the analysis has been limited (as discussed further in *Section 3.3 — Approach to modelling social outcomes and service* (p 33) Individual-level matched Commonwealth data is planned to be incorporated in subsequent phases With this addition we will be able to explore how the intensity of Commonwealth service use predicts the trajectories of vulnerable populations in NSW



	2%	of the study population make up	**25%**	of the total estimated future cost for NSW services, or	**$27B**
	7%	of the study population make up	**50%**	of the total estimated future cost for NSW services, or	**$54B**
	28%	of the study population make up	**75%**	of the total estimated future cost for NSW services, or	**$82B**

4.3 Vulnerable groups in the NSW population

Defining the vulnerable groups

We have defined, amongst those born in NSW, six vulnerable groups to prioritise in the design and implementation of new supports

- These groups have been chosen to cover a wide range of vulnerable people where vulnerability has been defined based on our knowledge and experience working with government.
- They have also been chosen based around a person's life stage — because the needs of an individual and the agencies with which they interact can vary significantly by life stage.
- The vulnerable groups are forecast to have a high cost of services in the future. This is because high estimated future costs tend to be associated with poor outcomes across a number of wellbeing domains and hence provide a good indication of vulnerability.

Within each vulnerable group we can define the characteristics of those individuals who are likely to have the highest estimated future cost and the poorest social outcomes This will allow the prioritisation of individuals or groups with particular characteristics within each vulnerable group We show how estimated future costs and social outcomes can vary within each group in *Section 6* (p 59) to *Section 9* (p 169).

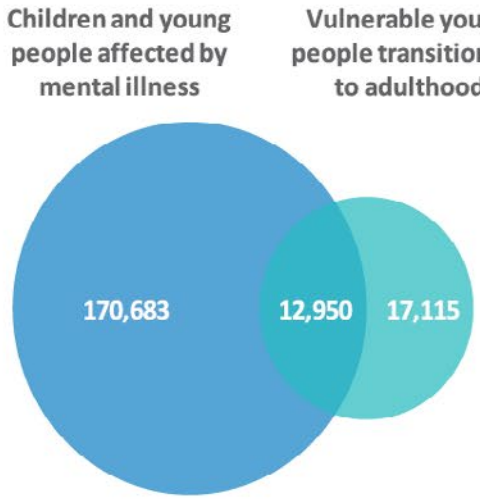
Who are the vulnerable groups? [34]

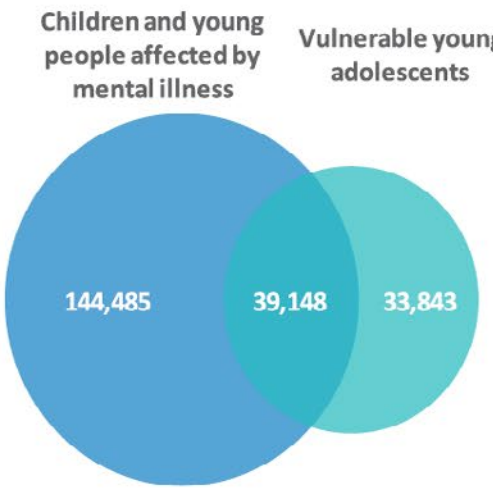
Vulnerable young children aged 0–5	Children born in NSW aged 5 or younger at 30 June 2017 with any of the following risk factors: • **one or more parental risk factors** [35] • **two or more perinatal risk factors** • **assessment at ROSH+**
Vulnerable young adolescents	Anyone born in NSW who was aged between 10 and 14 at 30 June 2017 with any of the following risk factors in the five years prior: • **one or more parental risk factors** • **interactions with the justice system** • **assessment at ROSH+**
Vulnerable young people transitioning to adulthood	Anyone born in NSW who was aged between 16 and 18 at 30 June 2017 with any of the following risk factors in the five years prior: • **interactions with the justice system** • **assessment at ROSH+**
Young mothers and their children	Females born in NSW aged 21 or younger at 30 June 2017 with at least one child, and their children
Children and young people affected by mental illness	Anyone born in NSW who was aged 18 or younger at 30 June 2017 with any of the following risk factors in the five years prior: • **use of NSW mental health services (hospital or ambulatory)** • **parents use of NSW mental health services (hospital or ambulatory)**
1,000 individuals with highest estimated service cost	The 1,000 individuals born in NSW with the highest estimated future cost

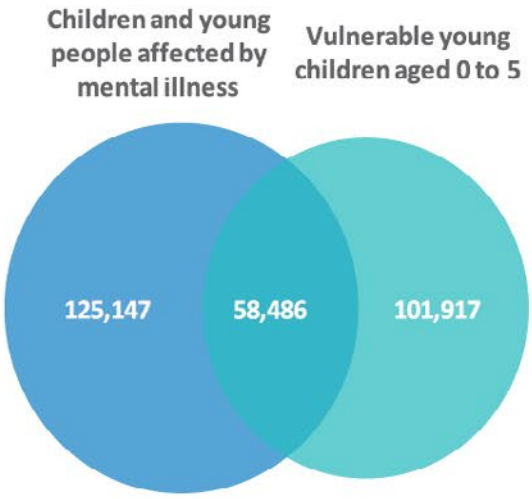
34 Vulnerable Groups are based on those born in NSW only
35 See *Section 3.2 — Approach to modelling social outcomes and service use* (p 33)

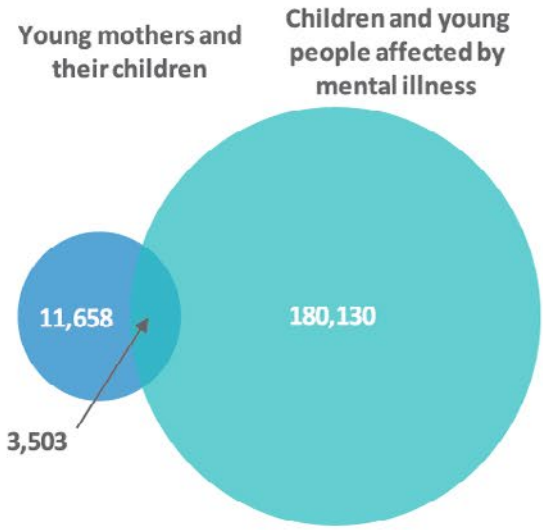
Overlap across vulnerable groups

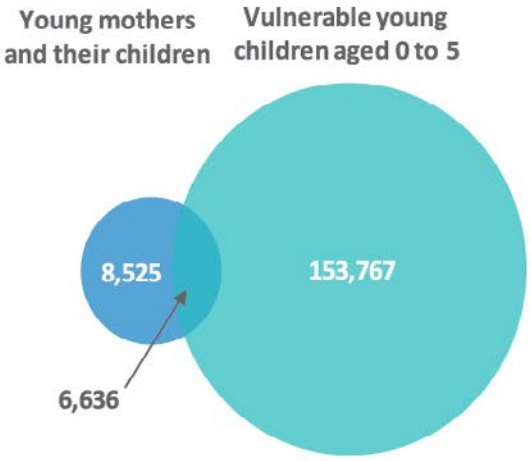
Individuals can be in more than one group (for example, a person in the *Children and young people affected by mental illness* group could also be in the *Vulnerable young person transitioning to adulthood* group) As such, any estimated future costs presented at a group level are not additive The main overlaps between groups are presented in the diagrams below



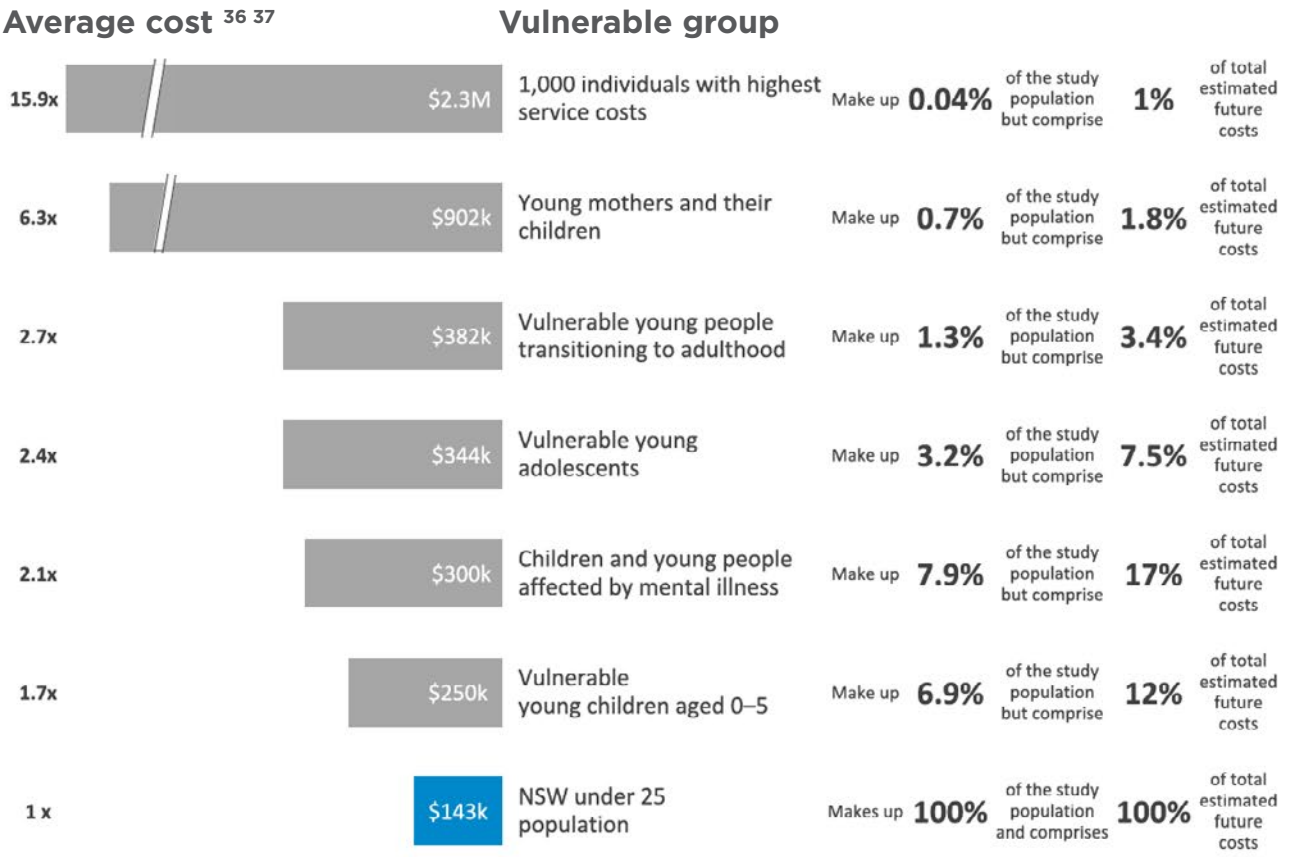




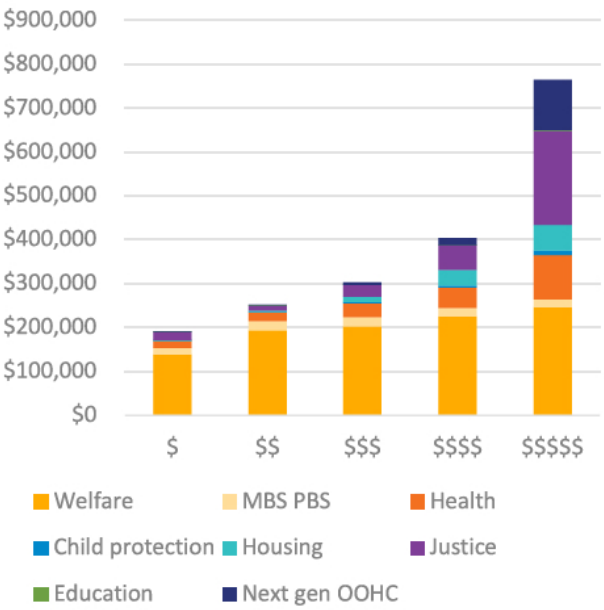




Vulnerable groups have a high average estimated future cost relative to the NSW under 25 population



Within each vulnerable group average cost can vary significantly



In *Section 6* (p 59) to Section 9 (p 169), we analyse each vulnerable group in greater detail One way we do this is by ranking individuals into cost groups from the lowest 20% ($) to the highest 20% ($$$$$) by estimated future cost, and showing how estimated future cost varies within each group

An example of this analysis can be found to the left for the vulnerable group **Vulnerable young people transitioning to adulthood.** The sub-group with the highest estimated future service and support costs ($$$$$) in this vulnerable group has an average estimated future cost ($764k) that is 4x higher compared to the least expensive group ($189k)

The within-group cost differences are driven by individual and family characteristics and are explored in greater detail in our analysis of each vulnerable group

36 The bars show the average estimated future cost of an individual in each of the vulnerable groups The multipliers on the left show average estimated future cost relative to the overall average for the NSW population who are under age 25 for those born in NSW only

37 The average cost of '''Young mothers and their children''' includes the service use costs of the young mothers and their current children, as well as the OOHC costs of their future children Estimates of average cost for other vulnerable groups allow for the OOHC costs of the current and future children of those in the group

4.4 Intergenerational insights

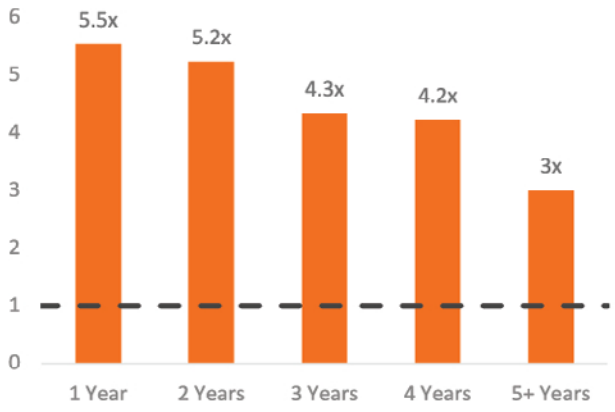
Influence of parental risk factors

Parental risk factors are allowed for in the model in order to provide a family view as we recognise that changes to the parents' situations can profoundly affect the pathways of their children

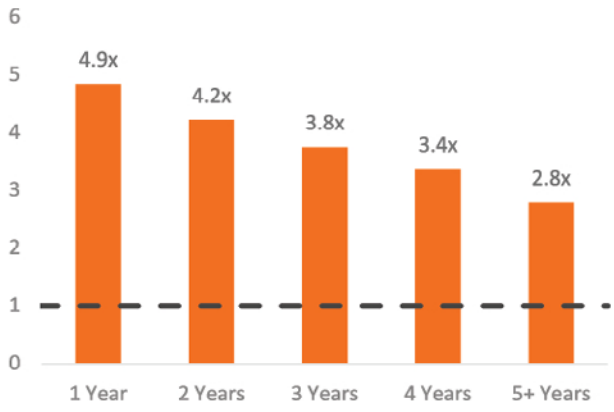
The charts below show the relationship between certain risk factors of the parent and their child's average estimated future cost for NSW services Each chart shows, for the group of children aged 0–5 in the population, average estimated future cost of services for those whose parents have a particular risk factor, relative to the cost of those whose parents do not have that risk factor For example, a child who has had at least one parent use mental health services in the past year is projected to have an average estimated future cost that is 4 9x that of a child whose parents have never used mental health services

Note that the cost differences shown in each chart should not be fully attributed to the parent risk factor the chart examines This means that the cost differences shown across the different charts are not additive This is because risk factors tend to be correlated and these charts do not control for correlated effects

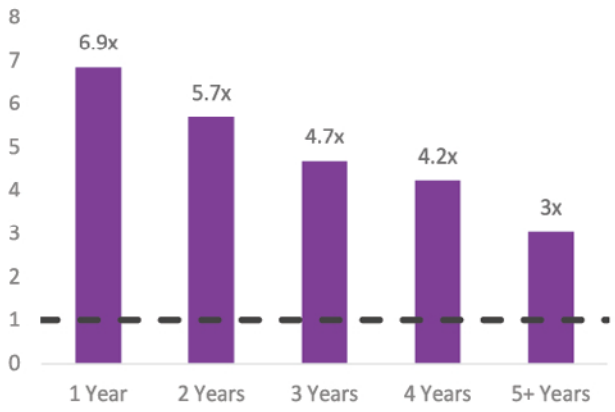
Time since at least one parent used AOD services



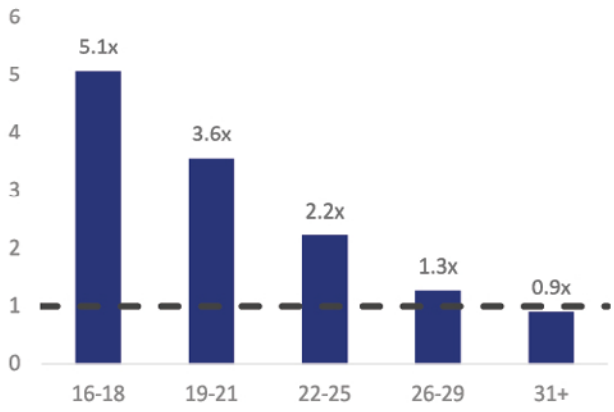
Time since at least one parent used mental health services



Time since at least one parent interacted with the justice system



Age of their mother at birth (relative to age 30)



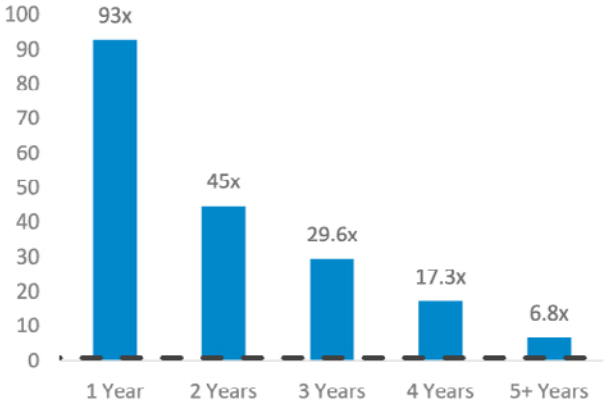
Intergenerational OOHC

We have also examined the characteristics of females who are more likely to have children who require OOHC

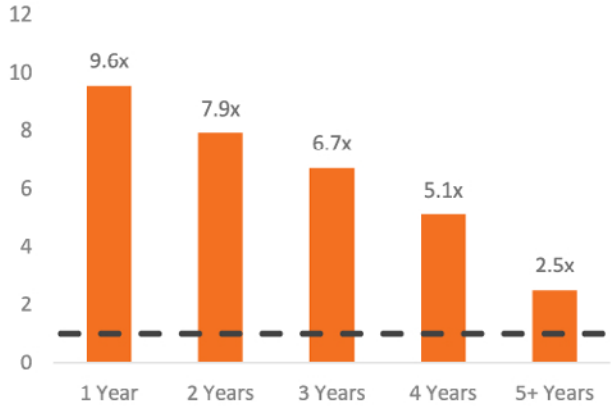
The charts below show the average cost of OOHC for the children of females with certain risk factors, relative to the cost for those without those risk factors For example, the average cost of OOHC for the children of females who have interacted with child protection services in the past year is 93x that of females who have never interacted with child protection services

Note that 95% of females in the study population are not expected to have any next-generation OOHC costs at all, which is why the relative differences shown here can be quite large

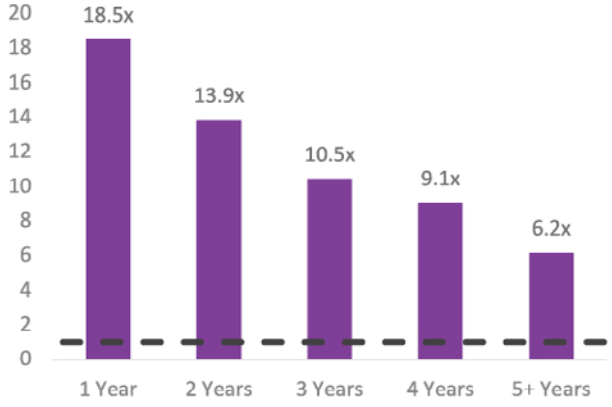
Time since the mother last interacted with child protection services



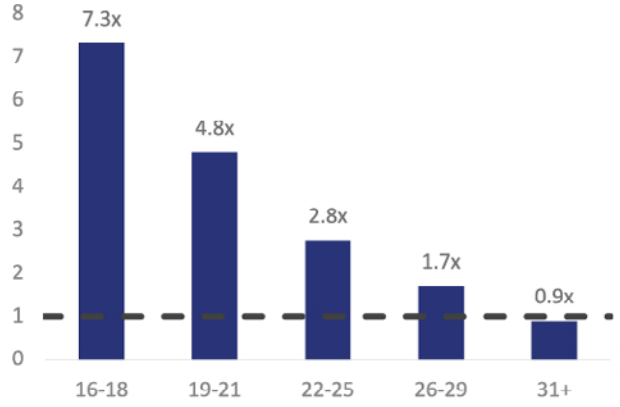
Time since the mother last interacted with mental health services



Time since the mother last interacted with justice services



Age of the mother at birth (relative to age 30)



Section 5

Vulnerable Group Results

5.1 Vulnerable groups

Section 6* to *Section 9* provide a detailed view of how social outcomes and estimated future costs vary across the vulnerable groups that were introduced in *Section 4 — Population level results*. This section provides a guide on how to interpret the results presented in *Section 6* to *Section 9.

Vulnerable groups

Section 4 — Population-level results (p 43) provided a summary of results at the population level and introduced the vulnerable groups

Section 6 to *Section 9* provide a detailed view of each vulnerable group In particular, these sections provide a detailed view on how social outcomes and estimated future costs vary across the vulnerable groups

The results presented in these sections examine costs and services for the NSW-born population only This is because our data have a fuller picture of their service use history, and so the model can better capture their underlying circumstances In contrast, our data have a less complete picture of service use history of individuals who migrated to NSW, which means the modelling results for this sub-group are likely understated, especially if we were to analyse in more detail deeper at the group level

Section 6 to *Section 9* are organised as follows:

Vulnerable groups by age *(Section 6)*

- Vulnerable young children aged 0–5
- Vulnerable young adolescents (aged 10 to 14)
- Vulnerable young people transitioning to adulthood (aged 16 to 18)

Young mothers and their children *(Section 7)*

This section first examines the estimated future cost of the vulnerable group This is followed by two subsections, which explore in detail the service use and outcome pathways of young mothers and their children separately This separation is to cater for the different life stage of young mothers compared to their children, which means that key reporting outcomes differ between the two groups For example, projected early childhood education outcomes are not applicable to the young mothers

- Summary of estimated future cost
- Young mothers
- Children of young mothers

Mental health *(Section 8)*

This section first examines the estimated future cost of the vulnerable group This is followed by subsections, which explore maternal mental health, and the service use and outcome pathways of two different age groups separately

- Summary of estimated future cost
- Maternal mental health
- Young Adolescents with parental mental health risk factors
- Young people transitioning to adulthood using mental health services

1,000 individuals with the highest service cost *(Section 9)*

This section examines the 1,000 individuals with the highest estimated future cost

5.2 How to interpret the results in this section

We present the results for each vulnerable group in a standardised format for ease of understanding and to facilitate cross comparisons. This page provides a guide on how to interpret the results presented for each vulnerable group.

How we present results

For each vulnerable group we present our results in a standardised format This makes interpreting the results simple — once you have interpreted the results for one vulnerable group, it is easy to understand the results for another It also facilitates the comparison of results and outcomes across the different vulnerable groups

The standardised format consists of:

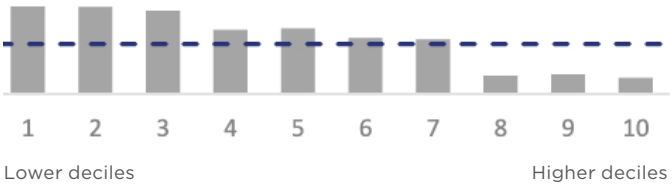
- summary insights for the group, presented under domain headings from the proposed outcomes framework
- demographic information about the group
- a comparison of vulnerable group results compared to a selected comparison group
    - summary of vulnerable group characteristics
    - parent risk factors
    - education risk factors
    - summary of estimated future cost of government services
    - social outcomes
    - pathways for a representative age group from the vulnerable group
- analysis of within-group variation.

Vulnerable group versus comparison group

To provide context to the results for each vulnerable group we present equivalent results for a comparison group Taylor Fry has randomly selected each comparison group to have the same distribution of individuals by age, gender, Aboriginality and socio-economic status (based on birth location)
The comparison group is drawn from individuals not in the vulnerable group of interest

Socio-economic decile at birth

To provide an indication of the impact that location of birth has on outcomes, Taylor Fry has provided a distribution by socio-economic decile at birth (grey bar) relative to that of the NSW population (dotted line) From the chart below, it can be seen that for the lower socio-economic deciles, the grey bars are above the dotted line, which shows that the example group is over-represented in the lower deciles compared to the NSW population



Socio-economic deciles are based on the Socio-Economic Indexes for Areas (SEIFA) deciles produced by the ABS The decile of an individual is determined by their postcode at birth It does not take into account the characteristics of an individual or their parents

Pathways

We show how service use trajectories of those in vulnerable groups tend to differ from those in the wider population across a number of government service areas Taylor Fry does this by selecting a representative age for each vulnerable group and presenting for a typical person in the group of that age, their projected estimated future costs each year until age 40 This is compared to the equivalent results for a typical person in the comparison group with the same age, rather than averaging results across everyone in the group, which obscures individual pathways

There are step changes in these charts which are explained by changes in benefit entitlement or unit cost assumptions:

- Taylor Fry has assumed a higher daily cost for those in juvenile detention compared to those in adult prisons which explains the step-down in Justice costs after age 18
- interactions with the child protection system end after age 18
- those receiving welfare at younger ages tend to be on student payments which have lower benefit rates
- Taylor Fry has only attributed social housing costs to adults in social housing.

Within group variation

Within each vulnerable group there is significant variation in outcomes To provide insight into this variation we present analyses showing the results for the sub-group of individuals that are ranked in the lowest 20% by estimated future cost, through to the sub-group that are ranked in the top 20% by estimated future cost:

$	lowest cost 20% of the vulnerable group by future government service cost
$$	second lowest cost 20% of the vulnerable group by estimated future cost
$$$	third most costly 20% of the vulnerable group by future government service cost
$$$$	second most costly 20% of the vulnerable group by future government service cost
$$$$$	most costly 20% of the vulnerable group by future government service cost

This analysis allows us to see which characteristics are prevalent in the least and most costly sub-groups within a vulnerable group

Terms and definitions

For a full list of terms and definitions that are used throughout this report refer to *Key terms and acronyms* (p 5) We briefly highlight those most critical to interpreting the results here:

- **AOD** — alcohol and other drugs
- **MH** — mental health
- **OOHC** — out of home care
- **Perinatal risk factors** — risk factors present immediately before and/or after birth
- **PRA** — private rental assistance
- **ROSH** — risk of significant harm
- **SARA** — safety assessment, risk assessment and risk reassessment
- **Unexpected government school move** — moves between government schools excluding transitions from infants to primary, and from primary to secondary
- **Young mother** — females who give birth at age 21 or younger.

Section 6

Vulnerable Groups by Age

Section 6.1

Vulnerable group **Vulnerable young children aged 0–5**

6.1.1 Summary by domain

Who is included in this vulnerable group?

Children aged 5 or younger at 30 June 2017 with any of the following risk factors: one or more parental risk factors; two or more perinatal risk factors; assessment at ROSH+

Who is included in the comparison group?

A randomly selected group with the same number and distribution of individuals by age, gender, Aboriginality, and socio-economic status (based on birth location) to that of the vulnerable group
The comparison group is drawn from individuals not in the vulnerable group of interest

What are the projected service costs for this vulnerable group compared with the comparison group?

- The **total estimated future cost of this population group to age 40 is $40B**, which is equivalent to **an average cost of $250k per person.**
- **Total estimated future cost is $16B more than the comparison group,** which is equivalent to an average difference of $99k per person.

What are their projected social outcomes under current policy and operational settings?

SOCIAL & COMMUNITY

- **Compared to the comparison group, females of this group are 3.9x more likely to have children who eventually enter OOHC, and are 1.9x more likely to become young mothers.**
- **Average future child protection costs for this group ($42k) are 8.5x higher than those of the comparison group.**

SAFETY

- **Compared to the comparison group, members of this group are 1.5x more likely to interact with the justice system in the future, and 2.5x more likely to enter custody.**
- **Average future justice costs for this group ($29k) are 2.6x higher than those of the comparison group.**

HOME

- **Compared to the comparison group, members of this group are 2.5x more likely to use social housing services in the future.**
- **Average future housing costs for this group ($9k) are 2.4x higher than those of the comparison group.**

EDUCATION & SKILLS

- **56% of this group are projected to complete the HSC, compared to 66% of the comparison group.**
- **The only direct education costs included in the model are RAM equity loadings and these do not differ due to how we have selected the comparison group.**

HEALTH

- **Individuals in this group are 1.7x more likely to have alcohol and other drugs related hospital admissions in the future, and 1.6x more likely to use mental health services (NSW hospital or ambulatory).**
- **Average future health costs for this group ($29k) are 1.4x higher than those of the comparison group.**

ECONOMIC

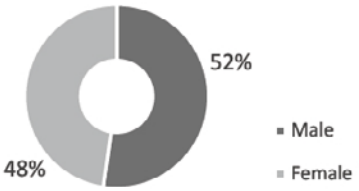
- **Overall future welfare costs for this group ($109k) are 1.4x higher than those of the comparison group.**

6.1.2 About this vulnerable group

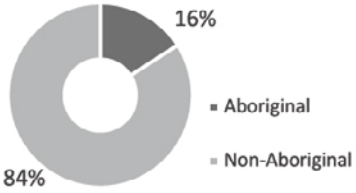
Number in group

160,403
(6.9% of NSW born population)

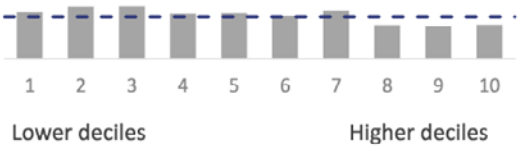
Gender



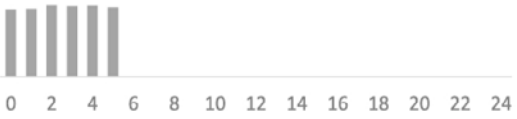
Aboriginal



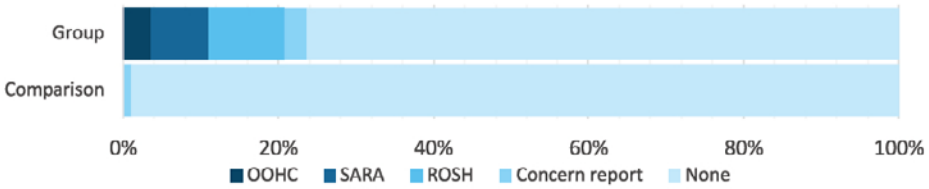
Distribution of socio-economic decile at birth



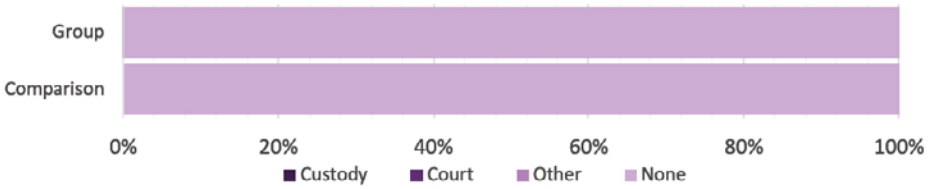
Distribution of age at 30 June 2017



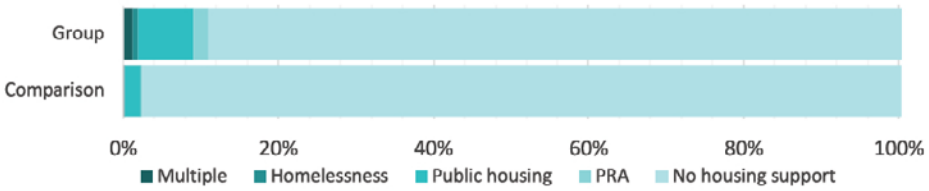
Highest level of interaction with child protection over the last 5 years



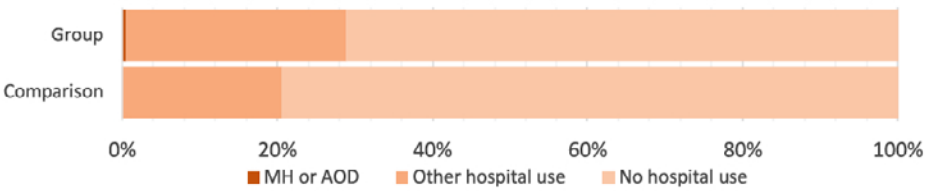
Highest level of interaction with justice system over the last 5 years



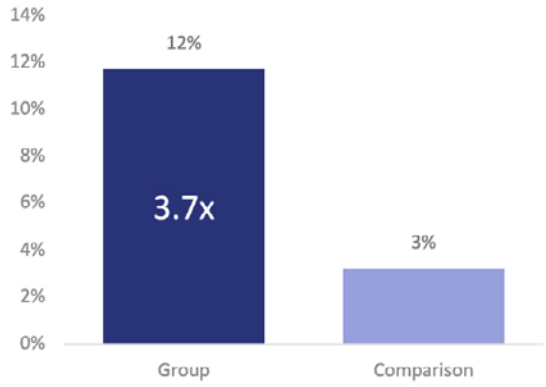
Housing support use over the last year



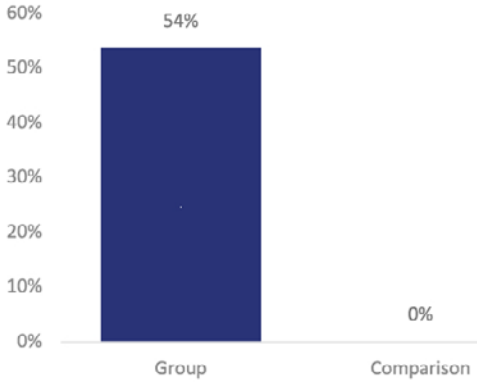
Proportion with NSW hospital admissions for AOD or MH over the last 5 years



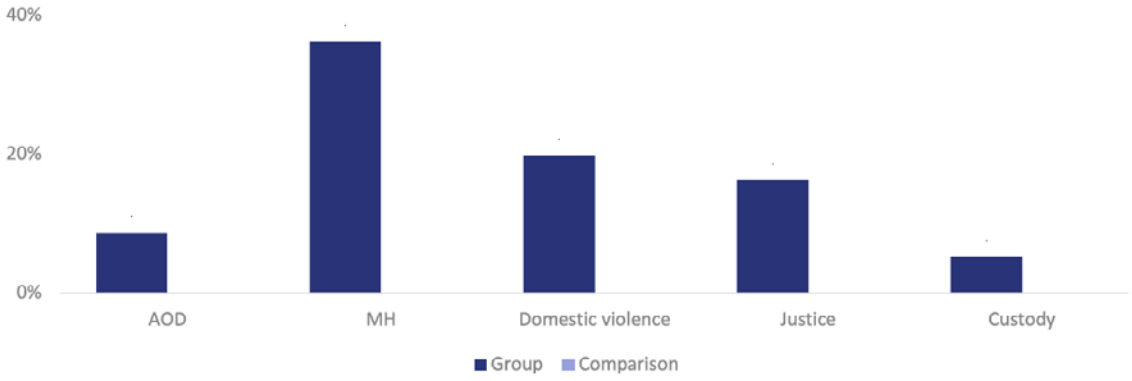
Proportion born to young mothers



Proportion with two or more perinatal risk factors



Proportion with a parent who have each of the following risk factors



Distribution of Year 3 NAPLAN results

Proportion with unexpected government school moves

6.1.3 Estimated future cost of government services

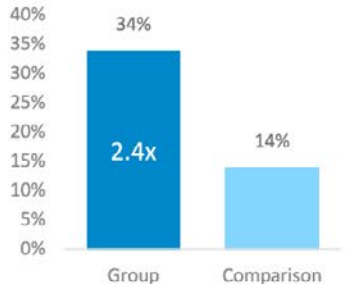
	Vulnerable group	Comparison group	The difference
Total estimated future cost	$40b	$24b	$16b
Average estimated future cost	$250k	$151k	$99k

Male average estimated future cost	$245k	$143k	$102k
Female average estimated future cost	$256k	$160k	$95k
Aboriginal average estimated future cost	$633k	$349k	$284k
Non-Aboriginal average estimated future cost	$178k	$114k	$64k

6.1.4 Projected future social outcomes

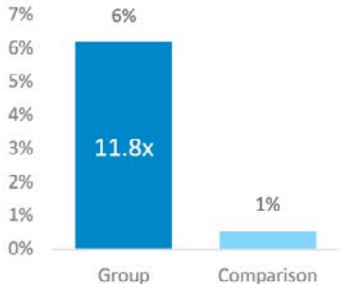
CHILD PROTECTION

Proportion expected to be reported at ROSH in future



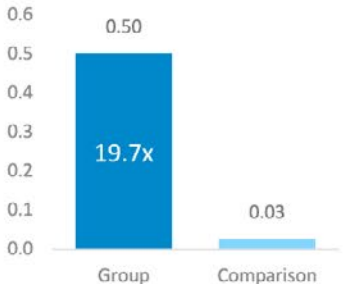
CHILD PROTECTION

Proportion expected to have OOHC placement



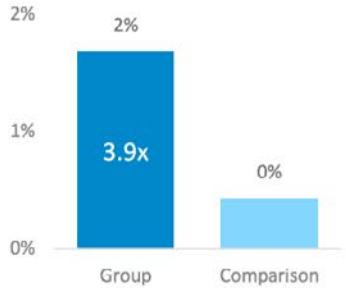
CHILD PROTECTION

Average expected years in OOHC



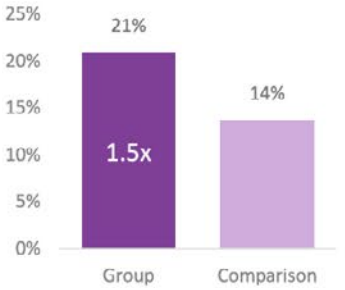
CHILD PROTECTION

Proportion of females whose children expected to require OOHC



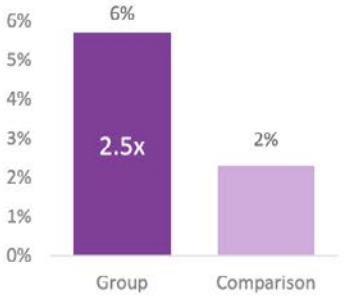
JUSTICE

Proportion expected to interact with justice system



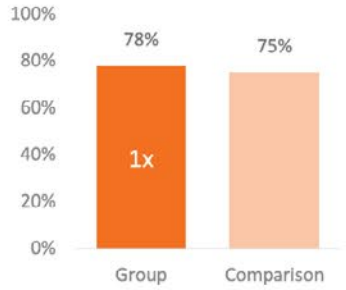
JUSTICE

Proportion expected to enter custody



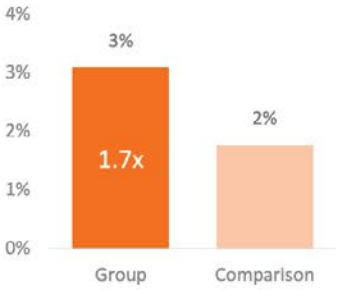
HEALTH

Proportion expected to use NSW hospitals



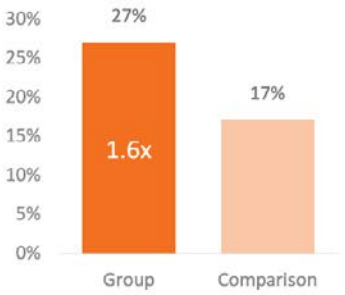
HEALTH

Proportion expected to be admitted to hospital for AOD



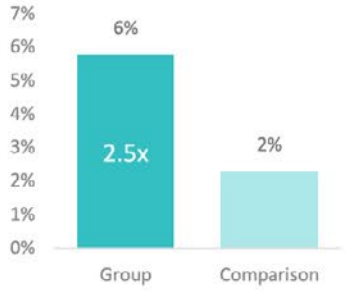
HEALTH

Proportion expected to use NSW MH services (hospital or ambulatory)



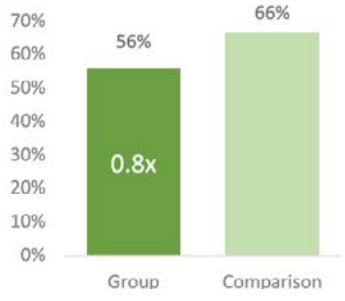
HOUSING

Proportion expected to use social housing as adults



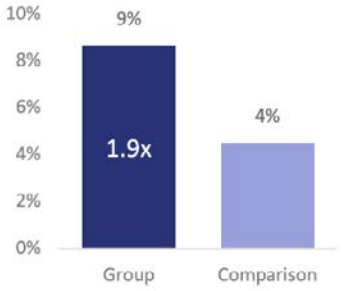
EDUCATION

Proportion expected to complete the HSC



PARENTHOOD

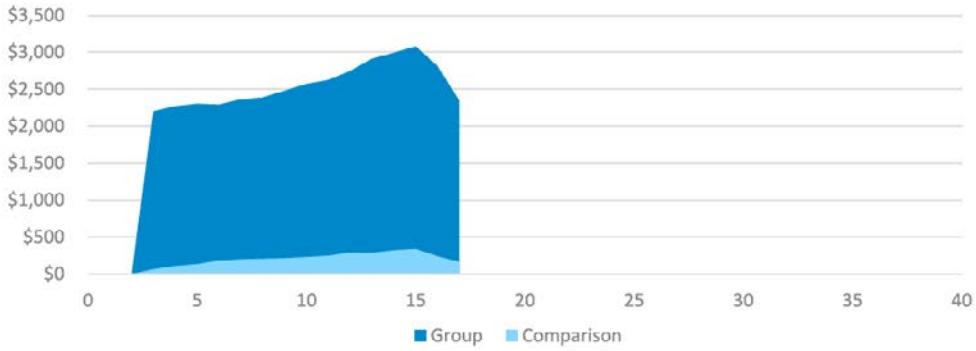
Proportion of females expected to become a young mother



