

Research Using Administrative Data to Support the Work of the Expert Panel on Modernising Child, Youth and Family

Analytical Paper 16/03

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Abstract

This paper sets out the findings from three studies that were undertaken to support the work and analysis of the Expert Panel on Modernising Child, Youth and Family. The studies provide new insights into both the extent of contact with Child, Youth and Family, outcomes for children and young people who have contact with the agency and some of the associated long-term fiscal costs.

The studies were undertaken using newly linked administrative data. The first study was conducted in early 2015 and used the Integrated Child Dataset. The other two studies were undertaken later in 2015 and used the Integrated Data Infrastructure.

As well as providing important new findings, the studies also demonstrate the future potential for using new linked administrative data to understand child and youth development and informing the design and delivery of effective services for vulnerable children and their families.

JEL CLASSIFICATION J13 Childcare, children and youth
 C55 Large data sets: modelling and analysis

1 Introduction

In April 2015, the Minister for Social Development established the Modernising Child, Youth and Family Expert Panel in order to develop a plan for the modernisation of Child, Youth and Family. The Panel was asked to investigate if the agency's operating model was delivering improved outcomes for children and young people and to propose changes that would improve these outcomes.

The Panel produced an Interim Report (Expert Panel on Modernising Child, Youth and Family, 2015a) in July 2015 and then a Final Report (Expert Panel on Modernising Child, Youth and Family, 2015b) in December 2015.

This Treasury Analytical Paper sets out three studies that Treasury and Ministry of Social Development staff undertook to support the work and analysis of the Panel:

- ▶ Outcomes for children and young people who have contact with Child, Youth and Family – Sarah Crichton, Robert Templeton and Sarah Tumen (The Treasury) and Rissa Ota, Debra Small and David Rea (Ministry of Social Development).
- ▶ Young women with a history of contact with Child, Youth and Family during childhood have higher rates of early parenting and subsequent contact with child protection as young parents – Robert Templeton (Treasury) and David Rea (Ministry of Social Development).
- ▶ Abuse and neglect is associated with an increased risk of mortality during teenage years – Robert Templeton (Treasury) and David Rea (Ministry of Social Development).

Together, these studies provide new insights into the extent of contact with Child, Youth and Family, outcomes for children and young people who have contact with the agency and the associated long-term fiscal costs.

The studies were undertaken using new linked administrative data. The first study was conducted in early 2015 and used the Ministry of Social Development's Integrated Child Dataset. The other two studies were undertaken later in 2015 and used Statistics New Zealand's Integrated Data Infrastructure.

As well as providing important new findings, the studies also demonstrate the future potential for using new linked administrative data to understand child and youth development and informing the design and delivery of effective services for vulnerable children and their families.

2 Outcomes for children and young people who have contact with Child, Youth and Family

2.1 Overview

Until recently, there has only been limited statistical information available about the subsequent life outcomes of children and young people who have contact with child protection services. This paper provides some important insights into the nature and extent of contact with Child, Youth and Family as well as subsequent adult outcomes depending on the level of contact.

The paper uses a new dataset that links records from a range of government agencies. This new data allows an analysis of government service utilisation for a cohort of children born between 1 July 1990 and 30 June 1991.

The analysis looks at the extent to which children in the birth cohort had contact with Child, Youth and Family as a result of either care and protection or youth justice concerns. Prior to 18 years of age, around 15% of the cohort had some form of care and protection contact with Child, Youth and Family. Approximately 4.4% were referred to Child, Youth and Family for youth justice reasons.

The paper also reports on the subsequent education, benefit receipt and criminal justice outcomes. The data shows that, compared to other children in the cohort, those who had contact with Child, Youth and Family were less likely to attain basic school qualifications, were more likely to be early entrants to the benefit system (sometimes with their own children) and were more likely to have later contact with the adult corrections system.

2.2 The Integrated Child Dataset

The Integrated Child Dataset was developed by the Ministry of Social Development and draws together administrative data from the Ministry of Social Development (benefit, care and protection, Family Start), Department of Corrections (sentencing), Ministry of Education (participation and attainment), Department of Internal Affairs (birth and death registrations) and Ministry of Health (including maternal health and hospitalisations). Information on individuals in the dataset is drawn from different collections by matching individuals according to names, sex and date of birth.

Much of the analysis reported here was undertaken by the Treasury's Analytics and Insights team who were seconded to the Ministry of Social Development to work on the analysis of this data. Ethics approval for the data linkage and programme of work was granted by the Central Region Health and Disability Ethics Committee (12/CEN/46).

The estimates in this paper should be treated as having wide margins of uncertainty for a number of reasons including the following:

- ▶ There is incomplete Child, Youth and Family data from the early 1990s, which means that some of the estimates of prevalence are understated because of lack of data at early ages.
- ▶ The process of matching is probabilistic and creates some level of error¹ as there are cases where individuals cannot be matched (and appear in the data with less service delivery utilisation than actually occurred) as well as cases where individuals have been wrongly matched (and appear in the data with inaccurate estimates of service delivery utilisation).
- ▶ The data covers a specific time and cohort, and some care must be taken in generalising to the experience of current cohorts of children. More recent cohorts have had a higher likelihood of being notified to Child, Youth and Family, partly because of administrative changes related to family violence events attended by Police. (From 2006 domestic violence incidents attended by police have been automatically referred to CYF if children were present)

The analysis reported here should be seen in the context of what is known from New Zealand's longitudinal studies about life course outcomes following exposure to abuse and neglect as well as youth offending trajectories (Fergusson et al., 2003; Fergusson, Boden & Horwood, 2008; Moffit & Caspi, 2001).

A key feature of the new data reported here is that it represents the records of the entire population and their contact with selected government services. An important caveat is that the administrative measures of substantiated findings of abuse and neglect or Police referral to Child, Youth and Family are not necessarily comprehensive or reliable measures of the underlying phenomena of maltreatment or youth offending. The data is also limited in the description of individual characteristics and circumstances captured in interactions with government services.

Future outcomes and selected future service costs are estimated for this population using data for earlier birth cohorts and statistical record linkage techniques. The data and methods used are described in an earlier paper (Crichton et al., 2015).

2.3 Contact with Child, Youth and Family

Care and protection

The Children, Young Persons, and Their Families Act 1989 provides the statutory basis for Child, Youth and Family's intervention with children and young people. Section 17 of the Act sets out the responsibilities of Child, Youth and Family social workers around the investigation of reports of concerns. Section 14 of the Act defines a child or young person in

¹ Match rates for most datasets incorporated into the ICD are over 90%, however they can be as low as 70% for collections where name has not been recorded accurately. These matching errors can lead to the under-estimation of the size of some groups of interest to the study and the dilution of differences between groups of interest.

need of care or protection. This includes the fact that the child or young person is being, or is likely to be, harmed (whether physically or emotionally or sexually), ill-treated, abused or seriously deprived. A child is defined in the Act as being under 14 years of age, while a young person is defined as being 14, 15 or 16 years of age.

A child or young person's contact with Child, Youth and Family for care and protection reasons can be divided into a number of different levels of contact depending on the *highest* level of the child's contact with Child, Youth and Family:

- ▶ 'Notification only' occurs where a member of the public or an agency has expressed a concern about the care or protection of the child to Child, Youth and Family (and this has been assessed by a social worker or a FVIARS² team).
- ▶ 'Notification and investigation' describes a higher level of contact where, following an initial assessment, a site-level social worker has conducted an investigation or child and family assessment.
- ▶ 'Notification, investigation and substantiated findings of abuse and neglect' occurs where a social worker has made a formal finding that the child has suffered physical, emotional or sexual abuse or neglect.³ This category may also include a subsequent family/whānau agreement or family group conference where the social worker has concluded that statutory intervention is necessary.
- ▶ 'Care' occurs where a court has determined that a child or young person is in need of care and protection and grants a custody or guardianship order. In most cases, the child or young person will have had a substantiated finding of abuse and neglect.

It is important to recognise that these administratively derived measures of engagement may not be a reliable measure of the real occurrence of child maltreatment. This reflects both the extent to which children are notified to the agency as well as the uncertainty inherent in making a determination that maltreatment has occurred (Hussey et al., 2005; Manion & Renwick, 2008; Fluke, 2009; Ministry of Social Development, 2015).

Figure 1 describes the childhood care and protection experience of the cohort of children born in the 12 months before 30 June 1991. As can be seen:

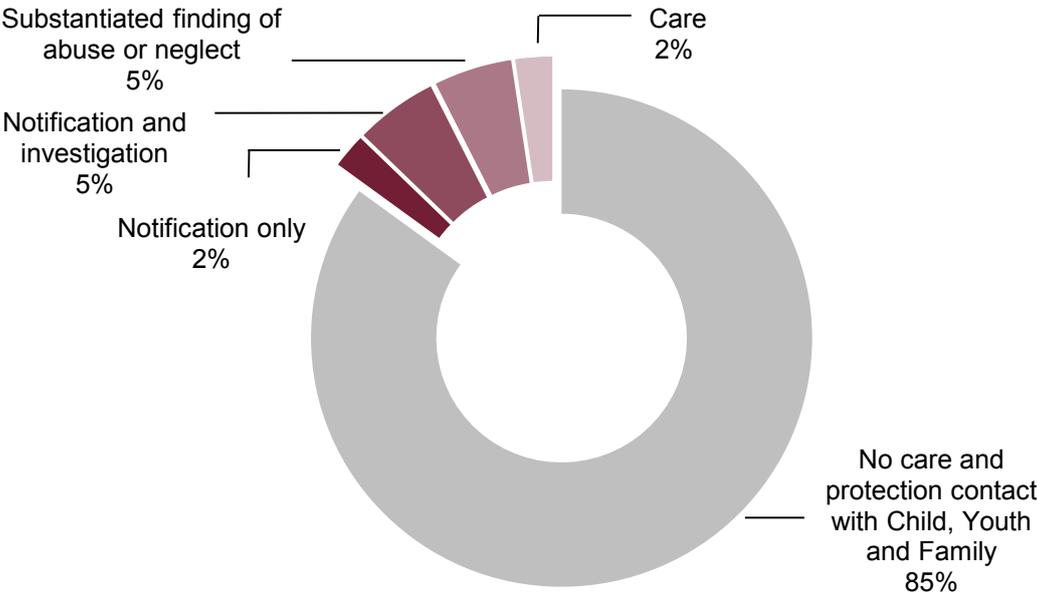
- ▶ around 15% of children in this birth cohort had some form of contact with Child, Youth and Family up until age 18
- ▶ for just under 5% of children in the birth cohort, their highest level of contact with Child, Youth and Family was at least one substantiated finding of abuse or neglect
- ▶ a further 2% of children in the cohort entered care at least once.