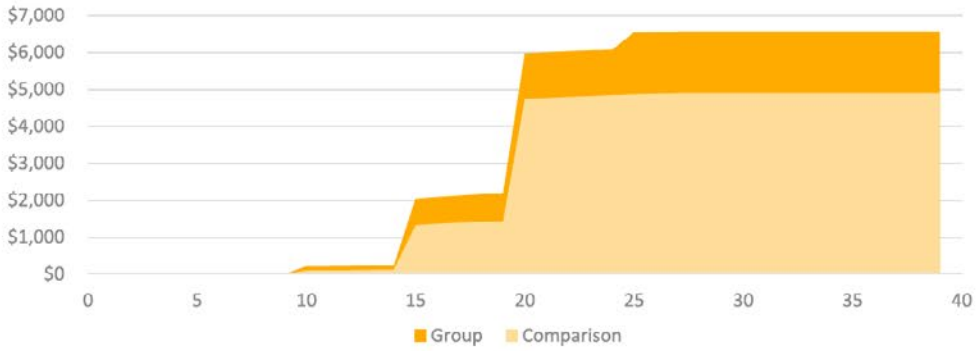
6.1.5 Pathways — Annual estimated future cost for a typical 2 year old[38]

JUSTICE

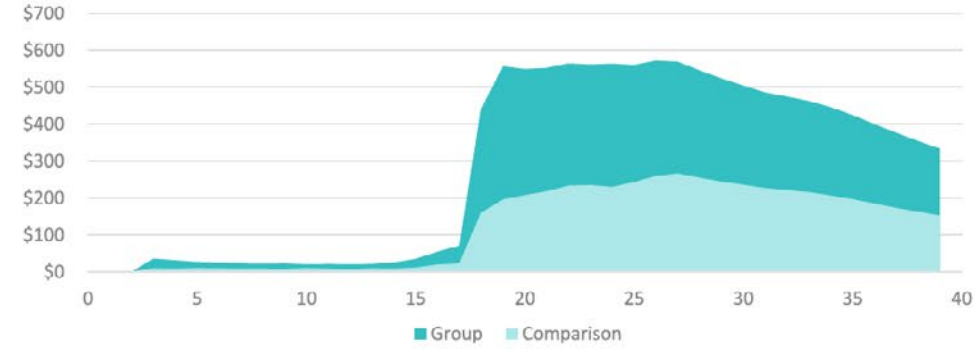
CHILD PROTECTION



WELFARE



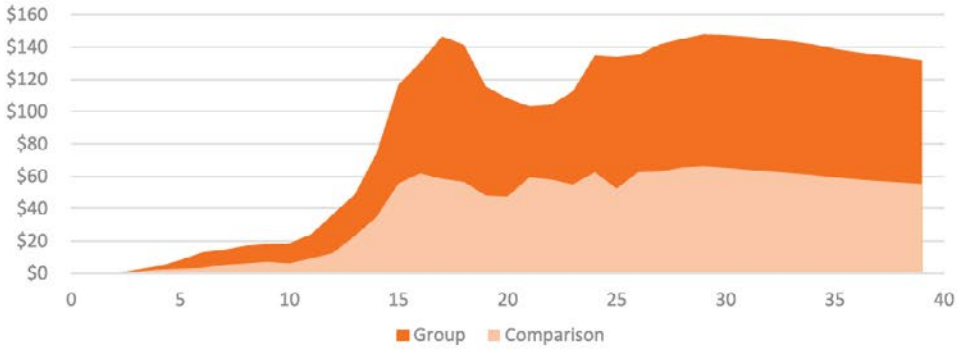
HOUSING



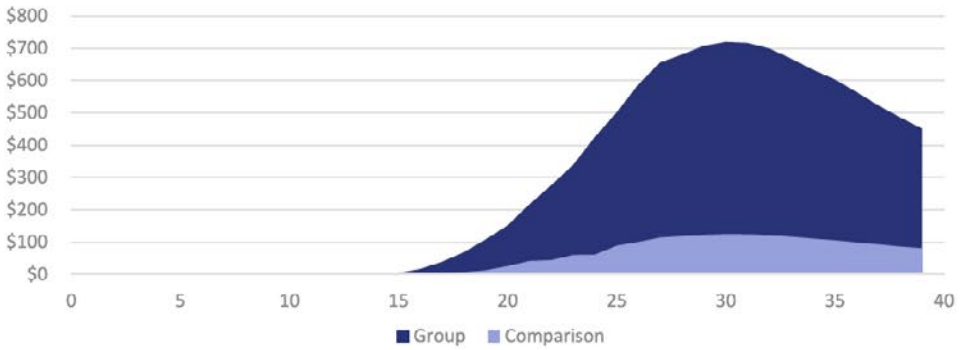
38 Refer to section 5 — How to interpret the results

HEALTH

NSW AMBULATORY MH



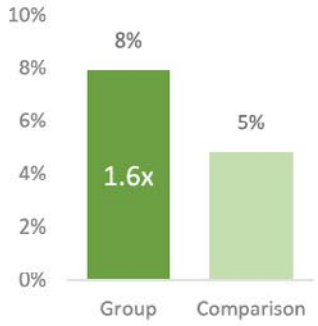
NEXT GEN OOHC



EDUCATION [39]

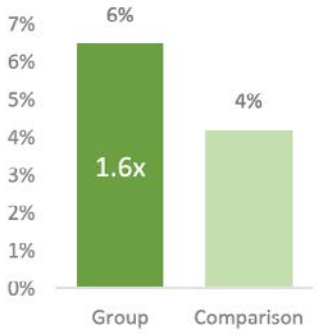
Year 3 NAPLAN

Proportion in lowest band

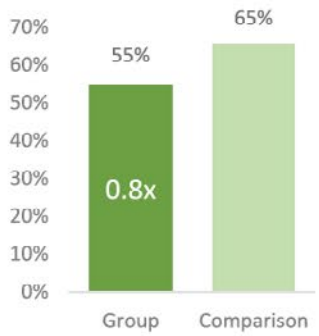


Year 7 NAPLAN

Proportion in lowest band



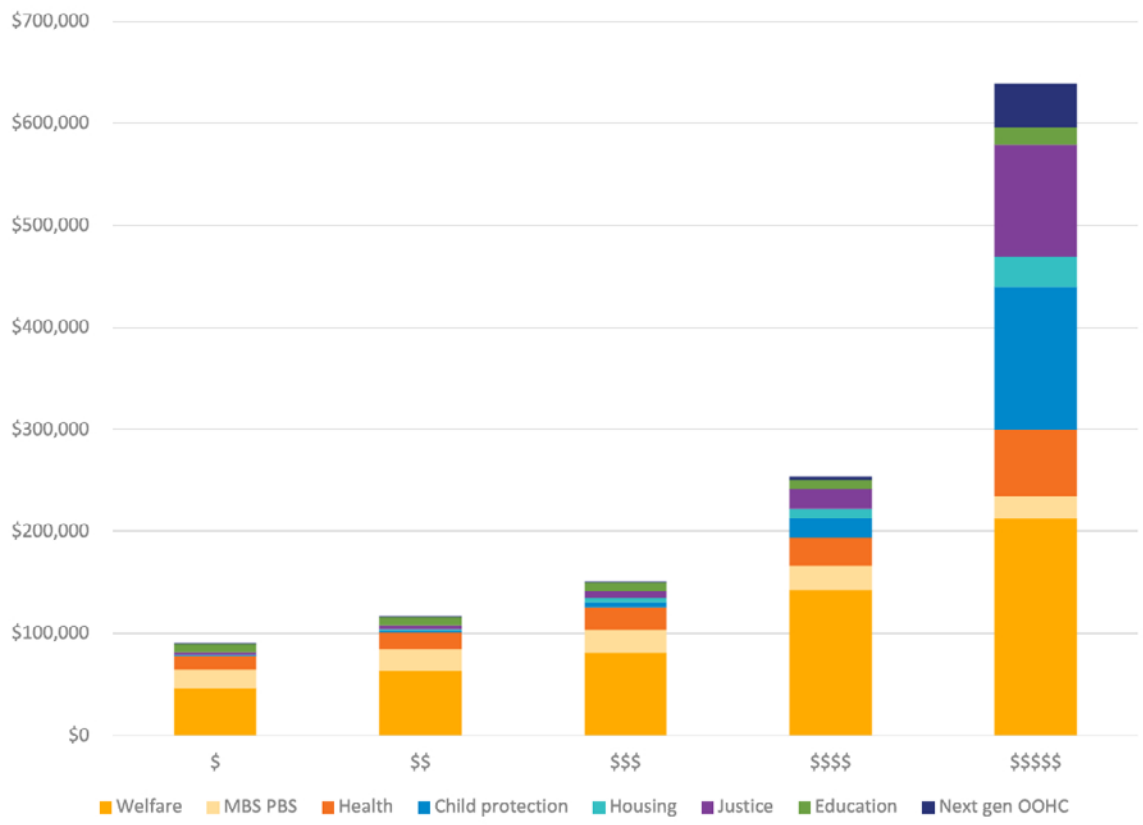
Proportion who complete HSC



39 The only direct education costs included in the model are RAM equity loadings and these do not differ due to how we have selected the comparison group For completeness, we compare educational attainment — drawing on a mixture of past data and our future projections

6.1.6 Within group variation — estimated future costs and summary

We have divided the vulnerable group into five cost sub-groups ranging from lowest to highest expected future cost, to better define those with the poorest future outcomes:



The sub-group with the highest estimated future service and support costs ($$$$$) in this group has an average estimated future cost of $639k.

This is 7.1x the cost of the least expensive sub-group ($).

The within-group cost differences are driven by individual and family characteristics:

- 28% of the highest cost sub-group were born to young mothers compared to 1% of the lowest cost sub-group
- 27% of the highest cost sub-group were in social housing at 30 June 2017 compared to nearly 0% of the lowest cost sub-group
- 17% of the highest cost sub-group have entered OOHC placement in the last 5 years compared to nearly 0% of the lowest cost sub-group.

These characteristics also drive differences within the group in future social outcomes:

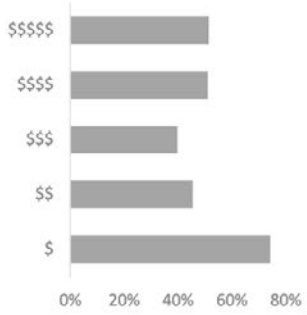
- 73% of the highest cost sub-group are expected to be assessed at ROSH in the future compared to 5% of the lowest cost sub-group
- 46% of the highest cost sub-group are expected to interact with the justice sector in the future compared to 9% of the lowest cost sub-group

The differences in past characteristics and future outcomes of the five cost sub-groups within the group is shown over the following pages

6.1.7 Variation in past characteristics by cost sub-groups

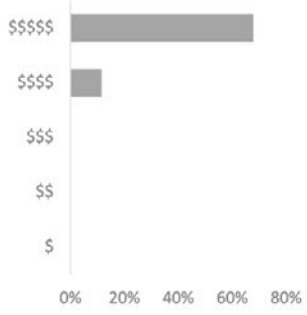
DEMOGRAPHICS

Proportion male



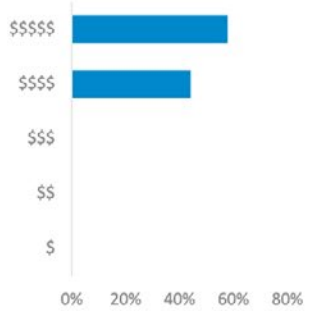
DEMOGRAPHICS

Proportion Aboriginal



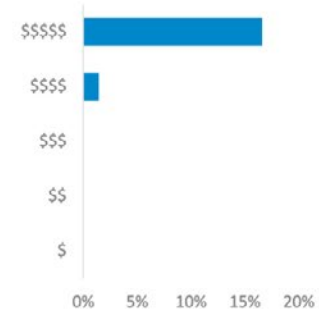
CHILD PROTECTION

Proportion with ROSH report in last 5 years



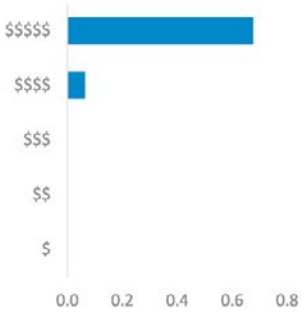
CHILD PROTECTION

Proportion who have had at least one OOHC placement in last 5 years



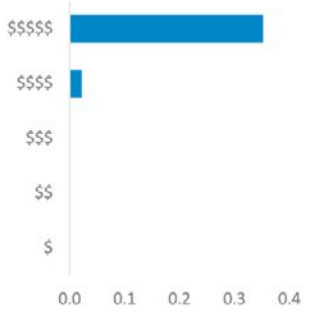
CHILD PROTECTION

Average number of OOHC placement changes per year



CHILD PROTECTION

Average number of years spent in OOHC



HEALTH

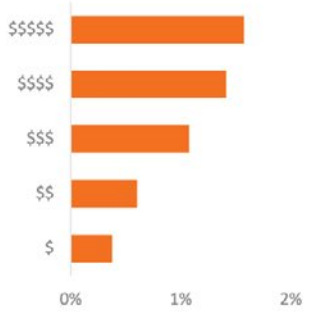
Proportion admitted to hospital in last 5 years

HEALTH

Proportion with at least one AOD hospital admission in last 5 years

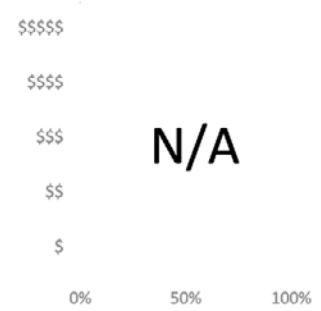
HEALTH

Proportion who used NSW MH services in last 5 years



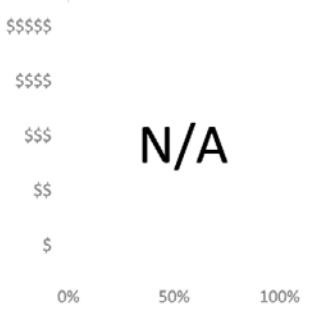
JUSTICE

Proportion with an interaction with the justice system in last 5 years



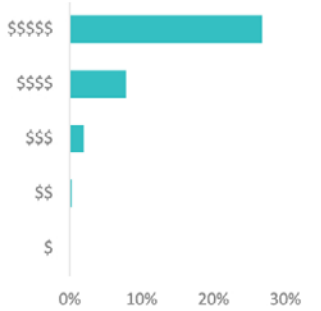
JUSTICE

Proportion who have spent time in custody in last 5 years



HOUSING

Proportion in social housing at 30 June 2017



EDUCATION

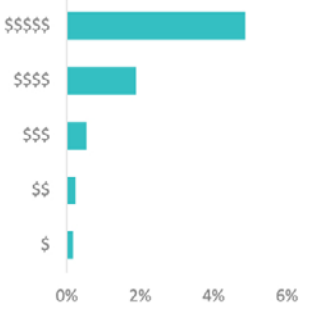
Year 3 NAPLAN
Proportion in lowest band

EDUCATION

Proportion with unexpected government school moves

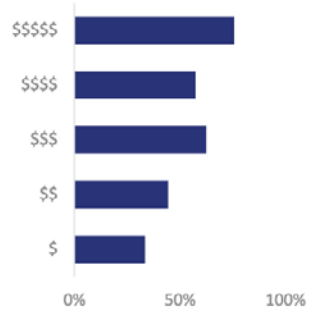
HOUSING

Proportion who used homelessness services over last year



PARENTAL

Proportion with at least one parental risk factor in last 5 years

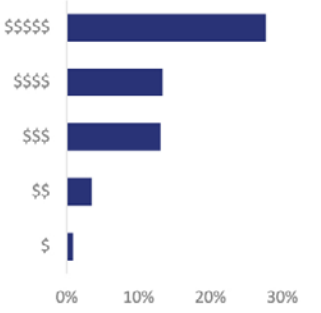


PARENTAL

Proportion with significant perinatal risk factors

PARENTAL

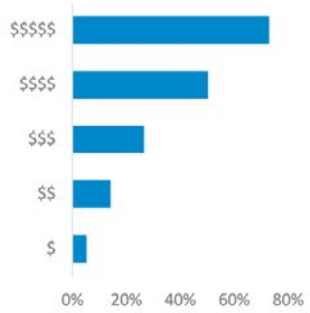
Proportion born to young mothers



6.1.8 Variation in future outcomes by cost sub-groups

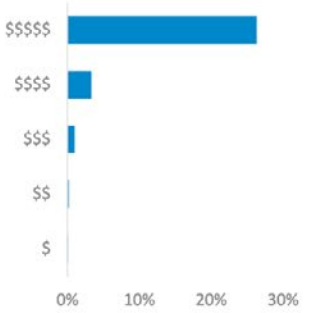
CHILD PROTECTION

Proportion expected to be reported at ROSH in future



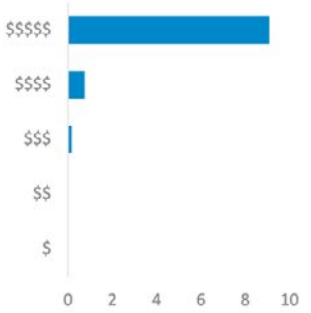
CHILD PROTECTION

Proportion expected to have OOHC placement



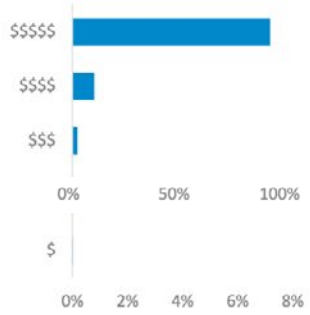
CHILD PROTECTION

Average expected years in OOHC



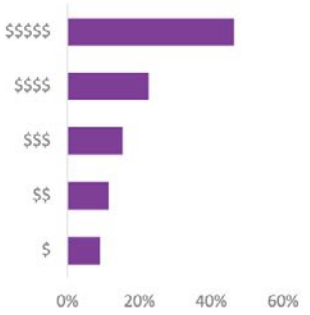
CHILD PROTECTION

Proportion of females whose children expected to require OOHC



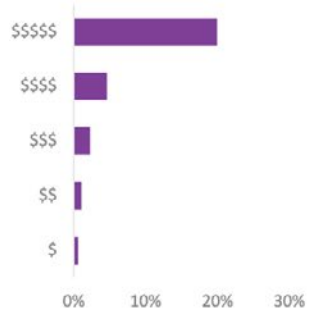
JUSTICE

Proportion expected to interact with justice system



JUSTICE

Proportion expected to enter custody

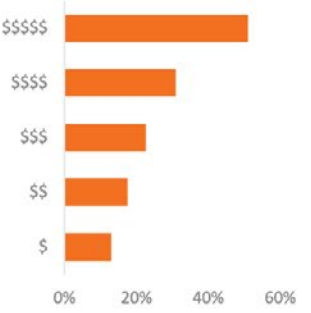


HEALTH

Proportion expected to use NSW hospitals

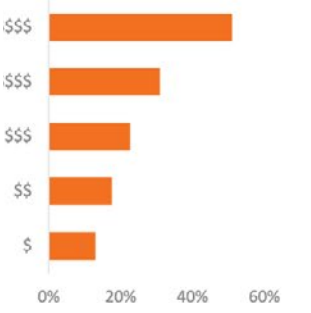
HEALTH

Proportion expected to be admitted to hospital for AOD



HEALTH

Proportion expected to use MH services (hospital or ambulatory)



HOUSING

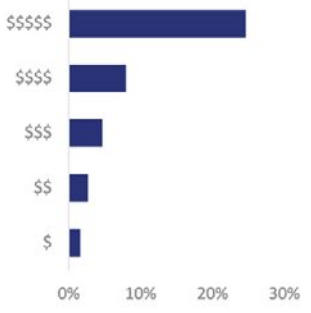
Proportion expected to use social housing as adults

EDUCATION

Proportion expected to complete the HSC

PARENTAL

Proportion of females expected to become a young mother



Section 6 2

Vulnerable group **Vulnerable young adolescents**

6.2.1 Summary by domain

Who is included in this vulnerable group?

Anyone born in NSW who was aged between 10 and 14 at 30 June 2017 with any of the following risk factors in the five years prior; justice system interactions, assessment at ROSH+ or parental risk factors of interacting with the justice system, mental illness, AOD or domestic violence

Who is included in the comparison group?

A randomly selected group with the same number and distribution of individuals by age, gender, Aboriginality, and socio-economic status (based on birth location) to that of the vulnerable group

What will this vulnerable group cost the government compared to the comparison group?

- The **total estimated future cost of this group to age 40 is $25.1B,** which is equivalent to **an average cost of $344k per person**.
- **Total estimated future cost is $13.6B more than the comparison group**, which is equivalent to an average difference of $187k per person.

What are their projected social outcomes under current policy and operational settings?

SOCIAL & COMMUNITY

- **Compared to the comparison group, females in this group are 5.4x more likely to have children who eventually enter OOHC, and are 2.4x more likely to become young mothers.**
- **Average future child protection costs for this group ($44k) are 12.9x higher than those of the comparison group.**

SAFETY

- **Compared to the comparison group, members of this group are 2.1x more likely to interact with the justice system in the future, and 3.8x more likely to enter custody.**
- **Average future justice costs for this group ($51k) are 4.0x higher than those of the comparison group.**

HOME

- **Compared to the comparison group, members of this group are 3.4x more likely to use social housing services in the future.**
- **Average future housing costs for this group ($17k) are 3.4x higher than those of the comparison group.**

EDUCATION & SKILLS

- **48% of this group are projected to complete the HSC, compared to 63% of the comparison group.**
- **The only direct education costs included in the model are RAM equity loadings and these do not differ due to how we have selected the comparison group.**

HEALTH

- **Individuals in this group are 2.5x more likely to have alcohol and other drugs related hospital admissions in the future, and 2.3x more likely to use mental health services (NSW hospital or ambulatory).**
- **Average future health costs for this group ($37k) are 2.0x higher than those of the comparison group.**

ECONOMIC

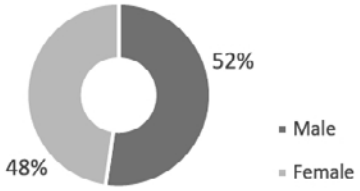
- **Overall future welfare costs for this group ($170k) are 1.8x higher than those of the comparison group.**

6.2.2 About this vulnerable group

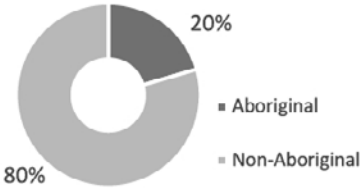
Number in group

72,991
(3.2% of NSW born population)

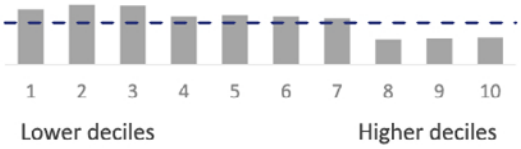
Gender



Aboriginal

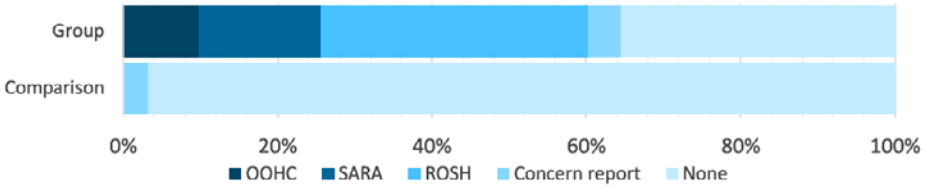


Distribution of socio-economic decile at birth

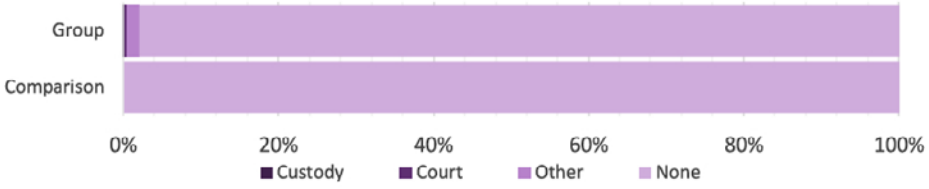


Distribution of age at 30 June 2017

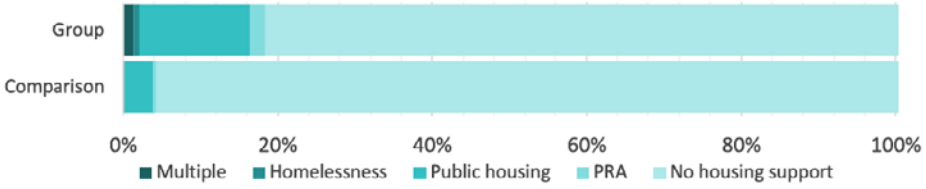
Highest level of interaction with child protection over the last 5 years



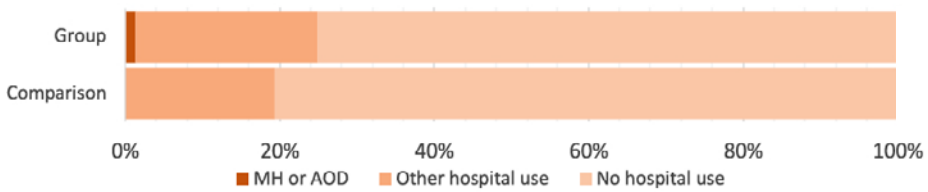
Highest level of interaction with justice system over the last 5 years



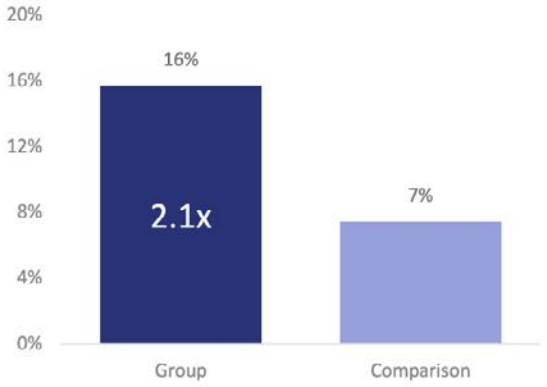
Housing support use over the last year



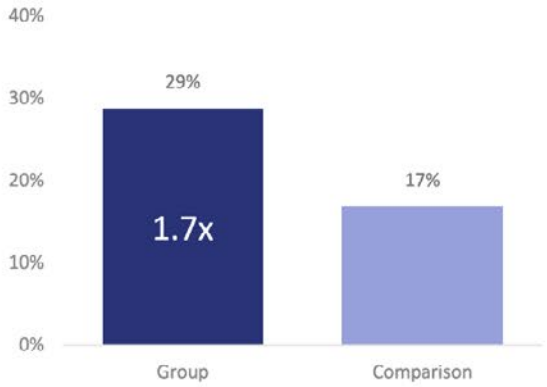
Proportion with NSW hospital admissions for AOD or MH over the last 5 years



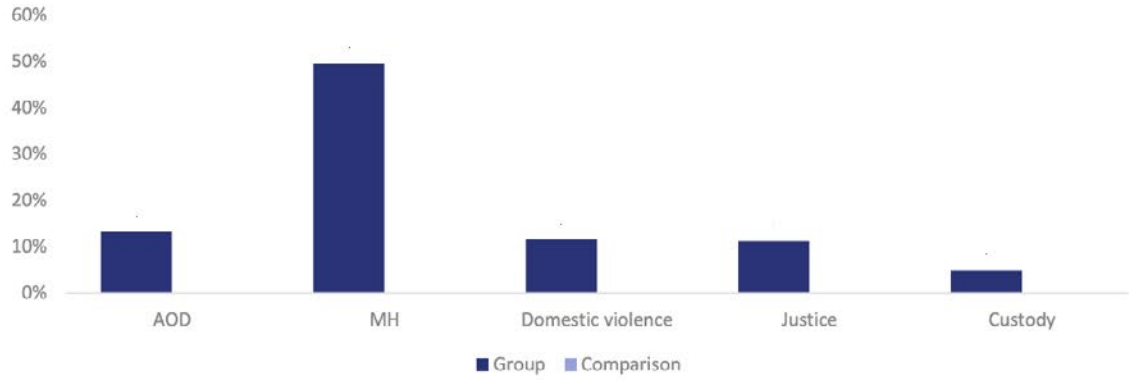
Proportion born to young mothers



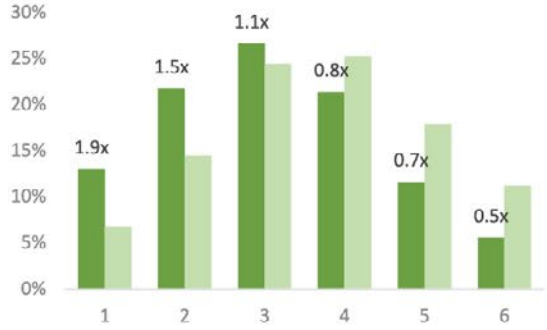
Proportion with two or more perinatal risk factors



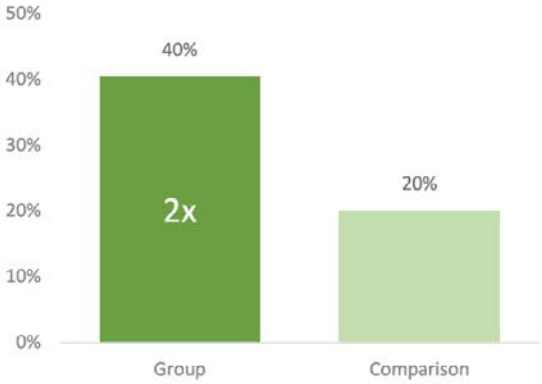
Proportion with a parent who have each of the following risk factors



Distribution of Year 3 NAPLAN results



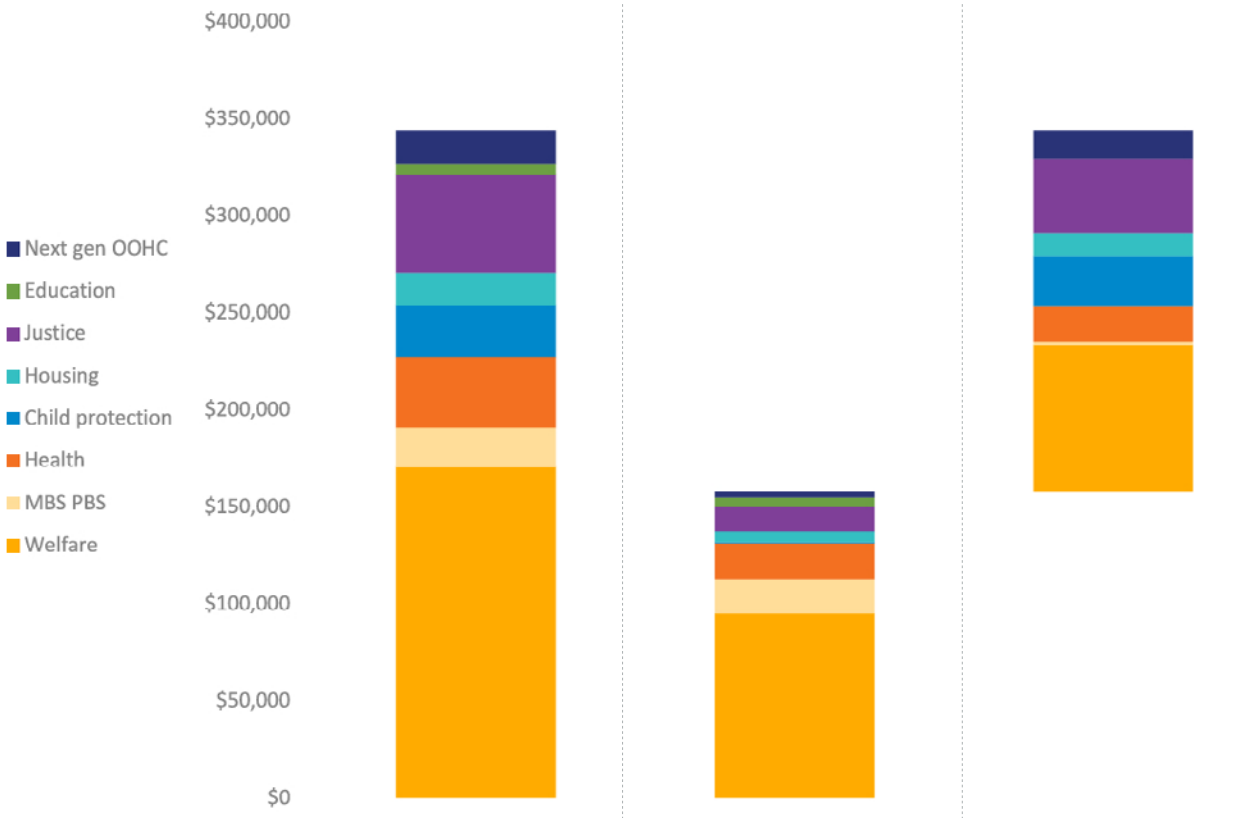
Proportion with unexpected government school moves[40]



40 Different proportions of individuals attending government versus non-government schools may explain some of the difference with the comparison group

6.2.3 Estimated future cost of government services

	Vulnerable group	Comparison group	The difference
Total estimated future cost	$25b	$12b	$14b
Average estimated future cost	$344k	$158k	$187k

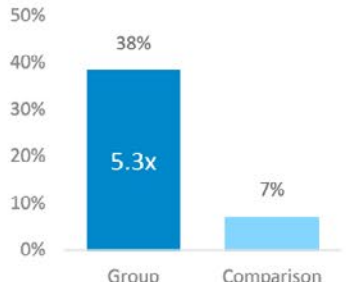


Male average estimated future cost	$341k	$147k	$194k
Female average estimated future cost	$348k	$169k	$179k
Aboriginal average estimated future cost	$684k	$346k	$338k
Non-Aboriginal average estimated future cost	$257k	$109k	$148k

6.2.4 Projected future social outcomes

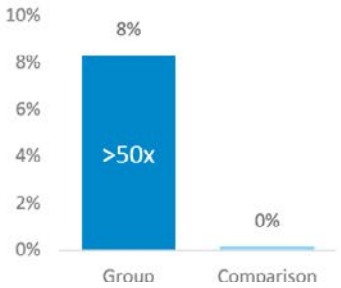
CHILD PROTECTION

Proportion expected to be reported at ROSH in future



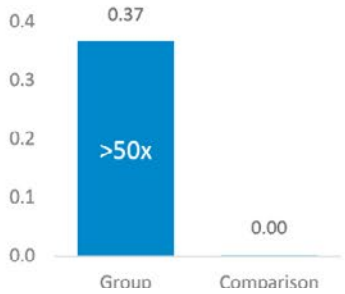
CHILD PROTECTION

Proportion expected to have OOHC placement



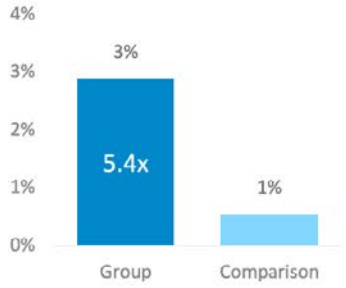
CHILD PROTECTION

Average expected years in OOHC



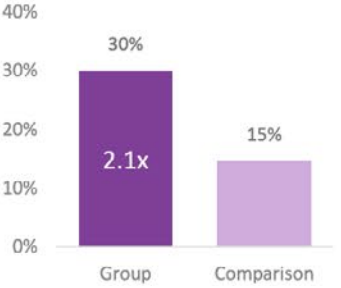
CHILD PROTECTION

Proportion of females whose children expected to require OOHC



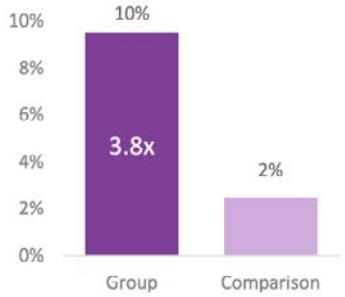
JUSTICE

Proportion expected to interact with justice system



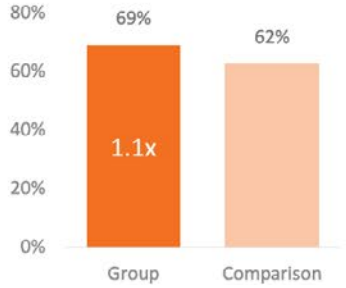
JUSTICE

Proportion expected to enter custody



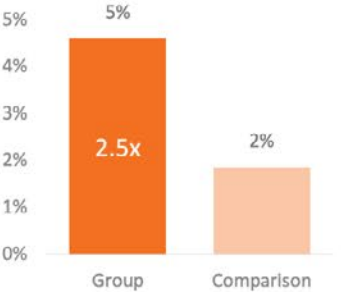
HEALTH

Proportion expected to use NSW hospitals



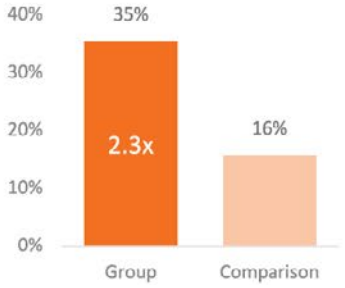
HEALTH

Proportion expected to be admitted to hospital for AOD



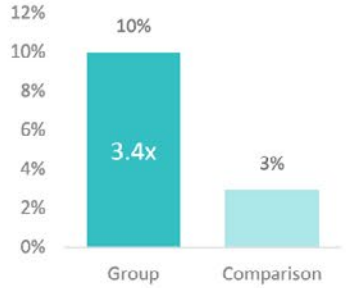
HEALTH

Proportion expected to use NSW MH services (hospital or ambulatory)