² The Family Violence Interagency Response System (FVIARS) is an interagency initiative designed to more effectively manage cases of family violence reported to the Police.

³ This excludes findings related to the child's behavioural difficulties or intentions of self-harm.

In total, over 7% of the cohort appear to have had at least one substantiated finding of abuse or neglect (ie, as well as the 5% whose highest level of contact was a substantiated finding, the majority of children who experience care will have had a substantiated finding of abuse or neglect).

Figure 1: Prevalence of highest level of care and protection contact with Child, Youth and Family up to age 18: cohort born in the 12 months to 30 June 1991



Source: Integrated Child Dataset.

Note: The population is identified using Ministry of Education data on school enrolment since 2006. The analysis uses a research linkage (linkage 5), and it is important to note that data linkage errors mean that the figures should be viewed as estimates.

The estimates above represent the highest level of contact, and it is important to recognise that, for most children and young people who had some form of contact with Child, Youth and Family, there would have been multiple contacts over prolonged periods of time. The extent of multiple contacts can be seen in the children who make up the current caseload of Child, Youth and Family. Of the 28,079 children who are currently engaged with the agency in some form, 70% have been previously notified to the agency (on average six times), 20% have had previous findings of maltreatment and 20% have previously been in care.

The analysis presented above uses the 1990/91 birth cohort as this enables enough time to have elapsed so as to measure later adult outcomes.

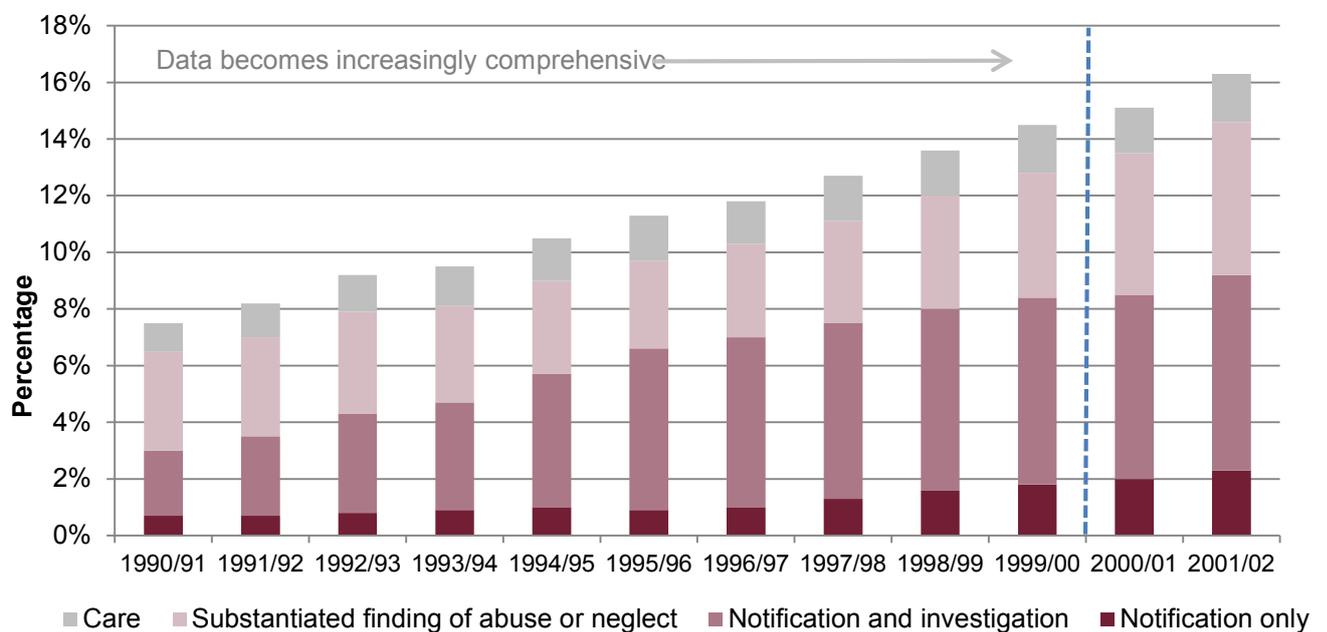
However, a key issue for this analysis is that there is incomplete data in the early 1990s because not all paper and prior electronic records were entered into the CYRAS computer system when it was established in 2000. This means that the real extent of contact with Child, Youth and Family is underestimated.⁴

⁴ Previous research has found that 20% of the 1993 birth cohort had some form of contact with Child, Youth and Family. This compares with 15% for the 1990/91 birth cohort. The estimates of the prevalence of substantiated findings and care are, however, very similar (Ministry of Social Development, 2012).

Relatedly, another issue is the extent to which the real experience of the 1990/91 cohort is representative of what current cohorts might experience in the future.

Figure 2 shows the care and protection contact with Child, Youth and Family by age 10 for multiple birth cohorts. As can be seen, later cohorts have had higher levels of contact with Child, Youth and Family. This increase in measured rates of contact is an artefact of both more comprehensive data as well as changes in the real level of contact. For more recent birth cohorts, there has been a real increase in contact, which appears to be partly the result of changes in Police procedures for notification where there has been a family violence incident as well as an increased recognition of emotional abuse or neglect.

Figure 2: Highest level of care and protection contact with Child, Youth and Family by 10 years of age for selected birth cohorts



Source: Integrated Child Dataset.

Note: Birth cohorts born between 1 July and 30 June each year.

Table 1 shows the prevalence of contact with Child, Youth and Family for care and protection reasons for the 1990/91 birth cohort by sex and ethnicity. The table reports slightly higher levels of contact for females compared to males. The table also shows marked differences by ethnicity. Approximately 28% of Māori children, 18% of Pacific children, 12% of European children and 4% of Asian children in the cohort had some form of contact with the care and protection system.

Table 1: Care and protection contact with Child, Youth and Family by age 18 for cohort born in the 12 months to 30 June 1991, by sex and ethnicity

	Number in cohort	Highest level of contact				Any contact	No contact
		Care	Finding of abuse or neglect	Notification and investigation	Notification only		
Sex							
Female	30,520	2.4%	5.9%	5.5%	2.3%	16.1%	83.9%
Male	31,898	2.3%	4.2%	5.2%	2.1%	13.8%	86.2%
Ethnicity*							
European	37,927	1.7%	4.0%	4.5%	1.8%	12.0%	88.0%
Māori	12,506	5.5%	9.4%	9.3%	3.8%	28.0%	72.0%
Pacific	5,142	2.2%	6.7%	6.3%	3.0%	18.2%	81.8%
Asian	5,510	0.4%	1.2%	1.5%	0.9%	4.0%	96.0%
Other	1,333	1.4%	2.5%	3.8%	2.8%	10.5%	89.5%
Total	62,418	2.4%	5.0%	5.3%	2.2%	14.9%	85.1%

* Prioritised ethnicity

Source: Integrated Child Dataset.

Note: The analysis reflects the population at 30 June 2012 and, in this case, is identified using Ministry of Education data on school enrolment since 2006. The analysis uses a research linkage, and it is important to note that data linkage errors mean that the figures should be viewed as estimates.

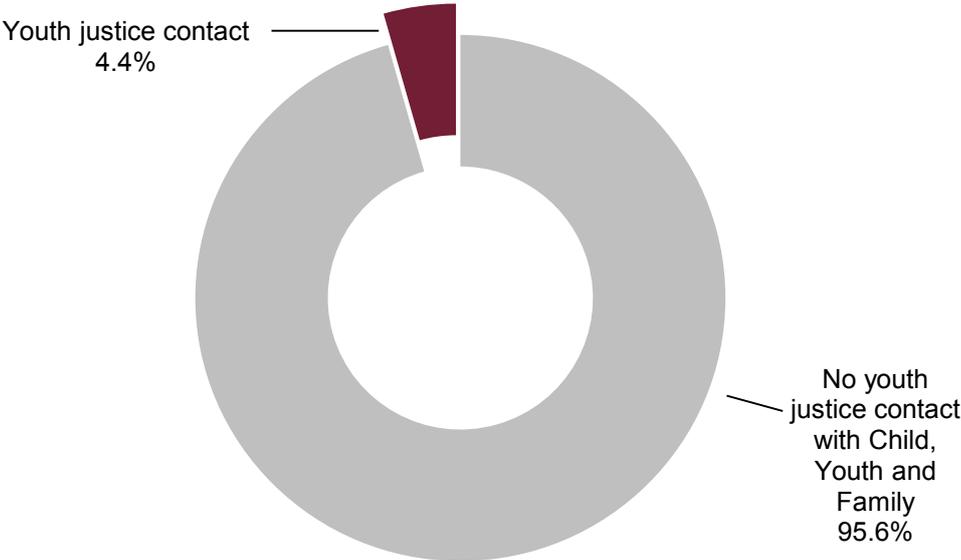
Youth justice

Child, Youth and Family is required under the Children, Young Persons, and Their Families Act 1989 to respond to children and young people who have offended or who are at risk of reoffending. This includes responsibility for managing and implementing the family group conference process, supporting the Youth Court in providing interventions for serious young offenders, providing youth justice residential facilities and purchasing community-based services for child and young offenders.

Figure 3 provides information on the lifetime prevalence of contact with Child, Youth and Family for youth justice reasons for the cohort born in the 12 months to June 1991. Overall, approximately 4.4% had at least one youth justice referral to Child, Youth and Family between the ages of 10 and 17.

An important point is that just over half of the young people who had youth justice contact with Child, Youth and Family had some level of prior contact with the agency for care and protection reasons.