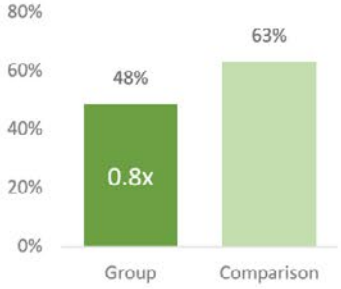
HOUSING

Proportion expected to use social housing as adults



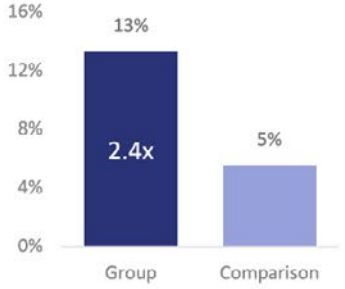
EDUCATION

Proportion expected to complete the HSC



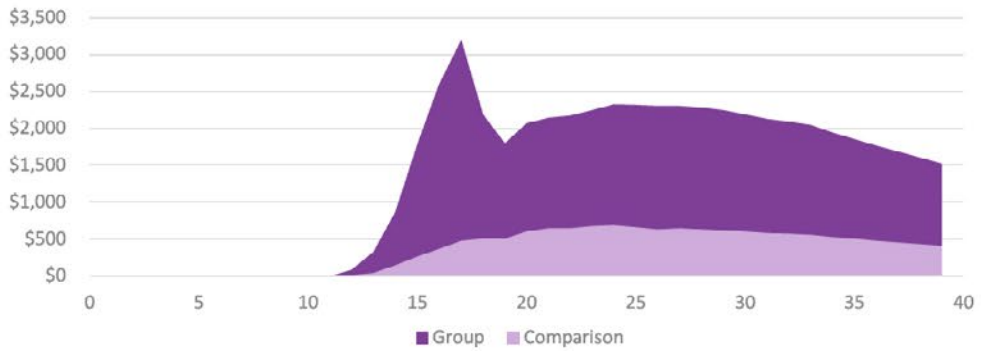
PARENTHOOD

Proportion of females expected to become a young mother

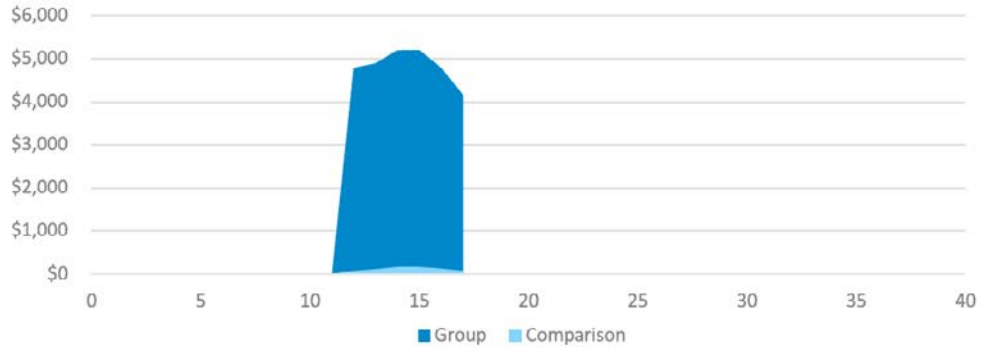


6.2.5 Pathways — Annual estimated future cost for a typical 11 year old[41]

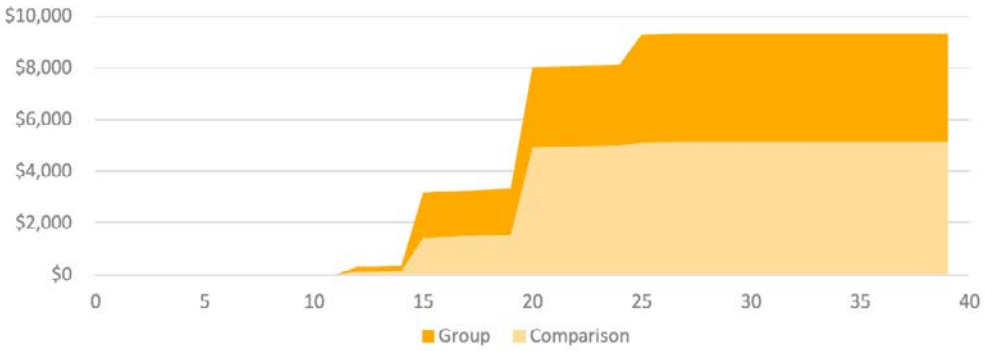
JUSTICE



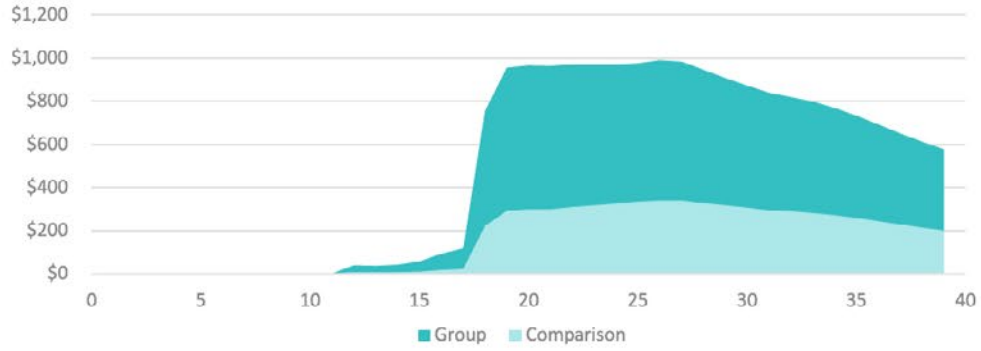
CHILD PROTECTION



WELFARE

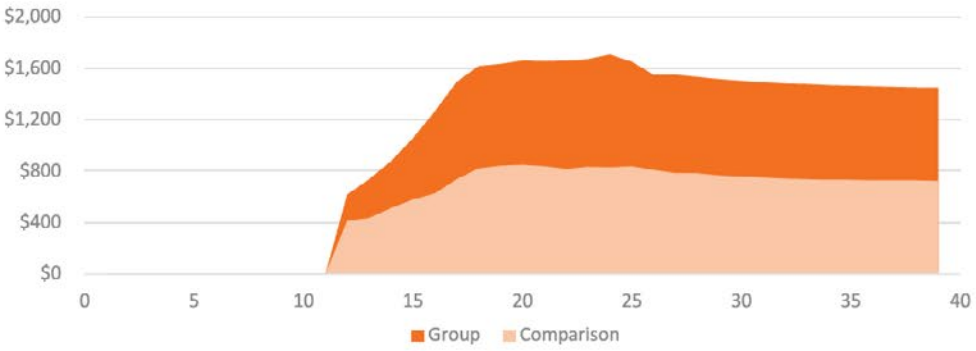


HOUSING

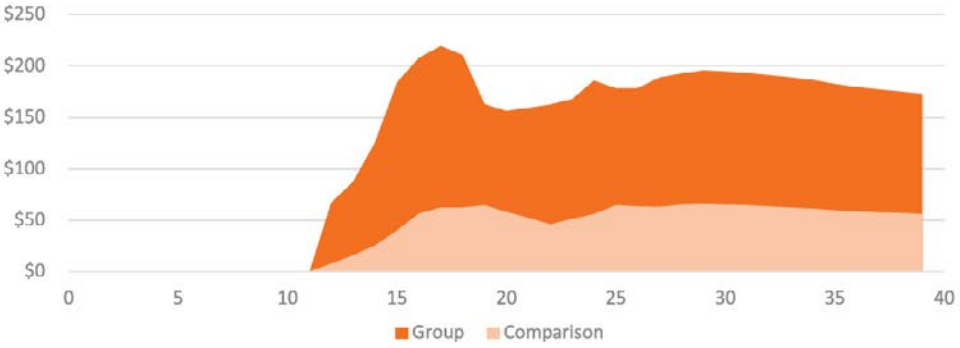


41 Refer to 5 — How to interpret the results

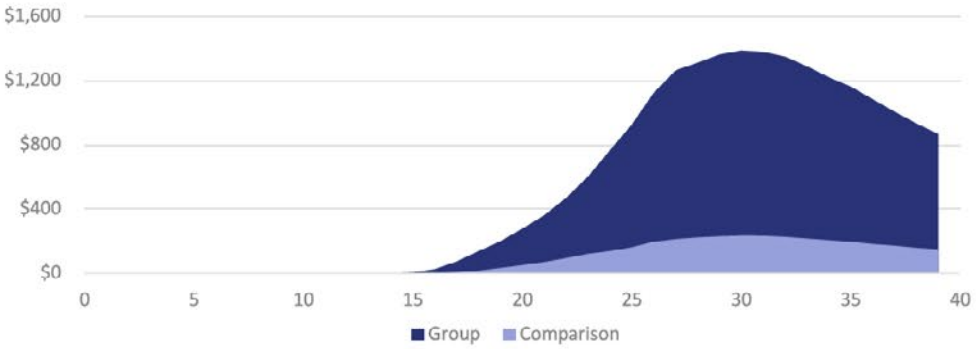
HEALTH



NSW AMBULATORY MH



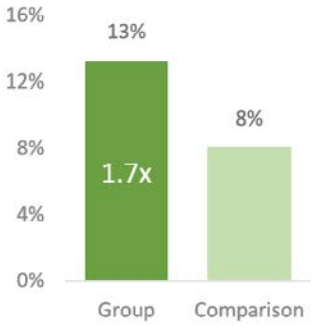
NEXT GEN OOHC



EDUCATION [42]

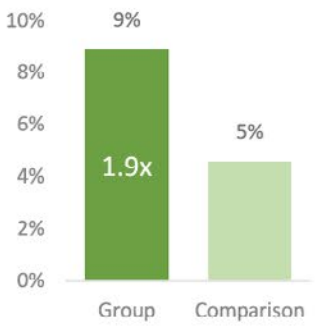
Year 3 NAPLAN

Proportion in lowest band

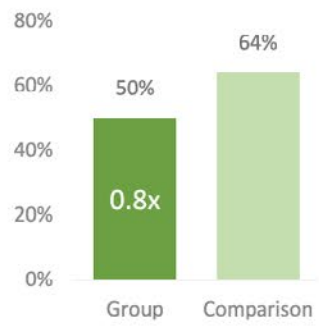


Year 7 NAPLAN

Proportion in lowest band



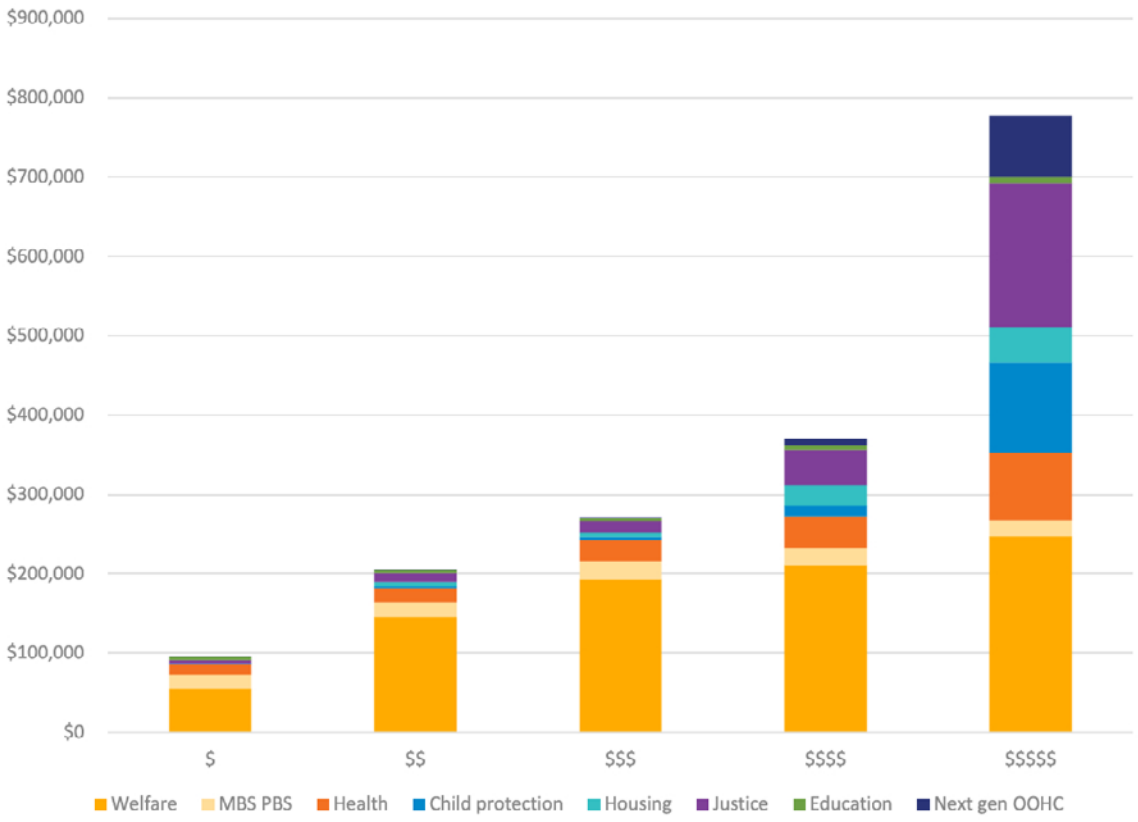
Proportion who complete HSC



42 The only direct education costs included in the model are RAM equity loadings and these do not differ due to how we have selected the comparison group For completeness, we compare educational attainment — drawing on a mixture of past data and our future projections

6.2.6 Within group variation — estimated future costs and summary

We have divided the vulnerable group into five cost sub-groups ranging from lowest to highest expected future cost, to better define those with the poorest future outcomes.



The sub-group with the highest estimated future service and support costs ($$$$$) in this group has an average estimated future cost of $778k.

This is 8x the cost of the least expensive sub-group ($).

The within-population group cost differences are driven by individual and family characteristics:

- 7% of the highest cost sub-group had an interaction with justice over the last 5 years compared to 0% of the lowest cost sub-group
- 39% of the highest cost sub-group were in OOHC over the last 5 years compared to 0% of the lowest cost sub-group
- 41% of the highest cost sub-group were in social housing compared to 1% of the lowest cost sub-group.

These characteristics also drive differences within the group in future social outcomes:

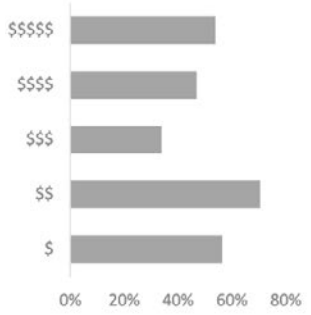
- 36% of the highest cost sub-group are expected to spend some time in OOHC in the future compared to 0% of the lowest cost sub-group
- 33% of females in the highest cost sub-group are expected to become young mothers in the future compared to 3% of the lowest cost sub-group
- 29% of the highest cost sub-group are expected to enter custody in the future compared to 1% of the lowest cost sub-group.

The differences in past characteristics and future outcomes of the five cost sub-groups within the group is shown over the following pages

6.2.7 Variation in past characteristics by cost sub-groups

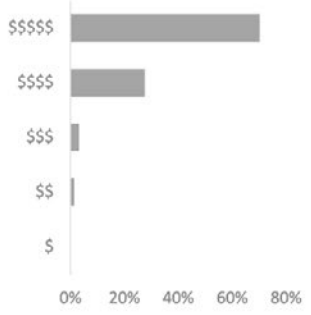
DEMOGRAPHICS

Proportion male



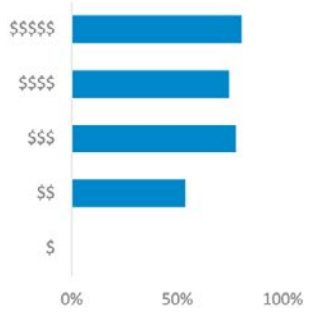
DEMOGRAPHICS

Proportion Aboriginal



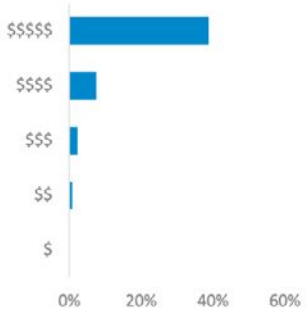
CHILD PROTECTION

Proportion with ROSH report in last 5 years



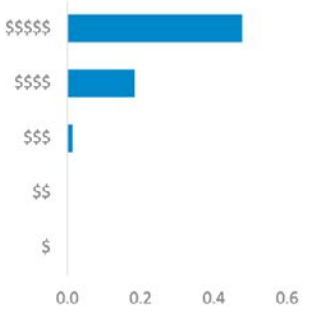
CHILD PROTECTION

Proportion who have had at least one OOHC placement in last 5 years



CHILD PROTECTION

Average number of OOHC placement changes per year



CHILD PROTECTION

Average number of years spent in OOHC

HEALTH

Proportion admitted to hospital in last 5 years

HEALTH

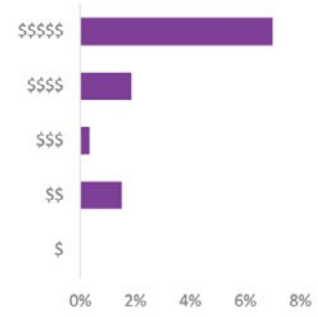
Proportion with at least one AOD hospital admission in last 5 years

HEALTH

Proportion who used NSW MH services in last 5 years

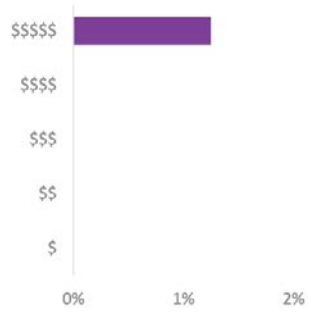
JUSTICE

Proportion with an interaction with the justice system in last 5 years



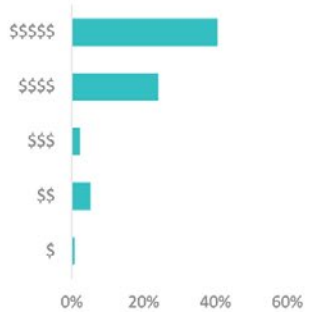
JUSTICE

Proportion who have spent time in custody in last 5 years



HOUSING

Proportion in social housing at 30 June 2017



EDUCATION

Year 3 NAPLAN

Proportion in lowest band

EDUCATION

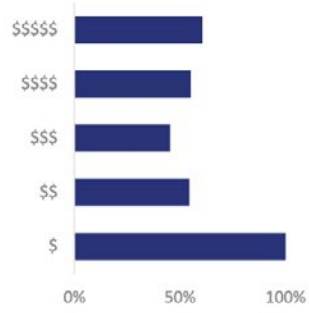
Proportion with unexpected government school moves

HOUSING

Proportion who used homelessness services over last year

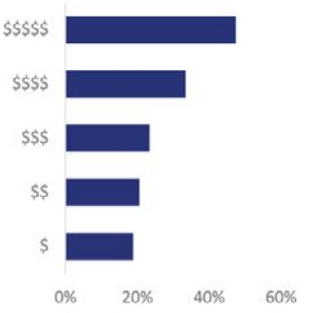
PARENTAL

Proportion with at least one parental risk factor in last 5 years



PARENTAL

Proportion with significant perinatal risk factors



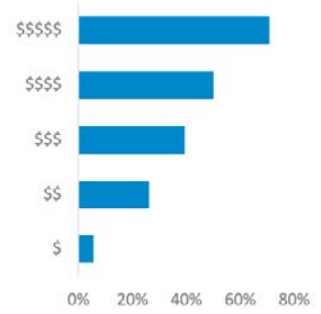
PARENTAL

Proportion born to young mothers

6.2.8 Variation in future outcomes by cost sub-groups

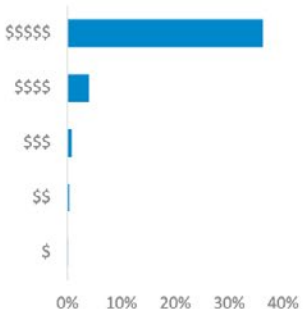
CHILD PROTECTION

Proportion expected to be reported at ROSH in future



CHILD PROTECTION

Proportion expected to have OOHC placement

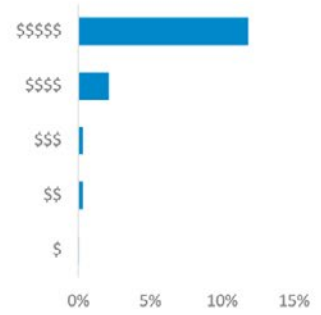


CHILD PROTECTION

Average expected years in OOHC

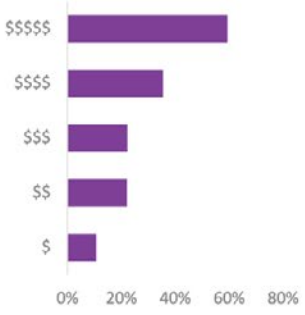
CHILD PROTECTION

Proportion of females whose children expected to require OOHC



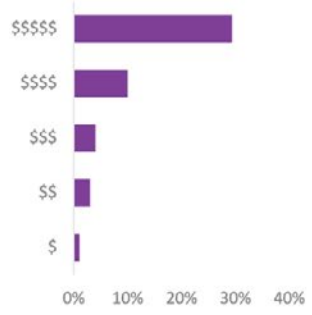
JUSTICE

Proportion expected to interact with justice system



JUSTICE

Proportion expected to enter custody

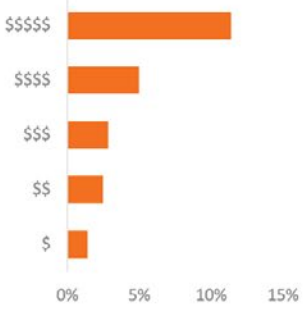


HEALTH

Proportion expected to use NSW hospitals

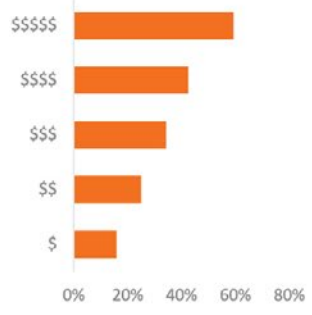
HEALTH

Proportion expected to be admitted to hospital for AOD



HEALTH

Proportion expected to use MH services (hospital or ambulatory)



HOUSING

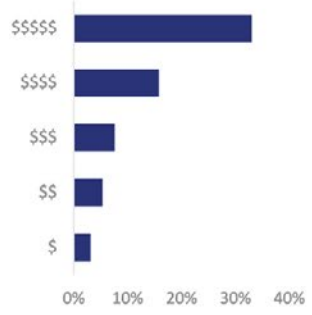
Proportion expected to use social housing as adults

EDUCATION

Proportion expected to complete the HSC

PARENTAL

Proportion of females expected to become a young mother



Section 6 3

Vulnerable group **Vulnerable young people transitioning to adulthood**

6.3.1 Summary by domain

Who is included in this vulnerable group?

Anyone born in NSW who was aged between 16 and 18 at 30 June 2017 with any of the following risk factors in the five years prior; justice system interactions or assessment at ROSH+

Who is included in the comparison group?

A randomly selected group with the same number and distribution of individuals by age, gender, Aboriginality, and socio-economic status (based on birth location) to that of the vulnerable group

What will the services to this vulnerable group cost the government compared to the comparison group?

- The **total estimated future cost of this group is $11.5B**, which is equivalent to **an average cost of $382k per person.**
- **Total estimated future cost is $7.1B more than the comparison group**, which is equivalent to an average difference of $235k per person.

What are their projected social outcomes under current policy and operational settings?

SOCIAL & COMMUNITY

- **Compared to the comparison group, females in this group are 12.2x more likely to have children who eventually enter OOHC, and are 3.4x more likely to become young mothers.**
- **Average future child protection costs for this group ($31k) are 20.0x higher than those of the comparison group.**

SAFETY

- **Compared to the comparison group, members of this group are 3.4x more likely to interact with the justice system in the future, and 8.1x more likely to enter custody.**
- **Average future justice costs for this group ($65k) are 7.3x higher than those of the comparison group.**

HOME

- **Compared to the comparison group, members of this group are 3.6x more likely to use social housing services in the future.**
- **Average future housing costs for this group ($22k) are 3.5x higher than those of the comparison group.**

EDUCATION & SKILLS

- **37% of this group are projected to complete the HSC, compared to 60% of the comparison group.**
- **The only direct education costs included in the model are RAM equity loadings and these do not differ due to how we have selected the comparison group.**

HEALTH

- **Individuals in this group are 4.3x more likely to have alcohol and other drugs related hospital admissions in the future, and 3.0x more likely to use mental health services (NSW hospital or ambulatory).**
- **Average future health costs for this group ($43k) are 2.9x higher than those of the comparison group.**

ECONOMIC

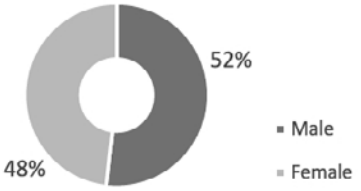
- **Overall future welfare costs for this group ($201k) are 2.0x higher than those of the comparison group.**

6.3.2 About this vulnerable group

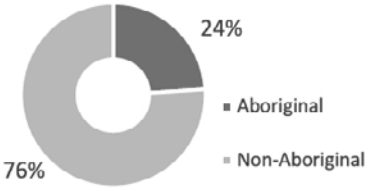
Number in group

30,065
(1.3% of NSW born population)

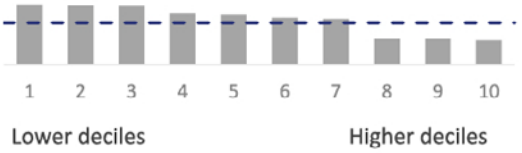
Gender



Aboriginal

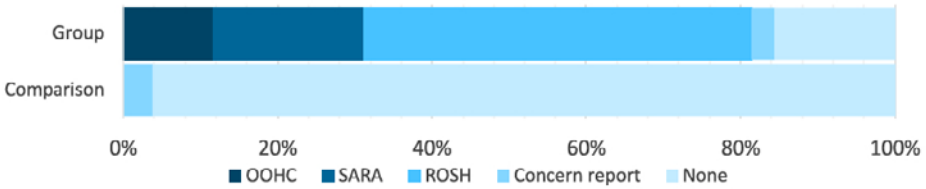


Distribution of socio-economic decile at birth

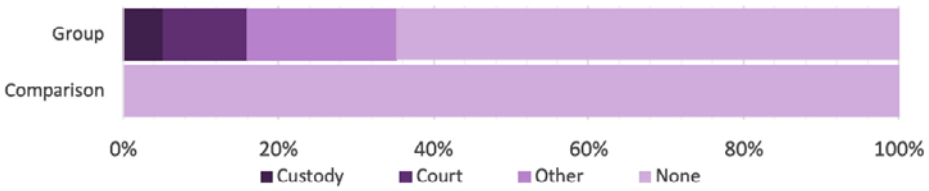


Distribution of age at 30 June 2017

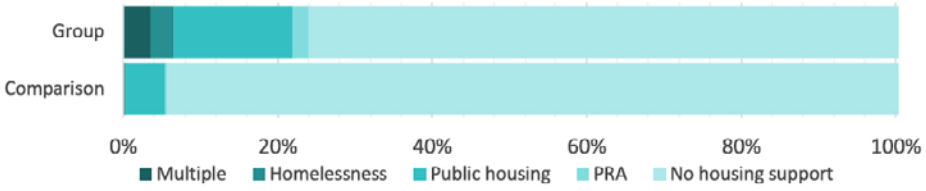
Highest level of interaction with child protection over the last 5 years



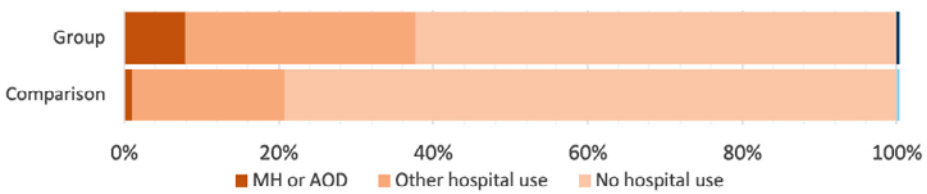
Highest level of interaction with justice system over the last 5 years



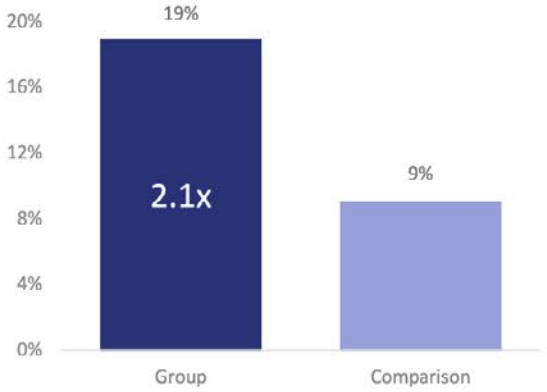
Housing support use over the last year



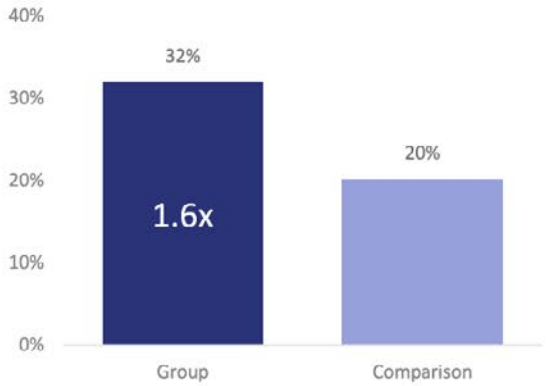
Proportion with NSW hospital admissions for AOD or MH over the last 5 years



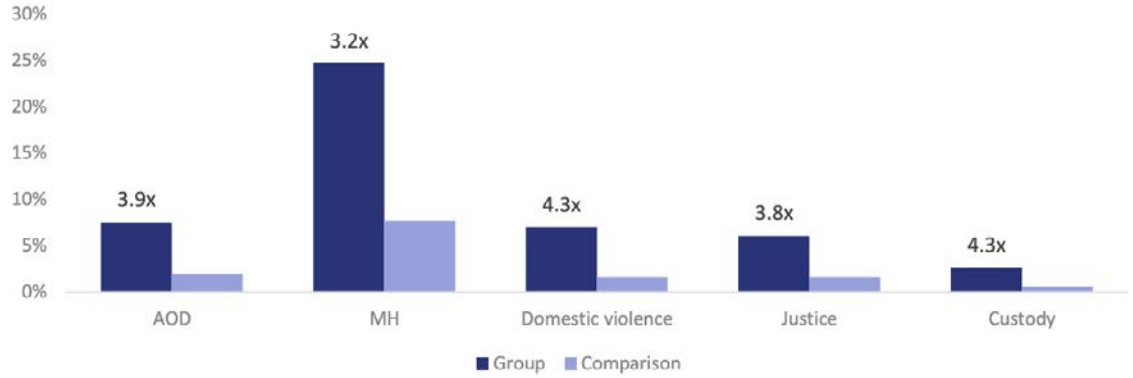
Proportion born to young mothers



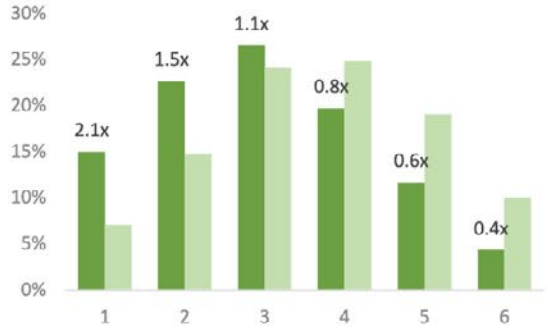
Proportion with two or more perinatal risk factors



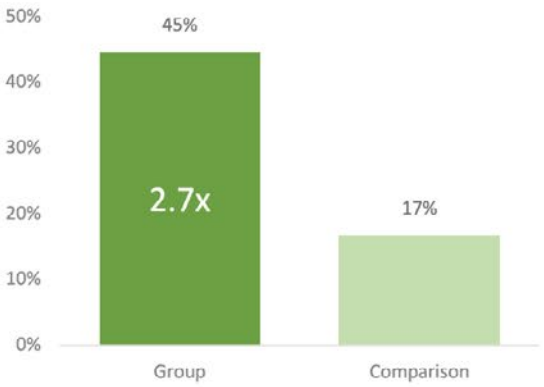
Proportion with a parent who have each of the following risk factors



Distribution of Year 3 NAPLAN results



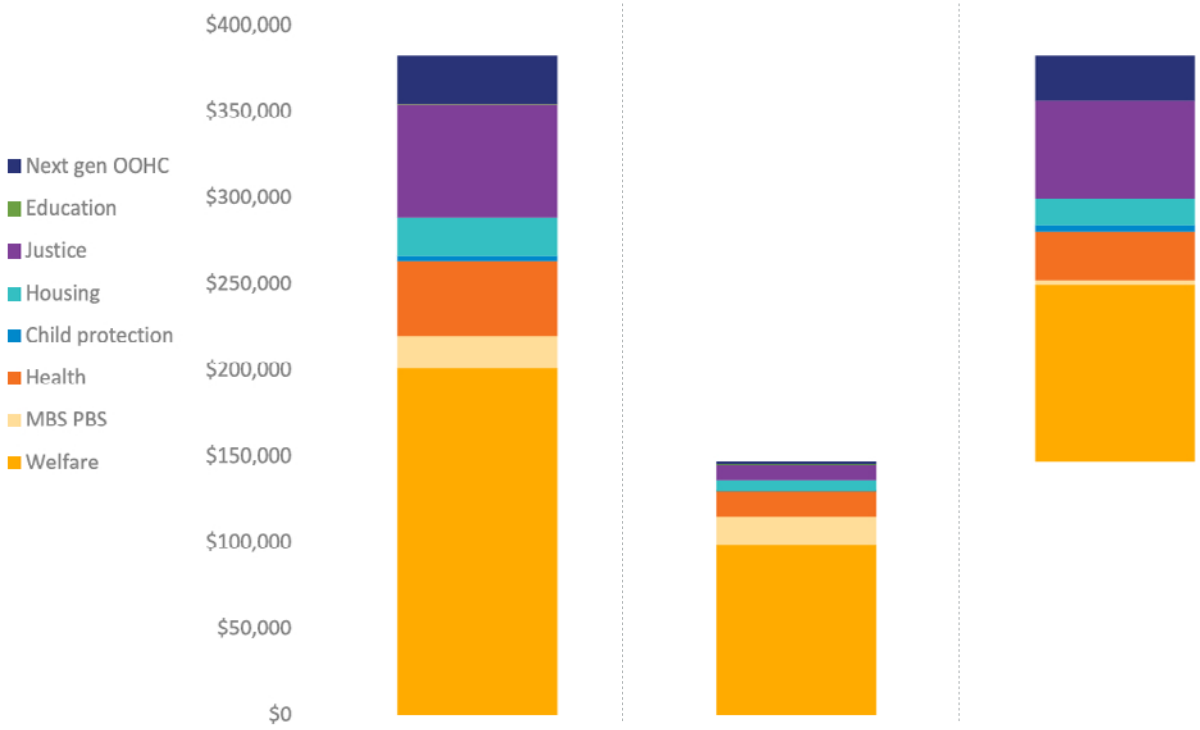
Proportion with unexpected government school moves[43]



43 Different proportions of individuals attending government versus non-government schools may explain some of the difference with the comparison group

6.3.3 Estimated future cost of government services

	Vulnerable group	Comparison group	The difference
Total estimated future cost	$11.5b	$4.4b	$7.1b
Average estimated future cost	$382k	$147k	$235k

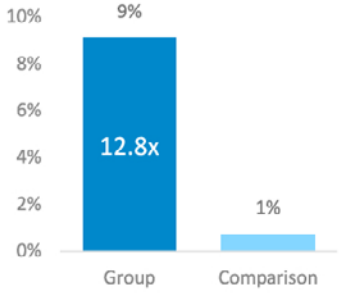


Male average estimated future cost	$370k	$134k	$236k
Female average estimated future cost	$396k	$162k	$234k
Aboriginal average estimated future cost	$635k	$298k	$337k
Non-Aboriginal average estimated future cost	$302k	$100k	$202k

6.3.4 Projected future social outcomes

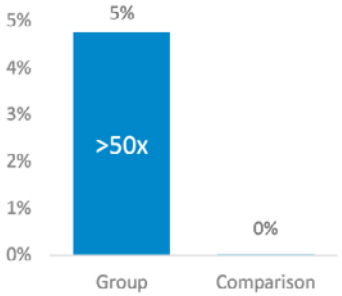
CHILD PROTECTION

Proportion expected to be reported at ROSH in future



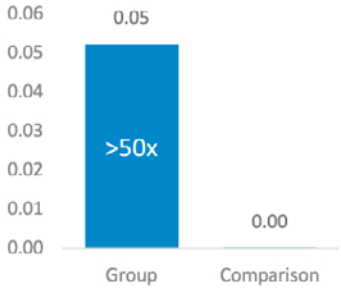
CHILD PROTECTION

Proportion expected to have OOHC placement



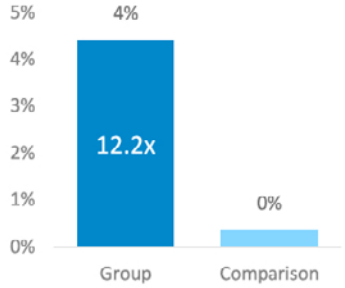
CHILD PROTECTION

Average expected years in OOHC



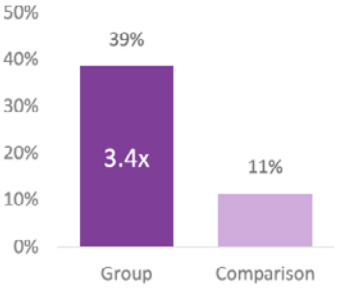
CHILD PROTECTION

Proportion of females whose children expected to require OOHC



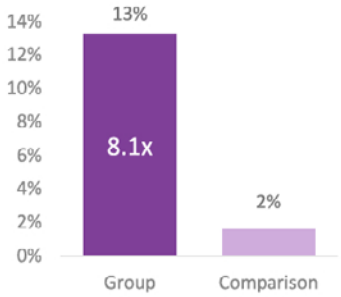
JUSTICE

Proportion expected to interact with justice system



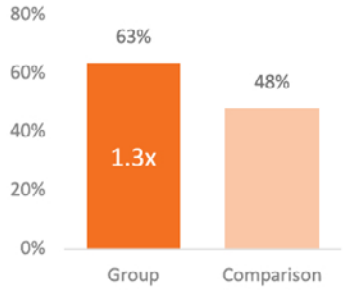
JUSTICE

Proportion expected to enter custody



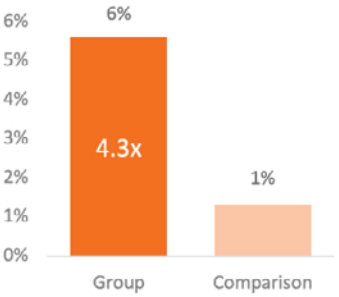
HEALTH

Proportion expected to use NSW hospitals



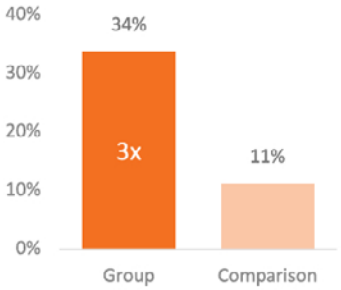
HEALTH

Proportion expected to be admitted to hospital for AOD



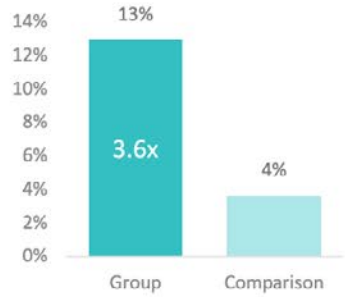
HEALTH

Proportion expected to use NSW MH services (hospital or ambulatory)



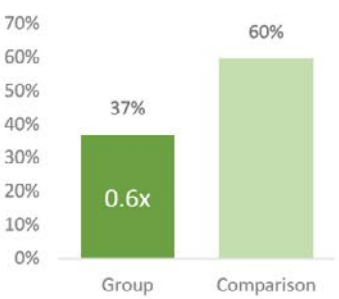
HOUSING

Proportion expected to use social housing as adults



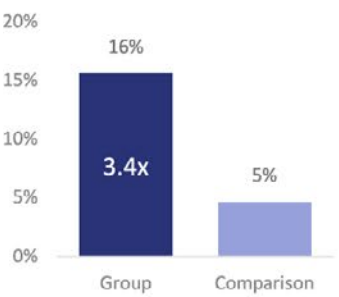
EDUCATION

Proportion expected to complete the HSC



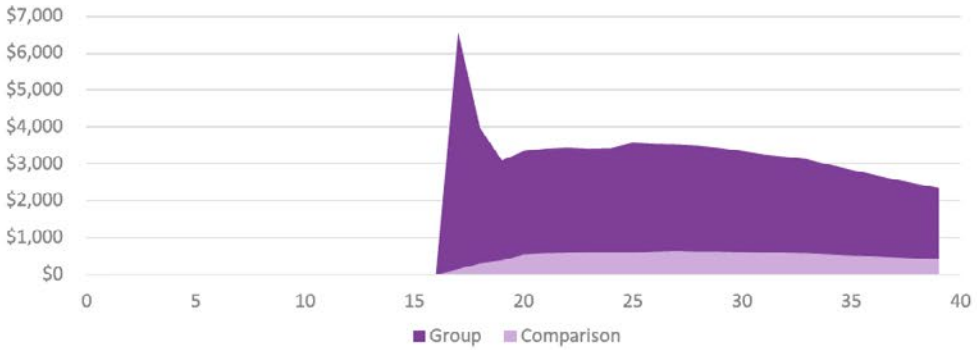
PARENTHOOD

Proportion of females expected to become a young mother

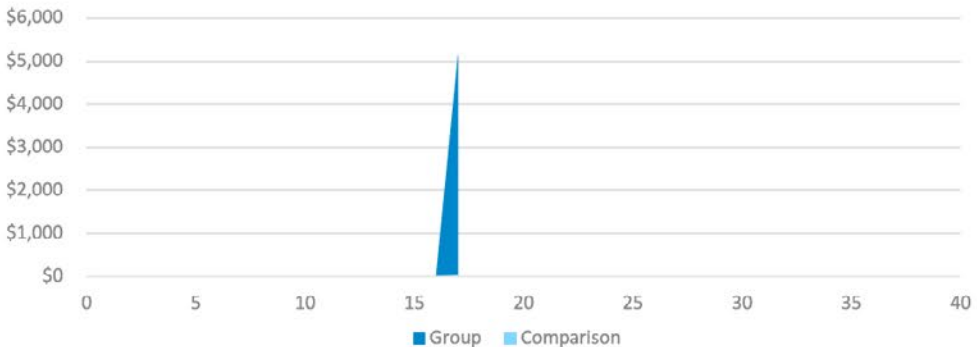


6.3.5 Pathways — Annual estimated future cost for a typical 16 year old[44]

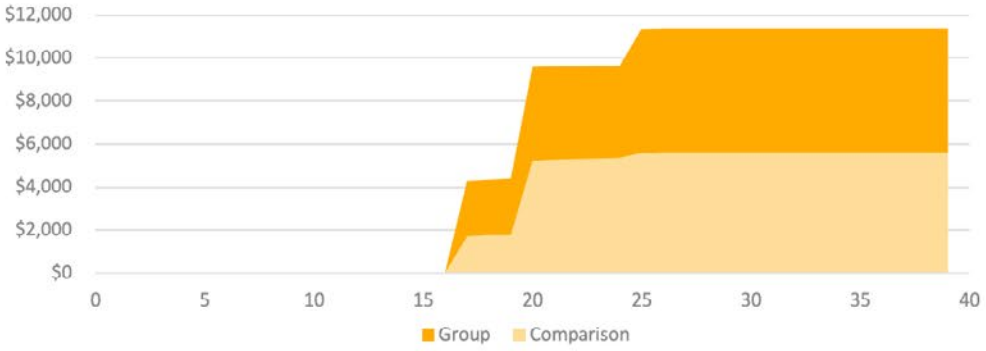
JUSTICE



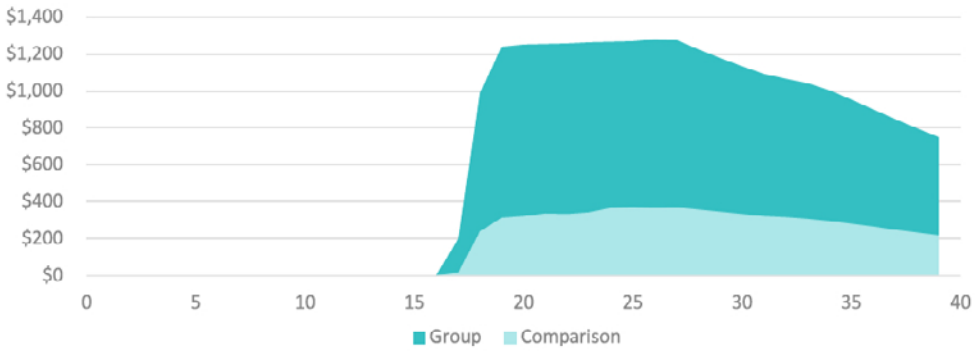
CHILD PROTECTION



WELFARE

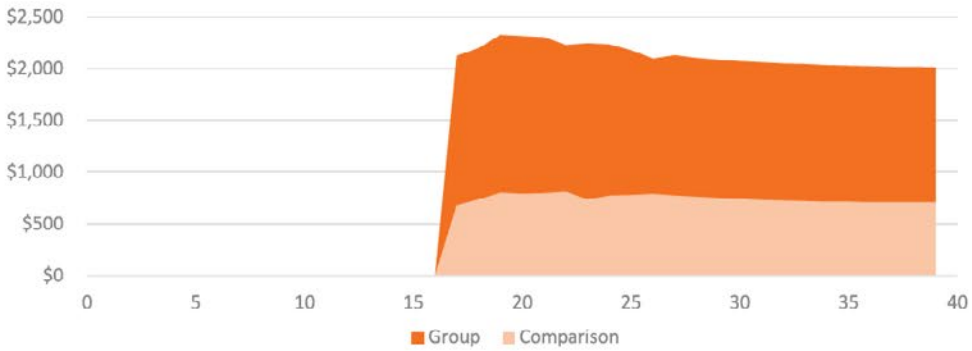


HOUSING

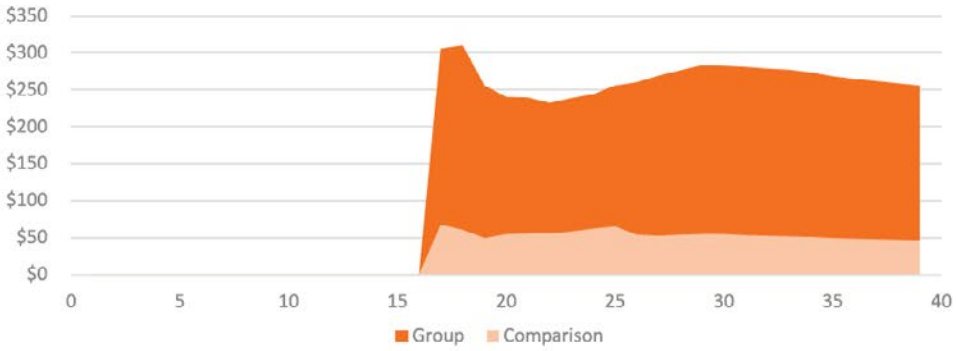


44 Refer to section 5 — How to interpret the results

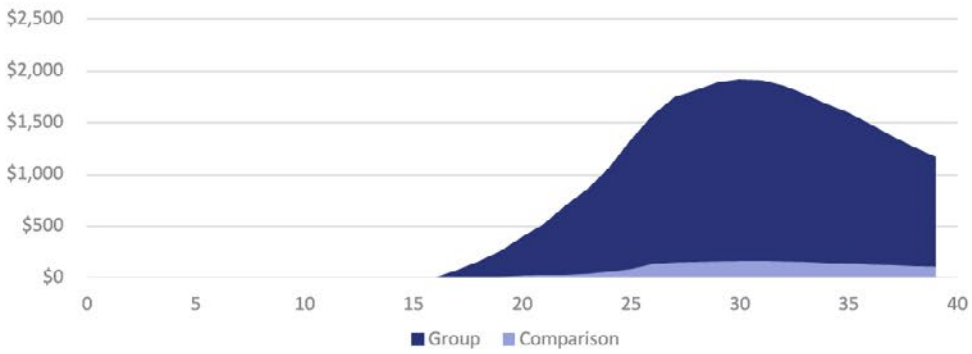
HEALTH



NSW AMBULATORY MH



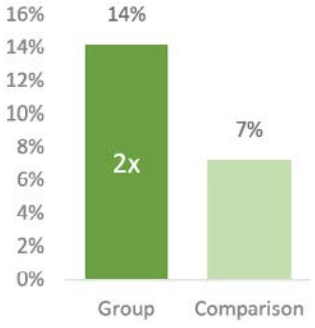
NEXT GEN OOHC



EDUCATION [45]