Figure 3: Prevalence of youth justice contact with Child, Youth and Family up to age 18: cohort born in the 12 months to 30 June 1991

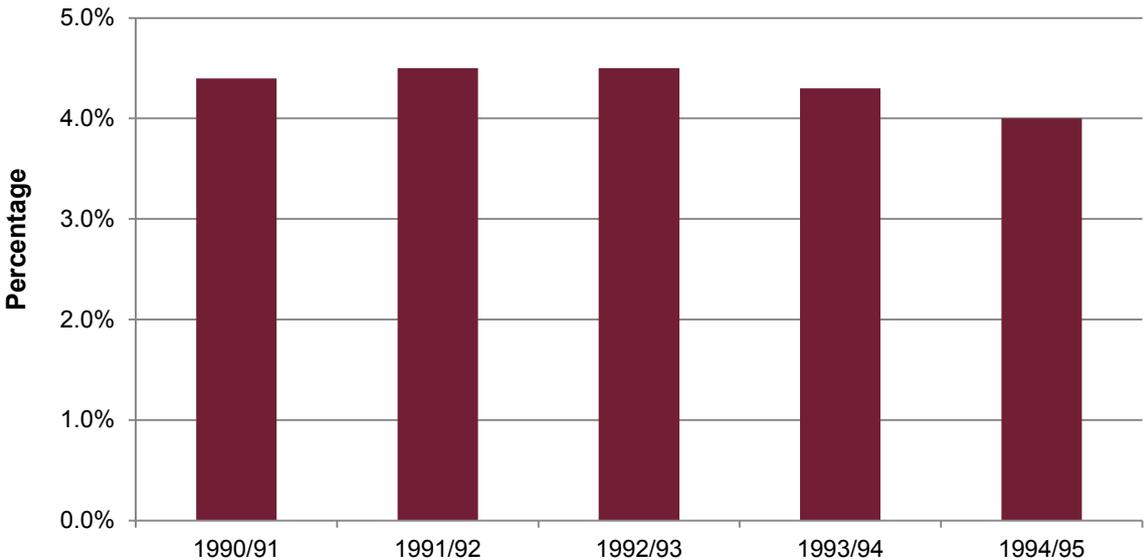


Source: Integrated Child Dataset.

Note: The population is identified using Ministry of Education data on school enrolment since 2006. The analysis uses a research linkage (linkage 5), and it is important to note that data linkage errors mean that the figures should be viewed as estimates.

Figure 4 provides a comparison of the youth justice-related contact for the 1990/91 cohort compared to later birth cohorts. This shows a decline in measured contact, which is consistent with declining levels of Police referrals to Child, Youth and Family in recent years.

Figure 4: Youth justice-related contact with Child, Youth and Family for selected birth cohorts up to age 18 (cohorts born in the 12 months to 30 June)



Source: Integrated Child Dataset.

Table 2 provides a breakdown of differences in youth justice contact with Child, Youth and Family by sex and ethnicity. As can be seen, males are significantly more likely than females to have a youth justice referral to Child, Youth and Family. There are also marked differences by ethnicity, with almost 10% of Māori young people in the birth cohort having had youth justice-related contact with Child, Youth and Family.

Table 2: Youth justice-related contact with Child, Youth and Family for cohort born in the 12 months to June 1991, by sex and ethnicity

	Number in cohort	Contact with Child, Youth and Family youth justice	
		Contact	No contact
Sex			
Female	30,520	2.2%	97.8%
Male	31,898	6.5%	93.5%
Ethnicity*			
European	37,927	3.2%	96.8%
Māori	12,506	9.9%	90.1%
Pacific	5,142	4.4%	95.6%
Asian	5,510	0.6%	99.4%
Other	1,333	2.5%	97.5%
Total	62,418	4.4%	95.6%

Source: Integrated Child Dataset.

Note: The population is identified using Ministry of Education data on school enrolment since 2006. The analysis uses a research linkage, and it is important to note that data linkage errors mean that the figures should be viewed as estimates.

2.4 Life course trajectories by type of contact with Child, Youth and Family

Analysis of the Integrated Child Dataset enables some important insights about the subsequent life course trajectories of children and young people who had contact with Child, Youth and Family. In what follows, we report school achievement, benefit receipt, youth justice and adult corrections outcomes for individuals within the 1990/91 birth cohort up until 21 years of age.

Care and protection

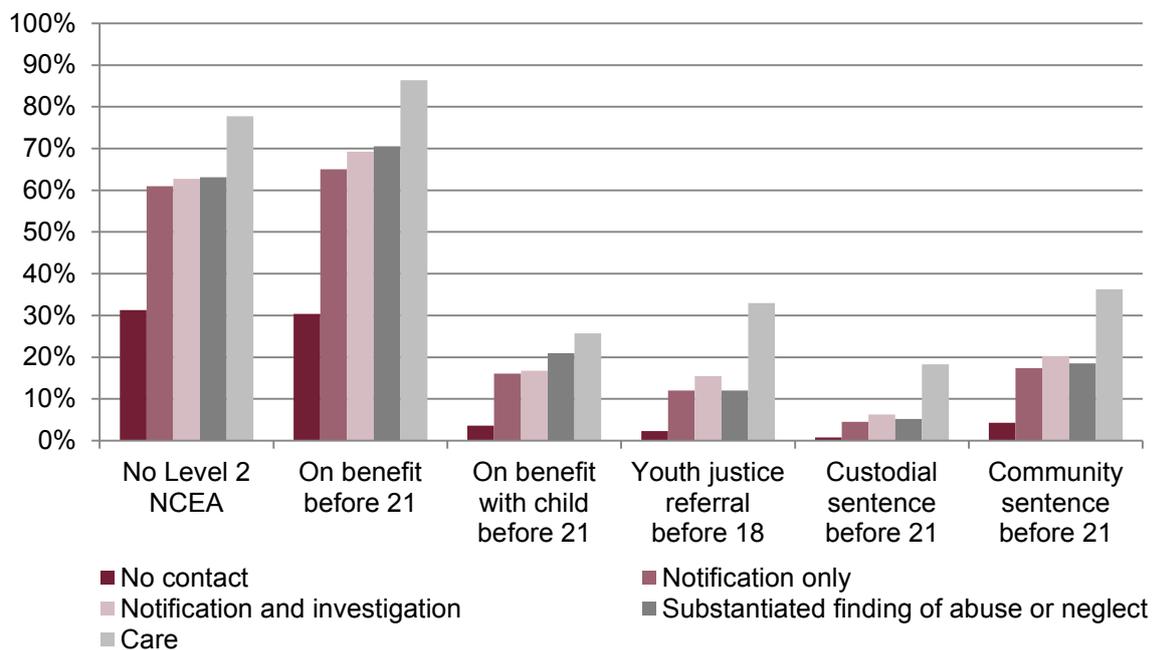
Figure 5 shows outcomes for children who have contact with Child, Youth and Family for care and protection reasons. The data shows that, for children and young people with any form of care and protection contact, a larger proportion experienced adverse outcomes compared to children who had no contact. By age 21, individuals who had any level of care and protection contact with Child, Youth and Family were more likely to have:

- ▶ left school with less than a level 2 NCEA qualification
- ▶ been in receipt of a main benefit

- ▶ been in receipt of a main benefit with a child included
- ▶ been referred to Child, Youth and Family for youth justice reasons
- ▶ received a community or custodial sentence in the adult corrections system.

Figure 5 shows the dramatically worse average outcomes for children who experienced care. For example, almost 80% of those who experienced care left school with less than NCEA level 2, 33% had a youth justice referral and over 85% had been in receipt of a main benefit by age 21.

Figure 5: Selected life course outcomes to age 21 for the cohort born in the 12 months to June 1991, by highest level of care and protection contact with Child, Youth and Family by age 18



Source: Integrated Child Dataset.

Note: The population is identified using Ministry of Education data on school enrolment since 2006. The analysis uses a research linkage (linkage 5), and it is important to note that data linkage errors mean that the figures should be viewed as estimates.

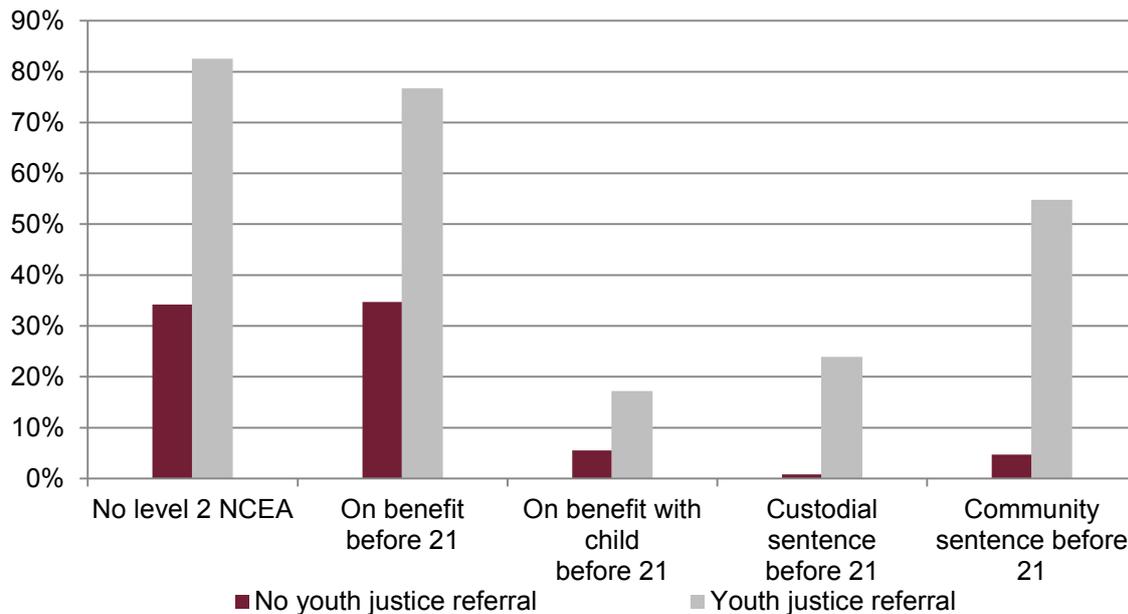
It is useful to put this analysis in the context of other recent research that looks at the needs of children and young people who are currently in care. Children and young people currently in care have higher rates of stand-downs, suspensions, exclusions and expulsions from school, lower levels of NCEA achievement, lower levels of PHO enrolment and high rates of use of mental health services (Insights MSD, 2014).

The relatively small difference in outcomes for those who had substantiated findings of maltreatment as opposed to only notifications is an important finding. This may reflect the quality of decision making that has led to this categorisation (Hussey et al., 2005; Manion & Renwick, 2008; Fluke, 2009).

Youth justice

Figure 6 shows outcomes for children and young people who had contact with Child, Youth and Family for youth justice reasons. As can be seen, those with youth justice contact had significantly higher rates of leaving school with less than NCEA level 2, receiving a main benefit or having a child included in their main benefit by age 21 and receiving a custodial and/or community sentence.

Figure 6: Selected life course outcomes to age 21 for cohort born in the 12 months to June 1991, by youth justice contact with Child, Youth and Family up to age 18



Source: Integrated Child Dataset.

Note: The analysis reflects the population at 30 June 2012 and, in this case, is identified using Ministry of Education data on school enrolment since 2006. The analysis uses a research linkage (linkage 5), and it is important to note that data linkage errors mean that the figures should be viewed as estimates.

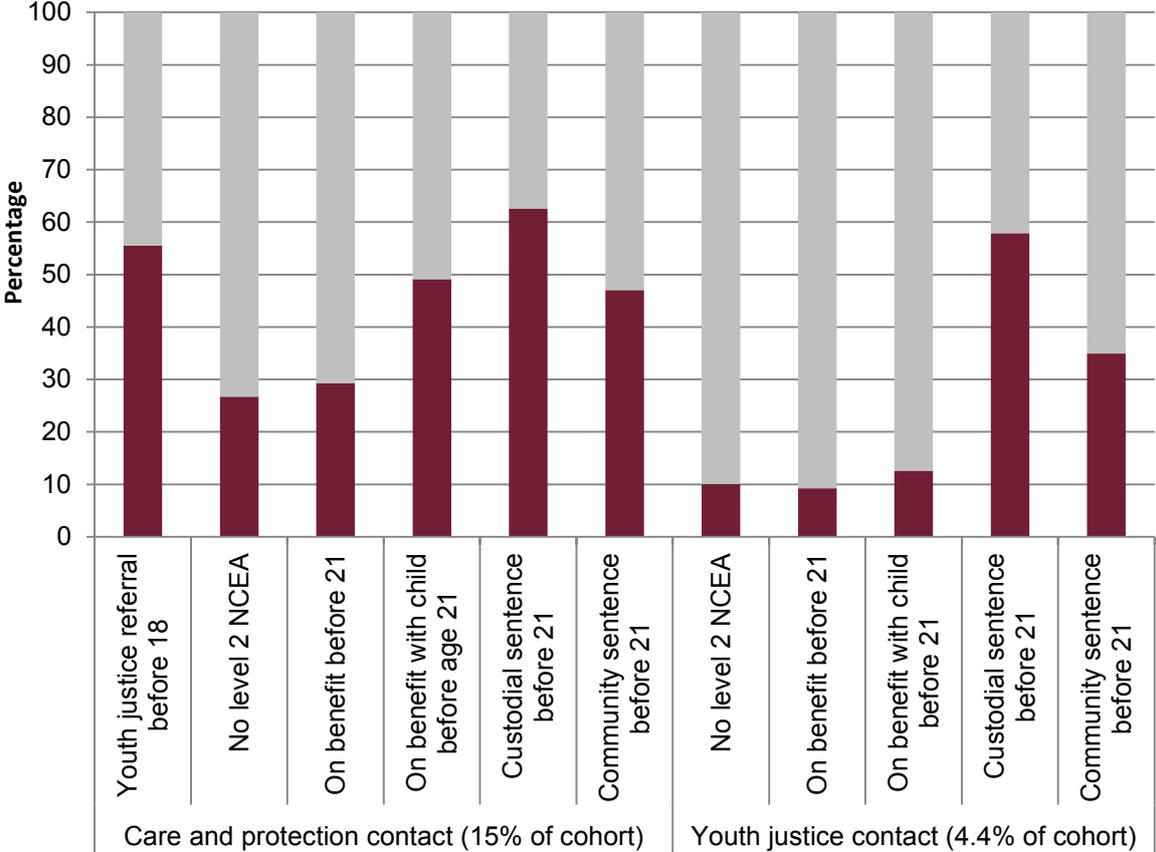
2.5 A government service delivery perspective

The data shows that many of the children and young people who have contact with Child, Youth and Family experience poor outcomes in the future. These trajectories will likely reflect a range of factors including:

- ▶ the underlying characteristics and circumstances of children and young people (for example, poverty or behavioural issues linked to poor mental health)
- ▶ the experience of abuse and neglect, as well as causing immediate physical and psychological harm to children, is highly likely to increase risks of poor health, education underachievement, criminal offending, benefit receipt and early parenting
- ▶ any impacts that are a result of a care experience.

Despite being a relatively small proportion of the cohort, children who have had contact with Child, Youth and Family make up a sizeable proportion of the 'at risk' group of many other agencies. This can be seen in Figure 7, which shows the percentage of individuals in the cohort who experienced poor outcomes and who have previously had contact with Child, Youth and Family. For example, among young people in the 1990/91 birth cohort who were in receipt of a benefit with a child by age 21, just under half had previously had contact with Child, Youth and Family for care and protection reasons.

Figure 7: Percentage of individuals with adverse outcomes who had contact with Child, Youth and Family: cohort born in the 12 months to June 1991



Source: Integrated Child Dataset.

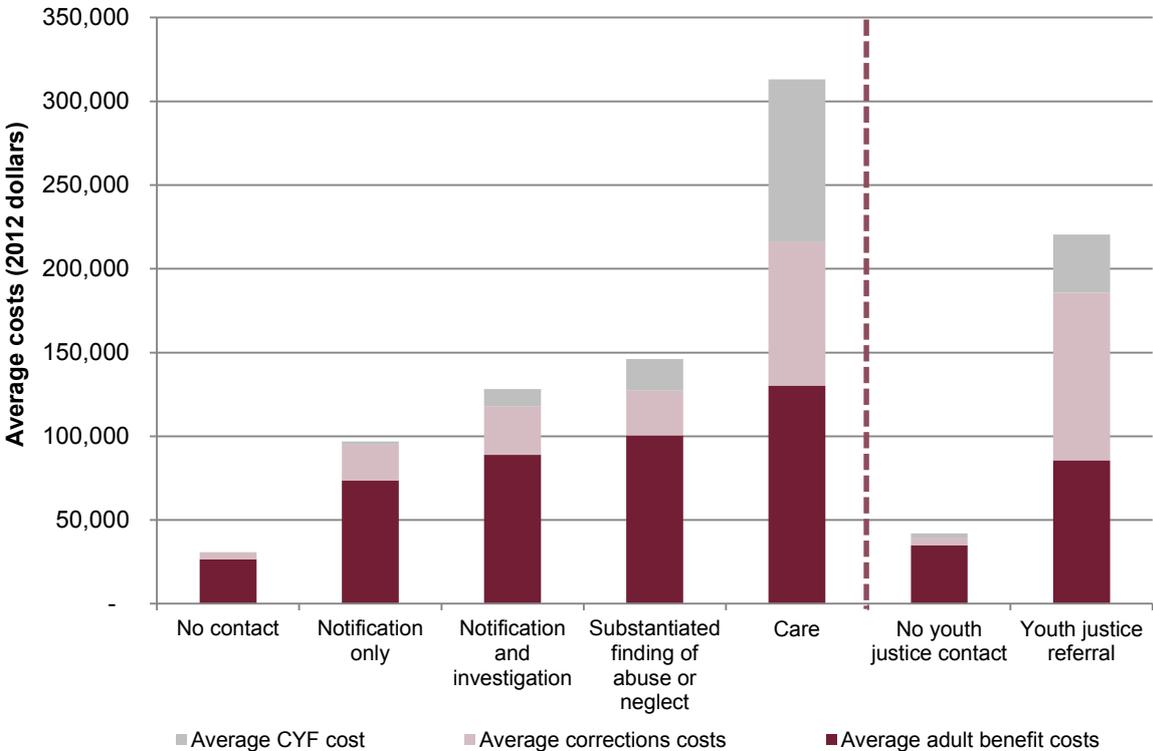
Note: The percentage who have had prior contact with Child, Youth and Family is underestimated because of lack of data in the early 1990s.

The high prevalence of poor outcomes among children and young people who had contact with Child, Youth and Family is associated with considerable fiscal costs to government. Figure 8 provides estimates of the average Child, Youth and Family, benefit and corrections spending per person for each of the groups. These estimates represent actual and modelled costs to 35 years of age.

As can be seen, on average, there are large fiscal costs associated with adult benefit receipt and corrections sentences for individuals who have an episode of care or youth justice referral. For example:

- ▶ for individuals who had at least one care experience, the average amount of Child, Youth and Family spending was almost \$100,000, and the subsequent benefit and corrections expenditure to age 35 was over \$200,000
- ▶ for young people who had a youth justice referral, average Child, Youth and Family spending was just under \$35,000, while subsequent welfare and corrections expenditure to age 35 was nearly \$190,000.

Figure 8: Selected fiscal costs of life course outcomes for cohort born in the 12 months to June 1991, by level of contact with Child, Youth and Family up to age 18



Source: Integrated Child Dataset.

Note: The percentage who have had prior contact with Child, Youth and Family is underestimated because of lack of data in the early 1990s.

3 Young women with a Child, Youth and Family history during childhood have higher rates of early parenting and contact with child protection as parents

3.1 Summary

This report presents new findings about the extent to which prior childhood contact with Child, Youth and Family is a risk factor for having a child notified to the agency.

The analysis focuses on women born in the 12 months to 30 June 1991. Administrative data is used to measure births and any subsequent contact with Child, Youth and Family until the end of 2014 when individuals in the cohort turned 23.

Overall, almost 6% of women in the cohort had a child notified to Child, Youth and Family before they turned 23.

Among women who had some contact with Child, Youth and Family during their own childhood, 20% had children who were the subject of a notification to Child, Youth and Family.

Depending on the ethnic group, this rate was 4–10 times higher than those women in the cohort with no childhood contact.

The increased rate of child notifications among those in the cohort with a childhood history of contact reflects both higher rates of having children as well as higher rates of care and protection notifications for the children.

The study points to the need for services to reduce unintended pregnancies as well as providing parenting support for young people who have themselves been involved with Child, Youth and Family.

3.2 Description of the data used in the study

The data for this study is drawn from the Statistics New Zealand Integrated Data Infrastructure. The dataset is based on government administrative data for 30,606 women who were born over the 12 months to 30 June 1991 and who were resident in New Zealand during the 2003–2007 period.