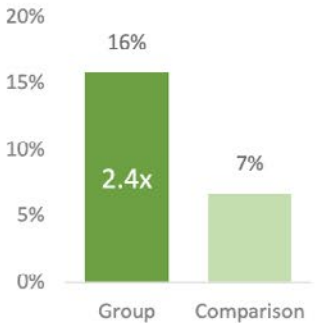
Year 3 NAPLAN

Proportion in lowest band

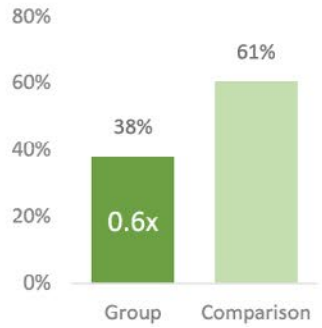


Year 7 NAPLAN

Proportion in lowest band



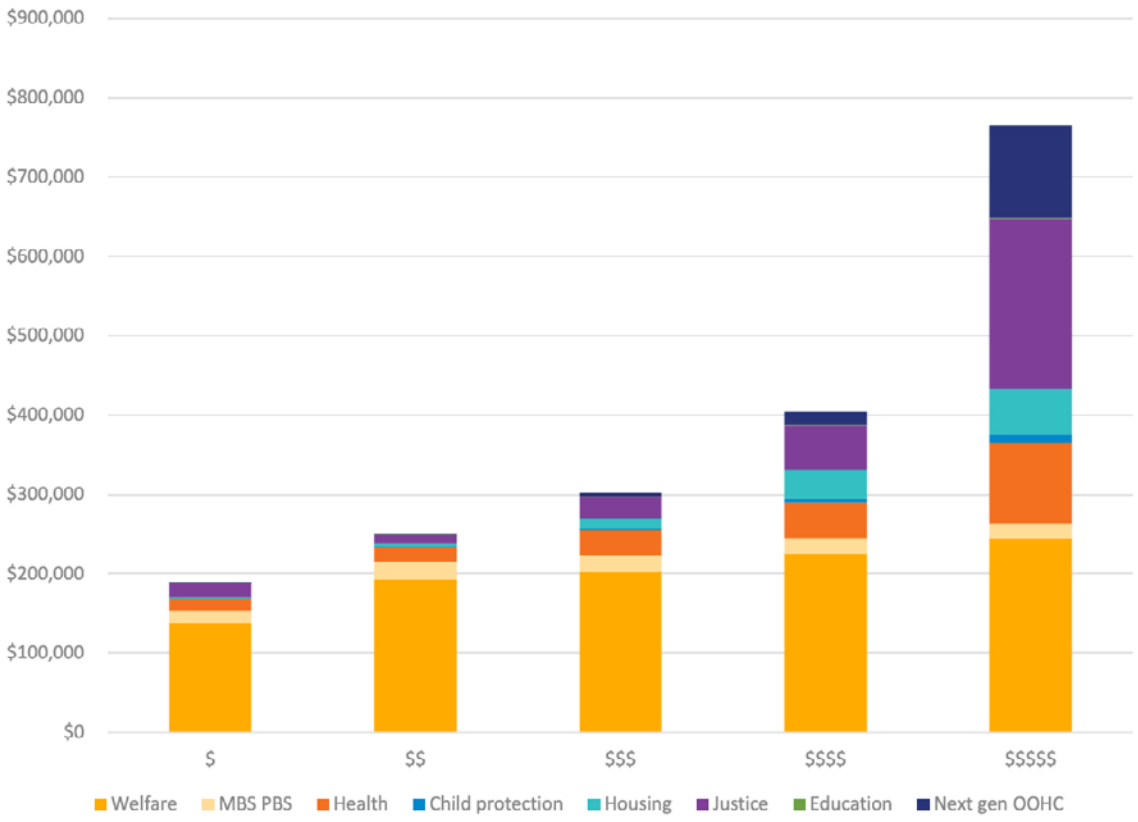
Proportion who complete HSC



45 The only direct education costs included in the model are RAM equity loadings and these do not differ due to how we have selected the comparison group For completeness, we compare educational attainment — drawing on a mixture of past data and our future projections

6.3.6 Within group variation — Estimated future costs and summary

We have divided the vulnerable group into five cost sub-groups ranging from lowest to highest expected future cost, to better define those with the poorest future outcomes:



The sub-group with the highest estimated future service and support costs ($$$$$) in this group has an average estimated future cost of $764k.

This is 4.0x the cost of the least expensive sub-group ($).

The within-group cost differences are driven by individual and family characteristics:

- 22% of the highest cost sub-group spent time in custody over the last 5 years compared to 0% of the lowest cost sub-group
- 26% of the highest cost sub-group were in OOHC over the last 5 years compared to 3% of the lowest cost sub-group
- 46% of the highest cost sub-group used MH services over the last 5 years compared to 8% of the lowest cost sub-group.

These characteristics also drive differences within the group in future social outcomes:

- 39% of the highest cost sub-group are expected to enter custody in the future compared to 5% of the lowest cost sub-group
- 32% of females in the highest cost sub-group are expected to become young mothers in the future compared to 5% of the lowest cost sub-group
- 13% of the highest cost sub-group are expected to complete the HSC compared to 50% of the lowest cost sub-group

The difference in past characteristics and future outcomes of the five cost sub-groups within the group is shown over the following pages

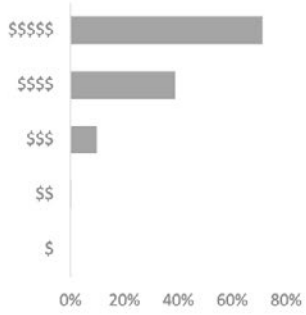
6.3.7 Variation in past characteristics by cost sub-groups

DEMOGRAPHICS

Proportion male

DEMOGRAPHICS

Proportion Aboriginal



CHILD PROTECTION

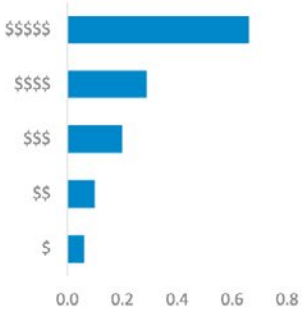
Proportion with ROSH report in last 5 years

CHILD PROTECTION

Proportion who have had at least one OOHC placement in last 5 years

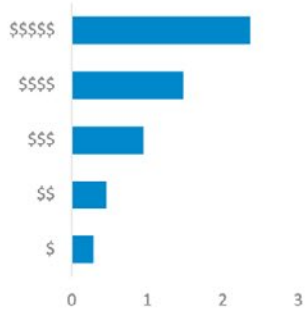
CHILD PROTECTION

Average number of OOHC placement changes per year



CHILD PROTECTION

Average number of years spent in OOHC

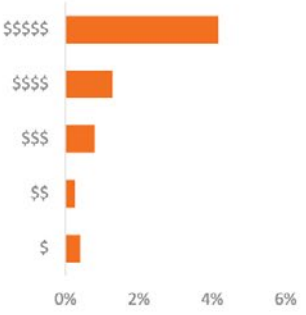


HEALTH

Proportion admitted to hospital in last 5 years

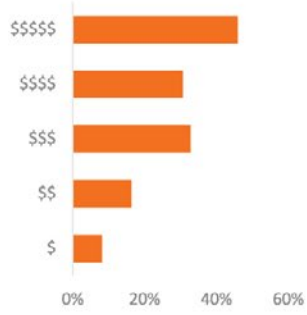
HEALTH

Proportion with at least one AOD hospital admission in last 5 years



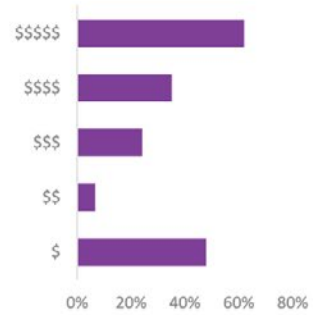
HEALTH

Proportion who used NSW MH services in last 5 years



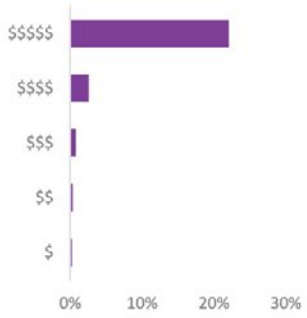
JUSTICE

Proportion with an interaction with the justice system in last 5 years



JUSTICE

Proportion who have spent time in custody in last 5 years

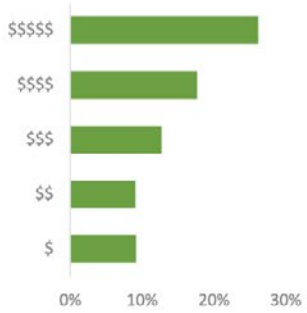


HOUSING

Proportion in social housing at 30 June 2017

EDUCATION

Year 3 NAPLAN
Proportion in lowest band



EDUCATION

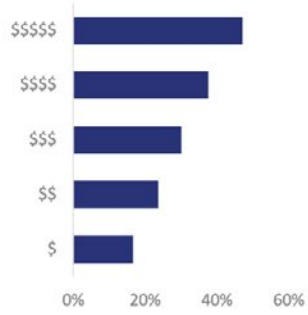
Proportion with unexpected government school moves

HOUSING

Proportion who used homelessness services over last year

PARENTAL

Proportion with at least one parental risk factor in last 5 years

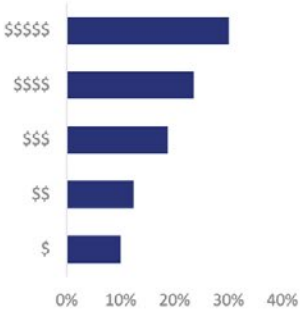


PARENTAL

Proportion with significant perinatal risk factors

PARENTAL

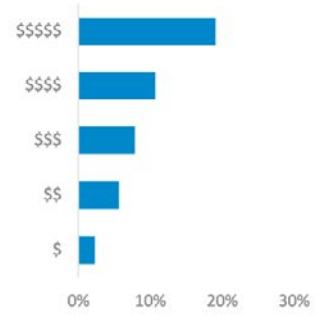
Proportion born to young mothers



6.3.8 Variation in future outcomes by cost sub-groups

CHILD PROTECTION

Proportion expected to be reported at ROSH in future

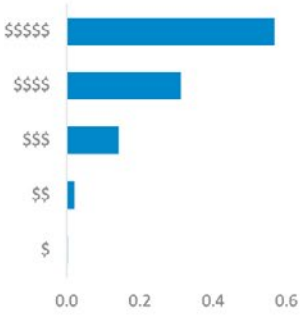


CHILD PROTECTION

Proportion expected to have OOHC placement

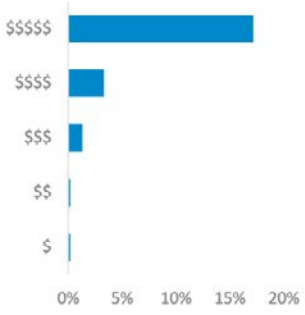
CHILD PROTECTION

Average expected years in OOHC



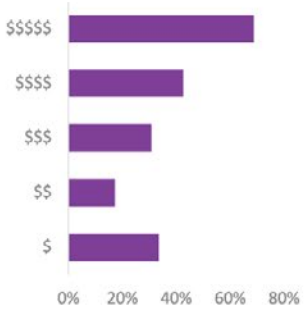
CHILD PROTECTION

Proportion of females whose children expected to require OOHC



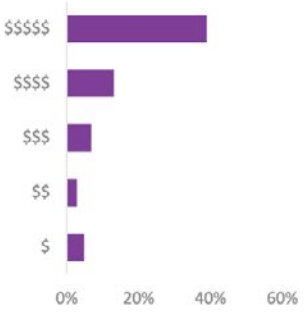
JUSTICE

Proportion expected to interact with justice system



JUSTICE

Proportion expected to enter custody



HEALTH

Proportion expected to use NSW hospitals

HEALTH

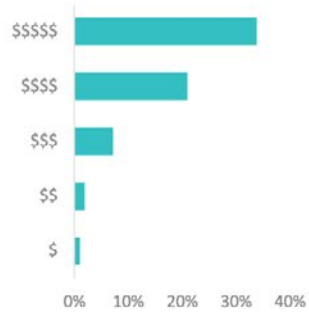
Proportion expected to be admitted to hospital for AOD

HEALTH

Proportion expected to use MH services (hospital or ambulatory)

HOUSING

Proportion expected to use social housing as adults



EDUCATION

Proportion completed or expected to complete the HSC

PARENTAL

Proportion of females expected to become a young mother

Section 7

Vulnerable Group — Young mothers and their children

7.1 Estimated future cost of services for young mothers and their children

Who is included in this vulnerable group?

Females born in NSW aged 21 or younger at 30 June 2017 with at least one child, and the children of Young mothers

Who is included in the comparison group?

A randomly selected group with the same number and distribution of individuals by age, gender, Aboriginality, and socio-economic status (based on birth location) to that of the vulnerable group

What will the cost of services be for this vulnerable group?

- **The total estimated future cost of this vulnerable group is $6.1B**
- **This is $2.4B more than the comparison group**

	Vulnerable group	Comparison group	The difference
Total estimated future cost	$6.1B	$3.7B	$2.4B
Average estimated future cost	$902k	$548k	$354k

The following two subsections explore in detail the service use and outcome pathways of young mothers and their children separately This separation is to cater for the different life stage of young mothers compared to their children, which means that key reporting outcomes differ between the two groups For example, projected early childhood education outcomes are not applicable to young mothers

Section 7.2

Vulnerable group
Young mothers

7.2.1 Summary by domain

Who is included in the analysis of the group of young mothers?

This is the separate analysis of young mothers from the 'young mothers and their children vulnerable' group This section explores in detail their service use and outcome pathways It includes females aged 21 or younger at 30 June 2017 with at least one child This separate analysis is to cater for the different life stage of young mothers compared to their children

Who is included in the comparison group?

A randomly selected group with the same number and distribution of individuals by age, gender, Aboriginality, and socio-economic status (based on birth location) as the group of young mothers

What will the services for this group cost the government compared to the comparison group?

- The **total estimated future cost of the group of young mothers is $3.1B,** which is equivalent to **an average cost of $466k per person.**
- **Total estimated future cost is $1.9B more than the comparison group,** which is equivalent to an average difference of $279k per person.
- If we exclude next generation OOHC costs in relation to current children, then the **total estimated future cost of this group of young mothers is $2.6B**, which is equivalent to **an average cost of $389k per person.**

What are their projected social outcomes under current policy and operational settings?

SOCIAL & COMMUNITY	• **Compared to the comparison group, females of this group are 14.7x more likely to have children who eventually enter OOHC.** • **Average future child protection costs for this group ($160k) are 22x higher than those of the comparison group. About half of this cost relates to current children and the other half relates to children that are projected to be born in the future.**
SAFETY	• **Compared to the comparison group, members of this group are 2.8x more likely to interact with the justice system in the future, and 4x more likely to enter custody.** • **Average future justice costs for this group ($24k) are 3.4x higher than those of the comparison group.**
HOME	• **Compared to the comparison group, members of this group are 4.2x more likely to use social housing services in the future.** • **Average future housing costs for this group ($34k) are 3.6x higher than those of the comparison group.**
EDUCATION & SKILLS	• **20% of this group are projected to complete the HSC, compared to 58% of the comparison group.** • **The only direct education costs included in the model are RAM equity loadings and these do not differ due to how we have selected the comparison group.**
HEALTH	• **Individuals in this group are 2.9x more likely to have alcohol and other drugs related hospital admissions in the future, and 2.3x more likely to use mental health services (NSW hospital or ambulatory).** • **Average future health costs for this group ($54k) are 3x higher than those of the comparison group.**

ECONOMIC

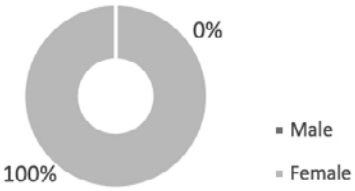
- Overall future welfare costs for this group ($174k) are 1.4x higher than those of the comparison group.

7.2.2 About this group

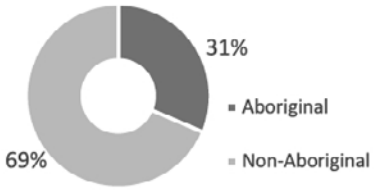
Number in group

6,725
(0.3% of NSW born population)

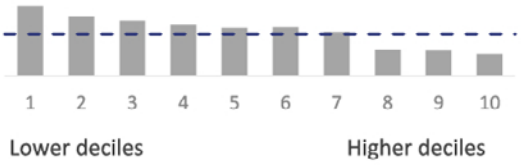
Gender



Aboriginal

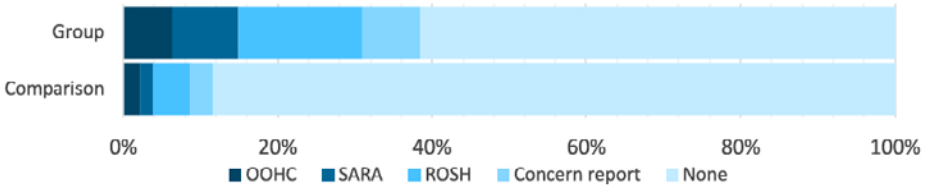


Distribution of socio-economic decile at birth

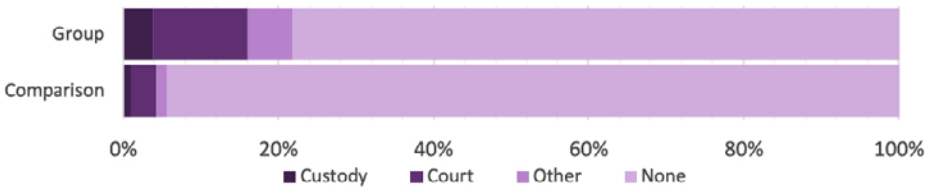


Distribution of age at 30 June 2017

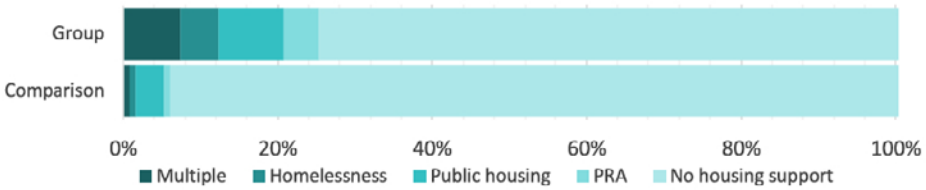
Highest level of interaction with child protection over the last 5 years



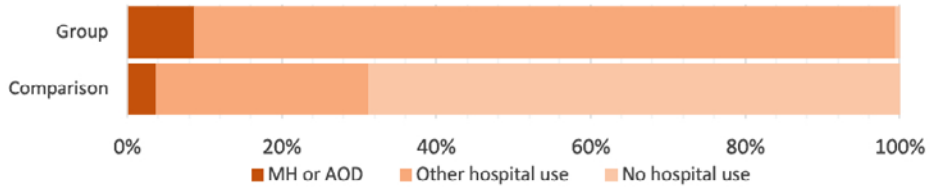
Highest level of interaction with justice system over the last 5 years



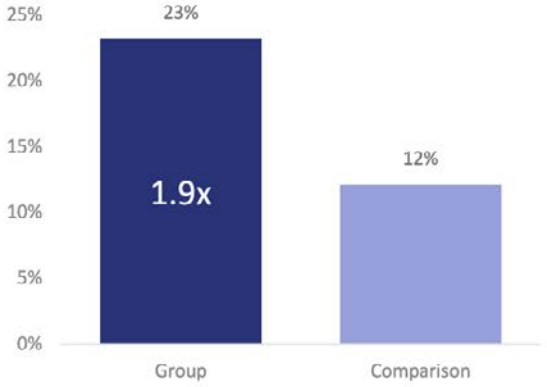
Housing support use over the last year



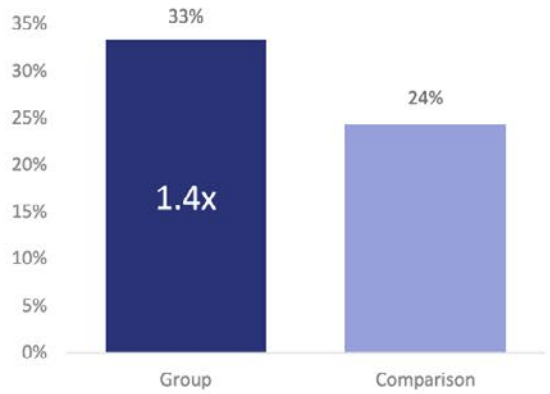
Proportion with NSW hospital admissions for AOD or MH over the last 5 years



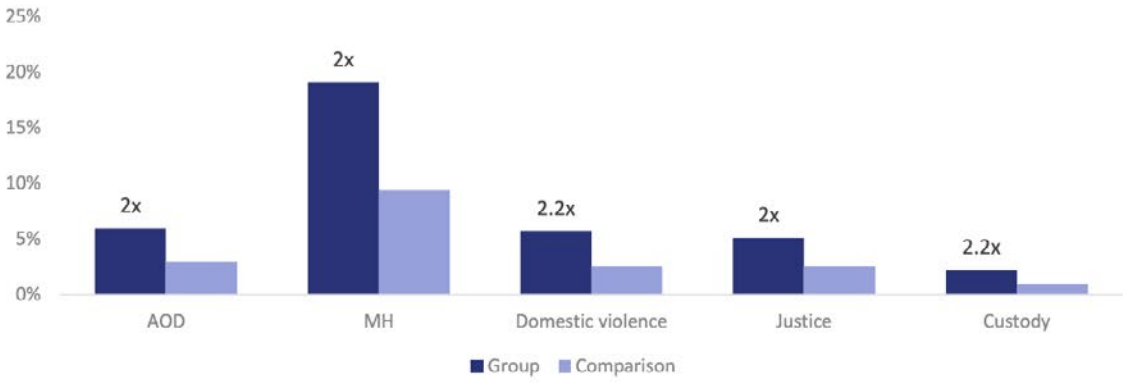
Proportion born to young mothers



Proportion with two or more perinatal risk factors

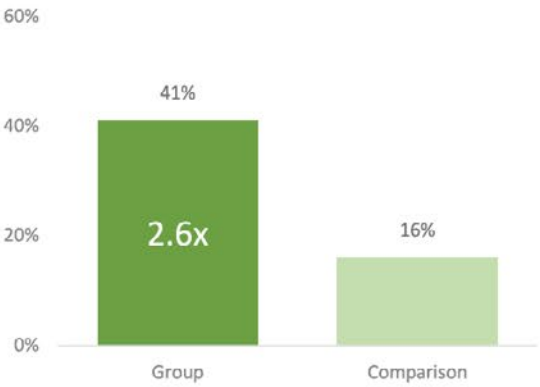


Proportion with a parent who have each of the following risk factors



Distribution of Year 3 NAPLAN results

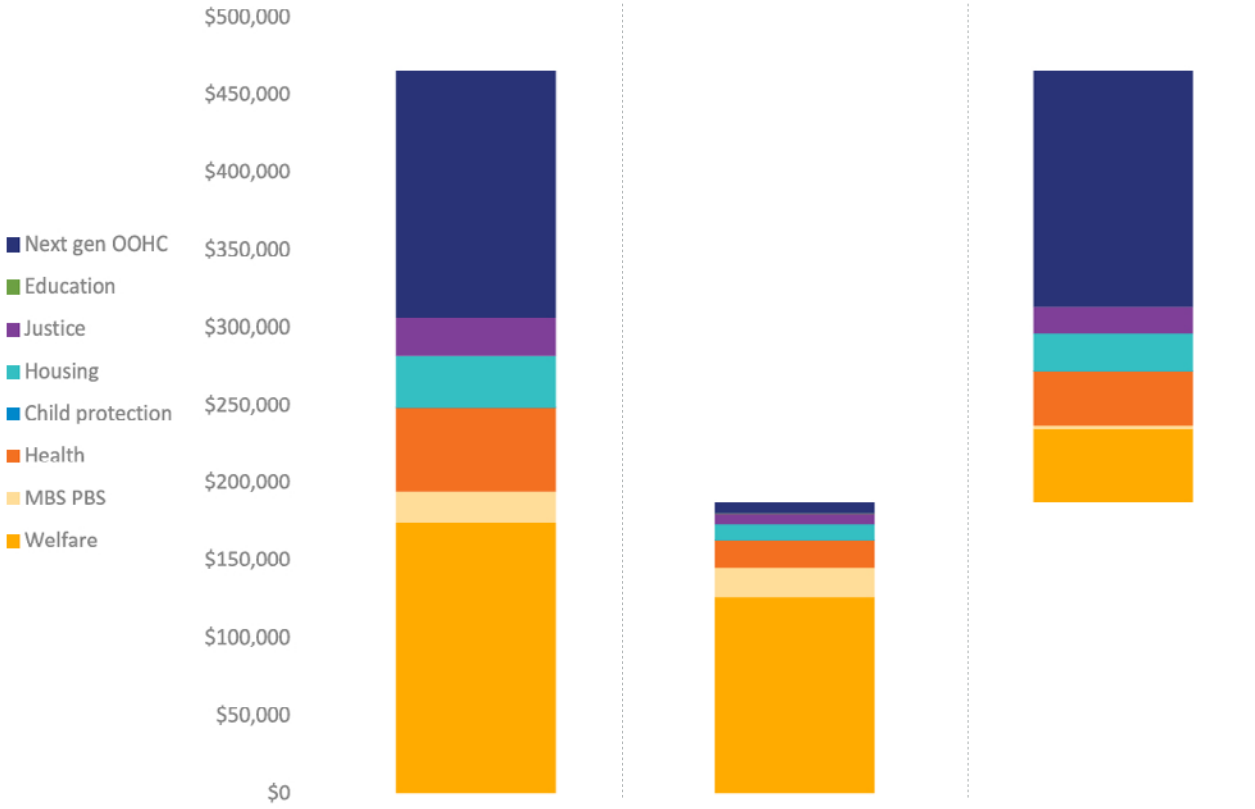
Proportion with unexpected government school moves[46]



46 Different proportions of individuals attending government versus non-government schools may explain some of the difference with the comparison group

7.2.3 Estimated future cost of government services

	Young mothers	Comparison group	The difference
Total estimated future cost	$3.1B	$1.3B	$1.9B
Average estimated future cost	$466k	$187k	$279k

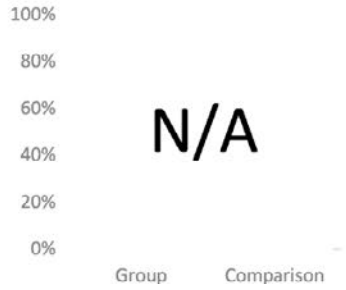


Male average estimated future cost	N/A	N/A	N/A
Female average estimated future cost	$466k	$187k	$279k
Aboriginal average estimated future cost	$772k	$348k	$424k
Non-Aboriginal average estimated future cost	$326k	$114k	$212k

7.2.4 Projected future social outcomes

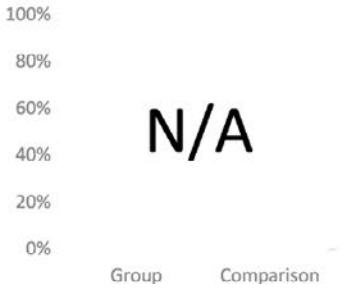
CHILD PROTECTION

Proportion expected to be reported at ROSH in future



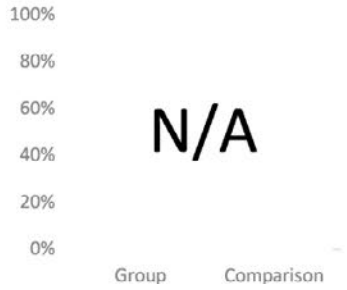
CHILD PROTECTION

Proportion expected to have OOHC placement



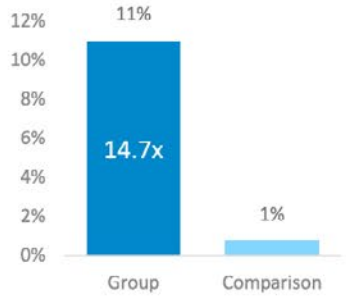
CHILD PROTECTION

Average expected years in OOHC



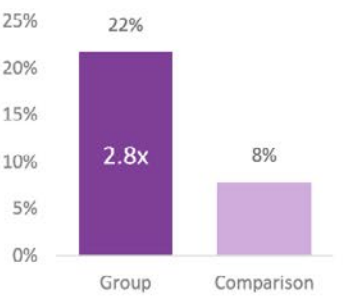
CHILD PROTECTION

Proportion of females whose children expected to require OOHC



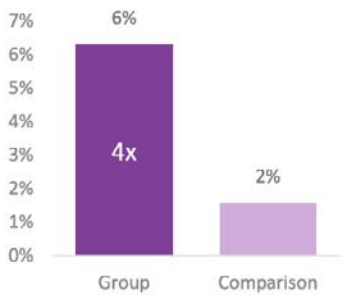
JUSTICE

Proportion expected to interact with justice system



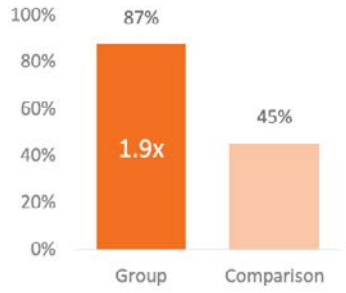
JUSTICE

Proportion expected to enter custody



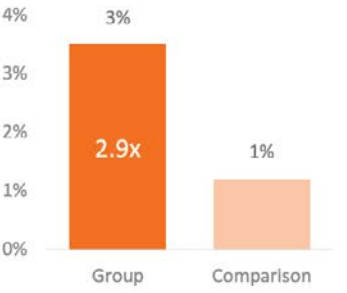
HEALTH

Proportion expected to use NSW hospitals



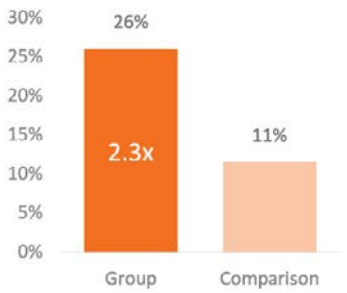
HEALTH

Proportion expected to be admitted to hospital for AOD



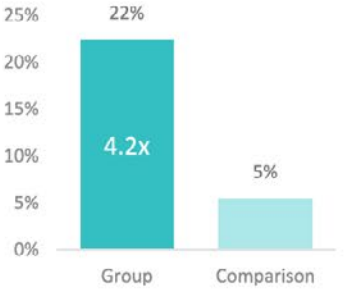
HEALTH

Proportion expected to use NSW MH services (hospital or ambulatory)



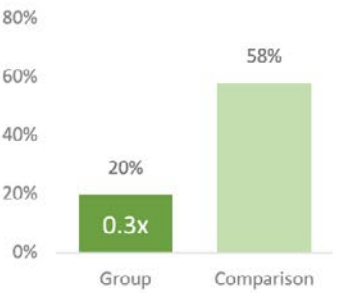
HOUSING

Proportion expected to use social housing as adults



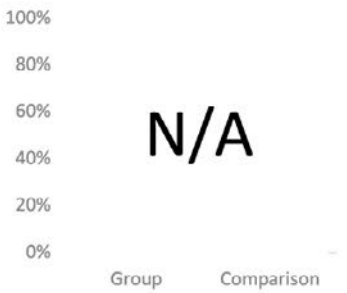
EDUCATION

Proportion expected to complete the HSC



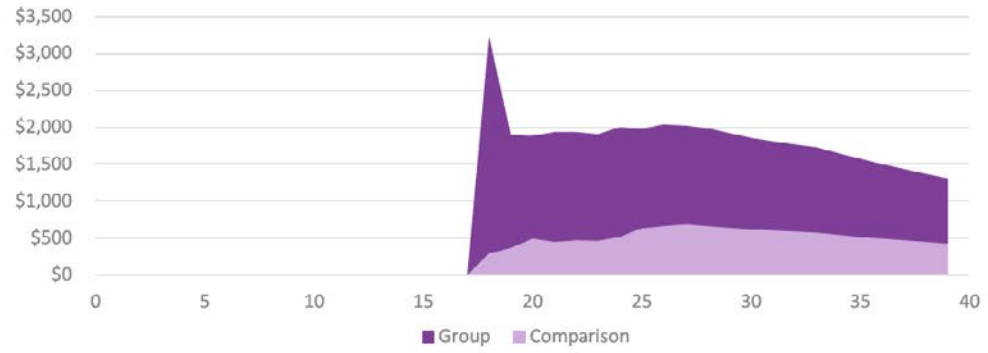
PARENTHOOD

Proportion of females expected to become a young mother

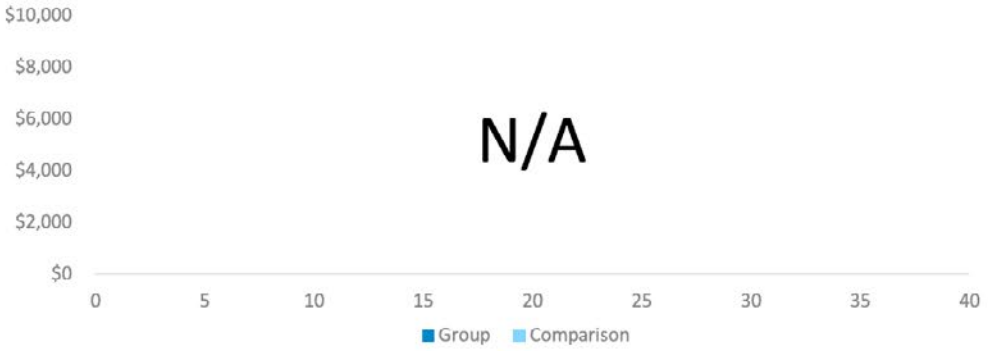


7.2.5 Pathways — annual estimated future cost for a typical 17 year old[47]

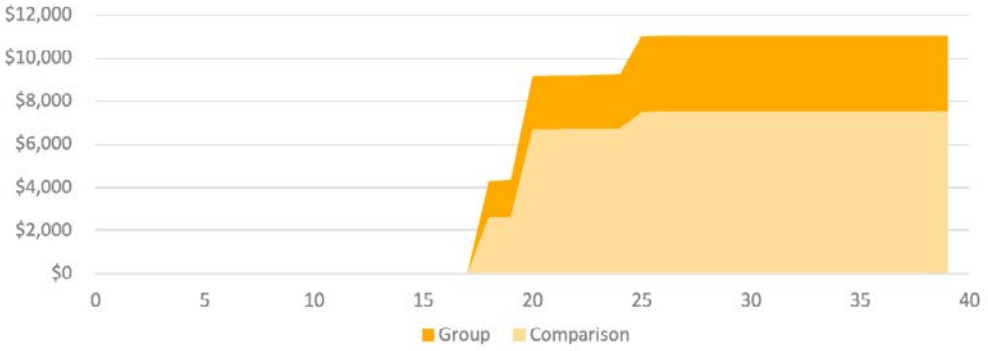
JUSTICE



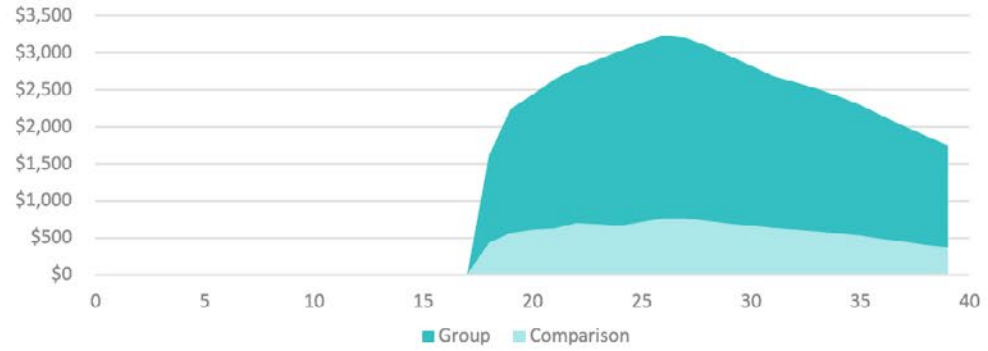
CHILD PROTECTION



WELFARE

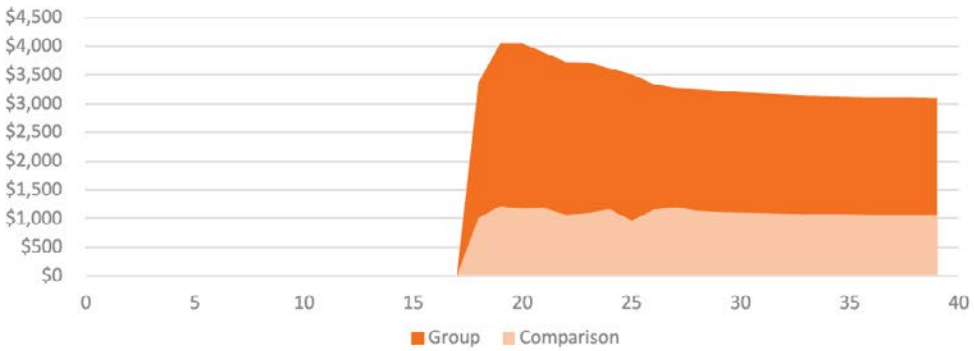


HOUSING

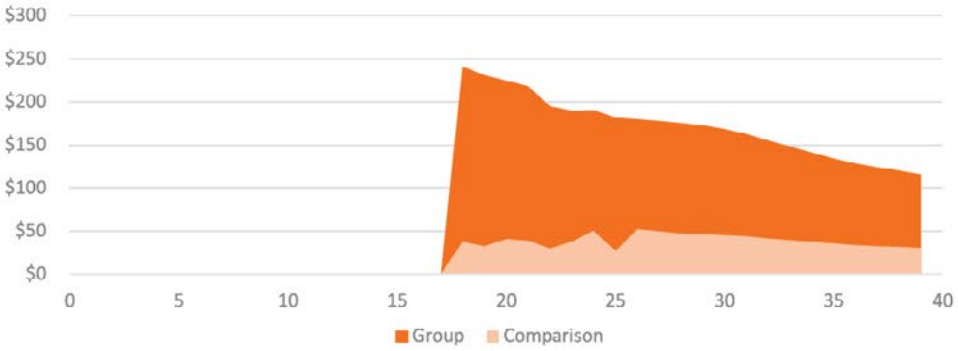


47 Refer to section 5 — How to interpret the results

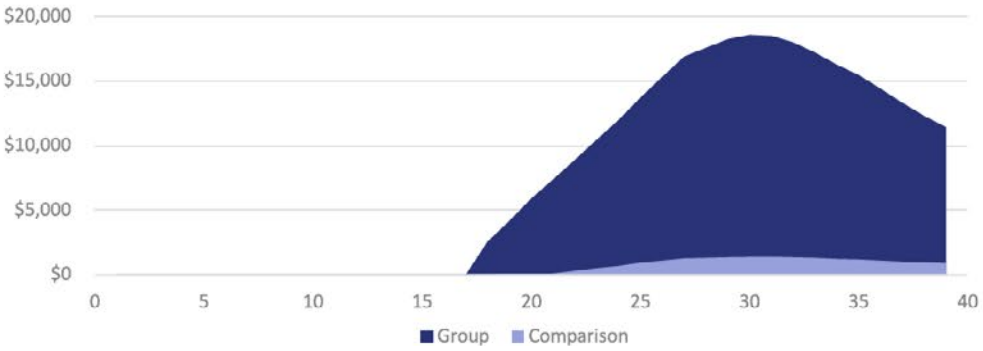
HEALTH



NSW AMBULATORY MH



NEXT GEN OOHC



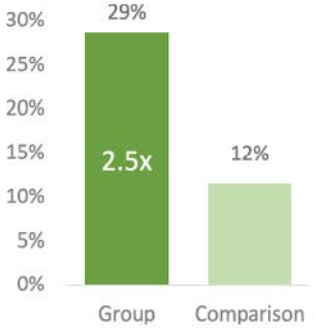
EDUCATION [48]

Year 3 NAPLAN

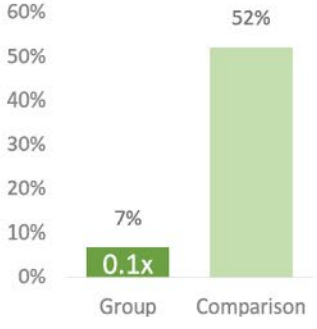
Proportion in lowest band

Year 7 NAPLAN

Proportion in lowest band



Proportion[49] who complete HSC

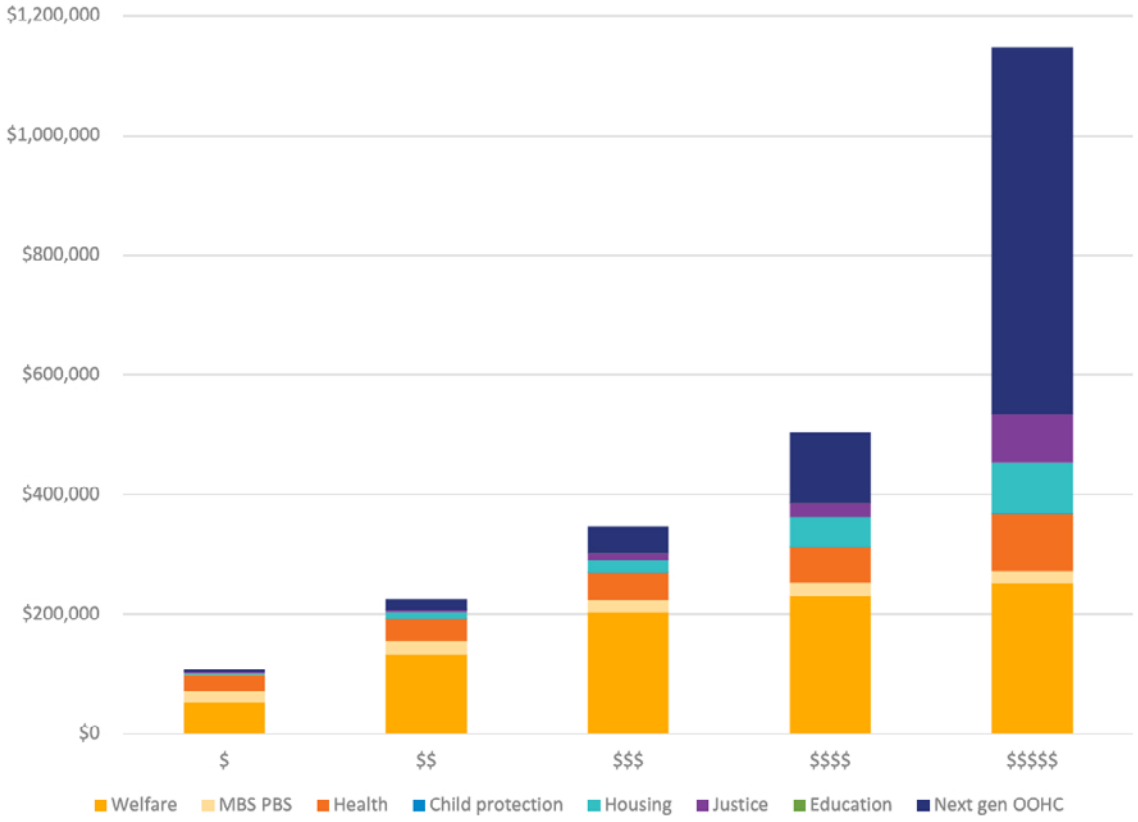


48 The only direct education costs included in the model are RAM equity loadings and these do not differ due to how we have selected the comparison group For completeness, we compare educational attainment — drawing on a mixture of past data and our future projections

49 Proportion for a typical 17 year old from the group In this case, the proportion would vary widely depending on the age at birth of first child

7.2.6 Within group variation — estimated future costs and summary

We have divided the young mothers group into five cost sub-groups ranging from lowest to highest estimated future cost of services, to better define those with the poorest future outcomes:



The sub-group with the highest estimated future service and support costs ($$$$$) in this group has an average estimated future cost of $1,147k.