We selected children who met at least one of the criteria:

- ▶ were enrolled at a New Zealand school as a domestic student for some or all of the years from 2003 to 2007
- ▶ had an income tax payment record in 2005-08
- ▶ had a benefit paid to them or on their behalf in 2005-07
- ▶ were part of the National Health Index population in 2006-07.

In addition, they had to be:

- ▶ in New Zealand for at least three years of the period from 1 January 2003 to 31 December 2007 (in total, rather than continuously)
- ▶ born in New Zealand or have permanent residence (those with temporary residence visas were excluded).

Defining the birth cohort population in this way has these effects:

- ▶ We miss a small number of children purely because a link could not be established between their administrative data records.
- ▶ We do not include people who were away from New Zealand for much of the period 2003 to 2007 but were continuously resident at earlier or later phases of their lives.
- ▶ We include some people who were overseas for a substantial part of their childhood or young adulthood. These individuals will be missing from the administrative data sets in earlier and/or subsequent years and will appear to have had no contact with the welfare, child protection or corrections systems. We are able to identify when these people were overseas but do not remove them from the study population.
- ▶ Outcomes for each individual were measured until they turned 23.

The dataset uses information from a range of data sources including Department of Internal Affairs (births and deaths), Immigration, Inland Revenue, Education, Health, and Child, Youth and Family. Matching of records within the Integrated Data Infrastructure uses name and date of birth. The matching process gives rise to some level of error in relation to both false matches and non-matches. Clerical examination of small samples of matched records by Statistics New Zealand typically reveal false match rates of less than 2%. Match rates for most datasets incorporated into the IDI are over 90%, however they can be as low as 70% for collections where name has not been recorded accurately. These matching errors can lead to the under-estimation of the size of some groups of interest to the study and the dilution of differences between groups of interest.

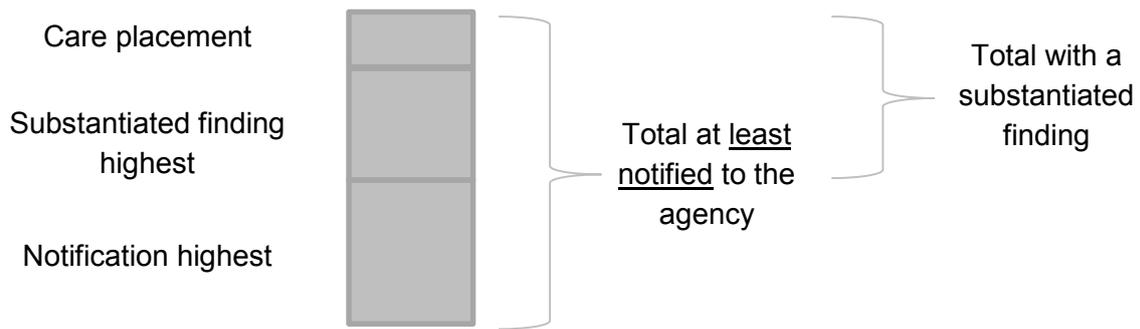
The study uses health records of ethnicity, and we report these in a non-prioritised total counts form.

A key focus of the study is a child or young person's contact with Child, Youth and Family. This is recorded for care and protection as well as youth justice reasons.

Care and protection contact is described by variables that record the highest level of care and protection contact prior to 17 years of age. These variables are:

- ▶ notification highest
- ▶ substantiated finding of abuse or neglect highest
- ▶ care placement highest.

The hierarchal nature of this variable is represented diagrammatically below.



It is important to note that measures of contact with Child, Youth and Family are missing at young ages for this cohort. Comprehensive data exists from 2001 from the CYRAS computer system, although this study draws on some information from early records. The practical impact of the missing data is that there is a level of underestimation and imprecision for the measures of childhood contact.

As is shown in Figure 9, almost 19% of the cohort had some form of care and protection contact prior to turning 17.

Figure 9: Highest level of care and protection contact for women born in the 12 months to 30 June 1991 (n=30,606)

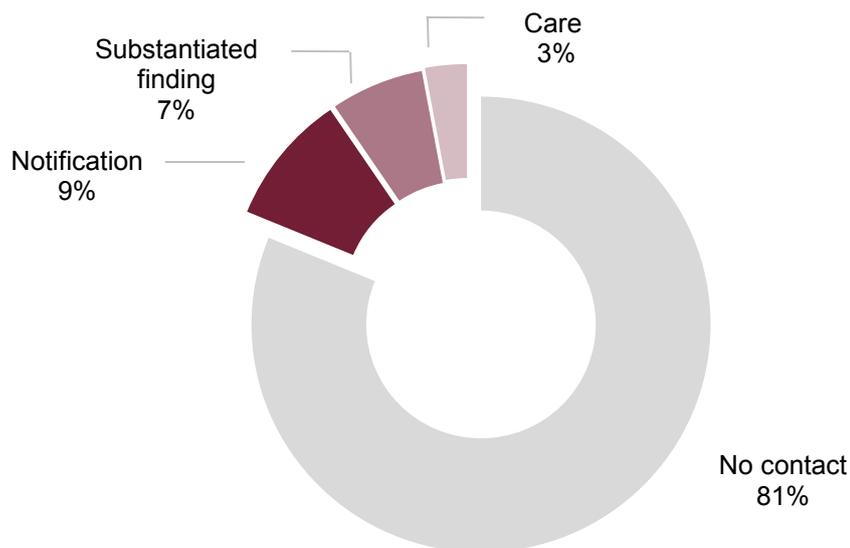
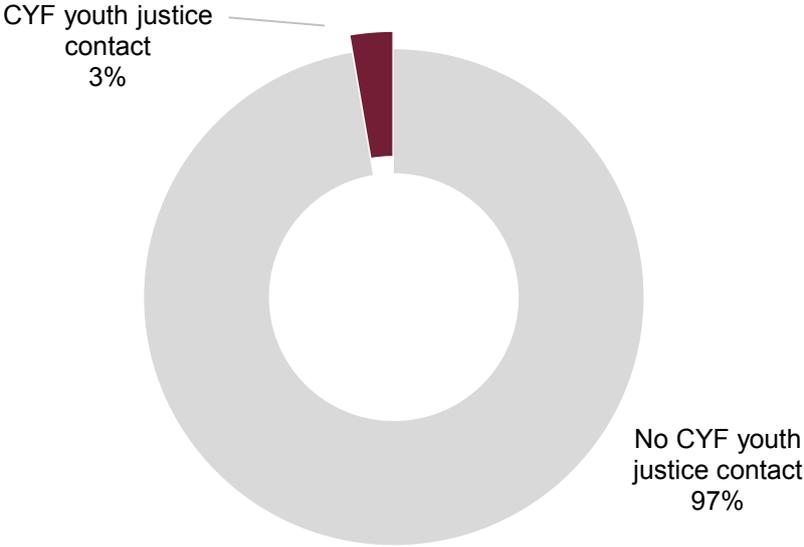


Figure 10: Child, Youth and Family youth justice contact for women born in the 12 months to 30 June 1991 (n=30,606)



Approximately 3% of the cohort were referred to the agency for youth justice reasons.

The majority of women with a youth justice referral had previously been referred to the agency for care and protection reasons. This meant that, overall, slightly less than 20% of women in the cohort had either care and protection or youth justice contact with Child, Youth and Family.

Importantly, Māori and, to a lesser extent, Pacific women had higher rates of contact with Child, Youth and Family than other ethnic groups. This pattern occurred both across care and protection as well as youth justice.

3.3 The extent to which women in the cohort had a child notified to Child, Youth and Family by age 23

Slightly more than 6% of women in the entire cohort had a child notified to Child, Youth and Family before they turned 23. These rates differed by ethnicity. As can be seen, rates were significantly higher for Māori and, to a lesser extent, Pacific women compared to other women in the cohort.

Table 3: Percentage of women in the 1990/91 birth cohort with a child referred to Child, Youth and Family before age 23, by ethnicity

	Number of women in cohort	Percentage of women with a child referred to Child, Youth and Family
Ethnicity*		
Māori	6,243	14.2%
Pacific	2,802	6.6%
Not Māori nor Pacific	21,942	3.5%
Total	30,606	5.8%

* Total response ethnicity

Source: Integrated Data Infrastructure.

Rates also differed by the extent of childhood Child, Youth and Family contact of women in the cohort.

Among women who had no contact with Child, Youth and Family over their own childhood, just over 2% had a child who was the subject of a notification to Child, Youth and Family. This compares with 20% of those with any childhood contact with the agency who had a child at least notified to the agency.

Among women who had a childhood care experience, just over 34% had a child who was at least notified to the agency. For those with a youth justice referral, 36% had a child at least notified to the agency.

Table 4: Percentage of women in the 1990/91 birth cohort who had a child referred to Child, Youth and Family before age 23, by contact with Child, Youth and Family as a child

	Number of women in cohort	Percentage of women with a child referred to Child, Youth and Family
Highest level of contact with CYF care and protection services		
Care	900	34.0%
Finding of abuse or neglect	2,007	19.0%
Notification	2,844	14.9%
None	24,861	2.7%
Contact with CYF youth justice services		
Contact	822	36.1%
No Contact	29,787	5.0%
Contact with CYF care and protection or youth justice services		
Contact	5,982	19.5%
No Contact	24,627	2.5%
Total	30,606	5.8%

Source: Integrated Data Infrastructure.

Some of the increased risk of having a child at least notified to the agency by age 23 reflects differences in the ethnic composition of those with childhood contact with the agency.

However, importantly, depending on the ethnic group, young adults with a history of any contact with Child, Youth and Family were 4–10 times more at risk of having a child at least notified to the agency.

In what follows, we show that, among each ethnic group, the increased risk reflects the combined effect of two underlying drivers:

- ▶ Increased rates of early parenting for women with prior childhood contact with Child, Youth and Family.
- ▶ Higher rates of notification to Child, Youth and Family for mothers with a history of childhood contact with Child, Youth and Family.

3.4 Early parenting

Early parenting was more prevalent in Māori and Pacific women in the cohort. Table 5 shows that 38% of Māori women became a mother before age 23 compared to 28% of Pacific women and 11% of other women in the cohort.