This is 10.7x the cost of the least expensive sub-group ($).

The within-group cost differences are driven by individual and family characteristics:

- 67% of the highest cost sub-group were assessed at ROSH in the last 5 years compared to 0% of the lowest cost sub-group
- 60% of the highest cost sub-group had an interaction with the justice system in the last 5 years compared to 0% of the lowest cost sub-group
- 54% of the highest cost sub-group used mental health services in the last 5 years compared to 8% of the lowest cost sub-group.

These characteristics also drive differences within the group in future social outcomes:

- 37% of females in the highest cost sub-group are expected to have children requiring OOHC compared to 1% of the lowest cost sub-group
- 55% of the highest cost sub-group are expected to enter social housing in the future compared to 1% of the lowest cost sub-group.

The differences in past characteristics and future outcomes of the five cost sub-groups within the group is shown over the following pages

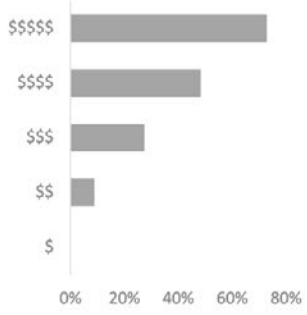
7.2.7 Variation in past characteristics by cost sub-groups

DEMOGRAPHICS

Proportion male

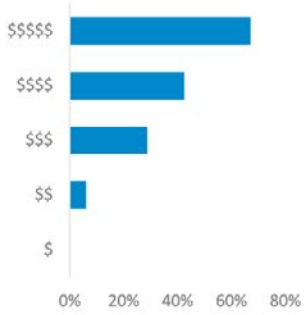
DEMOGRAPHICS

Proportion Aboriginal



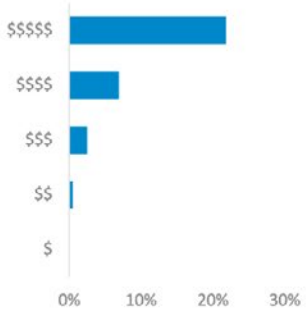
CHILD PROTECTION

Proportion with ROSH report in last 5 years



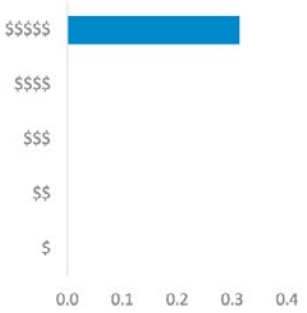
CHILD PROTECTION

Proportion who have had at least one OOHC placement in last 5 years



CHILD PROTECTION

Average number of OOHC placement changes per year



CHILD PROTECTION

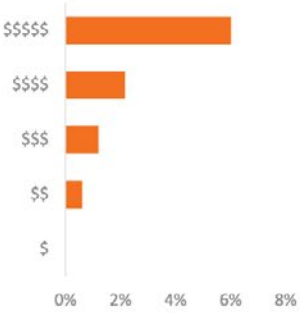
Average number of years spent in OOHC

HEALTH

Proportion admitted to hospital in last 5 years

HEALTH

Proportion with at least one AOD hospital admission in last 5 years

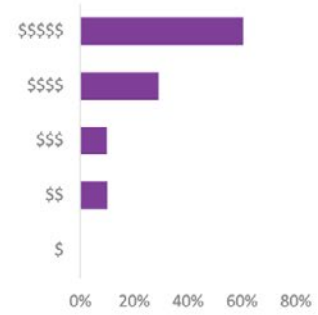


HEALTH

Proportion who used NSW MH services in last 5 years

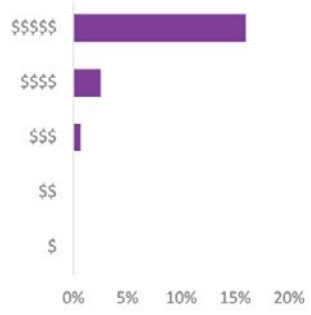
JUSTICE

Proportion with an interaction with the justice system in last 5 years



JUSTICE

Proportion who have spent time in custody in last 5 years



HOUSING

Proportion in social housing at 30 June 2017

EDUCATION

Year 3 NAPLAN

Proportion in lowest band

EDUCATION

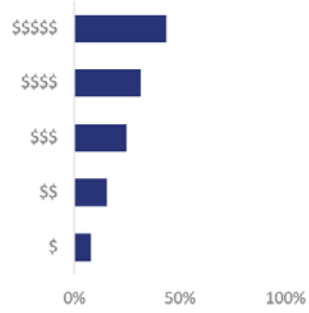
Proportion with unexpected government school moves

HOUSING

Proportion who used homelessness services over last year

PARENTAL

Proportion with at least one parental risk factor in last 5 years



PARENTAL

Proportion with significant perinatal risk factors

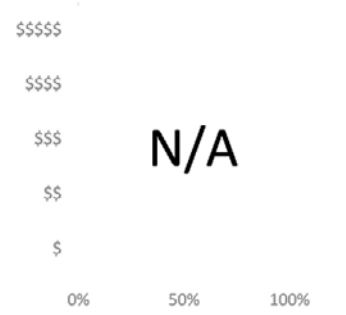
PARENTAL

Proportion born to young mothers

7.2.8 Variation in future outcomes by cost sub-groups

CHILD PROTECTION

Proportion expected to be reported at ROSH in future



CHILD PROTECTION

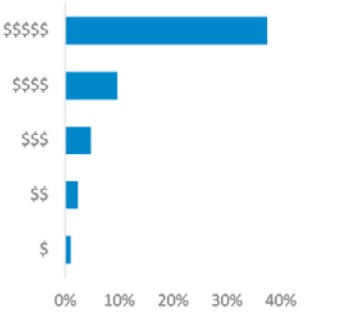
Proportion expected to have OOHC placement

CHILD PROTECTION

Average expected years in OOHC

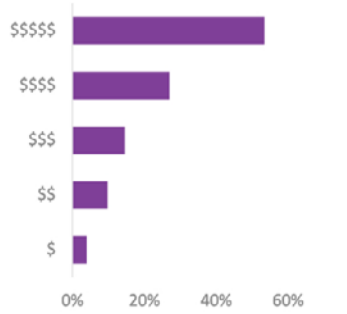
CHILD PROTECTION

Proportion of females whose children expected to require OOHC



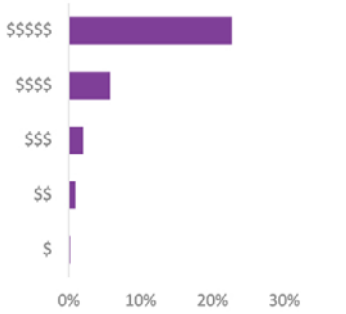
JUSTICE

Proportion expected to interact with justice system



JUSTICE

Proportion expected to enter custody

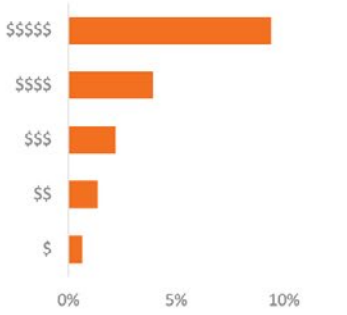


HEALTH

Proportion expected to use NSW hospitals

HEALTH

Proportion expected to be admitted to hospital for AOD



HEALTH

Proportion expected to use MH services (hospital or ambulatory)

HOUSING

Proportion expected to use social housing as adults

EDUCATION

Proportion completed or expected to complete the HSC

PARENTAL

Proportion of females expected to become a young mother

Section 7 3

Vulnerable group **Children of young mothers**

7.3.1 Summary by domain

Who is included in this group?

This is the separate analysis of children from the 'young mothers and their children vulnerable' group This section explores in detail their service use and outcome pathways It includes all children of females aged 21 or younger at 30 June 2017 This separate analysis is to cater for the different life stage of young mothers compared to their children

Who is included in the comparison group?

A randomly selected group with the same number and distribution of individuals by age, gender, Aboriginality, and socio-economic status (based on birth location) as the group of children

What will the services for this group cost the government compared to the comparison

- The **total estimated future cost of this group to age 40 is $3.4B**, which is equivalent to **an average cost of services of $409k per person.**
- **Total estimated future cost is $1.0B more than the comparison group,** which is equivalent to an average difference of $121k per person.

What are their projected social outcomes under current policy and operational settings?

SOCIAL & COMMUNITY

- **Compared to the comparison group, females of this group are 2.2x more likely to have children who eventually enter OOHC.**
- **Average future child protection costs for this group ($70k) are 2.1x higher than those of the comparison group.**

SAFETY

- **Compared to the comparison group, members of this group are 1.4x more likely to interact with the justice system in the future, and 1.7x more likely to enter custody.**
- **Average future justice costs for this group ($67k) are 1.7x higher than those of the comparison group.**

HOME

- **Compared to the comparison group, members of this group are 1.5x more likely to use social housing services in the future.**
- **Average future housing costs for this group ($15k) are 1.4x higher than those of the comparison group.**

EDUCATION & SKILLS

- **34% of this group are projected to complete the HSC, compared to 55% of the comparison group.**
- **The only direct education costs included in the model are RAM equity loadings and these do not differ due to how we have selected the comparison group.**

HEALTH

- **Individuals in this group are 1.5x more likely to have alcohol and other drugs related hospital admissions in the future, and 1.4x more likely to use mental health services (NSW hospital or ambulatory).**
- **Average future health costs for this group ($44k) are 1.3x higher than those of the comparison group.**

ECONOMIC

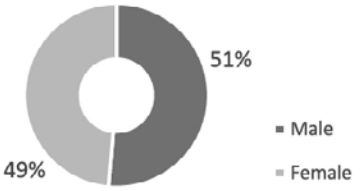
- **Overall future welfare costs for this group ($151k) are 1.2x higher than those of the comparison group.**

7.3.2 About this group

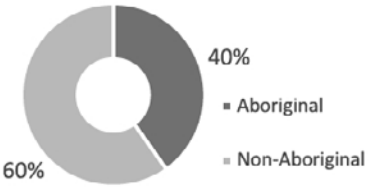
Number in group

8,436
(0.4% of NSW born population)

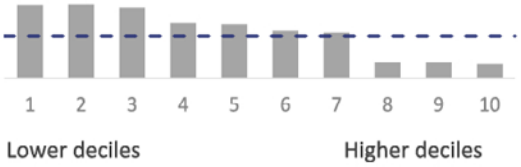
Gender



Aboriginal

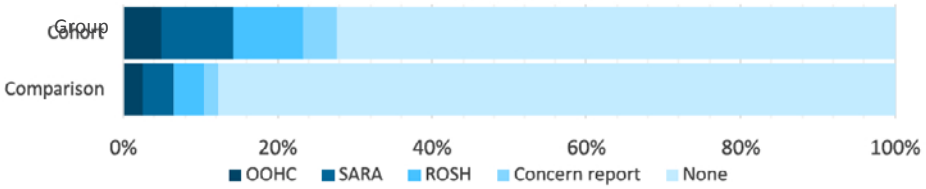


Distribution of socio-economic decile at birth

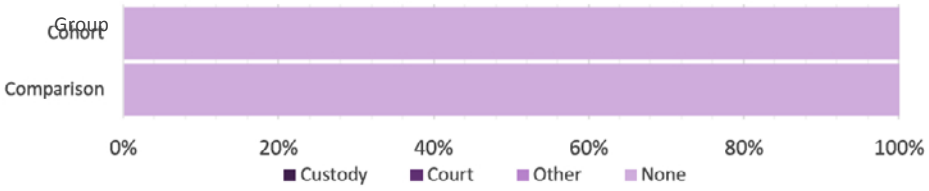


Distribution of age at 30 June 2017

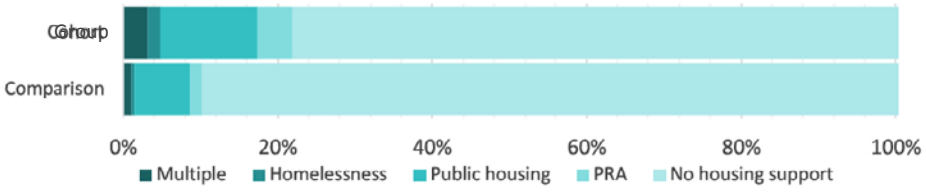
Highest level of interaction with child protection over the last 5 years



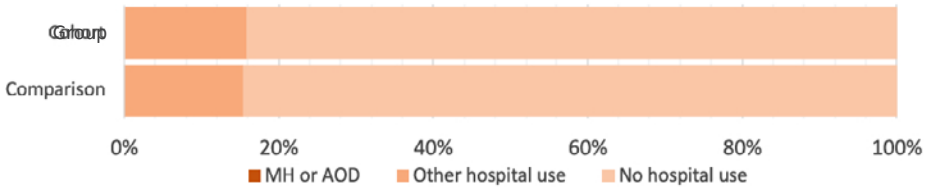
Highest level of interaction with justice system over the last 5 years



Housing support use over the last year

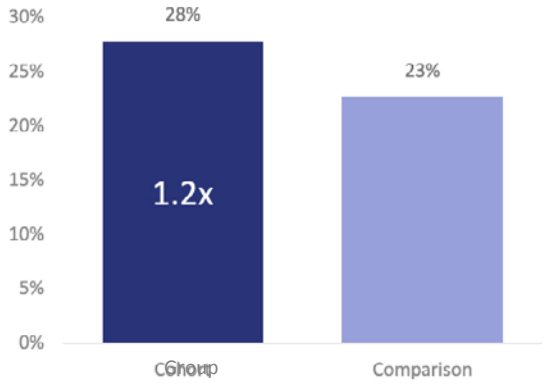


Proportion with NSW hospital admissions for AOD or MH over the last 5 years

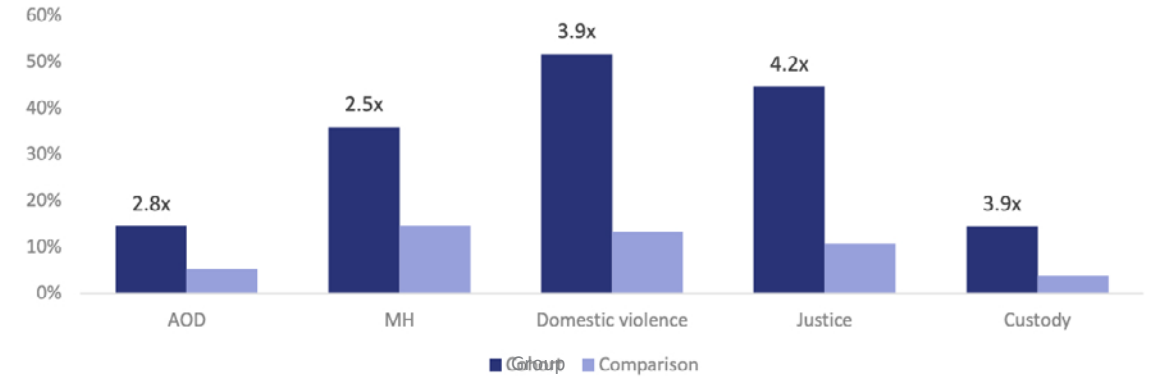


Proportion born to young mothers

Proportion with two or more perinatal risk factors



Proportion with a parent who have each of the following risk factors



Distribution of Year 3 NAPLAN results

Proportion with unexpected government school moves

7.3.3 Estimated future cost of government services

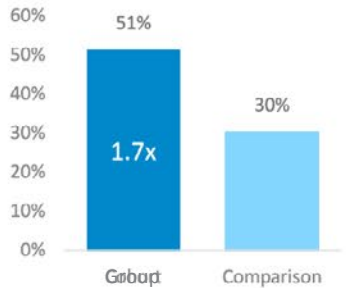
	Children	Comparison group	The difference
Total estimated future cost	$3.4B	$2.4B	$1.0B
Average estimated future cost	$409k	$288k	$121k

Male average estimated future cost	$408k	$287k	$121k
Female average estimated future cost	$409k	$288k	$122k
Aboriginal average estimated future cost	$677k	$515k	$162k
Non-Aboriginal average estimated future cost	$229k	$135k	$94k

7.3.4 Projected future social outcomes

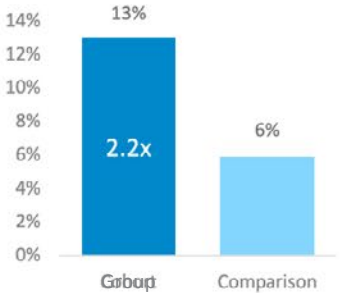
CHILD PROTECTION

Proportion expected to be reported at ROSH in future



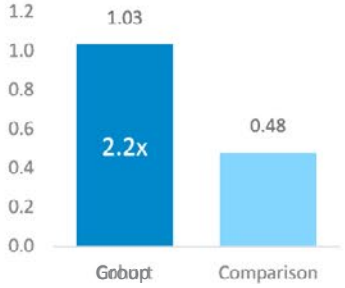
CHILD PROTECTION

Proportion expected to have OOHC placement



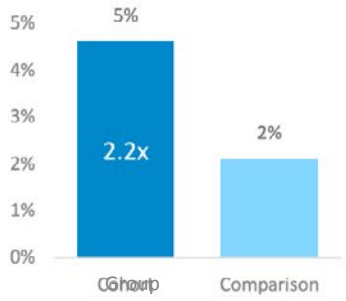
CHILD PROTECTION

Average expected years in OOHC



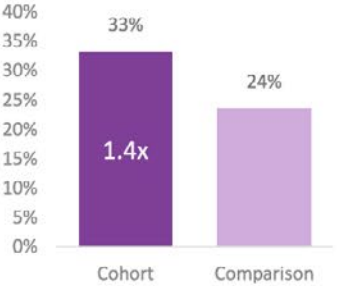
CHILD PROTECTION

Proportion of females whose children expected to require OOHC



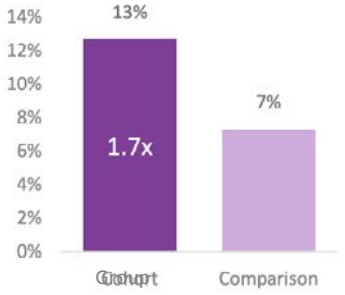
JUSTICE

Proportion expected to interact with justice system



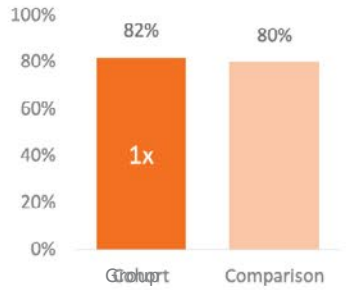
JUSTICE

Proportion expected to enter custody



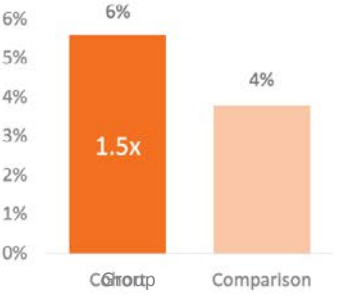
HEALTH

Proportion expected to use NSW hospitals



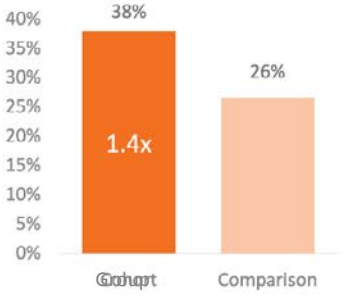
HEALTH

Proportion expected to be admitted to hospital for AOD



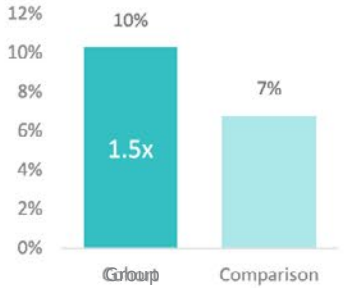
HEALTH

Proportion expected to use NSW MH services (hospital or ambulatory)



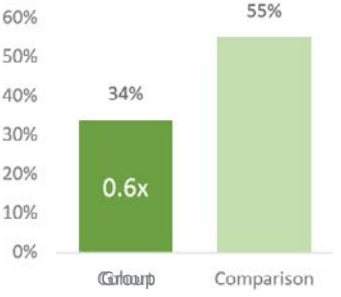
HOUSING

Proportion expected to use social housing as adults



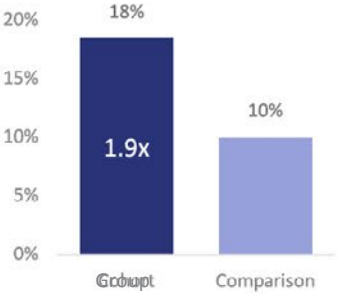
EDUCATION

Proportion expected to complete the HSC



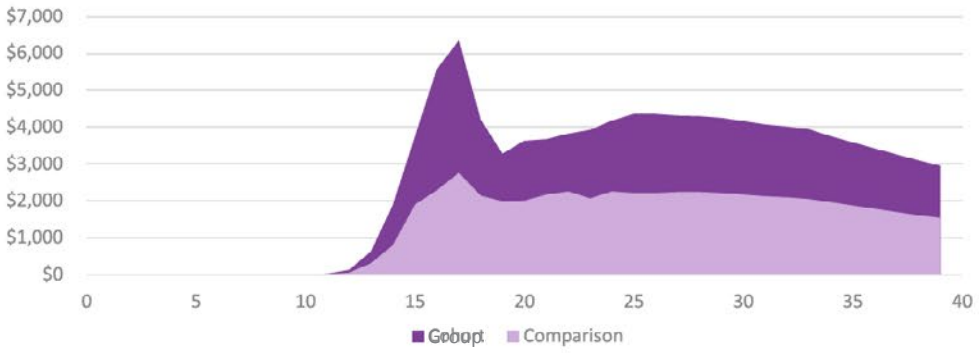
PARENTHOOD

Proportion of females expected to become a young mother

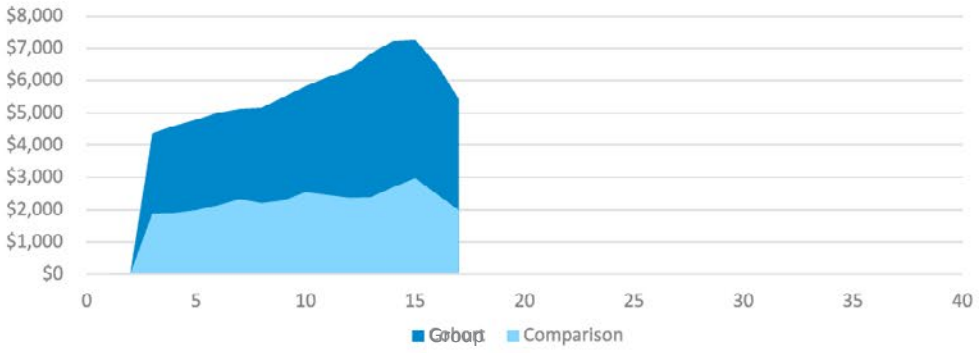


7.3.5 Pathways — annual estimated future cost for a typical 2 year old[50]

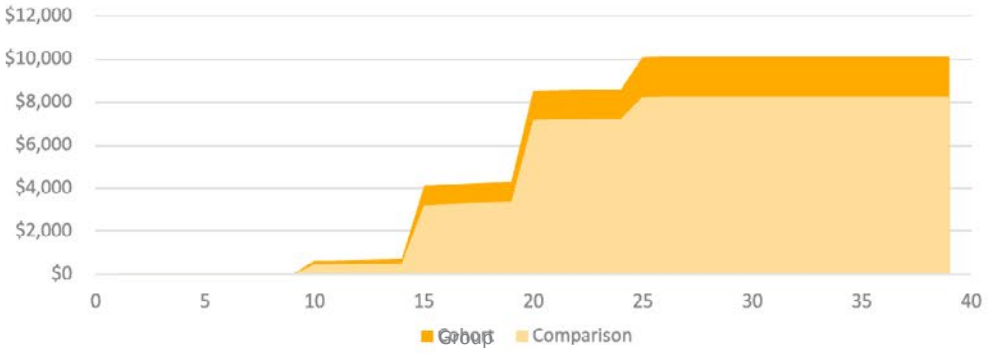
JUSTICE



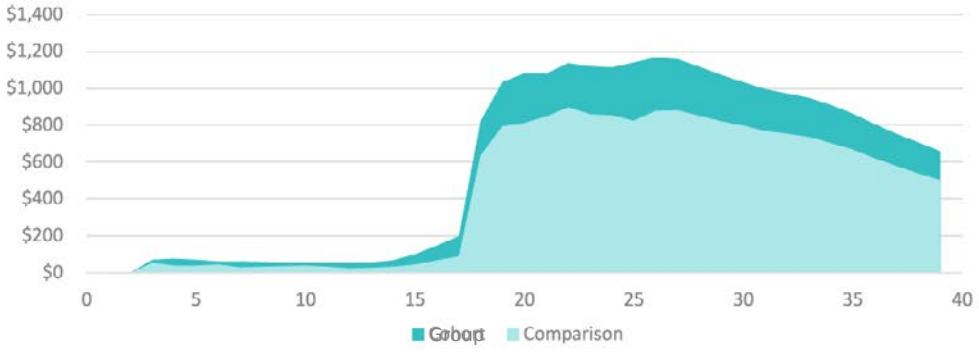
CHILD PROTECTION



WELFARE

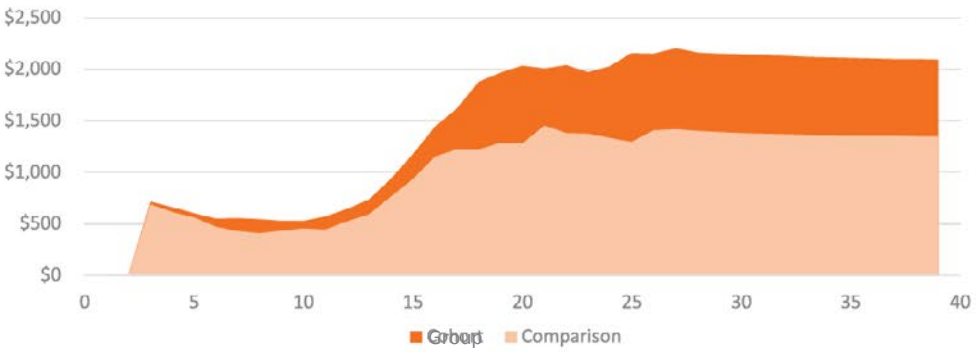


HOUSING

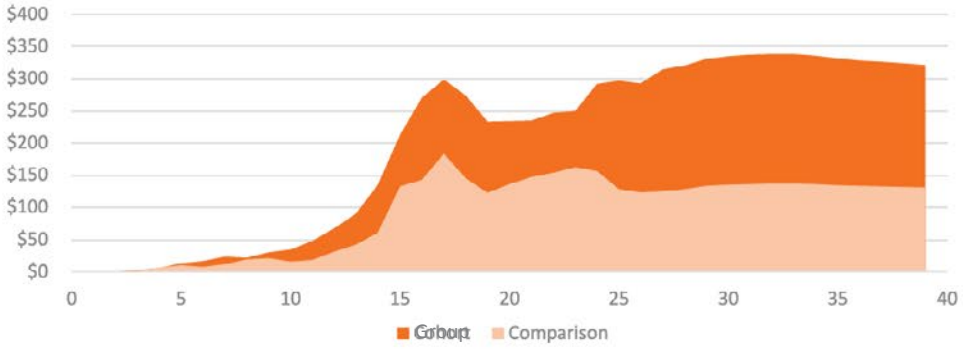


50 Refer to section 5 — How to interpret the results

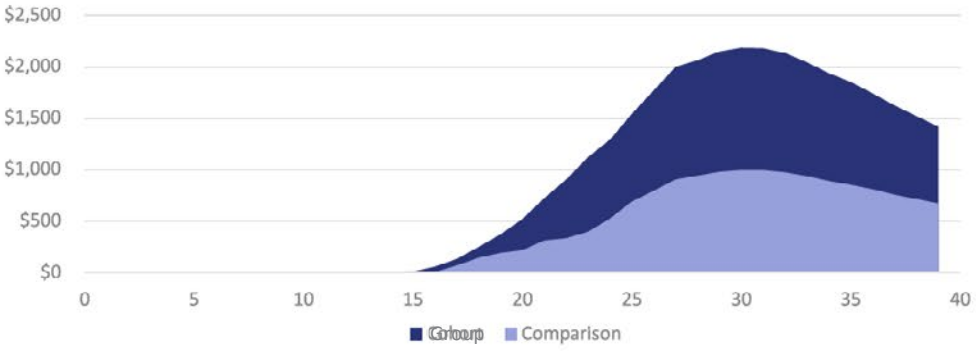
HEALTH



NSW AMBULATORY MH



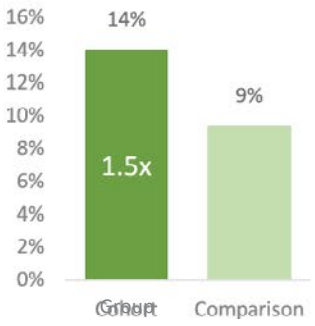
NEXT GEN OOHC



EDUCATION [51]

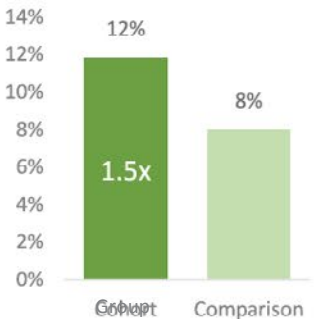
Year 3 NAPLAN

Proportion in lowest band

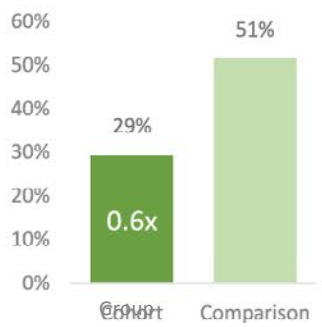


Year 7 NAPLAN

Proportion in lowest band



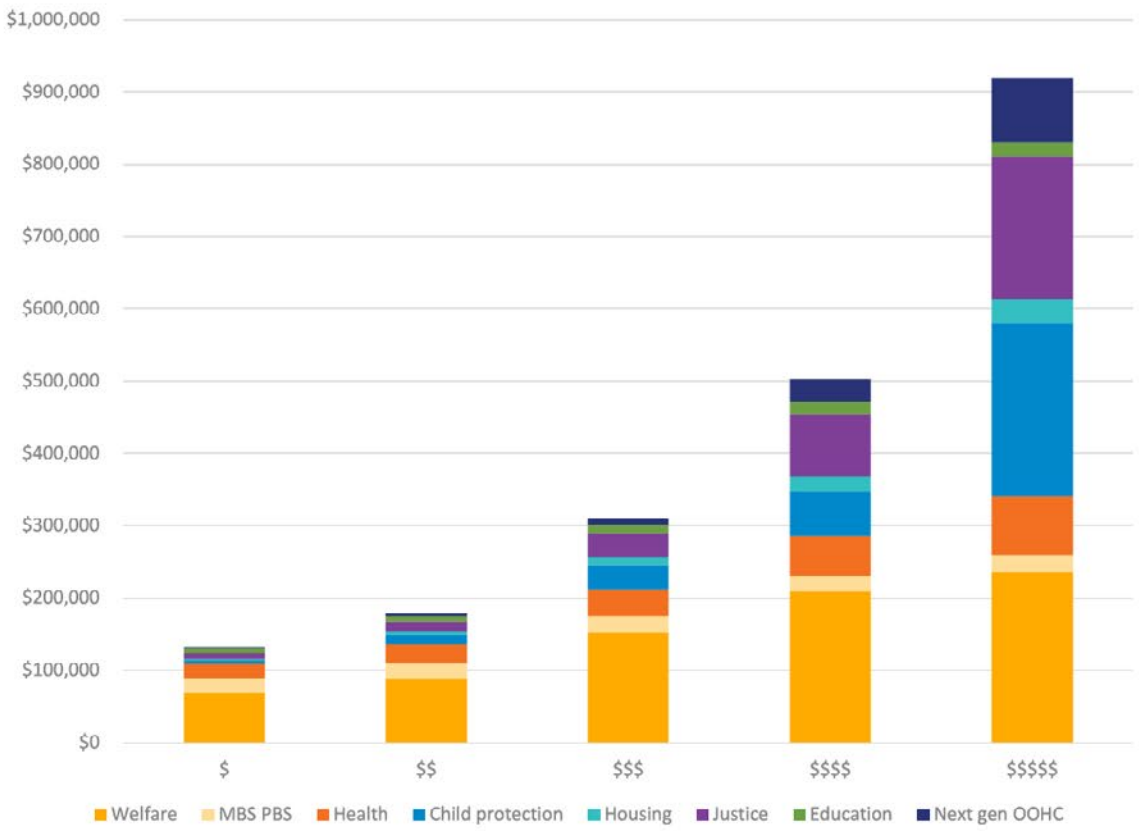
Proportion who complete HSC



51 The only direct education costs included in the model are RAM equity loadings and these do not differ due to how we have selected the comparison group For completeness, we compare educational attainment — drawing on a mixture of past data and our future projections

7.3.6 Within group variation — estimated future costs and summary

We have divided the group of children into five cost sub-groups ranging from those with the lowest to those with the highest estimated future cost, to better define those with the poorest future outcomes:



The sub-group with the highest estimated future service and support costs ($$$$$) in this group has an average estimated future cost of $920k.

This is 6.9x the cost of the least expensive sub-group ($).

The within-group cost differences are driven by individual and family characteristics:

- 96% of the highest cost sub-group had at least one parental risk factors in the last 5 years compared to 36% of the lowest cost sub-group
- 22% of the highest cost sub-group entered OOHC placement in the last 5 years compared to 0% of the lowest cost sub-group
- 31% of the highest cost sub-group were in social housing at 30 June 2017 compared to 1% of the lowest cost sub-group.

These characteristics also drive differences within the group in future social outcomes:

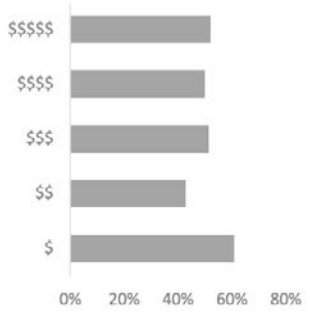
- 34% of the highest cost sub-group are expected to enter custody in the future compared to 2% of the lowest cost sub-group
- 39% of females in the highest cost sub-group are expected to become young mothers in the future compared to 6% of the lowest cost sub-group
- 17% of the highest cost sub-group are expected to complete the HSC compared to 47% of the lowest cost sub-group.