Early parenting was also highly correlated with prior childhood contact with Child, Youth and Family. For example, women with some level of childhood contact with the agency were nearly three times more likely to be parents before the age of 23. On average, just over 13% of women with *no* measured childhood contact with the agency became a parent before the age of 23. By way of comparison, just over 38% of women in the cohort who had some level of childhood contact with Child, Youth and Family (either care and protection or youth justice) were parents before the age of 23.

Table 5: Percentage of women who became mothers before age 23 and percentage of mothers who had a child referred to Child, Youth and Family, 1990/91 birth cohort

	Number in cohort	Became a mother before age 23		Had a child referred to Child, Youth and Family		
		Number	Percentage	Number	Percentage of mothers	Percentage of cohort
Highest level of contact with CYF care and protection services						
Care	900	420	47%	306	73%	34%
Finding of abuse or neglect	2,007	795	40%	381	48%	19%
Notification	2,844	978	34%	423	43%	15%
None	24,861	3,348	13%	660	20%	3%
Contact with CYF youth justice services						
Contact	822	417	51%	297	71%	36%
No Contact	29,787	5,124	17%	1,476	29%	5%
Contact with CYF care and protection or youth justice services						
Contact	5,982	2,283	38%	1,167	51%	20%
No Contact	24,627	3,255	13%	609	19%	2%
Ethnicity*						
Māori	6,243	2,403	38%	888	37%	14%
Pacific	2,802	795	28%	186	23%	7%
Not Māori or Pacific	21,942	2,508	11%	759	30%	3%
Total	30,606	5,538	18%	1,773	32%	6%

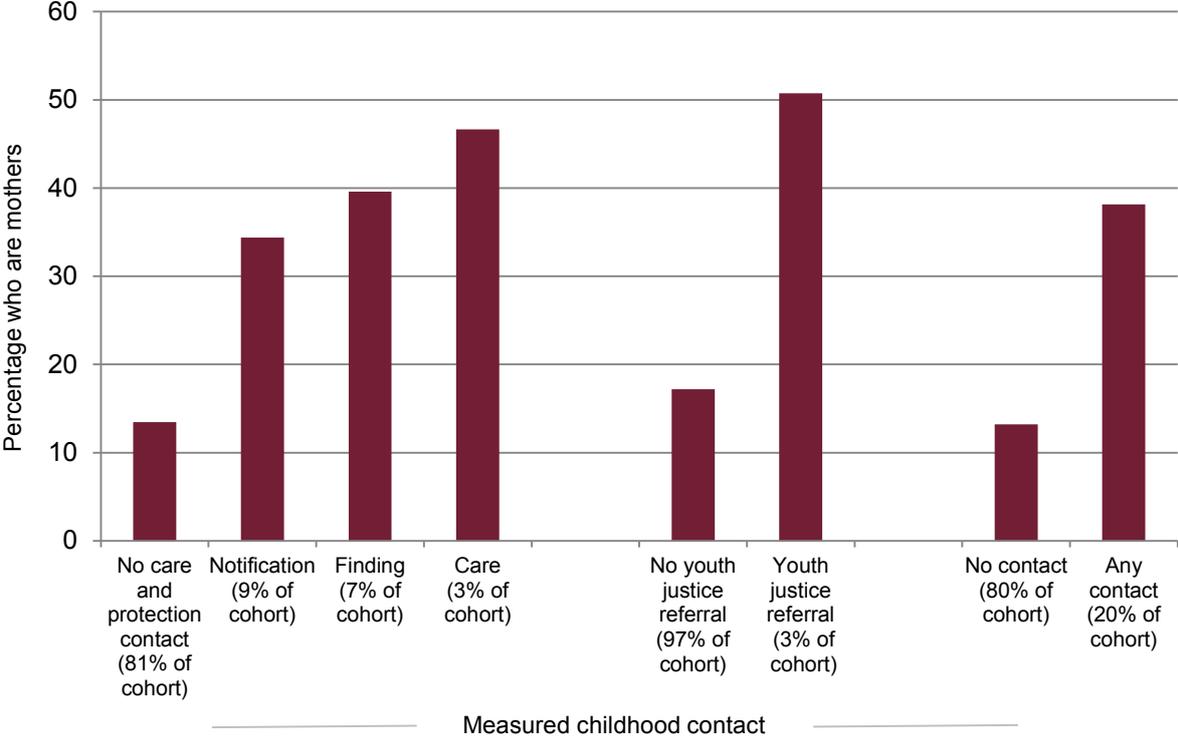
Source: Integrated Data Infrastructure.

* Total response ethnicity

As shown in Figure 11, there was a marked gradient in parenting rates depending on the level of childhood contact with Child, Youth and Family. The highest rates of parenting occurred among women with an experience of care or a youth justice referral.

Importantly, there was a strong association between childhood contact with Child, Youth and Family and parenting across all ethnic groups.

Figure 11: Percentage of women who had a child before age 23, by contact with Child, Youth and Family (1990/91 birth cohort)



Source: Integrated Data Infrastructure.

Women with a childhood history of contact with Child, Youth and Family were both more likely to be parents and also to have more children before the age of 23. Amongst women who were mothers before the age of 23, those with no childhood contact with Child, Youth and Family had, on average, 1.4 children. By way of comparison, mothers with any care and protection contact with Child, Youth and Family during their own childhood had, on average, 1.6 children before the age of 23.

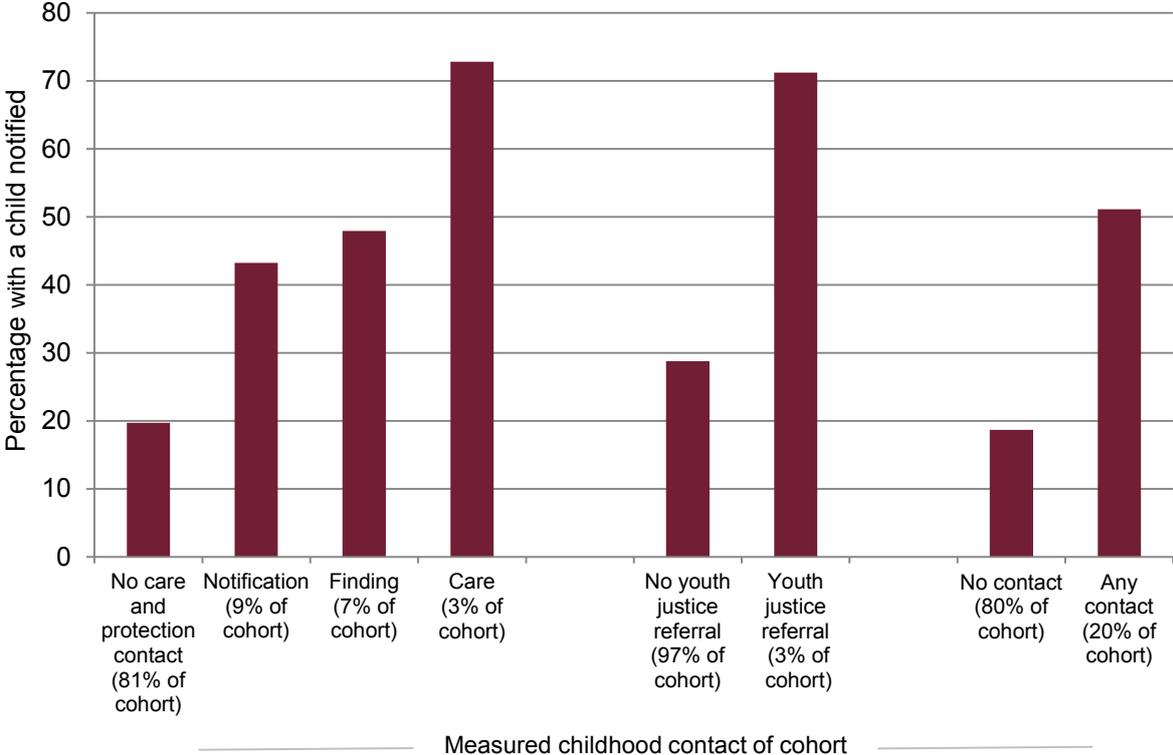
3.5 Percentage of mothers whose child was at least notified to Child, Youth and Family

For women in the cohort who had a child before the age of 23, those with childhood contact with the agency were nearly three times more likely to have a child referred to Child, Youth and Family.

There was a marked gradient in the extent to which the subsequent generation of children were at least notified to Child, youth and Family, with mothers with a prior care or youth justice experience having the highest rates of contact with Child, Youth and Family.

Importantly, the same pattern of association between parental and childhood contact was present for all ethnic groups.

Figure 12: Percentage of mothers who had a child referred to Child, Youth and Family before age 23 (1990/91 birth cohort)



Source: Integrated Data Infrastructure.

3.6 What proportion of mothers with children notified to the agency had prior childhood contact?

A different perspective is to focus on mothers in the 1990/91 cohort who had a child notified to the agency and to then consider what proportion of these mothers had any form of prior childhood contact with Child, Youth and Family.

For the mothers in the 1990/91 birth cohort who had a child at least notified to the agency, 66% had a history of contact with the agency during their own childhood.

3.7 Discussion

The analysis in this study shows that young women with a history of contact with Child, Youth and Family account for a substantial proportion of all referrals to the agency.

Internationally, there are few high-quality studies on this topic, and until recently, the research had suggested only a modest association (Thornberry, Knight & Lovegrove, 2012).

This study provides important new evidence as it provides analysis of both parenting rates and also subsequent care and protection notifications measured over a substantial number of years.

The finding of high rates of early parenting among women with prior contact with Child, Youth and Family is consistent with the existing literature that has mainly focused on care experienced by young people (Mendes, 2009).

The finding of increased rates of notifications of parents with prior contact with Child, Youth and Family mirrors the significant new research of Putnam-Hornstein et al. (2015).

The Putnam-Hornstein research focuses on all children born to first-time teen mothers in 2006 or 2007 in California. For each child, child protection services records were used to document whether the teen mother had a history of reported or substantiated maternal maltreatment at or after age 10 and before the estimated date of conception and whether the child was reported or substantiated for maltreatment before age 5.

The Putnam-Hornstein research finds significantly heightened rates of abuse and neglect for children of mothers who had been reported to child protection during childhood. After adjustment for other risk factors, a maternal history of either unsubstantiated or substantiated maltreatment emerged as a strong predictor of maltreatment and child protection contact in the next generation.