The differences in past characteristics and future outcomes of the five cost sub-groups within the group is shown over the following pages

7.3.7 Variation in past characteristics by cost sub-groups

DEMOGRAPHICS

Proportion male

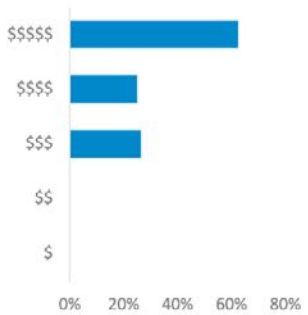


DEMOGRAPHICS

Proportion Aboriginal

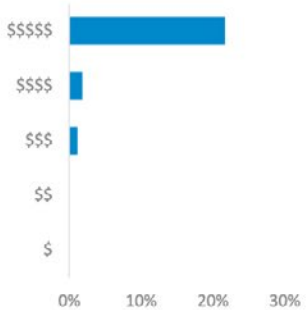
CHILD PROTECTION

Proportion with ROSH report in last 5 years



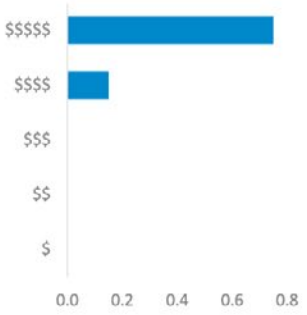
CHILD PROTECTION

Proportion who have had at least one OOHC placement in last 5 years



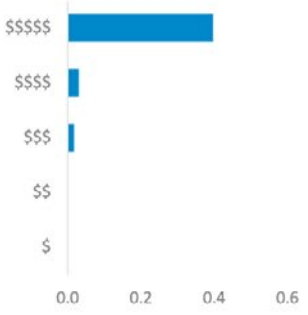
CHILD PROTECTION

Average number of OOHC placement changes per year



CHILD PROTECTION

Average number of years spent in OOHC



HEALTH

Proportion admitted to hospital in last 5 years

HEALTH

Proportion with at least one AOD hospital admission in last 5 years

HEALTH

Proportion who used NSW MH services in last 5 years

JUSTICE

Proportion with an interaction with the justice system in last 5 years

JUSTICE

Proportion who have spent time in custody in last 5 years

HOUSING

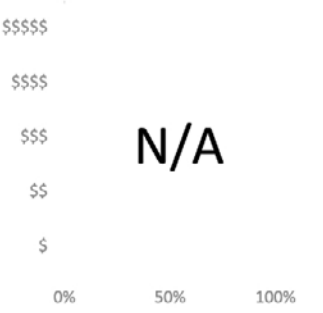
Proportion in social housing at 30 June 2017

EDUCATION

Year 3 NAPLAN
Proportion in lowest band

EDUCATION

Proportion with unexpected government school moves

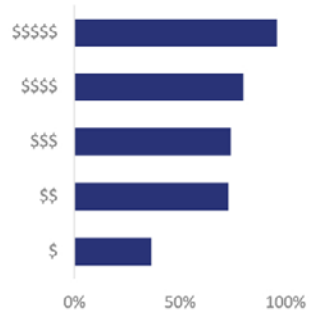


HOUSING

Proportion who used homelessness services over last year

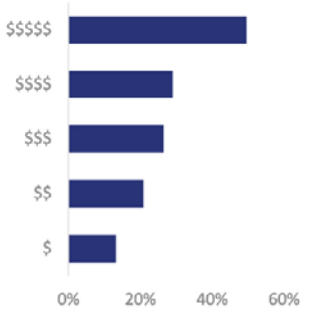
PARENTAL

Proportion with at least one parental risk factor in last 5 years



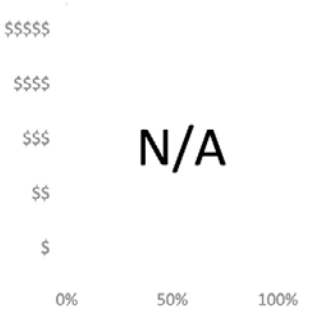
PARENTAL

Proportion with significant perinatal risk factors



PARENTAL

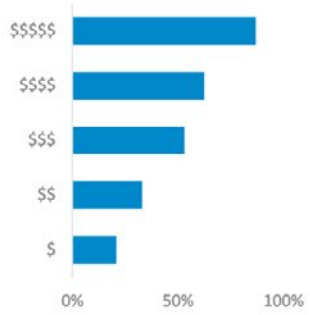
Proportion born to young mothers



7.3.8 Variation in future outcomes by cost sub-groups

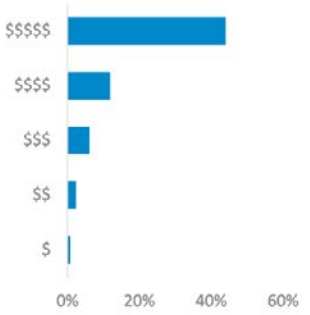
CHILD PROTECTION

Proportion expected to be reported at ROSH in future



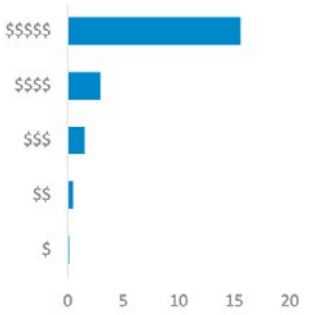
CHILD PROTECTION

Proportion expected to have OOHC placement



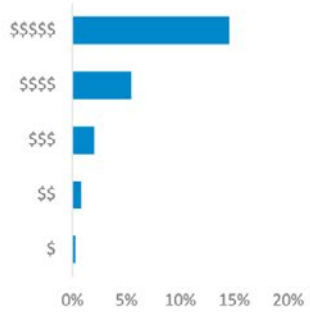
CHILD PROTECTION

Average expected years in OOHC



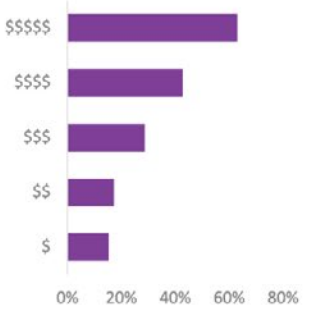
CHILD PROTECTION

Proportion of females whose children expected to require OOHC



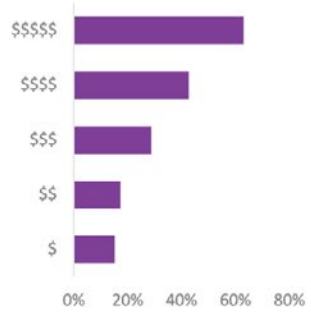
JUSTICE

Proportion expected to interact with justice system



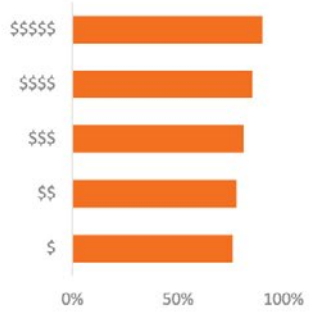
JUSTICE

Proportion expected to enter custody



HEALTH

Proportion expected to use NSW hospitals



HEALTH

Proportion expected to be admitted to hospital for AOD

HEALTH

Proportion expected to use MH services (hospital or ambulatory)

HOUSING

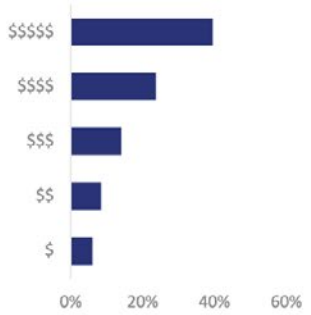
Proportion expected to use social housing as adults

EDUCATION

Proportion completed or expected to complete the HSC

PARENTAL

Proportion of females expected to become a young mother



Section 8

Vulnerable group — Children and young people affected by mental illness

8.1 Estimated future cost of services for children and young people affected by mental illness

Who is included in this vulnerable group?

Anyone who was aged 18 or younger at 30 June 2017 with any of the following risk factors in the five years prior:

- use of NSW mental health services (hospital or ambulatory)
- parents' use of NSW mental health services (hospital or ambulatory).

Who is included in the comparison group?

A randomly selected group with the same number and distribution of individuals by age, gender, Aboriginality, and socio-economic status (based on birth location) to that of the vulnerable group

What will the services to this vulnerable group cost the government compared to the comparison group?

- **the total estimated future cost to age 40 of this vulnerable group is $55B**
- **the total cost of this group is $23B more than the comparison group.**

	Group	Comparison group	The difference
Total estimated future cost	$55B	$32B	$23B
Average estimated future cost	$300k	$177k	$124k

The next subsection explores maternal mental health. This is followed by two subsections, which explore the service use and outcome pathways of two different age groups separately. For the younger group, we examine the influence of parental mental health risk factors on their pathways. We then examine the pathways of an older group who are transitioning to adulthood who have mental health issues themselves.

8.2 Maternal mental health

Overview of analysis

For females in NSW who gave birth to their first child between 1 July 2012 and 30 June 2016, we examined whether there were observable differences in:

- The proportion who accessed NSW mental health services in the year leading up to childbirth and the year following childbirth, compared to the overall female population in NSW
- the proportion of young mothers who accessed NSW mental health services in the year following childbirth depending on whether they previously interacted with the child protection and/or justice system
- the proportion of young mothers who accessed NSW mental health services in the year following childbirth depending on whether their newborn had certain perinatal risk factors.

Use of NSW mental health services is defined as having either accessed ambulatory mental health services or having been admitted to hospital for mental health reasons

Note that the service use differences we have measured should not be fully attributed to the risk factors we have examined The relativities presented here are also not additive This is because risk factors tend to be correlated and this analysis does not control for correlated effects

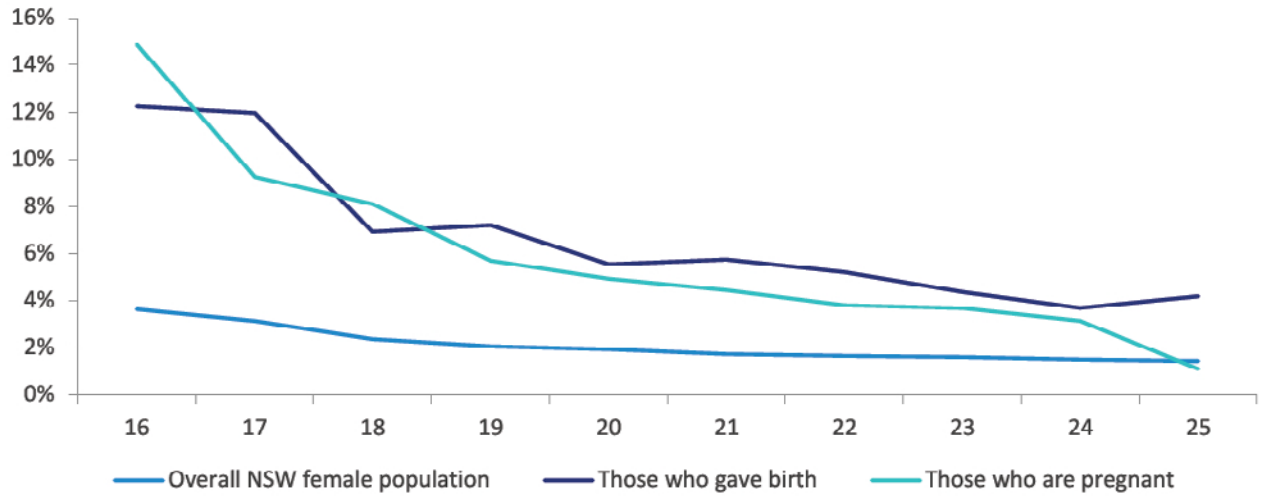
Use of NSW mental health services during pregnancy and after childbirth

In the chart below, we show the relationship between childbirth and mental health This is done by comparing the observed proportion of females accessing mental health services around their pregnancy[52] and postnatal[53] period with the average proportion for females in the NSW population

Compared to the average female in the NSW population, females who were pregnant or in their postnatal period were more likely to use mental health services:

- The difference was more noticeable at younger ages — females who gave birth when they were aged 18 or younger were about 3.4x more likely to access NSW mental health services during their pregnancy and postnatal period, compared to 2.7x more likely for females who were older when they gave birth.
- For those older than age 20, females in their postnatal period were 1.3x more likely to access NSW mental health services compared to those who were pregnant.

Proportion accessing NSW mental health services by age

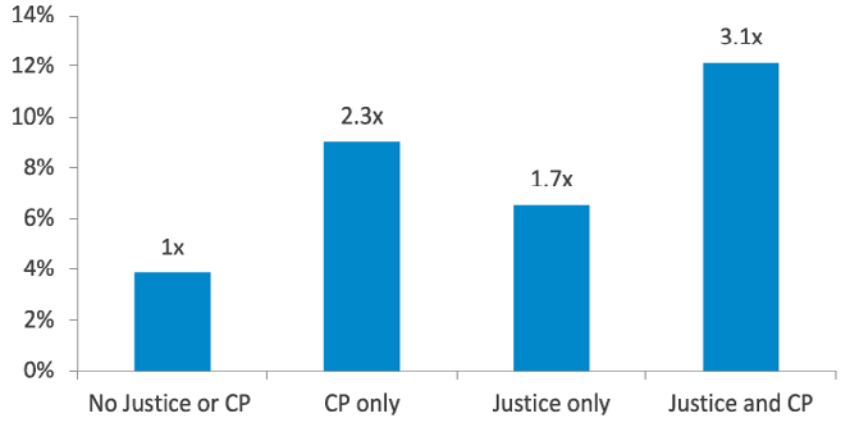


Mental health of young mothers by their justice and ROSH+ child protection histories

The chart below shows the relationship between young mothers' justice and child protection (CP) histories and their likelihood of accessing NSW mental health services in their postnatal period[54]
For example, about 12% of young mothers with justice and ROSH+ child protection history accessed mental health services in the 12 months after childbirth This is 3 1x higher compared to young mothers who have never had any justice or ROSH+ child protection interaction prior to giving birth (3 9%)

52 12 months before childbirth
53 12 months after childbirth
54 12 months after childbirth

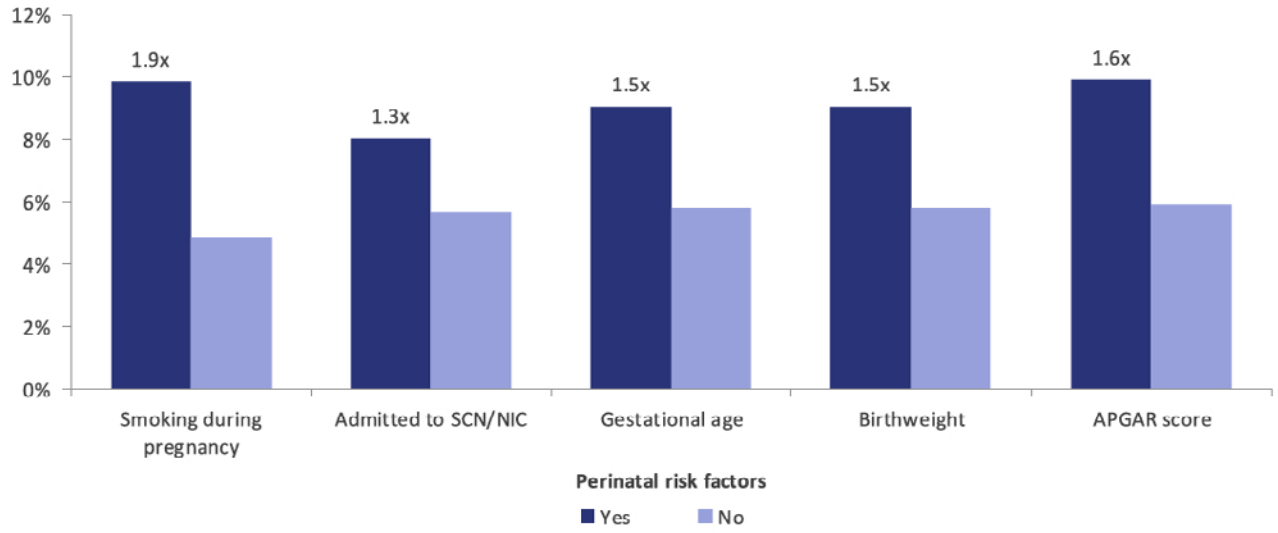
MH service usage in the first year after child birth for young mothers by Justice and ROSH+ interaction



Mental health of young mothers by perinatal risk factors of their children

The chart below compares the rate of mental health service use between young mothers whose child had a perinatal risk factor present and those whose child did not Of the seven perinatal risk factors we used to define vulnerability in this report, the rate of mental health service use varied significantly by the five shown[55]

MH service usage in the first year after child birth for young mothers by perinatal risk factors



55 SCN/NIC refer to Special care Nursery or Neonatal Intensive Care

Section 8 3

Young adolescents with parental mental health risk factors

8.3.1 Summary by domain

Who is included in this group?

Anyone born in NSW who was aged between 10 and 14 at 30 June 2017 whose parents used mental health services in the five years prior

Who is included in the comparison group?

A randomly selected group with the same number and distribution of individuals by age, gender, Aboriginality, and socio-economic status (based on birth location) to that of the group of young adolescents

What will this group's services cost the government compared to the comparison group?

- The **total estimated future cost of this group to age 40 is $11.6B**, which is equivalent to **an average cost of $321k per person.**
- **Total estimated future cost is $4.7B more than the comparison group,** which is equivalent to an average difference of $130k per person.

What are their projected social outcomes under current policy and operational settings?

SOCIAL & COMMUNITY

- **Compared to the comparison group, females of this group are 2.5x more likely to have children who eventually enter OOHC, and are 1.8x more likely to become young mothers.**
- **Average future child protection costs for this group ($47k) are 3.9x higher than those of the comparison group.**

SAFETY

- **Compared to the comparison group, members of this group are 1.6x more likely to interact with the justice system in the future, and 2.2x more likely to enter custody.**
- **Average future justice costs for this group ($49k) are 2.2x higher than those of the comparison group.**

HOME

- **Compared to the comparison group, members of this group are 2.2x more likely to use social housing services in the future.**
- **Average future housing costs for this group ($16k) are 2.2x higher than those of the comparison group.**

EDUCATION & SKILLS

- **50% of this group are projected to complete the HSC, compared to 61% of the comparison group.**
- **The only direct education costs included in the model are RAM equity loadings and these do not differ due to how we have selected the comparison group.**

HEALTH

- **Individuals in this group are 1.8x more likely to have alcohol and other drugs related hospital admissions in the future, and 1.9x more likely to use mental health services (NSW hospital or ambulatory).**
- **Average future health costs for this group ($36k) are 1.6x higher than those of the comparison group.**

ECONOMIC

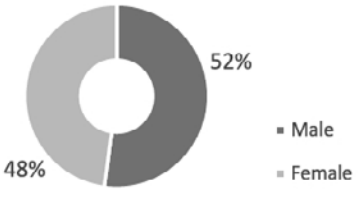
- **Overall future welfare costs for this group ($149k) are 1.4x higher than those of the comparison group.**

8.3.2 About this group

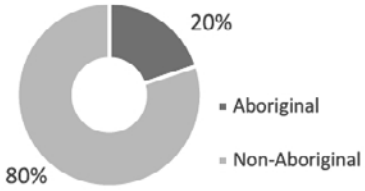
Number in group

36,183
(1.6% of NSW born population)

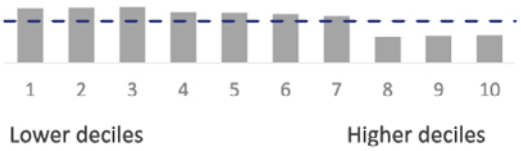
Gender



Aboriginal

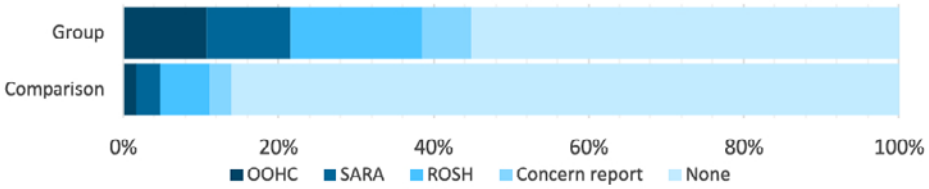


Distribution of socio-economic decile at birth

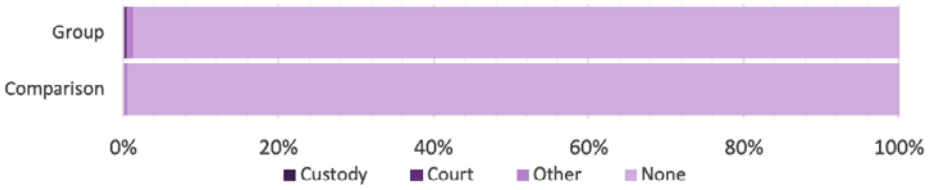


Distribution of age at 30 June 2017

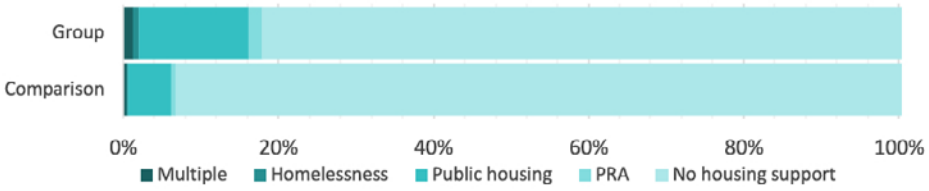
Highest level of interaction with child protection over the last 5 years



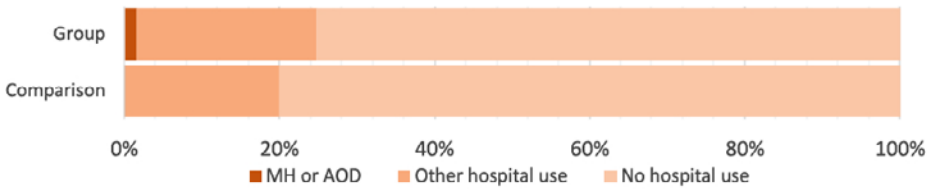
Highest level of interaction with justice system over the last 5 years



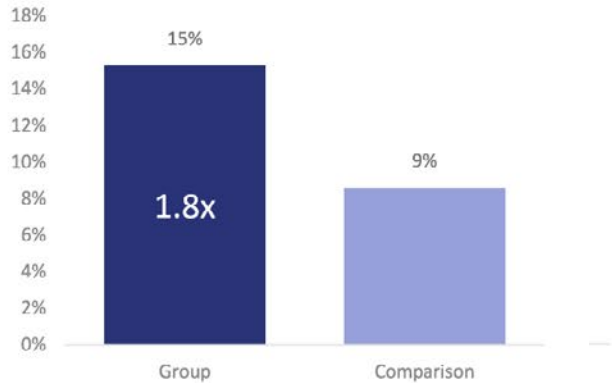
Housing support use over the last year



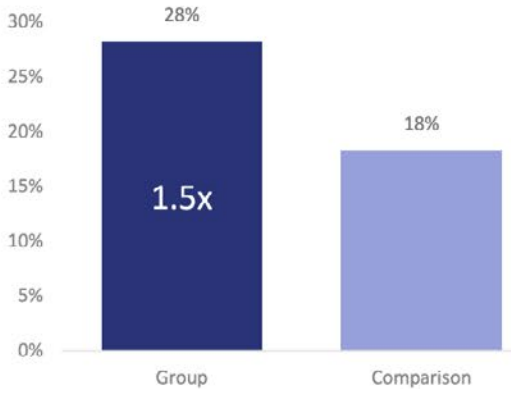
Proportion with NSW hospital admissions for AOD or MH over the last 5 years



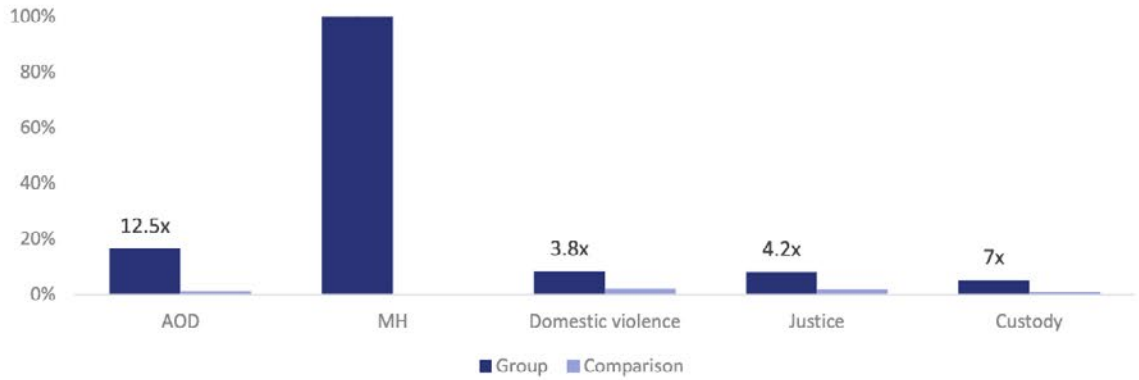
Proportion born to young mothers



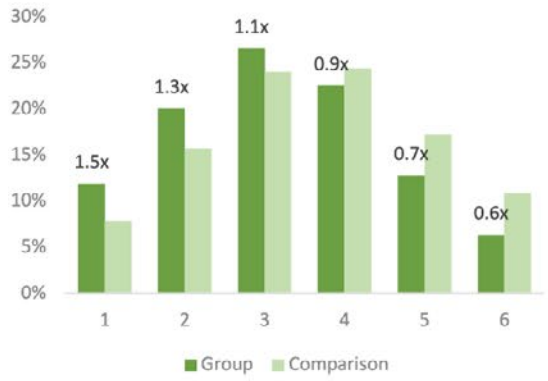
Proportion with two or more perinatal risk factors



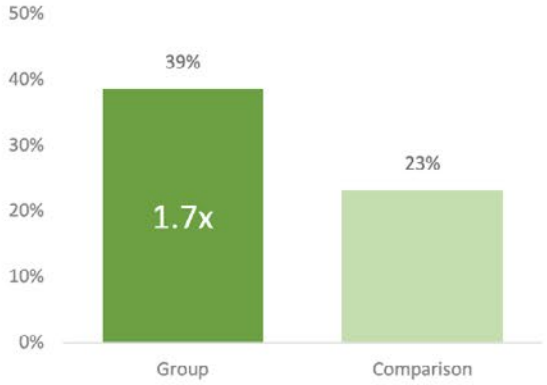
Proportion with a parent who have each of the following risk factors



Distribution of Year 3 NAPLAN results



Proportion with unexpected government school moves[56]



56 Different proportions of individuals attending government versus non-government schools may explain some of the difference with the comparison group

8.3.3 Estimated future cost of government services

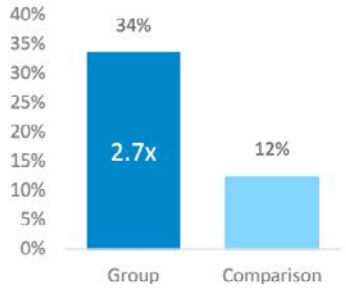
	Group	Comparison group	The difference
Total estimated future cost	$11.6B	$6.9B	$4.7B
Average estimated future cost	$321k	$191k	$130k

Male average estimated future cost	$316k	$182k	$135k
Female average estimated future cost	$326k	$201k	$125k
Aboriginal average estimated future cost	$693k	$459k	$234k
Non-Aboriginal average estimated future cost	$229k	$124k	$104k

8.3.4 Projected future social outcomes

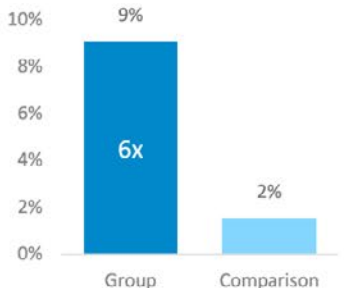
CHILD PROTECTION

Proportion expected to be reported at ROSH in future



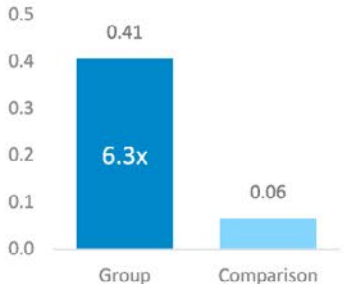
CHILD PROTECTION

Proportion expected to have OOHC placement



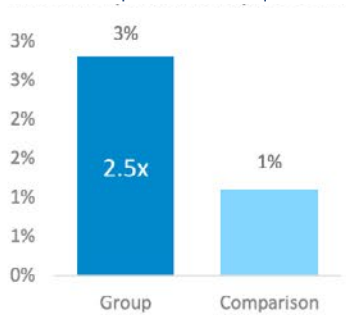
CHILD PROTECTION

Average expected years in OOHC



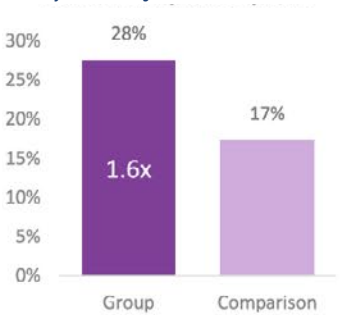
CHILD PROTECTION

Proportion of females whose children expected to require OOHC



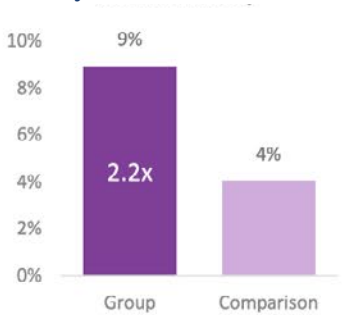
JUSTICE

Proportion expected to interact with justice system



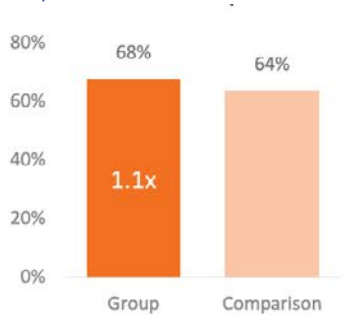
JUSTICE

Proportion expected to enter custody



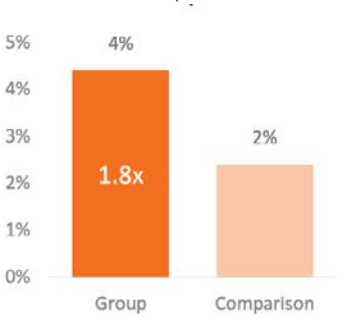
HEALTH

Proportion expected to use NSW hospitals



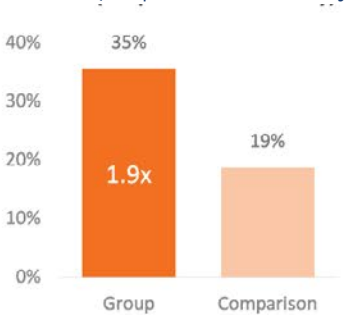
HEALTH

Proportion expected to be admitted to hospital for AOD



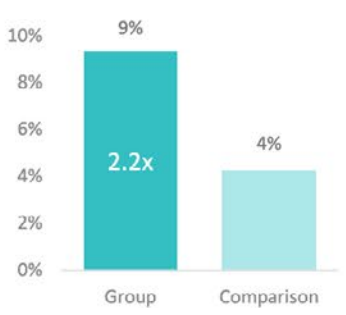
HEALTH

Proportion expected to use NSW MH services (hospital or ambulatory)



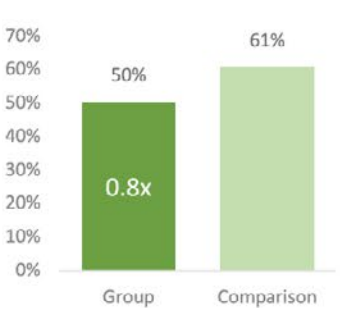
HOUSING

Proportion expected to use social housing as adults



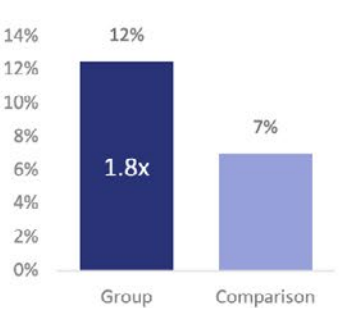
EDUCATION

Proportion expected to complete the HSC



PARENTHOOD

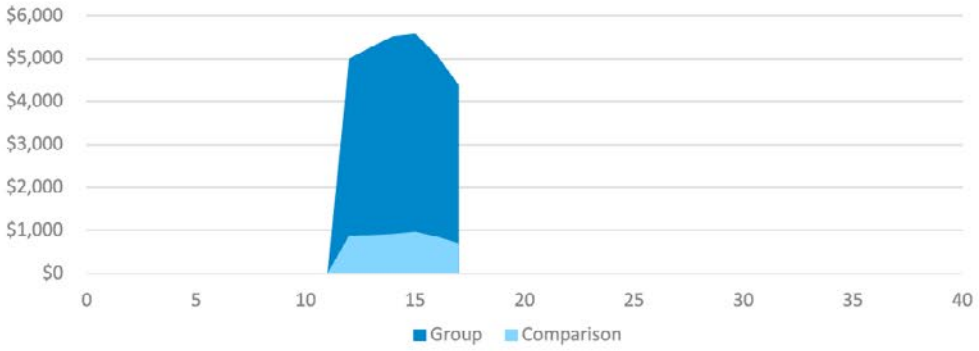
Proportion of females expected to become a young mother



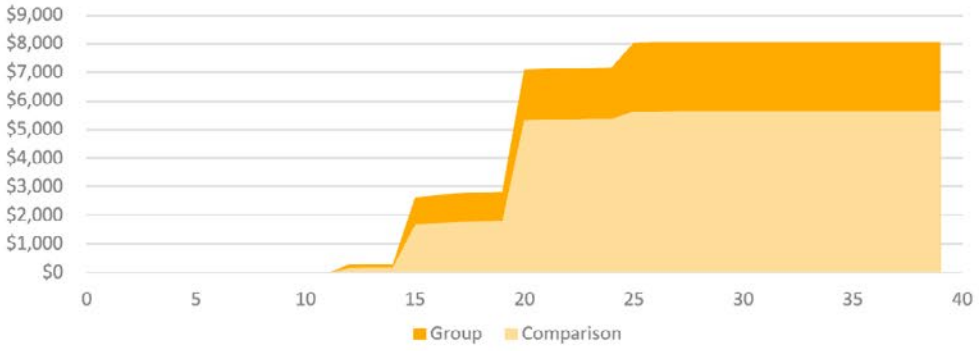
8.3.5 Pathways — annual estimated future cost for a typical 11 year old[57]

JUSTICE

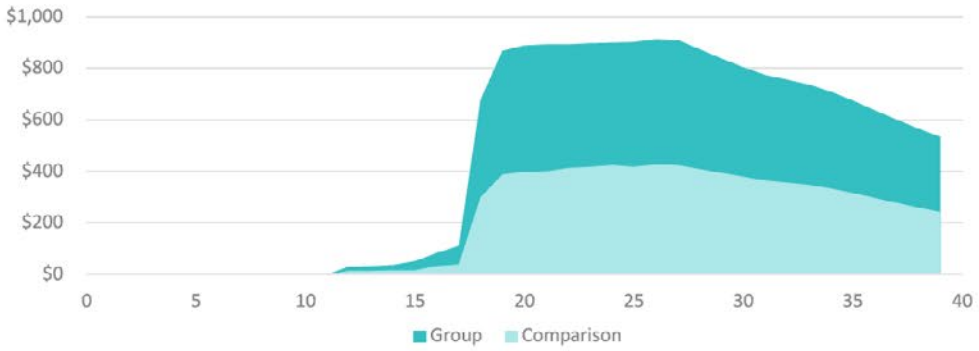
CHILD PROTECTION



WELFARE

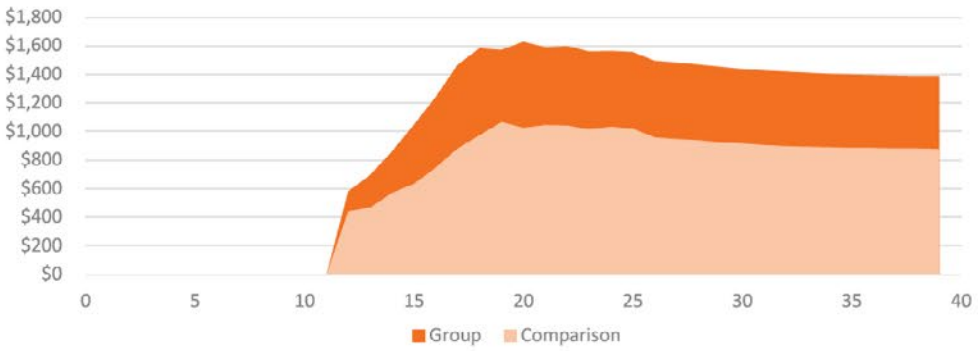


HOUSING

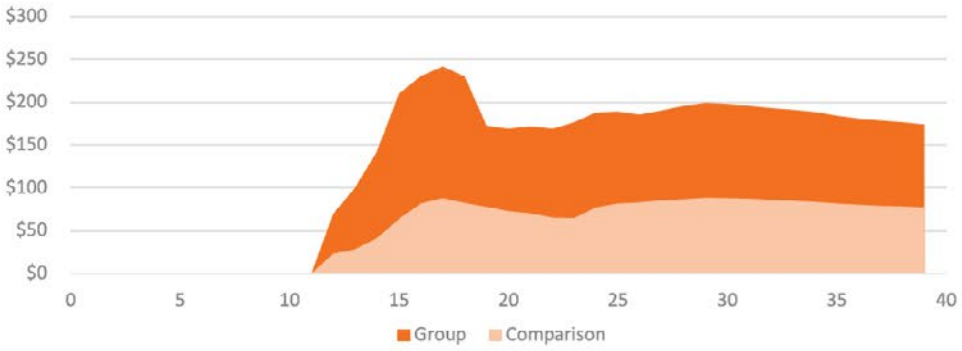


57 Refer to section 5 — How to interpret the results

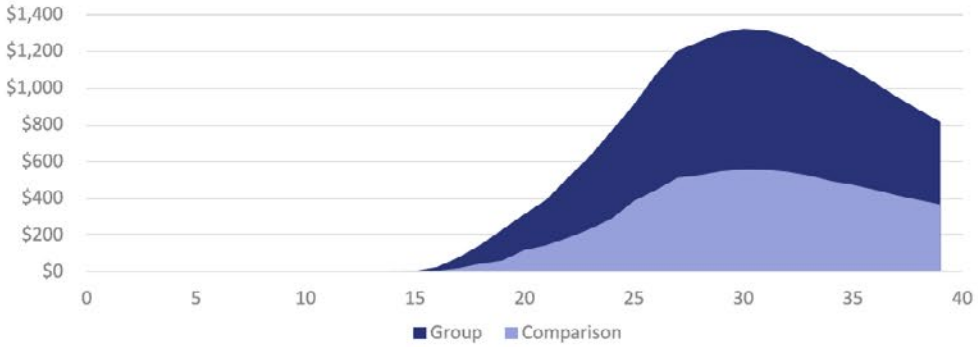
HEALTH



NSW AMBULATORY MH



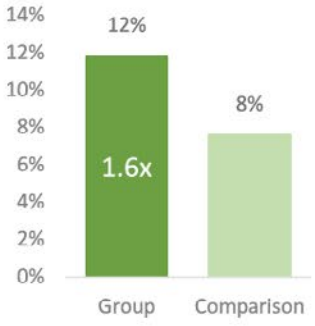
NEXT GEN OOHC



EDUCATION [58]

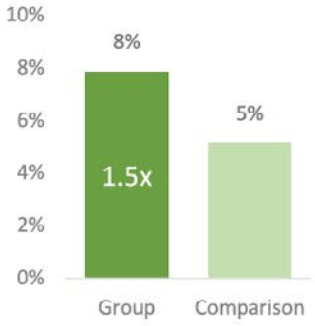
Year 3 NAPLAN

Proportion in lowest band



Year 7 NAPLAN

Proportion in lowest band

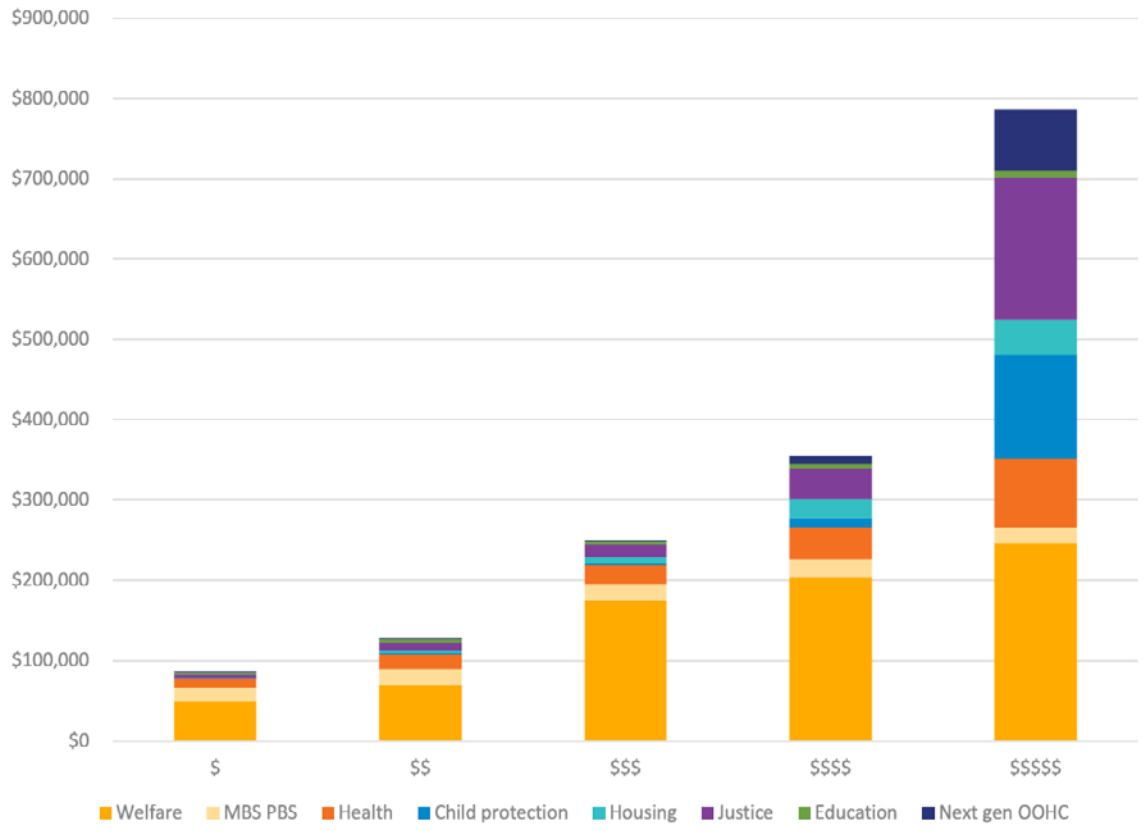


Proportion who complete HSC

58 The only direct education costs included in the model are RAM equity loadings and these do not differ due to how we have selected the comparison group For completeness, we compare educational attainment — drawing on a mixture of past data and our future projections

8.3.6 Within group variation — estimated future costs and summary

We have divided the group into five cost sub-groups ranging from lowest to highest expected future cost, to better define those with the poorest future outcomes:



The sub-group with the highest estimated future service and support costs ($$$$$) in this group has an average estimated future cost of $787k.

This is 9.1x the cost of services and supports of the sub-group with the lowest estimated future costs ($).

The within-group cost differences are driven by individual and family characteristics:

- 29% of the highest cost sub-group were born to young mothers compared to 5% of the lowest cost sub-group
- 44% of the highest cost sub-group were in OOHC over the last 5 years compared to 0% of the lowest cost sub-group
- 41% of the highest cost sub-group were in social housing compared to 0% of the lowest cost sub-group.

These characteristics also drive differences within the group in future social outcomes:

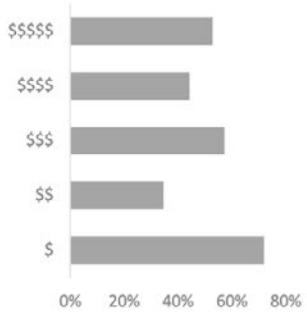
- 41% of the highest cost sub-group are expected to spend some time in OOHC in the future compared to 0% of the lowest cost sub-group
- 32% of females in the highest cost sub-group are expected to become young mothers in the future compared to 2% of the lowest cost sub-group
- 59% of the highest cost sub-group are expected to interact with the justice sector in the future compared to 11% of the lowest cost sub-group.

The differences in past characteristics and future outcomes of the five cost sub-groups within the group is shown over the following pages

8.3.7 Variation in past characteristics by cost sub-groups

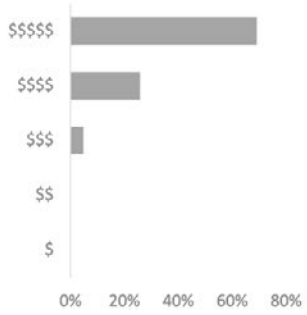
DEMOGRAPHICS

Proportion male



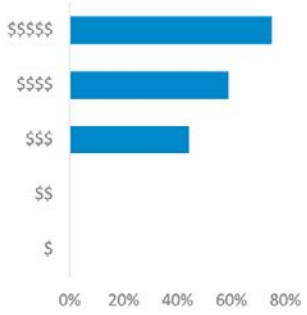
DEMOGRAPHICS

Proportion Aboriginal



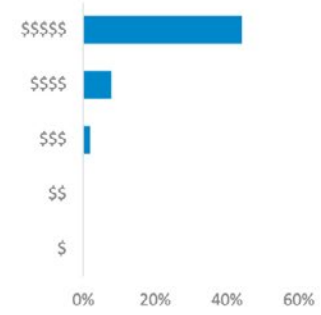
CHILD PROTECTION

Proportion with ROSH report in last 5 years



CHILD PROTECTION

Proportion who have had at least one OOHC placement in last 5 years



CHILD PROTECTION

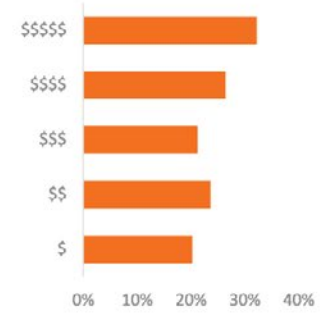
Average number of OOHC placement changes per year

CHILD PROTECTION

Average number of years spent in OOHC

HEALTH

Proportion admitted to hospital in last 5 years



HEALTH

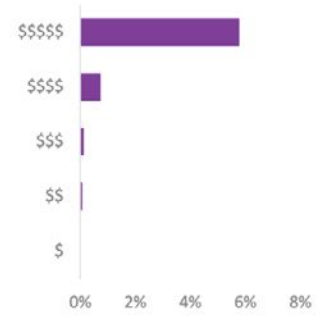
Proportion with at least one AOD hospital admission in last 5 years

HEALTH

Proportion who used NSW MH services in last 5 years

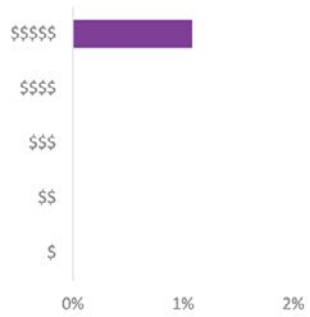
JUSTICE

Proportion with an interaction with the justice system in last 5 years



JUSTICE

Proportion who have spent time in custody in last 5 years



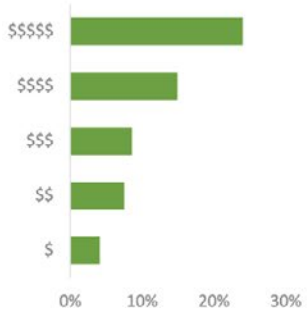
HOUSING

Proportion in social housing at 30 June 2017

EDUCATION

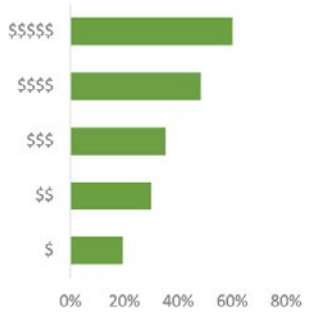
Year 3 NAPLAN

Proportion in lowest band



EDUCATION

Proportion with unexpected government school moves

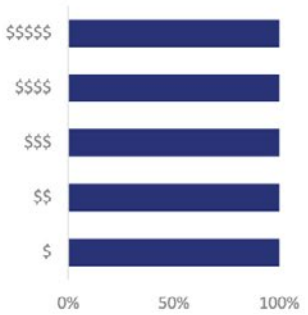


HOUSING

Proportion who used homelessness services over last year

PARENTAL

Proportion with at least one parental risk factor in last 5 years

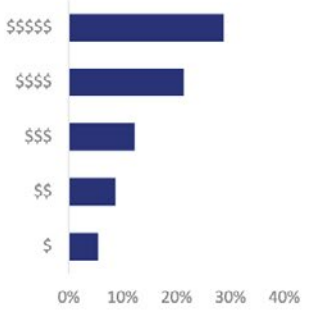


PARENTAL

Proportion with significant perinatal risk factors

PARENTAL

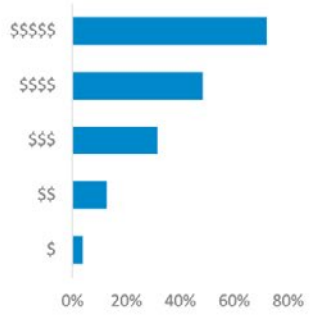
Proportion born to young mothers



8.3.8 Variation in future outcomes by cost sub-groups

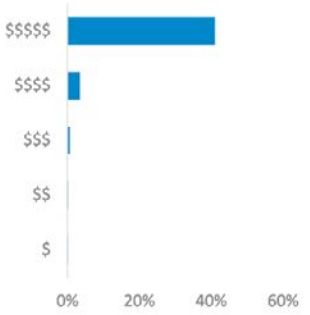
CHILD PROTECTION

Proportion expected to be reported at ROSH in future



CHILD PROTECTION

Proportion expected to have OOHC placement

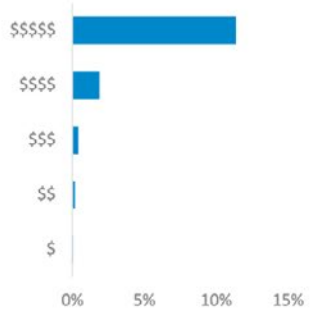


CHILD PROTECTION

Average expected years in OOHC

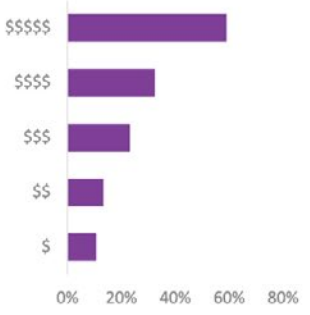
CHILD PROTECTION

Proportion of females whose children expected to require OOHC



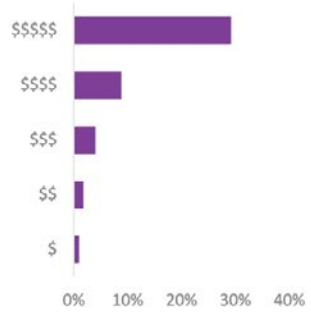
JUSTICE

Proportion expected to interact with justice system



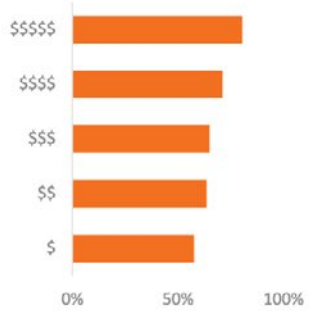
JUSTICE

Proportion expected to enter custody



HEALTH

Proportion expected to use NSW hospitals

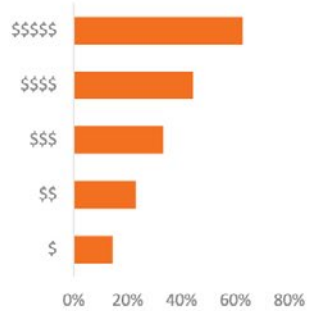


HEALTH

Proportion expected to be admitted to hospital for AOD

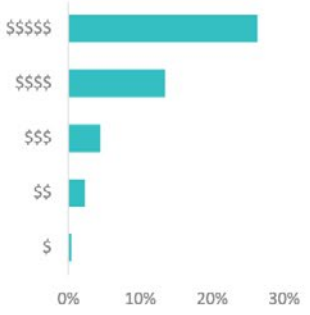
HEALTH

Proportion expected to use MH services (hospital or ambulatory)



HOUSING

Proportion expected to use social housing as adults

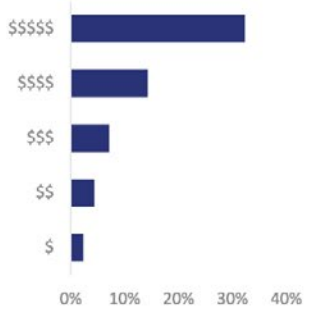


EDUCATION

Proportion completed or expected to complete the HSC

PARENTAL

Proportion of females expected to become a young mother



Section 8 4

Young people transitioning to adulthood using mental health services

8.4.1 Summary by domain

Who is included in this group?

Anyone born in NSW who was aged between 16 and 18 at 30 June 2017 who had used mental health services (NSW hospital or ambulatory) in the five years prior

Who is included in the comparison group?

A randomly selected group with the same number and distribution of individuals by age, gender, Aboriginality, and socio-economic status (based on birth location) to that of the group of young people

What will this group cost the government compared to the comparison group?

- The **total estimated future cost of this group to age 40 is $5.5B,** which is equivalent to **an average cost of $323k per person.**
- **Total estimated future cost is $2.8B more than the comparison group**, which is equivalent to an average difference of $162k per person.

What are their projected social outcomes under current policy and operational settings?

SOCIAL & COMMUNITY

- **Compared to the comparison group, females of this group are 5.2x more likely to have children who eventually enter OOHC, and are 2.4x more likely to become young mothers.**
- **Average future child protection costs for this group ($34k) are 6.2x higher than those of the comparison group.**

SAFETY

- **Compared to the comparison group, members of this group are 2.4x more likely to interact with the justice system in the future, and 4.4x more likely to enter custody.**
- **Average future justice costs for this group ($54k) are 4.2x higher than those of the comparison group.**

HOME

- **Compared to the comparison group, members of this group are 2.4x more likely to use social housing services in the future.**
- **Average future housing costs for this group ($17k) are 2.3x higher than those of the comparison group.**

EDUCATION & SKILLS

- **42% of this group are projected to complete the HSC, compared to 61% of the comparison group.**
- **The only direct education costs included in the model are RAM equity loadings and these do not differ due to how we have selected the comparison group.**

HEALTH

- **Individuals in this group are 3.6x more likely to have alcohol and other drugs related hospital admissions in the future, and 4.7x more likely to have mental health related hospital admissions or use ambulatory mental health services.**
- **Average future health costs for this group ($48k) are 2.9x higher than those of the comparison group.**

ECONOMIC

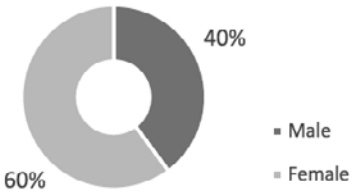
- **Overall future welfare costs for this group ($152k) are 1.5x higher than those of the comparison group.**

8.4.2 About this group

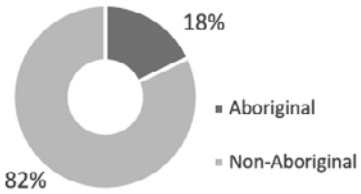
Number in group

17,050
(0.7% of NSW born population)

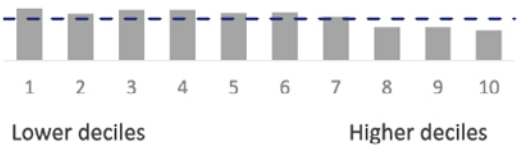
Gender



Aboriginal

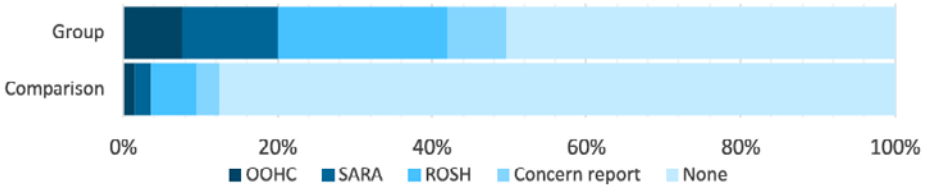


Distribution of socio-economic decile at birth

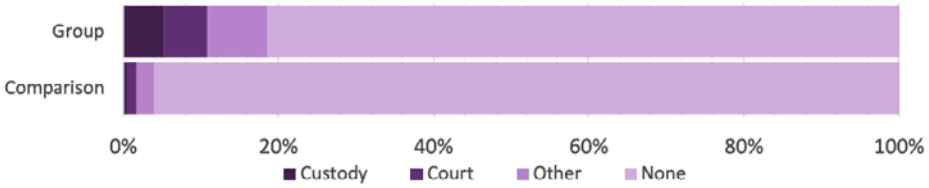


Distribution of age at 30 June 2017

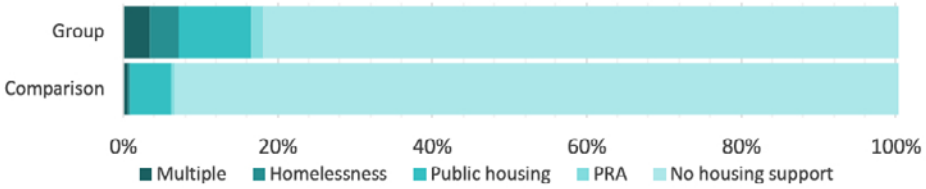
Highest level of interaction with child protection over the last 5 years



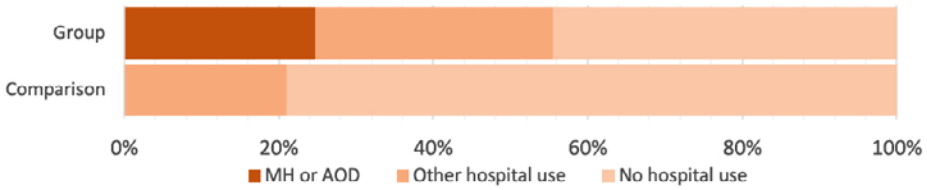
Highest level of interaction with justice system over the last 5 years



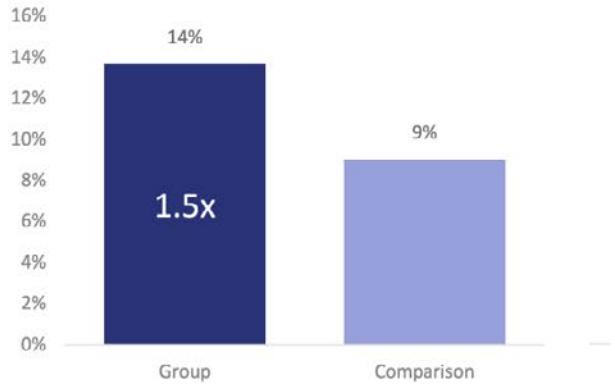
Housing support use over the last year



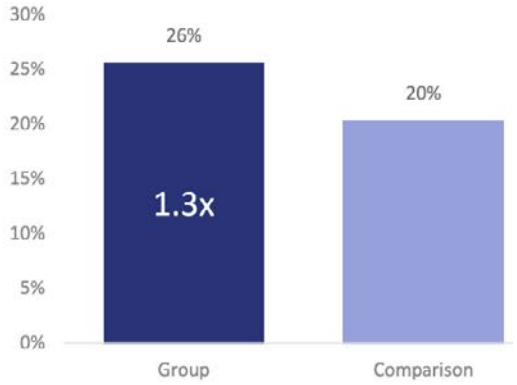
Proportion with NSW hospital admissions for AOD or MH over the last 5 years



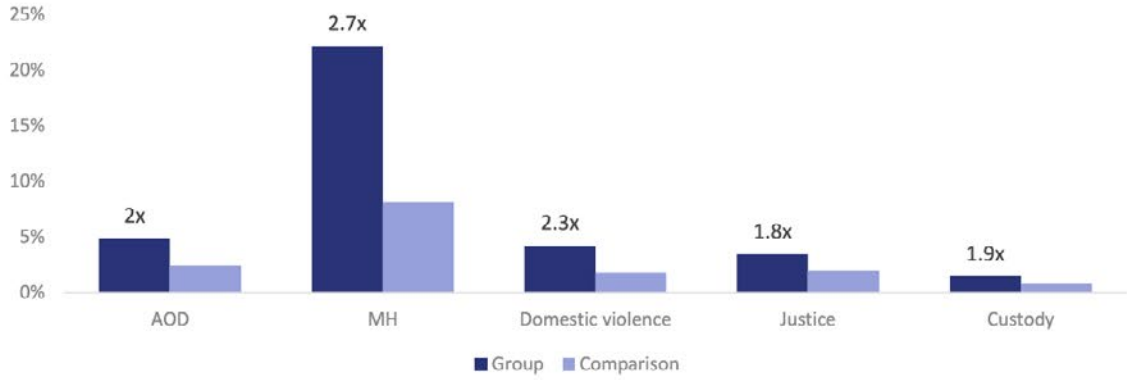
Proportion born to young mothers



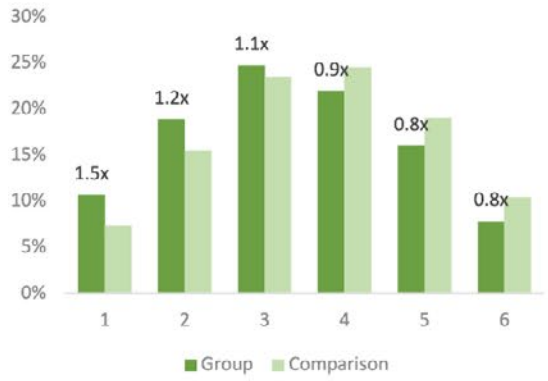
Proportion with two or more perinatal risk factors



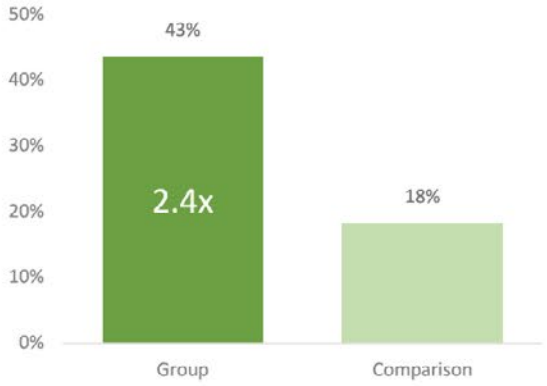
Proportion with a parent who have each of the following risk factors



Distribution of Year 3 NAPLAN results



Proportion with unexpected government school moves[59]



59 Different proportions of individuals attending government versus non-government schools may explain some of the difference with the comparison group

8.4.3 Estimated future cost of government services

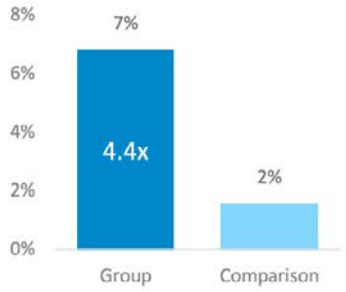
	Group	Comparison group	The difference
Total estimated future cost	$5.5B	$2.7B	$2.8B
Average estimated future cost	$323k	$161k	$162k

Male average estimated future cost	$334k	$154k	$179k
Female average estimated future cost	$317k	$165k	$151k
Aboriginal average estimated future cost	$699k	$376k	$323k
Non-Aboriginal average estimated future cost	$241k	$114k	$127k

8.4.4 Projected future social outcomes

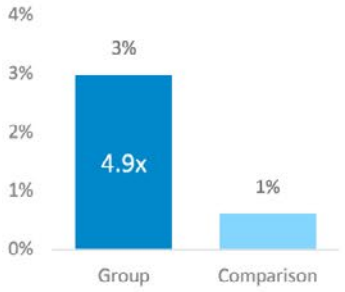
CHILD PROTECTION

Proportion expected to be reported at ROSH in future



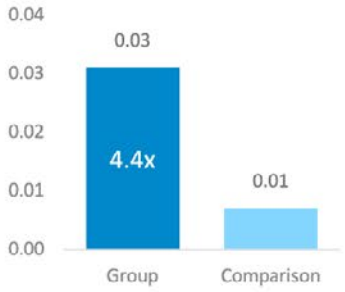
CHILD PROTECTION

Proportion expected to have OOHC placement



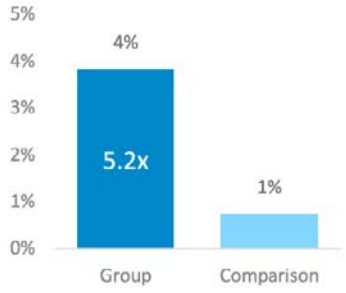
CHILD PROTECTION

Average expected years in OOHC



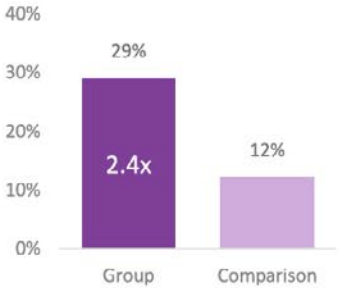
CHILD PROTECTION

Proportion of females whose children expected to require OOHC



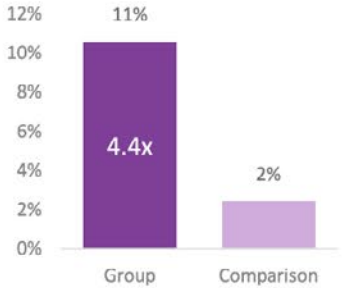
JUSTICE

Proportion expected to interact with justice system



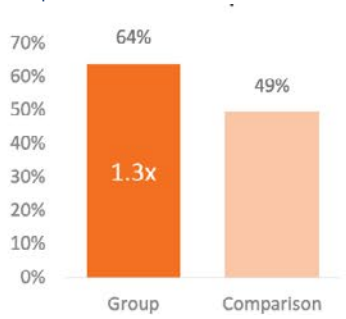
JUSTICE

Proportion expected to enter custody



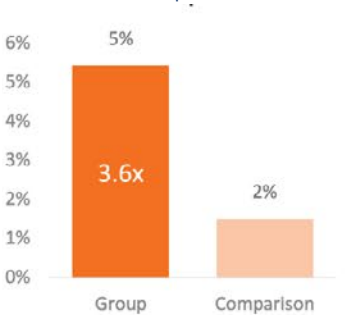
HEALTH

Proportion expected to use NSW hospitals



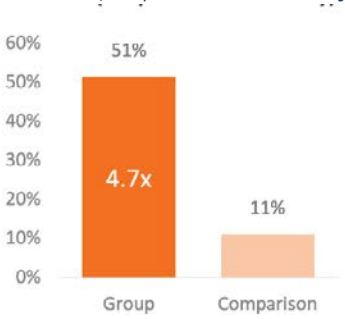
HEALTH

Proportion expected to be admitted to hospital for AOD



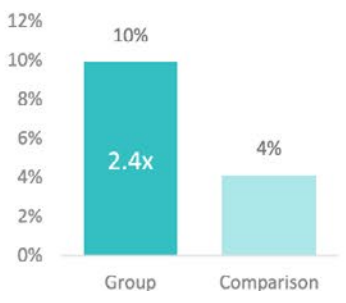
HEALTH

Proportion expected to use NSW MH services (hospital or ambulatory)



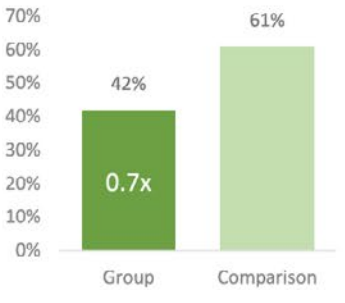
HOUSING

Proportion expected to use social housing as adults



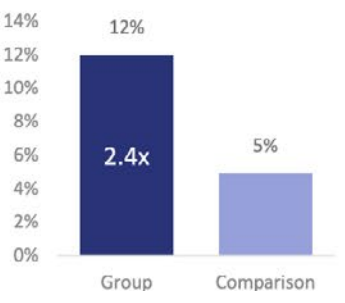
EDUCATION

Proportion expected to complete the HSC



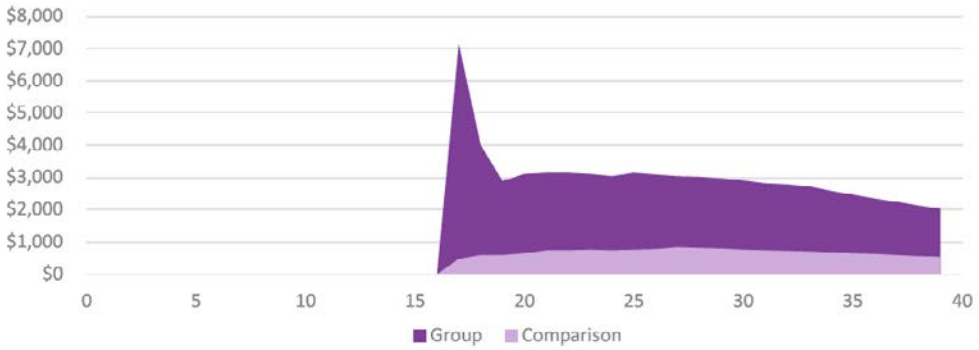
PARENTHOOD

Proportion of females expected to become a young mother

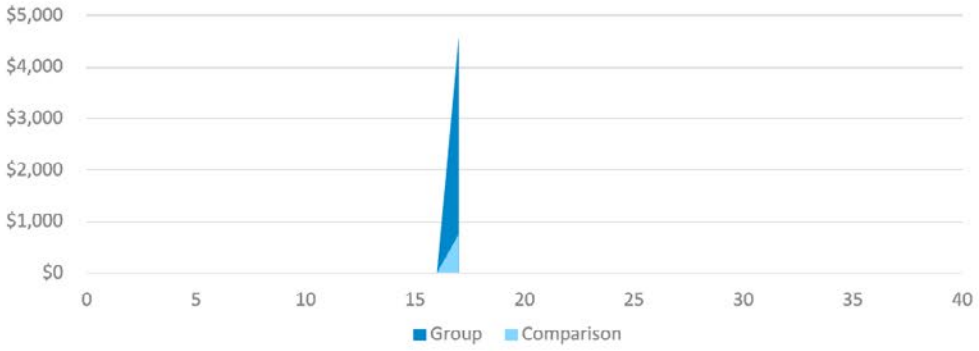


8.4.5 Pathways — annual estimated future cost for a typical 16 year old[60]

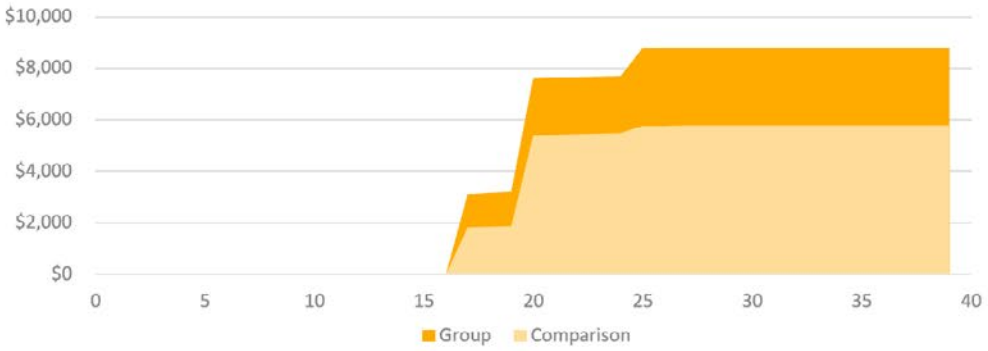
JUSTICE



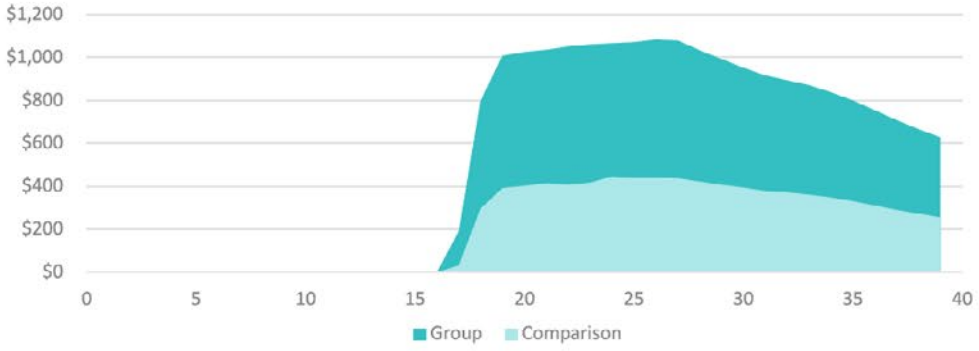
CHILD PROTECTION



WELFARE

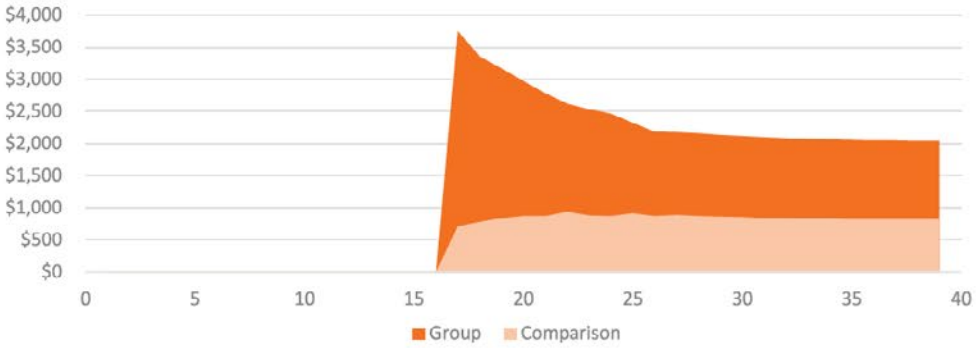


HOUSING

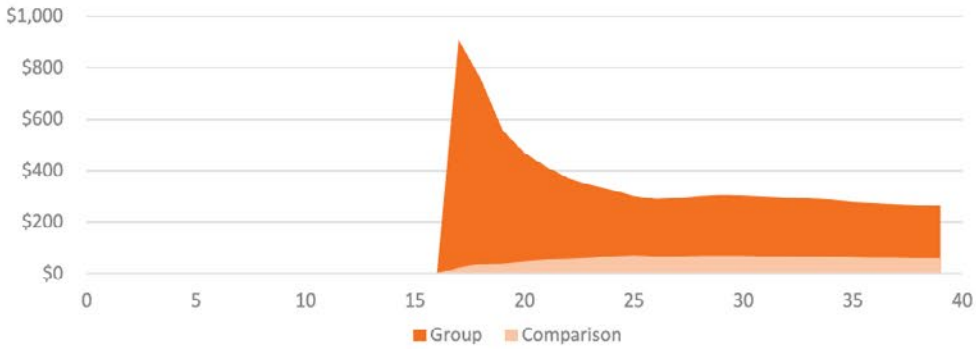


60 Refer to section 5 — How to interpret the results

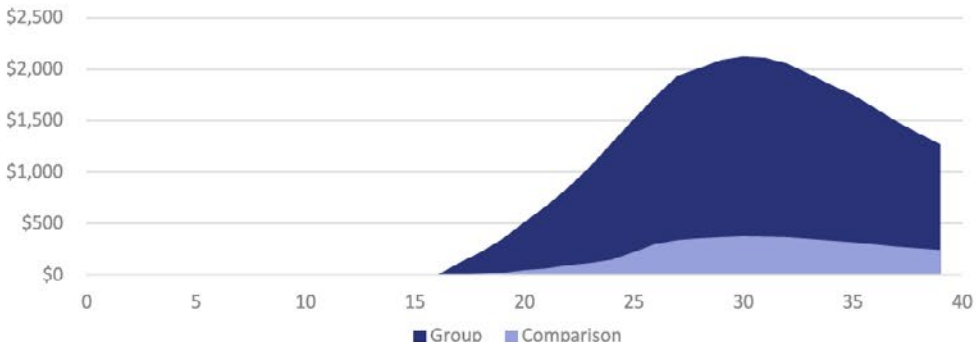
HEALTH



NSW AMBULATORY MH



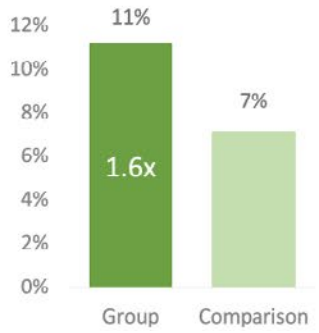
NEXT GEN OOHC



EDUCATION [61]

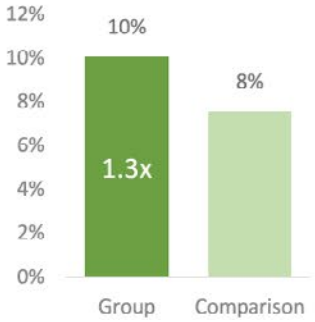
Year 3 NAPLAN

Proportion in lowest band

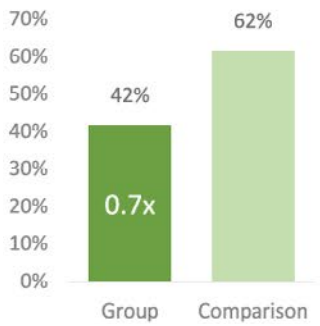


Year 7 NAPLAN

Proportion in lowest band



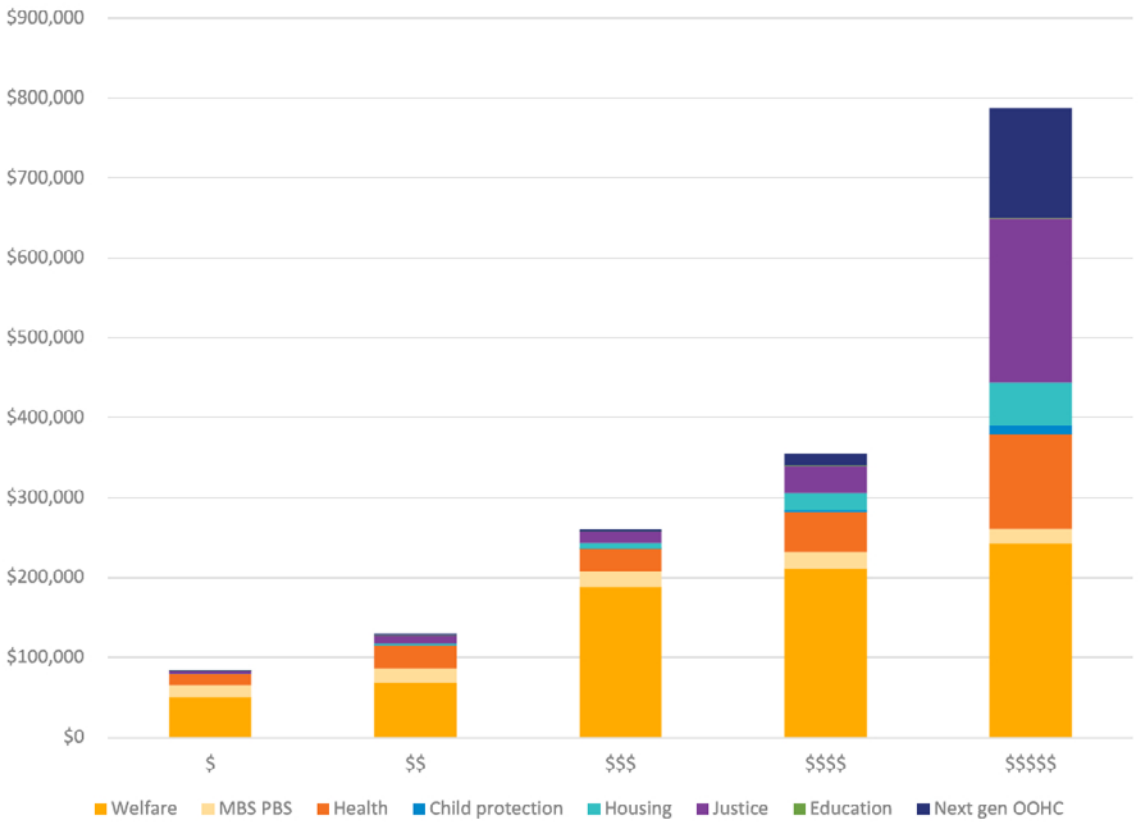
Proportion who complete HSC



61 The only direct education costs included in the model are RAM equity loadings and these do not differ due to how we have selected the comparison group For completeness, we compare educational attainment — drawing on a mixture of past data and our future projections

8.4.6 Within group variation — estimated future costs and summary

We have divided the group into five cost sub-groups ranging from lowest to highest expected future cost, to better define those with the poorest future outcomes:



The sub-group with the highest estimated future service and support costs ($$$$$) in this group has an average estimated future cost of $788k.

This is 9x the cost of services and supports of the sub-group with the lowest estimated costs ($).

The within-group cost differences are driven by individual and family characteristics:

- 83% of the highest cost sub-group were assessed at ROSH over the last 5 years compared to 0% of the lowest cost sub-group
- 59% of the highest cost sub-group had interacted with the justice sector over the last 5 years compared to 0% of the lowest cost sub-group

These characteristics also drive differences within the group in future social outcomes:

- 17% of the highest cost sub-group are expected to have a child that will require OOHC compared to 0% of the lowest cost sub-group
- 31% of females in the highest cost sub-group are expected to become young mothers in the future compared to 2% of the lowest cost sub-group
- 38% of the highest cost sub-group are expected to enter custody in the future compared to 1% of the lowest cost sub-group

The differences in past characteristics and future outcomes of the five cost sub-groups within the group is shown over the following pages

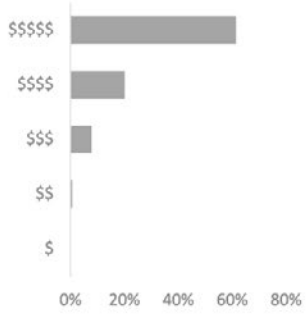
8.4.7 Variation in past characteristics by cost sub-groups

DEMOGRAPHICS

Proportion male

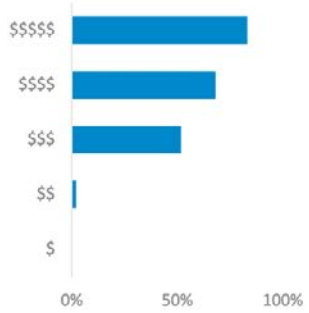
DEMOGRAPHICS

Proportion Aboriginal



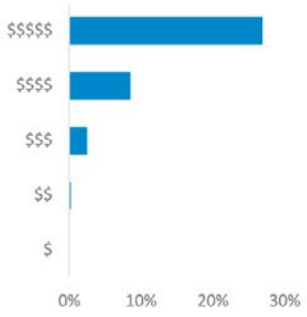
CHILD PROTECTION

Proportion with ROSH report in last 5 years



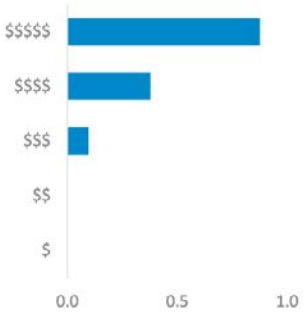
CHILD PROTECTION

Proportion who have had at least one OOHC placement in last 5 years



CHILD PROTECTION

Average number of OOHC placement changes per year



CHILD PROTECTION

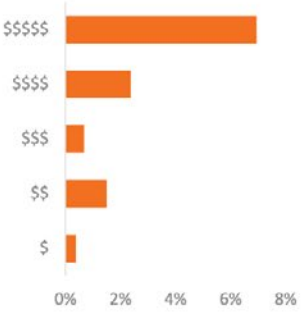
Average number of years spent in OOHC

HEALTH

Proportion admitted to hospital in last 5 years

HEALTH

Proportion with at least one AOD hospital admission in last 5 years

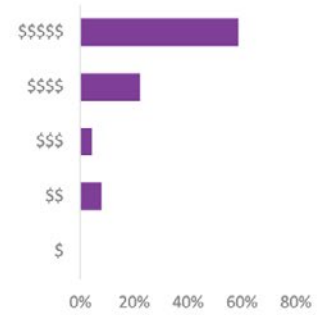


HEALTH

Proportion who used NSW MH services in last 5 years

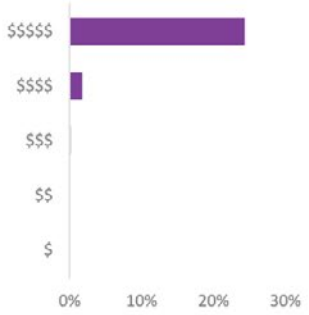
JUSTICE

Proportion with an interaction with the justice system in last 5 years



JUSTICE

Proportion who have spent time in custody in last 5 years



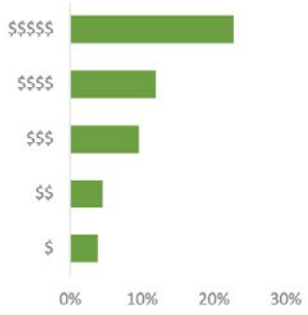
HOUSING

Proportion in social housing at 30 June 2017

EDUCATION

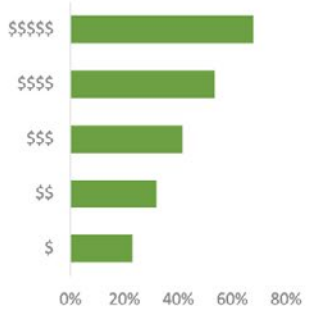
Year 3 NAPLAN

Proportion in lowest band



EDUCATION

Proportion with unexpected government school moves



HOUSING

Proportion who used homelessness services over last year

PARENTAL

Proportion with at least one parental risk factor in last 5 years

PARENTAL

Proportion with significant perinatal risk factors

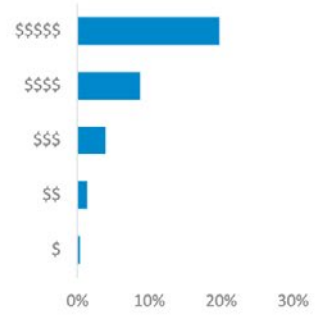
PARENTAL

Proportion born to young mothers

8.4.8 Variation in future outcomes by cost sub-groups

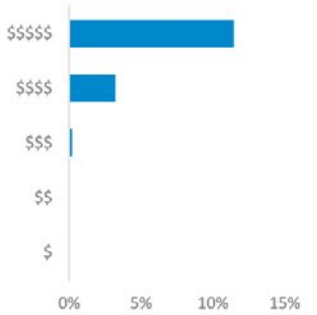
CHILD PROTECTION

Proportion expected to be reported at ROSH in future



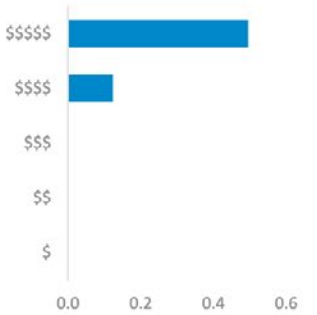
CHILD PROTECTION

Proportion expected to have OOHC placement



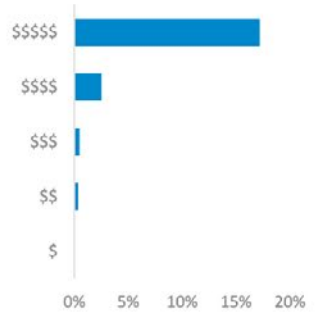
CHILD PROTECTION

Average expected years in OOHC



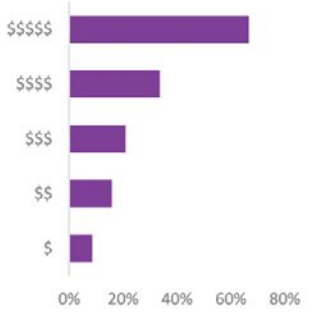
CHILD PROTECTION

Proportion of females whose children expected to require OOHC



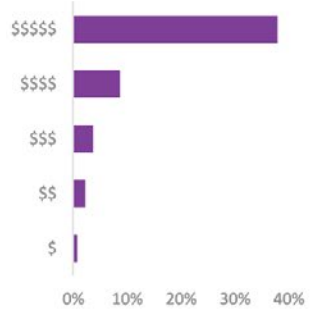
JUSTICE

Proportion expected to interact with justice system



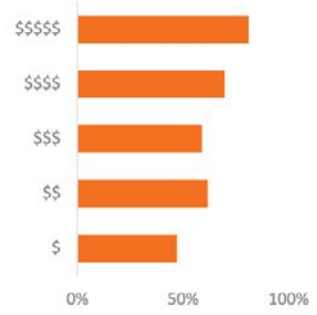
JUSTICE

Proportion expected to enter custody



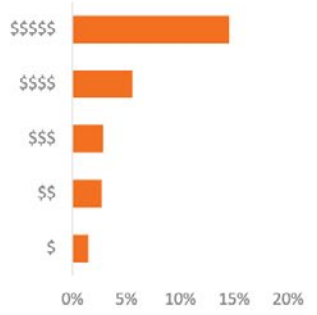
HEALTH

Proportion expected to use NSW hospitals



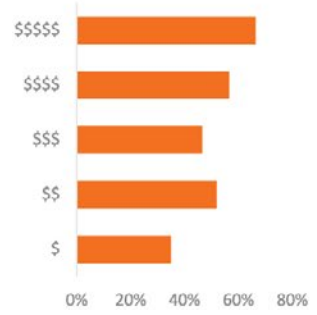
HEALTH

Proportion expected to be admitted to hospital for AOD



HEALTH

Proportion expected to use MH services (hospital or ambulatory)



HOUSING

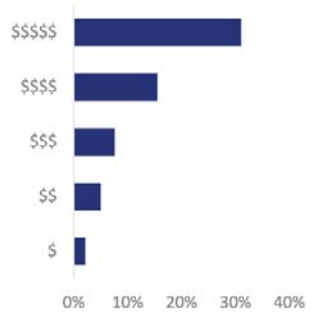
Proportion expected to use social housing as adults

EDUCATION

Proportion completed or expected to complete the HSC

PARENTAL

Proportion of females expected to become a young mother



Section 9

1,000 individuals with highest estimated service costs

Section 91

Vulnerable group **1,000 individuals with highest service costs**

9.1.1 Summary by domain

Who is included in this group?