The results presented in this study show a strong association between history of contact with Child, Youth and Family and subsequent contact of the next generation.

It is important to note that there is a range of plausible and competing explanations about why these associations occur, including the causal impact of maltreatment, the impact of experiencing care or surveillance effects.

Even though it is not possible to discriminate between different explanations, the findings do, however, clearly suggest that prevention activities should have a significant focus on individuals with a history of contact with Child, Youth and Family. This could involve measures to reduce early parenting as well as parenting support.

In terms of early parenting, an important context is that it is likely that a considerable proportion of the pregnancies were unplanned. The Growing Up in New Zealand data found that, overall, around 54% of births to women under 30 were the result of an unplanned pregnancy. For women under 20, 88% of births were the result of an unplanned pregnancy.

There is considerable evidence about the effectiveness of multiple component strategies to prevent unintended pregnancies among higher-risk groups and care leavers (Mendes, 2009; Office of Adolescent Health, 2015; National Institute for Health and Care Excellence, 2014). The components of such approaches include information about sexual health and relationships, affordable youth-friendly health services, targeted education programmes and employment support.

To our knowledge, there is no specific evidence about the effectiveness of parenting programmes for young people who have themselves been maltreated. However, there are parenting programmes (eg, PCIT, Safecare) that have been shown to be effective with highly vulnerable populations (Chaffin et al., 2011).

4 Abuse and neglect is associated with an increased risk of mortality during teenage years

4.1 Summary

This paper presents new findings from administrative data on mortality for cohorts of children born in New Zealand during 1990 to 1993. The analysis focuses on mortality over the ages of 10–22 years for these birth cohorts with a specific focus on differences depending on the highest level of care and protection contact with Child, Youth and Family. The focus of the study are the ages 10–22 years, as at earlier ages, there is missing information about contact with Child, Youth and Family.

Overall, children and young people who had any level of care and protection contact with Child, Youth and Family had a disproportionately higher rate of mortality and made up almost a third of all the deaths within the birth cohorts over the ages of 10–22 years.

After controlling for a limited number of other risk factors, the level of contact with Child, Youth and Family was associated with a mortality risk that was 1.7–2 times higher than the rest of the cohort. The majority of the deaths in this group occurred in late adolescent and early adulthood.

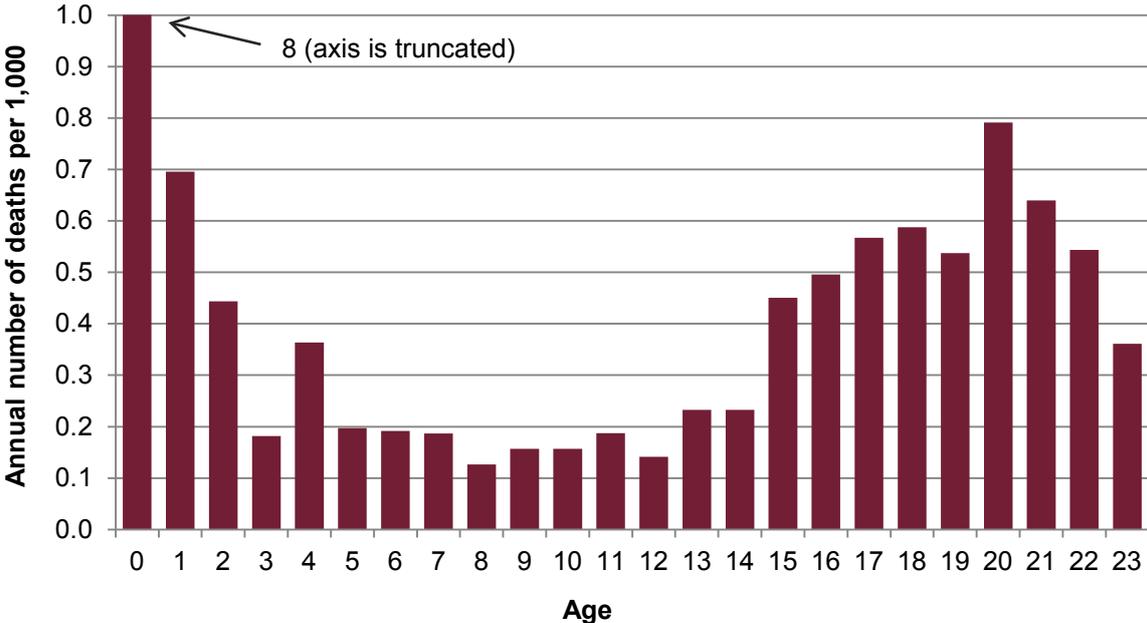
The level of contact with Child, Youth and Family provides a measure of the extent of child maltreatment, and the findings are suggestive of a causal link between child maltreatment and youth mortality.

The study has important implications for policy, particularly as New Zealand has one of the higher rates of youth mortality among OECD countries. High rates of mortality over the ages of 10–22 years of children involved with Child, Youth and Family provide a clear rationale for the provision of therapeutic and other services to help children and young people recover from childhood maltreatment. These services are likely to be particularly important in late adolescence and at ages older than the current care leaving age of 17 years.

4.2 Background on adolescent mortality

Figure 13 shows mortality of the 1990 birth cohort using data from the Statistics New Zealand cohort mortality study. This shows the typical pattern of mortality increasing during adolescence. For this cohort, almost five in every thousand died between the ages of 10 and 22 years.

Figure 13: Deaths per 1,000 for cohort born in 1990



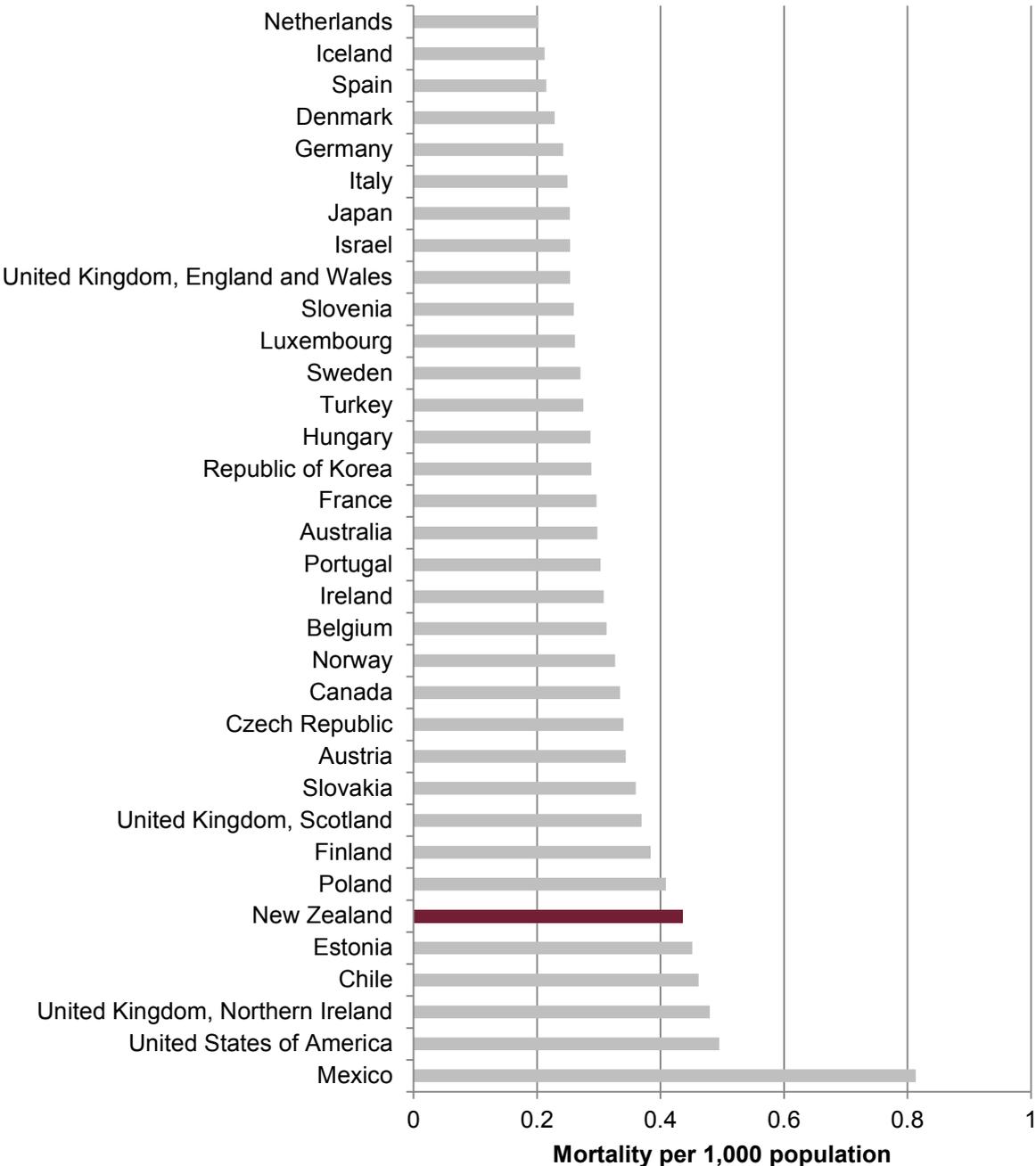
Source: Statistics New Zealand cohort mortality tables.

Note: Population resident in New Zealand.

Major causes of death among young people are suicide, medical events, transport accidents, drownings and assaults (New Zealand Mortality Review Data Group, 2013).

Based on the most recent available data, New Zealand has one of the higher rates of adolescent mortality in the OECD.

Figure 14: Annual number of deaths per 1,000 young people aged 10–24 (2010)



Source: WHO mortality database with additional population information from OECD.Stat. Rates are adjusted using WHO population benchmarks.

4.3 Research on the links between child maltreatment as a risk factor for adolescent mortality

There is increasing evidence that various forms of maltreatment have a significant impact on health and life expectancy.

The Adverse Child Experiences study shows a relationship between adverse childhood experiences and a range of health and mortality risks including alcoholism and alcohol abuse, chronic obstructive pulmonary disease, depression, liver disease and suicide

attempts (Felitti et al., 1998). Similarly, the Dunedin longitudinal study also shows a relationship between the extent of early childhood adverse experiences and adult disease (Danese et al., 2009).