The 1,000 individuals with the highest estimated future cost

Who is included in the comparison group?

A randomly selected group with the same number and distribution of individuals by age, gender, Aboriginality, and socio-economic status (based on birth location) to that of the vulnerable group

What will this vulnerable group's services cost the government compared to the comparison group?

- The **total estimated future cost of this group to age 40 is $2.3B**, which is equivalent to **an average cost of $2.3M per person.**
- **Total estimated future cost is $1.9B more than the comparison group**, which is equivalent to an average difference of $1.9M per person.

What are their projected social outcomes under current policy and operational settings?

SOCIAL & COMMUNITY

- **Compared to the comparison group, females in this group are 24.8x more likely to have children who eventually enter OOHC, and are 2.4x more likely to become young mothers.**
- **Average future child protection costs for this group ($1.2M) are 29.1x higher than those of the comparison group.**

SAFETY

- **Compared to the comparison group, members of this group are 2.9x more likely to interact with the justice system in the future, and 5.9x more likely to enter custody.**
- **Average future justice costs for this group ($397k) are 7.7x higher than those of the comparison group.**

HOME

- **Compared to the comparison group, members of this group are 3.7x more likely to use social housing services in the future.**
- **Average future housing costs for this group ($71k) are 3.6x higher than those of the comparison group.**

EDUCATION & SKILLS

- **7% of this group are projected to complete the HSC, compared to 42% of the comparison group.**
- **The only direct education costs included in the model are RAM equity loadings and these do not differ due to how we have selected the comparison group.**

HEALTH

- **Individuals in this group are 5.1x more likely to have alcohol and other drugs related hospital admissions in the future, and 2.8x more likely to use mental health services (NSW hospital or ambulatory).**
- **Average future health costs for this group ($352k) are 9.5x higher than those of the comparison group.**

ECONOMIC

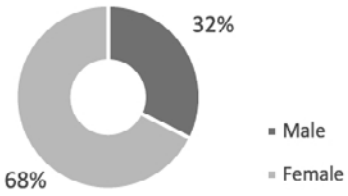
- **Overall future welfare costs for this group ($241k) are 1.3x higher than those of the comparison group.**

9.1.2 About this group

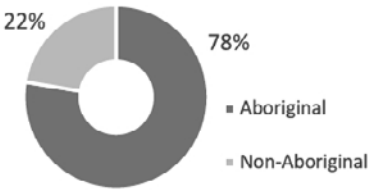
Number in group

1,000
(0.04% of NSW born population)

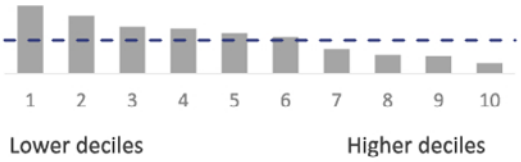
Gender



Aboriginal

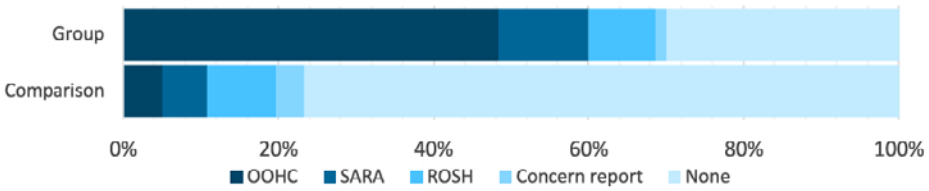


Distribution of socio-economic decile at birth

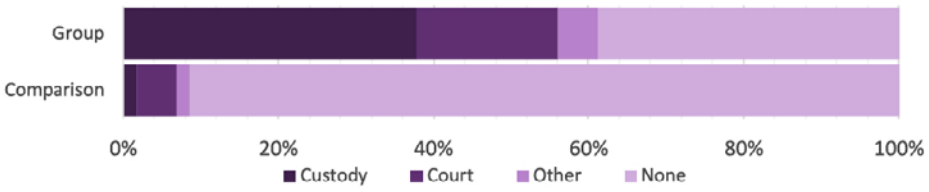


Distribution of age at 30 June 2017

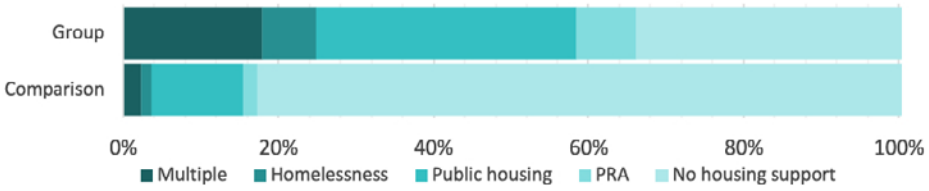
Highest level of interaction with child protection over the last 5 years



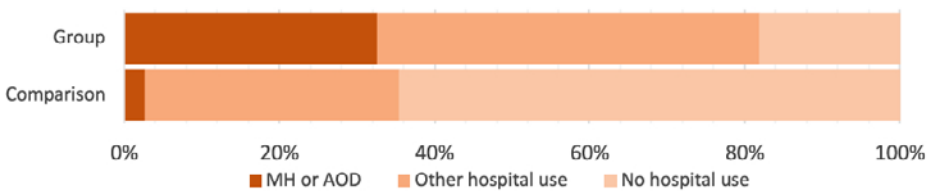
Highest level of interaction with justice system over the last 5 years



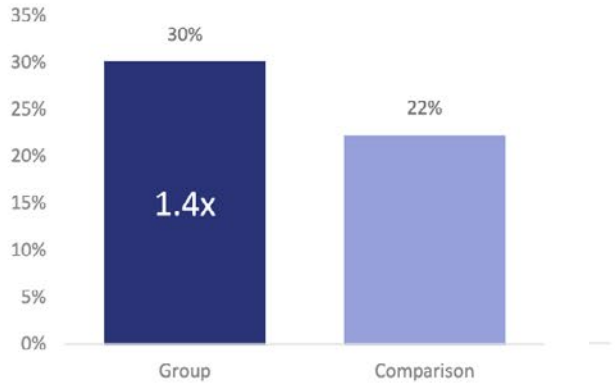
Housing support use over the last year



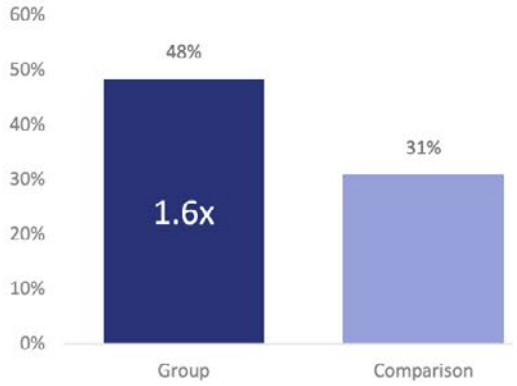
Proportion with NSW hospital admissions for AOD or MH over the last 5 years



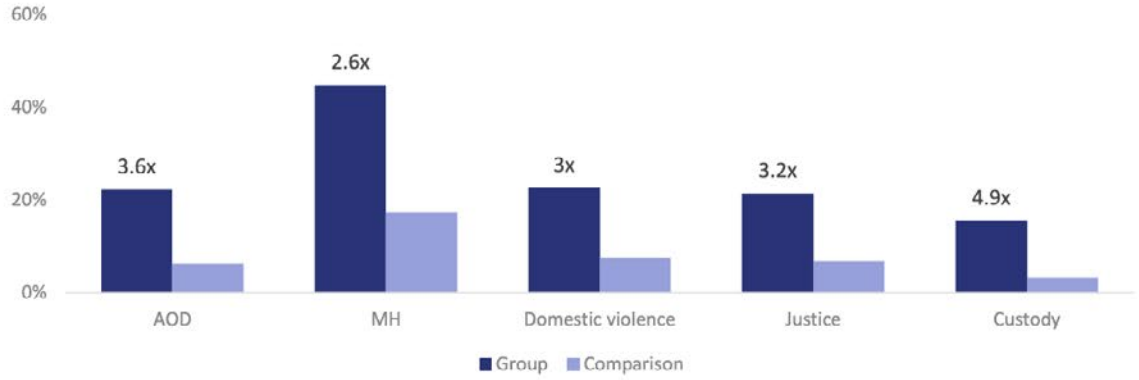
Proportion born to young mothers



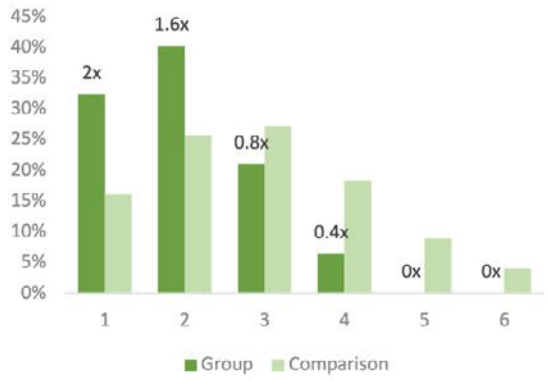
Proportion with two or more perinatal risk factors



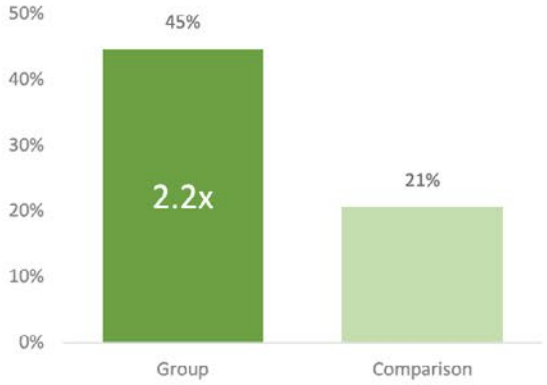
Proportion with a parent who have each of the following risk factors



Distribution of Year 3 NAPLAN results



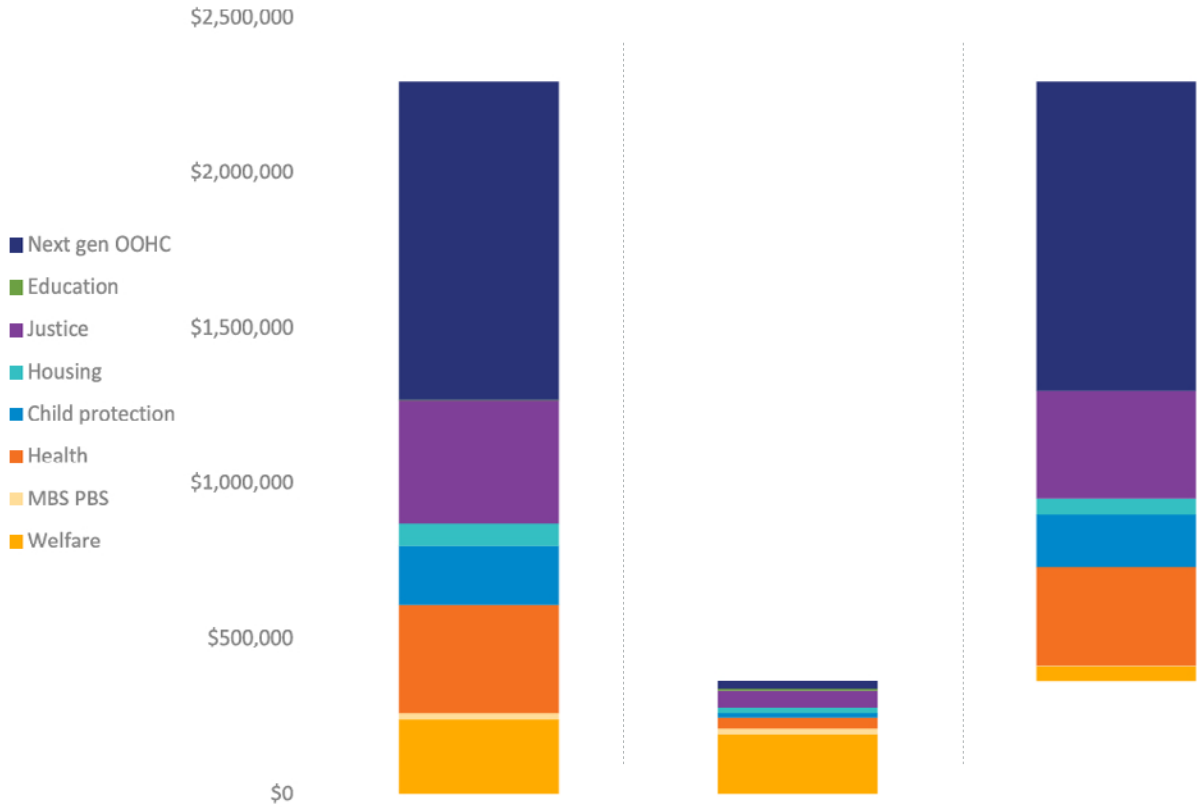
Proportion with unexpected government school moves[62]



62 Different proportions of individuals attending government versus non-government schools may explain some of the difference with the comparison group

9.1.3 Estimated future cost of government services

	Vulnerable Group	Comparison group	The difference
Total estimated future cost	$2.3B	$0.36B	$1.9B
Average estimated future cost	$2.3M	$0.36M	$1.9M

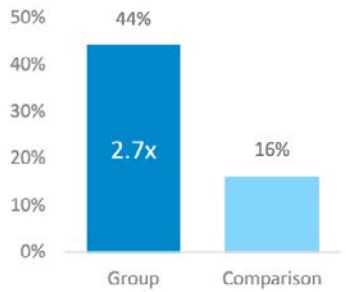


Male average estimated future cost	$2.3M	$0.40M	$1.9M
Female average estimated future cost	$2.3M	$0.35M	$2.0M
Aboriginal average estimated future cost	$2.3M	$0.44M	$1.8M
Non-Aboriginal average estimated future cost	$2.4M	$0.11M	$2.3M

9.1.4 Projected future social outcomes

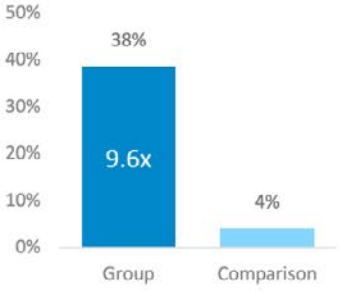
CHILD PROTECTION

Proportion expected to be reported at ROSH in future



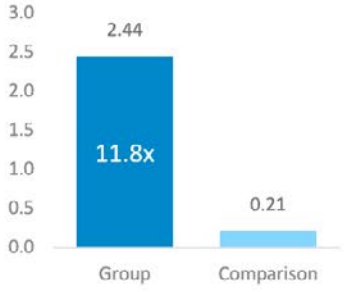
CHILD PROTECTION

Proportion expected to have OOHC placement



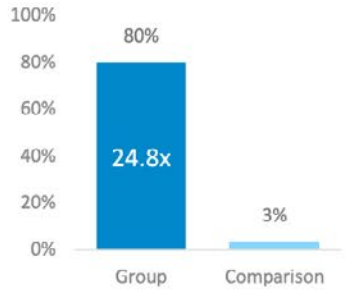
CHILD PROTECTION

Average expected years in OOHC



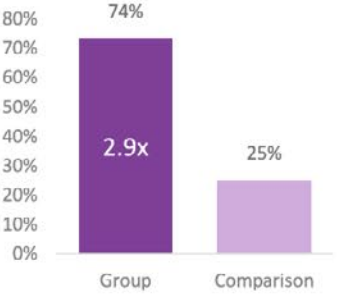
CHILD PROTECTION

Proportion of females whose children expected to require OOHC



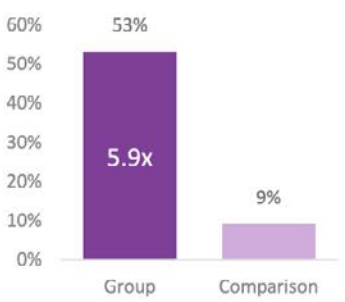
JUSTICE

Proportion expected to interact with justice system



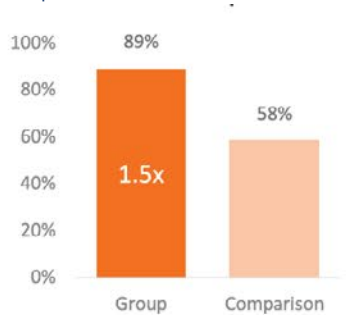
JUSTICE

Proportion expected to enter custody



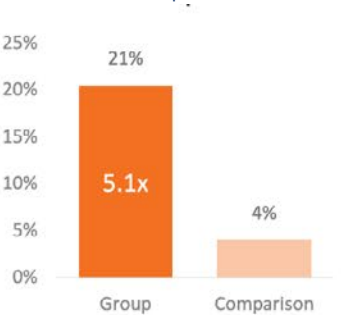
HEALTH

Proportion expected to use NSW hospitals



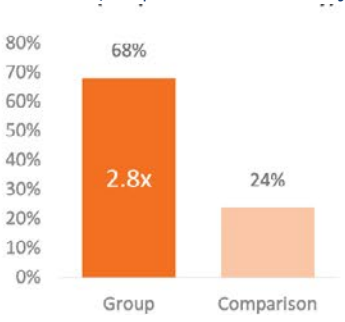
HEALTH

Proportion expected to be admitted to hospital for AOD



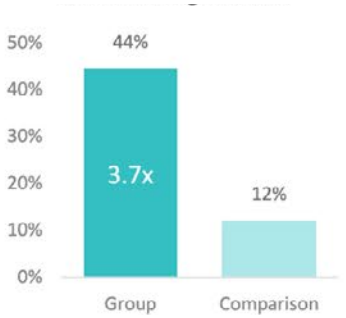
HEALTH

Proportion expected to use NSW MH services (hospital or ambulatory)



HOUSING

Proportion expected to use social housing as adults

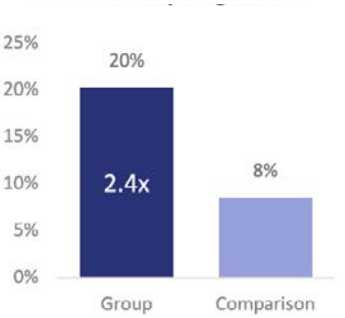


EDUCATION

Proportion expected to complete the HSC

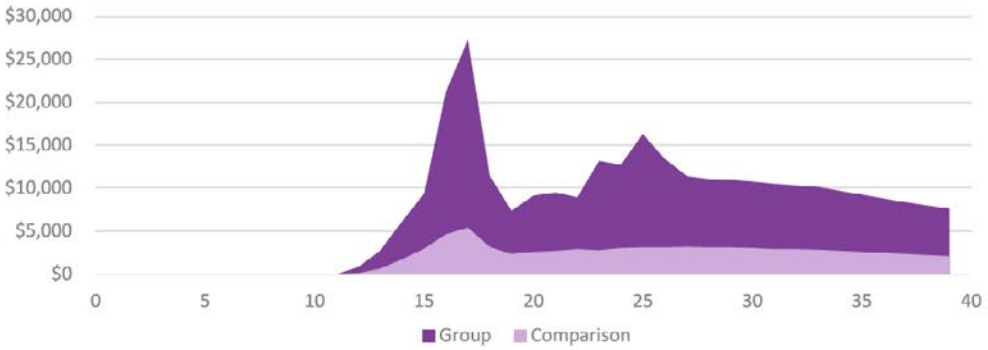
PARENTHOOD

Proportion of females expected to become a young mother

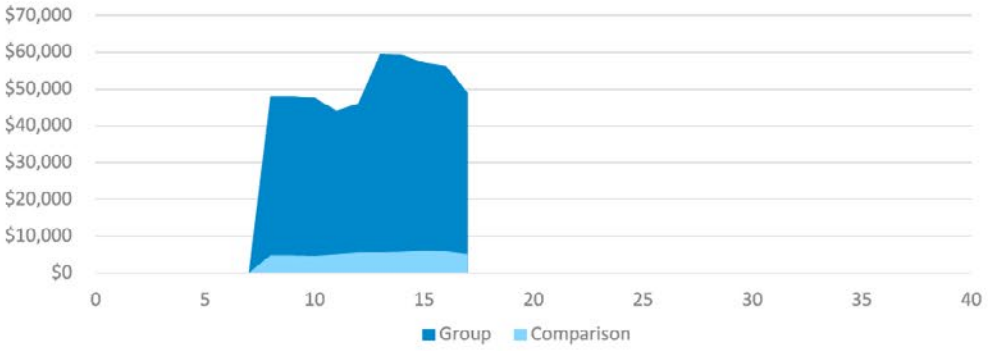


9.1.5 Pathways — annual estimated future cost for a typical 7 year old[63]

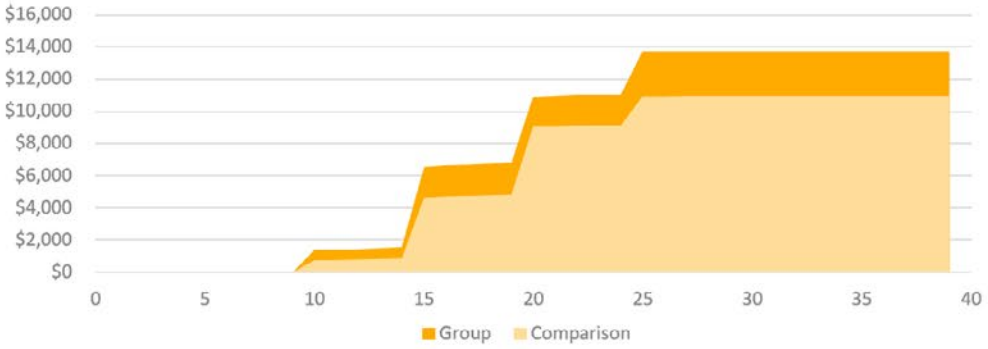
JUSTICE



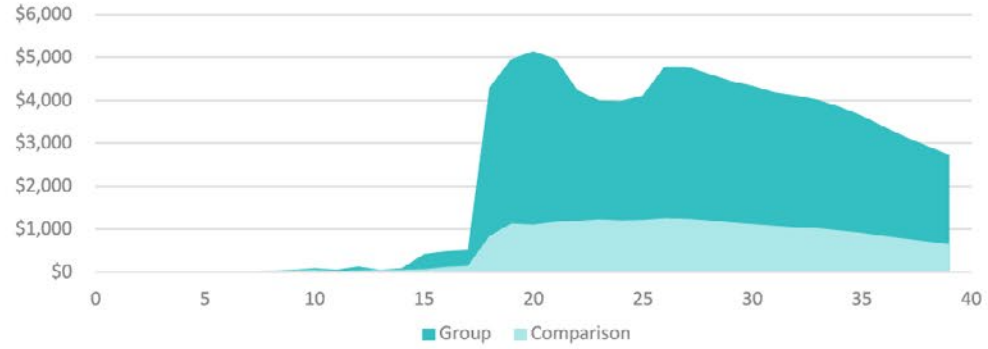
CHILD PROTECTION



WELFARE

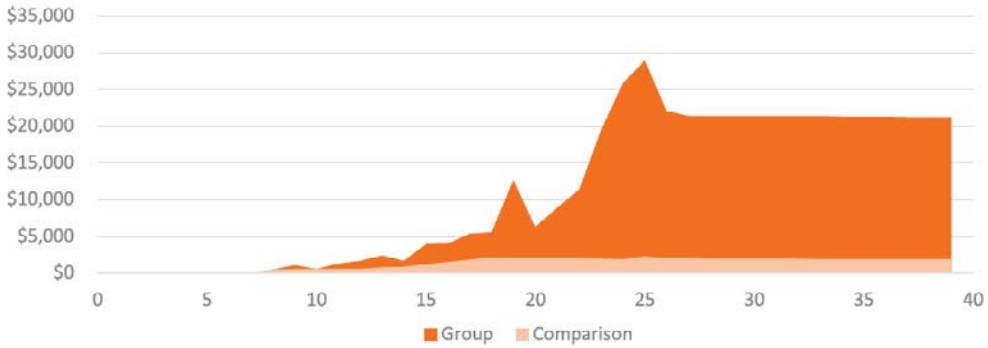


HOUSING



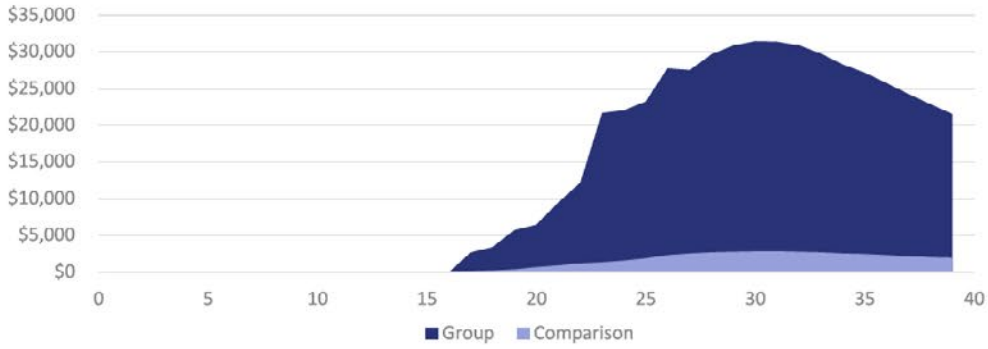
63 Refer to section 5 — How to interpret the results

HEALTH



NSW AMBULATORY MH

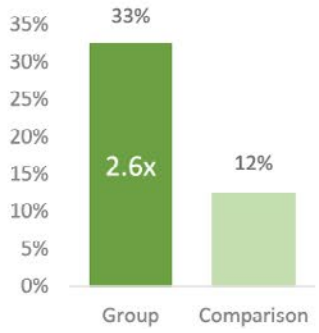
NEXT GEN OOHC



EDUCATION [64]

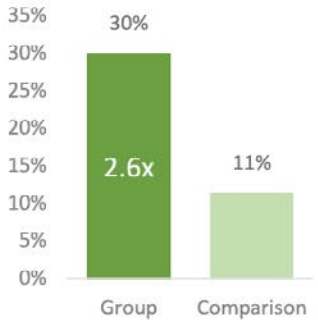
Year 3 NAPLAN

Proportion in lowest band

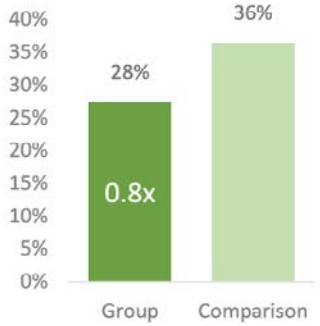


Year 7 NAPLAN

Proportion in lowest band



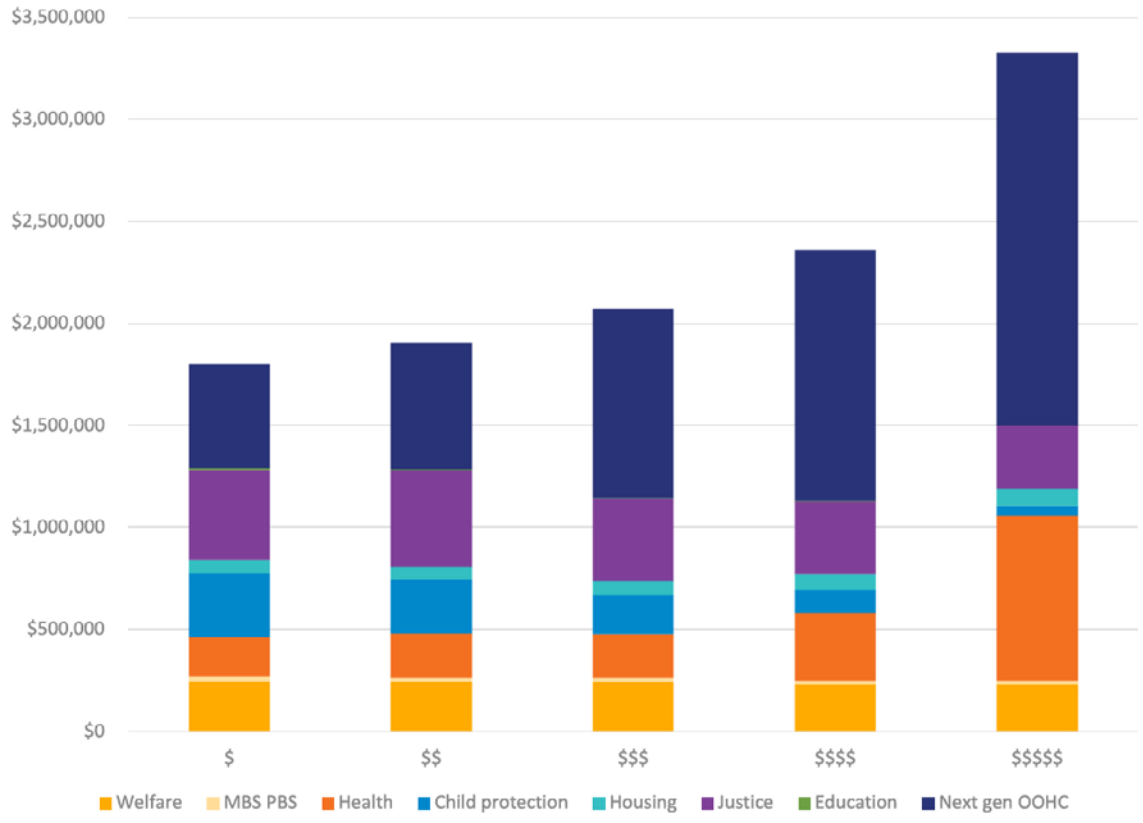
Proportion who complete HSC



64 The only direct education costs included in the model are RAM equity loadings and these do not differ due to how we have selected the comparison group For completeness, we compare educational attainment — drawing on a mixture of past data and our future projections

9.1.6 Within group variation — estimated future costs and summary

We have divided the vulnerable group into five sub-cost groups ranging from lowest to highest expected future cost, to better define those with the poorest future outcomes:



The sub-group with the highest estimated future service and support costs ($$$$$) in this group has an average estimated future cost of $3,327k.

This is 1.8x the cost of services and supports of the least expensive sub-group ($).

The cost differences between the sub-groups are driven by more complex factors than for other vulnerable groups:

- Across sub-groups, the decreasing justice and increasing next gen OOHC costs are largely gender related — males dominate the lowest 2 cost sub-groups and have high justice costs, while only females, who dominate the top 3 cost sub-groups, have next gen OOHC costs. 96% of females in the highest cost sub-group are expected to have children who will require OOHC in the future compared to 59% of the lowest cost sub- group.

- Age is increasing between the sub-groups, with the lowest cost sub-group having an average age of 12, and the highest cost sub-group having an average age of 21. This is the reason for the decreasing child protection costs. The higher cost sub-groups contain larger proportions of individuals who have already reached age 18 and are thus no longer able to access these services.
- Unlike other vulnerable groups, there is very little variation in the proportion of Aboriginal people between cost sub-groups. Overall, however, Aboriginal people make up a high proportion (78%) of the 1,000 individuals with the highest estimated service costs.

The very small number of individuals within this group means that there is a substantial amount of potential variation at the cost sub-group level (200 individuals per group) For this reason, detailed past characteristics and future outcomes by cost group are not shown for this group

Section 10

Data Limitations & Reliances

10.1 Data

We have relied upon data sets provided by NSW Government agencies and linked by the Centre for Health Record Linkage.

In preparing this report we have relied on data and other information provided by many NSW Government agencies as described in *Section3.2* (p 33) This has been enabled by a Public Interest Direction made under section 41(1) of the Privacy and Personal Information Protection Act 1998 (PPIP Act) and another Public Interest Direction made under section 62(1) of the Health Records and Information Privacy Act 2002 (HRIP Act)

The core data sets provided by these agencies consist of individual-level administrative data The data sets were released to us for analysis by the Centre for Health Record Linkage (CHeReL) after a linkage exercise which allows for individuals to be matched across different data sets The data sets released to us did not contain core identifying information such as name and address

We have used these data sets without audit or independent verification Specifically:

- we have not checked the reliability of the linkage process. It is possible that an individual's service use history is incomplete or overstated due to data quality limitations, a small degree of error in probabilistic data linkage, and the quality of personal identifiers that impacts on linkage rates. The number of individuals represented in the data can also be different to reality due to duplication. However, Taylor Fry has conducted high-level checks throughout the analysis to check that cross-agency service use pathways according to the linked data appear to be plausible on average
- we have relied on the data sets released to Taylor Fry to be complete and accurate. Taylor Fry has carried out internal consistency checks and some checks of the data against external sources for reasonableness in aggregate. We have also discussed each of the data sets with agency data representatives to ensure our understanding of the data is correct and provided agencies with a summary of our understanding for their confirmation.

In addition to the administrative data described, we have also used assumptions for the unit cost of carrying out various government services We have developed these unit cost assumptions with each agency and obtained approval for their use

We believe the efforts undertaken by agencies, CHeReL and Taylor Fry mean that the risks of inaccurate data or misunderstandings in relation to data and assumptions have been minimised Nevertheless, it remains possible that there are inaccuracies in the data and/or misunderstandings of data/assumptions, and that these inaccuracies may affect the results in this report Any material discrepancies in the data or discoveries that affect our understanding should be reported to us so that we can consider whether this report should be amended accordingly

There have been specific challenges and limitations due to constraints imposed by the data used These are detailed in the technical appendices The two most significant to the results are detailed below

- **Service use assumptions beyond age 27 —** TFM Human Services Data Set could only be used to derive service use assumptions up to age 27. Beyond age 27, Taylor Fry applied 'tail factors' to extrapolate results for each modelled service type. These factors are based on previous work done for NSW Treasury on a cohort of OOHC leavers. This means there is a higher degree of uncertainty in our results beyond age 27. This is why many of the insights presented in this report are based on projected service use and outcomes up to age 27 only.
- **Modelling Commonwealth services —** Individual linked data on Welfare, MBS and PBS was not available for this work and so assumptions for these services are less granular. Our assumptions for service use in relation to these services are based on overall service use statistics by age, gender (and Aboriginality for welfare) for the average NSW population. Taylor Fry has applied adjustment factors to these assumptions to allow for the increased likelihood of someone with a child protection and/or justice history receiving these services. These factors have been derived from analyses previously carried out on NSW OOHC leavers and welfare recipients in New Zealand.

10.2 Modelling, projections and results

There is inherent uncertainty in models based on past data to predict the future.

There is an inherent limitation on the accuracy of estimates in this report caused by the **fundamental uncertainty of attempting to predict the future.** In our opinion, Taylor Fry has used techniques and assumptions that are appropriate, and the results, insights and conclusions presented in this report are reasonable, based on the available information We note that:

- The NSW and Commonwealth Government social sector system is extremely complex and covers a wide range of services and outcomes. Furthermore, there have been legislative and operational changes during the period of the past data, which has been used to calibrate the model. This complexity and change inevitably leads to more uncertainty in the predictions than would otherwise be the case. As part of our model validation process, Taylor Fry has applied the model to a historical cohort to check that the model would have accurately projected the service use and outcome pathways of those in the cohort as depicted by the data.
- The purpose of the report is to highlight relativities in estimated future cost and outcomes, according to the current environment. Our model does not aim to allow for legislative, operational and behavioural changes in the future. These systemic changes are very difficult to allow for in any predictive model or even quantify. This is especially true for long-term projections.
- The results presented in the report are mean estimates or expected values. While it is a virtual certainty that the actual service use, fiscal costs and social outcomes will depart from our estimates, our estimates contain no deliberate bias towards over- or under-estimation. These estimates are appropriate for understanding how different groups of the study population have different estimated future cost and outcomes on average.
- Our estimates of relative estimated future cost have a higher degree of certainty than our estimates of absolute estimated future cost.

Furthermore, the following considerations should be born in mind when using the results of the report:

- The projections include costs up to age 40.
- There is more uncertainty in relation to the projections of Commonwealth services due to the unavailability of individual linked data for these services. This is discussed further in *Section 10.1.*
- There is more uncertainty in relation to service use projections between the ages of 28 to 40. Data limitations meant that approximate extrapolation methods were used for modelling service use in this age range. This is discussed further in *Section 10.1.*
- The cost cashflows in this report have been discounted using a real rate of return of 1%. If using these cashflows as part of a cost-benefit analysis alternative discount rates may be appropriate. Note there is considerable debate around appropriate discount rates for social benefit investments. If the discount rate used is high this will tend to deprioritise projects with long term aims such as reducing intergenerational disadvantage.
- The cost estimates used in this report include corporate overhead costs which are fixed in the short term. If the cash flows in this report are used in a cost-benefit analysis, then any estimated savings are likely to be over-estimated in the short term as it would take time for fixed operating/running costs to adjust to any reduction in demand.

- The unit cost assumptions used in this report are uncertain and as such actual future costs could turn out to be materially different to those forecast in the report. In particular there is considerable uncertainty about how unit costs may evolve over the 40-year period in which cost projections are made.

10.3 Disclaimers

The model and the insights presented in this report are intended for the purposes described in *Section 3.3* and *Section 1.2.*

Judgements about the methodology, analyses, assumptions and estimates of service use and outcomes described in this report should be made only after considering this report and appendices in their entirety Parts of the report and appendices could be misinterpreted and/or misleading if considered in isolation Members of Taylor Fry staff are available to explain or clarify any matter presented in this report

Third parties should place no reliance on this report, which would result in the creation of any duty or liability by Taylor Fry to the third party

Further qualifications concerning the data available, resulting methodology applied and estimates of service use and outcomes are described in other sections of the report, and should be noted in any interpretation of results reported here

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