Prospective longitudinal studies in New Zealand and other countries also provide clear evidence of a link between various forms of maltreatment and suicidal ideation (Fergusson et al., 2000; Miller et al., 2013).

The aim of this study is to provide some evidence at a population level of the extent to which early childhood experiences of maltreatment are associated with an increased risk of youth mortality.

An important context for this study is that it is likely that there are high levels of unmet mental and physical health needs among the children and young people referred to Child, Youth and Family.

Analysis of the health needs of children and young people entering a care placement in 2010 found that 88% had unmet health conditions, with 65% having an emotional or behavioural problem and 41% having a mental health disorder. Other conditions requiring treatment included dental conditions, hearing, vision and general development (Rankin, 2011).

A survey of the health and wellbeing of young people in residences found similarly high levels of unmet health, education and social needs (McKay & Bagshaw, 2010).

4.4 Description of the data used in this study

The data for this study is drawn from the Statistics New Zealand Integrated Data Infrastructure, which provides anonymised matched data on individuals drawn from a range of government agencies.

The study uses information on individuals who were born in New Zealand over the period 1990–1993. The underlying data is drawn from the Department of Internal Affairs (births and death records), the Ministry of Health, Work and Income, and Child, Youth and Family. It is important to note that the matching of identities across these different data collections gives rise to some level of error⁵.

A child or young person's care and protection involvement with Child, Youth and Family is measured by their highest levels of contact. These are:

- ▶ a notification only
- ▶ a substantiated finding of abuse or neglect
- ▶ a placement in care.

⁵ Clerical examination of small samples of matched records by Statistics New Zealand typically reveal false match rates of less than 2%. Match rates for most datasets incorporated into the IDI are over 90%, however they can be as low as 70% for collections where name has not been recorded accurately. These matching errors can lead to the under-estimation of the size of some groups of interest to the study and the dilution of differences between groups of interest.

Child, Youth and Family data is incomplete in the early 1990s and hence the extent and highest level of contact with the agency is underestimated for the cohorts studied.

We interpret the measure of highest level of care and protection contact with Child, Youth and Family variable as a proxy for the intensity of abuse and neglect.

Other variables in the dataset include:

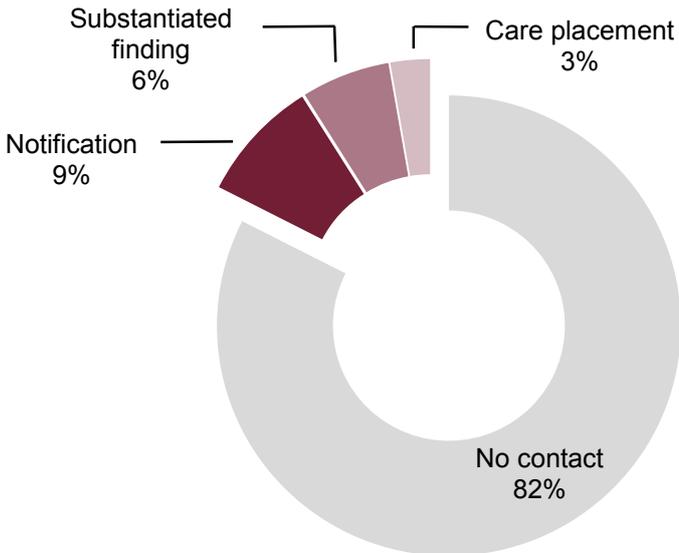
- ▶ sex and age derived from birth records
- ▶ multiple response ethnicity from birth records
- ▶ The New Zealand Deprivation Index from address at birth
- ▶ benefit receipt before age 10 from Work and Income records.

For the analysis, we focus on differences in mortality over the ages of 10–22 years depending on the level of prior contact with Child, Youth and Family.⁶ The focus of the study are the ages 10–22 years, as at earlier ages, there is missing information about contact with Child, Youth and Family. We exclude individuals who either did not survive or left New Zealand before their 10th birthday.

4.5 Analysis

For the cohorts studied, approximately 18% had some form of care and protection-related contact with Child, Youth and family by their 17th birthday.

Figure 15: Highest level of care and protection contact with Child, Youth and Family for cohorts born 1990–1993



⁶ Some of the youngest members of the cohort were not quite 21 years of age at the end of the measurement period.

Table 6: Mortality rates by highest level of contact with Child, Youth and Family care and protection services for New Zealand-born cohorts 1990–1993

Highest level of contact	Number	Percentage	Alive and in New Zealand at 10	Died after turning 10 and before age 22	Mortality rate (ages 10–21) <i>per 1,000</i>	Rate ratio	Adjusted mortality rate (ages 10–21) <i>per 1,000</i>	Adjusted rate ratio
Care	6,609	3%	6,540	66	10.1	2.6	9.4	2.0
Substantiated finding	14,829	6%	14,604	117	8.0	2.1	7.8	1.7
Notification	20,592	9%	20,271	156	7.7	2.0	7.6	1.7
No contact	198,111	82%	187,911	726	3.9		4.6	

Source: Integrated Data Infrastructure.

Figure 16 shows that individuals in the cohort who had contact with Child, Youth and Family had higher rates of mortality than those with no recorded contact. Before adjusting for differences in the composition of the groups:

- ▶ the rate of mortality for those with a report of concern was twice the rate of mortality for those with no contact
- ▶ those with a substantiated finding of maltreatment had a rate of mortality that was just over twice the rate of those with no contact
- ▶ mortality rates for children and young people with an experience of care were 2.6 times the rate for those with no contact.

The higher rates of mortality among those with prior contact with Child, Youth and Family reflects elevated risks relating to self-harm and accidents as well as other causes of death.

Overall, the deaths of those with prior contact with Child, Youth and Family represented a third of all the deaths in the birth cohorts over the ages 10–22.

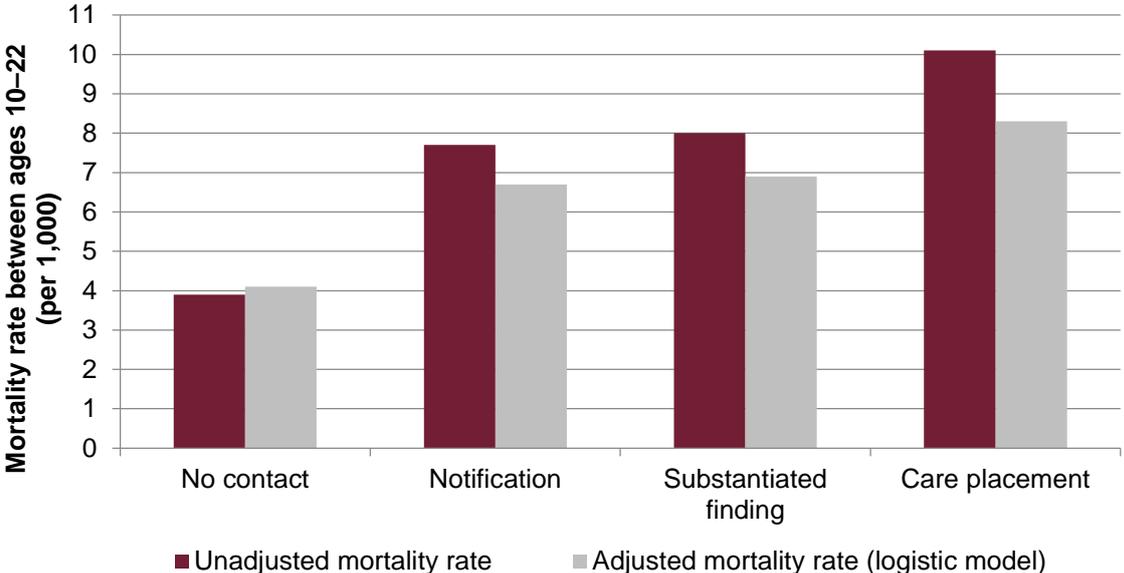
The descriptive results do not necessarily reflect a causal relationship as there are many other confounding risk factors (for example, poverty and health status) that have not been accounted for.

In an attempt to assess the strength of evidence of a relationship, we controlled for a limited number of confounders available in the administrative data. These were sex, age, ethnicity, community deprivation (NZDEP) and benefit receipt of the child’s caregiver before 10 years of age.

Using a range of model specifications (linear probability model, logistic and Cox proportional hazards), the level of contact with Child, Youth and Family continued to be a statistically significant predictor of increased mortality.

The relationship between the level of contact with Child, Youth and Family, controlling for these other factors, is also shown in Figure 16.

Figure 16: Deaths per 1,000 young people between ages 10–22 by highest level of care and protection contact with Child, Youth and Family (cohorts born 1990–1993 unadjusted and adjusted)



Source: Integrated Data Infrastructure.

Our interpretation of the finding of mortality gradient across notifications, findings of maltreatment and care placements are that the levels of contact reflect the extent of maltreatment experienced by the child, and that these experiences are associated with adverse long-term consequences for health and behaviour. The strength of our evidence about a causal impact is relatively modest because of the limited number of other factors that we are able to adjust for.

As well as more extensive levels of maltreatment, the higher mortality among young people with a placement experience will also reflect the impact of a care placement on mortality. It is important to note that this could be either a positive or negative impact.

4.6 Implications of the findings

In an analysis of the early determinants of lifelong health, the US Center on the Developing Child identifies an important shift that is necessary in regards to child protection.

For more than a century, child protective services have focused on issues related to physical safety, reduction of repeated injury, and child custody. Now, recent scientific advances are increasing our understanding of the extent to which the toxic stress of abuse, neglect, or exposure to family or community violence can produce physiological changes in young children that increase the likelihood of mental health problems and physical disease throughout their lives. Based on this heightened risk of stress-related illness, science suggests that all investigations of suspected child abuse or neglect should include a comprehensive assessment of the child’s cognitive, language, emotional, social, and physical development, followed by the provision of effective therapeutic services as needed.

Center on the Developing Child, 2010, p. 18.

The high rate of mortality among young people who have had contact with Child, Youth and Family has important implications for child protection and other services. A key issue is that the child protection response should not just focus on physical safety of children, but it should also provide services to help children and young people recover from the trauma of abuse and neglect.

There are also important implications for continuing services for young people into adulthood, particularly as mortality peaks at ages 16–25. Comprehensive evidenced based services are needed to reduce the risk of mortality for young people transitioning from the care and protection system.

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